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electronic engineers master catalog

VOLUME C

interconnections, packaging, and hardware

34th EDITION

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1600 Chemical Compounds (Adhesives, Cleaners, Coatings)
1700 Circuit Boards (Printed), Materials, & Accessories
2100 Connectors, Terminals, & Sockets
2400 Panel Hardware (Bezels, Dials, Knobs, etc.)
2500 Hardware & Mechanical Components
2600 Fans, Blowers, Cooling Equipment, & Heat Exchangers
3100 Insulators & Insulating Equipment
3200 Interconnection Systems (Backpanels, Card Holders, & Packaging Systems)
4200 Prototype Boards, Kits, & Design Aids
4525 Shields & Shielding
4600 Soldering & Desoldering Equipment
5400 Tools (Manual & Power)
6000 Wire & Cable

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Hearst Business Communications, Inc.

EEM

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how to use eem

The 34th edition of EEM is arranged in four volumes each composed of related Product Sections. For user convenience, each volume contains its own Product Index and Directory (green pages) and its own Manufacturers and Sales Offices Directory (yellow pages). Every Product Heading and every manufacturer of electronic products is listed in each volume. Where, however, the Product Section is assigned to a volume other than that in use, a cross reference is made to the appropriate volume for further information.

To locate a specific product. Start by choosing the volume whose title describes the class of electronic product you are seeking. If you are not sure which volume is appropriate, pick up the first one at hand and look up the product heading in the green pages. There you will find either a list of that product's manufacturers or you will be referred to the proper volume. All products are identified by their generic terms. Please read the instructions on the first page of each section. Manufacturers with catalog data pages in this edition of EEM appear in boldface type and page numbers are shown. Manufacturers appearing in lightface type have submitted verifying evidence that they supply the products shown. When you have located a product of interest, turn to the page(s) shown for further information. You will find these pages in each volume in the appropriate sections.

product selection guides

There are 35 Product Selection Guides included in this edition of EEM. They are located on the first pages of the Product Section to which they apply. Use these guides for basic selection parameters and then go to the EEM pages shown in the guide for more detailed information.

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*A Product Selection Guide precedes these Product Sections

eem sales offices

Main Sales Office
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645 Stewart Avenue
Garden City, NY 11530
(516) 227-1300
FAX: (516) 227-1901

New England
Hearst Business Communications, Inc.
20 William Street, Suite G5
Wellesley, MA 02181
(617) 239-1333
FAX: (617) 239-0558

New York, New Jersey & Southern Connecticut
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(609) 921-3686
FAX: (609) 921-1853

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Conshohocken, PA 19428
(215) 941-0600
FAX: (215) 941-0335

Midwest
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Lincolnwood, IL 60646
(708) 679-1100
FAX: (708) 679-5926

Southern California/ Nevada, Arizona, Utah & New Mexico
Media West
202 Fashion Lane, Suite 207
Tustin, CA 92680
(714) 832-5005
FAX: (714) 544-7849

Northern California/ Pacific Northwest/Colorado
Hearst Business Communications, Inc.
1333 Lawrence Expressway, Suite 255
Santa Clara, CA 95051
(408) 249-6800
FAX: (408) 249-1384

Canada
Hearst Business Communications, Inc.
20 William Street, Suite G5
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(617) 239-1333
FAX: (617) 239-0558

Japan
Interpress Inc.
Yamaji Sanbancho Bldg. 5th Floor
5-24, Sanbancho, Chiyoda-ku
Tokyo 102
81-33-234-2331
FAX: 81-33-234-2380

Europe
Hearst Business Communications, Inc.
645 Stewart Avenue
Garden City, NY 11530
(516) 2271300
FAX: (516) 227-1901

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trademark and logofinder directories

A comprehensive Trademark Directory is included with Volume C. The EEM Logofinder shows the symbols and graphics used by manufacturers as identifiers on their products. Use these pages to locate manufacturers of specific trademarks and logos.

manufacturers' index

In the EEM yellow pages you will find pertinent details on all manufacturers listed in EEM including local sales offices and/or distributors. Please refer to the detailed instructions on the first page of the EEM yellow pages for additional information.

to order a product found in eem

When you have located the product that suits your needs, call the manufacturer or the local sales rep or distributor as shown in the EEM yellow pages. Give the EEM data page number and specs from that page. You and the supplier will be talking on the same wave length which should simplify your ordering and buying.

to file manufacturers' catalogs and data

The EEM File System is revised and updated to reflect changes in EEM itself. Each new EEM File System contains a complete Product Index. This index tells you where to file which catalog. It also contains a cross reference identifying what should be filed in each section. In order to use the EEM File System all you need is a supply of standard letter size, third-cut manila file folders. You then use the pressure sensitive labels which are supplied with the system to go into as much detail as you want or need.
Each label fits the third-cut file folder exactly. There are over 300 of these labels in each system: one for the index, one each for the EEM Product Sections, 24 for the alphabetical file of multiproduct catalogs, plus more than 200 additional labels for system expansion. The EEM File System also includes Cross Reference Cards so you can quickly and easily find multiproduct catalogs. The EEM File System is complete and can save you countless hours of time and thousands of dollars. Send your check for $25.00 to: EEM File System, 645 Stewart Ave., Garden City, NY 11530 and we'll absorb postage and handling. Send a purchase order and add $5.00 for postage and handling. NY, CA and MA residents, please add sales tax.

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Under each product heading whose Product Section appears in the volume you are using, the names of the manufacturers who supply the product are shown in alphabetical order with EEM catalogers shown first in boldface type with appropriate page numbers. Other manufacturers are shown in light face type. The symbol (§) indicates that these products are available from local distributors. The symbol (†) indicates that the product is available to MIL specifications.

Abrasives-0600
Ferro Corporation, Transtech Div., Penn Yan, NY 14527-0127 315-536-3357
§† Bonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
Preset-On Products, Addison, IL 60101 708-628-3050
§† Peace Advanced Materials, Riverside, RI 02915-0036 401-433-7000
§ Techne-Tool, Plymouth Meeting, PA 19462 215-825-6990
S.S White Technologies Inc., Piscataway, NJ 08854-0731 908-752-8000

Absorbers, Microwave-3450 — See Vol. A

Accelerometers-6500 — See Vol. B

Acoustic Systems (MIL)-2440 — See Vol. B

AC Power Protection Equipment — See Line Conditioners (Vol. D)

Actuators, Satellite Antennas-1250 — See Vol. D

Actuators, Servo, Linear-4000 — See Vol. C

Actuators, Servo, Rotary-4000 — See Vol. D

Adapters — See Connector Adapters (Vol. C), Plug Adapters (Vol. C) Socket Adapters (Vol. C), etc.

Adapters/Connectors, T.V. to Peripheral Equipment-2100
Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1883 ..... C•1372
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1675
Panel Components Corp., Santa Rosa, CA 95406, 707-525-0600 ..... C•1492
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493,1495-1499
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2026 ..... C•1556-1561
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
International Components Corp., Melville, NY 11747 516-293-1500
§ Johnson, E. F., Co., Minneapolis, MN 55458-0099 612-943-5500
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000

Adapters, GPIB, IEEE 488-2100
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-477-1346 ..... C•1337-1345
Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... D•1281-1285
CDS - Colorado Data Sys., Englewood, CO 80110 ..... 303-762-1640;800-CDS-ATE1
Colorado Data Systems, Inc., Englewood, CO 80110 ..... 303-762-1640; 800-TEK-4VXI
ICS Electronics Corp., Milpitas, CA 95035-5545 408-263-5500
KineticSystems, Lockport, IL 60441 815-838-0005

Adapters, Fiber Optic-2475 — See Vol. C

Adapters, Meter, Current Measurement-for PEM — See Vol. C

Adapters, Modular Telephone-2100
§ L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1281-1285
UDI Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1455,1457, D•1878-1880,1901
AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 708-981-6000
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Bullmoose, PA 15963 814-238-4321
§ Dixon Electronics & Cable Sets, Pennsville, NJ 08070 609-678-1300
§ Elfo Electronics, Inc., Plano, TX 75074 ..... 214-881-1300; 800-527-3356
General Electric Major Appl. Prods. Dept., Bucyrus, OH 44820 419-992-5021
§ Jaeger Radio Electronics, Inc., Mineola, NY 11501 516-742-8700
§ MCS Div. of PLY, Inc., 3M Plant, Hutchinson, MN 55350 612-587-1500
§ Mirose Electric (U.S.A.), Inc. (MEN), Div. of Mirose Electric Co. Ltd., Nippori, Sinjuku-ku, Tokyo 116, Japan 03-3802-2111
§ NCI, Inc., Orange, CA 92665 714-998-3110
International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76006 817-861-2244
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philmore Manufacturing, Rockford, IL 61125-1368 815-229-7773
Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Talco Intercontinental, Houston, TX 77095 713-855-2218
§ Terminal Data Corp., Rockville, MD 20855 301-921-8282

Adapters, US to European Power-2100
APX-Arstan Products, Hicksville, NY 11801, 516-433-1313 ..... D•1598
Antec Power Systems, Chatsworth, CA 91311, 818-341-0125 ..... D•1621-1622
§ Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ..... C•1531
Dynage/Power & Magnetics, Division Of Oakland, Inc., Canistota, SD 57012, 605-296-3462/3487 ..... A•2308-2404, D•1708,1710
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0248 ..... D•1775
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... D•1878-1880, 1886
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ..... C•1487-1488
† Piller Industries, Inc., Duarte, CA 91010, 818-359-1537 ..... C•1500-1501
Potrans International Inc., Potrans Electrical Corp., Ltd., Irvine, CA 92716, 714-975-1222 ..... D•1974-1975
Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... A•1528
Shogyo International Corp., Great Neck, NY 11021, 516-466-0511 ..... A•2301, C•1523-1525
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639

International Configurations, Inc., Enfield, CT 06082 203-749-6380
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
§ Schurter, Inc., Petaluma, CA 94952 707-778-6311
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
§ Tamura Corporation of America, Carson, CA 90746-3518 213-638-1790
§ USD Products , Div. of Bussmann, Chicago, IL 60656 708-867-4600

Adapters, Wall Plug-in — See Power Supplies, Plug-in (Vol. D)

Adapters, Waveguide-3450 — ***See Vol. A***

Adapters, RF (MIL)-2440 — ***See Vol. B***

Adhesives, Conducting-1600

† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
† Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744 ..... C•1145
§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
† Ablestik Laboratories, Rancho Dominguez, CA 90221 213-764-4600
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§ Alpha Metals, Jersey City, NJ 07304 201-434-6778
§ Ambroid Co., Topsfield,, MA 01983 508-887-8248
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
§† Capcon, Inc., New York, NY 10001 212-243-6275
Castall Inc., E. Weymouth, MA 02189 617-337-6075
§ CHR, Furon, New Haven, CT 06509 203-777-3631
Conap, Inc., Olean, NY 14760 716-372-9650
§ Contact East, N. Andover, MA 01845 508-682-2000
† Cotronics, Brooklyn, NY 11235 718-646-7996
† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
§† EG & G Wakefield Engineering, Wakefield, MA 01880 617-245-5900
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
# Electrostatic Consulting Assocs., Groton, MA 01450 508-448-5583
† EMCA-REMEX Products, National Starch & Chem. Co., Montgomeryville, PA 18936 215-855-1000
Epic Resins, General Fiberglass Supply, Inc., Waukesha, WI 53186 414-521-2255
† Epoxy Technology, Inc., Billerica, MA 01821 ..... 508-667-3805;800-227-2201
Ercon Incorporated, Waltham, MA 02154 617-899-1497
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
International Microelectronics, Arlington, TX 76003 817-561-2244
Leepoxy Plastics, Inc., Ft. Wayne, IN 46809 219-747-7411
§ Master Bond, Inc., Huntingdon Valley, PA 19006 215-355-7200
† Master Bond, Hackensack, NJ 07601 201-343-8983
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
Omega Engineering, Stamford, CT 06907 800-826-6342
† Orcus, Kansas City, MO 64112 913-897-5128
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
Sheldahl, Inc., Northfield, MN 55057 507-663-8000
Shin-Etsu Polymer America, Inc., Union City, CA 94587 415-475-9000
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550

Adhesives, General Purpose-1600

† Ablestik Laboratories, Rancho Dominguez, CA 90221 213-764-4600
§ Ambroid Co., Topsfield,, MA 01983 508-887-8248
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Castall Inc., E. Weymouth, MA 02189 617-337-6075
ChemRex Inc., ResTech Prods. Div., Commerce City, CO 80022 303-289-5651
Conap, Inc., Olean, NY 14760 716-372-9650
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
† DOW SWITCH, Wilmington, MA 01887 617-935-6395
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Epic Resins, General Fiberglass Supply, Inc., Waukesha, WI 53186 414-521-2255
† Epoxy Technology, Inc., Billerica, MA 01821 ..... 508-667-3805;800-227-2201
§† GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Leepoxy Plastics, Inc., Ft. Wayne, IN 46809 219-747-7411
† Master Bond, Hackensack, NJ 07601 201-343-8983
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
Metron Optics Inc., Solana Beach, CA 92075-0690 619-755-4477
† Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
Omega Engineering, Stamford, CT 06907 800-826-6342
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
† Sigma Plastronics, Inc., Whitmore Lake, MI 48189 313-231-2871
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550
Transene, Rowley, MA 01969 508-948-2501
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473
Wiring Analyzers, Inc., Edmonds, WA 98020-0417 ..... 800-221-5979 (excl. CA)

Adhesives, Insulating-1600

† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
† Ablestik Laboratories, Rancho Dominguez, CA 90221 213-764-4600
† Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
Castall Inc., E. Weymouth, MA 02189 617-337-6075
ChemRex Inc., ResTech Prods. Div., Commerce City, CO 80022 303-289-5651
† Contact East, N. Andover, MA 01845 508-682-2000
† Cotronics, Brooklyn, NY 11235 718-646-7996
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electra-ssembly, Lancer Chemical, Warren, RI 02885 401-245-5493
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Epic Resins, General Fiberglass Supply, Inc., Waukesha, WI 53186 414-521-2255
† Epoxy Technology, Inc., Billerica, MA 01821 ..... 508-667-3805;800-227-2201
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
Leepoxy Plastics, Inc., Ft. Wayne, IN 46809 219-747-7411
† Master Bond, Hackensack, NJ 07601 201-343-8983
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
Omega Engineering, Stamford, CT 06907 800-826-6342
Rogers Corporation, Circuit Materials Div., Chandler, AZ 85244 602-963-4584
† Sigma Plastronics, Inc., Whitmore Lake, MI 48189 313-231-2871
Soundcoat Co., Inc., Deer Park, NY 11729-5701 516-242-2200
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550
Transene, Rowley, MA 01969 508-948-2501
Wiring Analyzers, Inc., Edmonds, WA 98020-0417 ..... 800-221-5979 (excl. CA)

Adhesives, Liquid Spray-1600

† Conap, Inc., Olean, NY 14760 716-372-9650
§ Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
† Master Bond, Hackensack, NJ 07601 201-343-8983
Soundcoat Co., Inc., Deer Park, NY 11729-5701 516-242-2200

Adhesives, Optical-1600

AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
§ Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Epoxy Technology, Inc., Billerica, MA 01821 ..... 508-667-3805;800-227-2201
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
† Master Bond, Hackensack, NJ 07601 201-343-8983
§† Multicore Solders, Richardson, TX 75081 214-238-1214
Polytronix, Inc., Richardson, TX 75081 214-238-7045
Rolyn Optics Co., Covina, CA 91722-2199 ..... 818-915-5707/5717
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550
Transene, Rowley, MA 01969 508-948-2501

Adhesives, UV Curing-1600

AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Castall Inc., E. Weymouth, MA 02189 617-337-6075
§ Contact East, N. Andover, MA 01845 508-682-2000
† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
† Master Bond, Hackensack, NJ 07601 201-343-8983
§† Multicore Solders, Richardson, TX 75081 214-238-1214
Polytronix, Inc., Richardson, TX 75081 214-238-7045
Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
Xenon Corp., Woburn, MA 01801 617-938-3594

Adhesives, Wire Tacking-1600

Ambroid Co., Topsfield,, MA 01983 508-887-8248
Castall Inc., E. Weymouth, MA 02189 617-337-6075
† Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
Leepoxy Plastics, Inc., Ft. Wayne, IN 46809 219-747-7411
† Master Bond, Hackensack, NJ 07601 201-343-8983
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Xenon Corp., Woburn, MA 01801 617-938-3594

Air Cleaners & Filters (Shielded & Unshielded)-2600

ETRI, Inc., Monroe, NC 28110, 704-289-5423 ..... C•1615-1616,1618,1620

Indek Corporation, San Jose, CA 95131, 408-432-1199 ..... C•1624-1625
Air Filtration Products, Inc., Tuscon, AZ 85705 602-624-2272
† Air Maze Corp., Cleveland, OH 44146 216-292-6800
† Aluminum Filter, Carpinteria, CA 93013 805-684-7651
† Baker Co., Inc., Sanford, ME 04073 1-800-992-2537
† Balston, Lexington, MA 02173 617-861-7240
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
§ Cambridge Filter Corp., Syracuse, NY 13221-4906 315-457-1000
† Carey Electronics Engineering Co., Springfield, OH 45505 513-323-6300
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§ Clean Room Prods., Ronkonkoma, NY 11779-6528 516-588-7000
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
Electro Maze Air Filters, Carmichael, CA 95608 916-485-4079
§ Heath Co., St. Joseph, MI 49085 616-982-3200
§ Heat System, Inc., Farmingdale, NY 11735 516-694-9555
Marlow Industries, Inc., Dallas, TX 75238-1645 214-340-4900
McLean Engineering, Zero Corporation, Princeton Junction, NJ 08550 609-799-0100
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
Norgren, Littleton, CO 80120-1663 303-794-2611
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
§ Snaptite/Allied, Erie, PA 16505 814-833-6131
Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Tegal Scientific, Inc., Concord, CA 94524 415-827-1054
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Air Conditioners (For Equipment)-2600

§ ebm Industries, Inc., Farmington, CT 06034, 203-674-1515 ..... C•1612
Marlow Industries, Inc., Dallas, TX 75238-1645, 214-340-4900 ..... C•1630-1631
McLean Engineering, Zero Corporation, Princeton Junction, NJ 08550, 609-799-0100 ..... C•1632
† McLean Midwest, Sub. of Zero Corporation, Brooklyn Pk., MN 55443, 612-561-9400 ..... C•1634-1635
TECA, ThermoElectric Cooling America Corp., Chicago, IL 60622, 312-666-1600 ..... C•1664-1665
† Thermacore Inc., Lancaster, PA 17601, 717-569-6551 ..... C•1666
Cambridge Aerofio, Inc., Shirley, MA 01464 508-45-2346
† Electro Impulse, Neptune, NJ 07754-0278 908-776-5300
§ Hammond Manufacturing Co., Buffalo, NY 14225 716-894-5710
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 805-642-8521
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
† Noren Products Inc., Menlo Pk, CA 94025 415-322-9500
§ Norgren, Littleton, CO 80120-1663 303-794-2611
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
Rush Enterprises Inc:A Heico Company, Hudson, NH 03051 603-886-9460
Schroff Incorporated, Warwick, RI 02886 401-732-3770
† Sinclair Radio Laboratories Ltd., Aurora, ONT., CANADA L4G 3G9 416-727-0165
Standard Environmental Systems, Inc., Totowa, NJ 07512 201-256-2200

Alarms & Alarm Systems-2200 — *See Vol. D*

Alarms, Controls, Photoelectric-3700 — *See Vol. B*

Alarms, Static Level-4100 — *See Vol. D*

Alloys, Brazing-5400

§† Alpha Metals, Jersey City, NJ 07304 201-434-6778
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1719 516-694-9000
† Fusion Inc., Willoughby, OH 44094 216-946-3300
Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
Tricon Industries, Inc., Brazing Alloys & Chemical Products Div., Downers Grove, IL 60515-4012 708-963-0220
† Wilkinson, Westlake Village, CA 91359 ..... 818-889-0050;800-822-4653

Alloys, Metal/Ceramic-1600

Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1699
† Alpha Metals, Jersey City, NJ 07304 201-434-6778
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
† Carpenter Technology Corp., Reading, PA 19612 215-371-2000
Dynalloy, Inc., Irvine, CA 92715 714-476-1208
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§† Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
† Magnetics, Spang & Co., Butler, PA 16003-0391 412-282-8282
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000

Alphanumeric Readouts — See Tubes, Readout (Vol. A)

Alternators-4050 — *See Vol. D*

Altimeters-2900 — *See Vol. D*

Aluminizers, Vacuum — See Deposition Equip. (Vol. D), Evaporation Equipment, Electronic Beam (Vol. D)

Amplifiers, AF-1300 — *See Vol. D*

Amplifiers, Antenna-1200 — *See Vol. D*

Amplifiers, Compressor-1100 — *See Vol. D*

Amplifiers, Current, AC-1100 — *See Vol. D*

Amplifiers, DC-1100 — *See Vol. D*

Amplifiers, Data — See Amplifiers, Instrumentation (Vol. D)

Amplifiers, Decade-1100 — *See Vol. D*

Amplifiers, Deflection-Also See Yokes, Deflection, Oscilloscopes, etc.-1100 — *See Vol. D*

Amplifiers, Differential-1100 — *See Vol. D*

Amplifiers, Distribution-1100 — *See Vol. D*

Amplifiers, Equalization-1300 — *See Vol. D*

Amplifiers, Fiber Optic-1100 — *See Vol. D*

Amplifiers, FM, IF, Surface Mount-4800 — *See Vol. A*

Amplifiers, IF-1100 — *See Vol. D*

Amplifiers, Instrumentation-1100 — *See Vol. D*

Amplifiers, Integrating-Also See Amplifiers, Operational; Integrators, Electronic-1100 — *See Vol. D*

Amplifiers, Isolation-1100 — *See Vol. D*

Amplifiers, Klystron-3450 — *See Vol. A*

Amplifiers, Limiting-1100 — *See Vol. D*

Amplifiers, Line-1100 — *See Vol. D*

Amplifiers, Lock-in-1100 — *See Vol. D*

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DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
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§† Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., Milwaukee, WI 53216 414-449-7487
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Flex-Key Corporation, Gloucester, MA 01930 508-281-2040
§† IEE (Industrial Electronic Engineers), Van Nuys, CA 91405 818-787-0311
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
LaFrance Corp., Philadelphia, PA 19153-3893 215-365-8000
Leecraft Mfg., Long Island City, NY 11101 718-392-8800
James Millen Elctrns., Caywood Elec. Inc., No. Andover, MA 01845 508-475-7831
† The Mushield Co. Inc., Goffstown, NH 03045 603-666-4433
Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§ Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Bimetals, Thermostatic-5300 — *See Vol. B*

Bins, Part Storage-1400

POLYCASE PRODS., ECP Corp., Cleveland, OH 44103, 216-391-0444 ... C•1078
Advance, A Unit of Zero Corporation, N. Hollywood, CA 91605 818-983-0333
§ Akro-Mils, Myers Industries, Akron, OH 44301 216-253-5593
† Alden Systems, Alden Products Co., Brockton, MA 02403-0860 508-583-0160
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Equipto, Aurora, IL 60506 ..... 708-859-1000;800-323-0801
§ Hodge Manufacturing Co., Inc., Springfield, MA 01107 413-781-6800
§† Lyon Metal Products, Inc., Aurora, IL 60507 708-892-8941
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
§ Simco Co., Hatfield, PA 19440 215-822-2171
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717
Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Bins, Static Conductive-1400

POLYCASE PRODS., ECP Corp., Cleveland, OH 44103, 216-391-0444 ... C•1078
§ Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

Blackbody Radiation Sources-2900 — *See Vol. D*

Blowers, Centrifugal-2600

Advanced Technology Company, Vista, CA 92083, 619-727-7430 ..... B•1235-1236, C•1605-1608
† **Amco Engineering, Schiller Pk., IL 60176, 708-671-6670;800-833-3156 ..... C•1011,1609**
† **Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ..... C•1018**
Calmark Corp., San Gabriel, CA 91776, 818-287-0451 ..... C•1019
§ **ebm Industries, Inc., Farmington, CT 06034, 203-674-1515 ..... C•1612-1613**
§† **Electronic Enclosures, Div. Wyle Laboratories, El Segundo, CA 90245, 213-643-8181 ..... C•1030-1032**
§† **ETRI, Inc., Monroe, NC 28110, 704-289-5423 ..... C•1615-1616,1618**
† **Fasco Industries, Inc., Hawker Siddelem No. 200, Chesterfield, MO 63017, 314-532-3505 ..... C•1622-1623**

Interfan, William J. Purdy Co., Burlingame, CA 94010, 415-347-1203 ..... C•1626-1627
† McLean Engineering, Zero Corporation, Princeton Junction, NJ 08550, 609-799-0100 ..... C•1632
Micronel U.S., Vista, CA 92083, 619-727-7400 ..... C•1648
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064
§ Papst Mechatronic Corp., Newport, RI 02840, 401-849-8810 ..... C•1654-1659
† Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1091
§ Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1661
Advance, A Unit of Zero Corporation, N. Hollywood, CA 91605 818-983-0333
† Aeroflex Laboratories Inc., ARX, Inc., Plainview, NY 11803 516-694-6700
Lamb Electric Division, Ametek, Inc., Kent, OH 44240 216-673-3451
† Ashland Elec. Prods., Inc., Rochester, NH 03867 603-335-1100
† Astro Dynamics, Inc., Woburn, MA 01801 617-935-4944
Bertsch U.S., Vista, CA 92083 619-727-7420
† Brailsford & Co., Rye, NY 10580 914-967-1820
Buehler Products, Inc., Raleigh, NC 27636 919-469-8522
Chicago Blower Corp., Glendale Heights, IL 60139 708-858-2600
§ Comair Rotron, A KLI Company, Saugerties, NY 12477 914-246-3615
† Dynamic Air Engrg., Inc., Santa Ana, CA 92705-5697 714-540-1000
† Eastern Air Devices, Inc., Dover, NH 03820 603-742-3330
§† EG & G Rotron, Custom Div., Woodstock, NY 12498 914-679-5201
EG&G Rotron, Industrial Division, Saugerties, NY 12477 914-246-3401
† Equipto Electronics Corp., Aurora, IL 60506 708-897-4691
§† Globe Motors, Dayton, OH 45404 513-223-3171
§ Hammond Manufacturing Co., Buffalo, NY 14225 716-894-5710
† Hi-Tech, Inc., Zion, IL 60099 708-746-2447
§ Howard Industries, Inc., Milford, IL 60953 815-889-4105
† IMC Magnetics Corp., Eastern Div., Westbury, NY 11590 516-336-7070
† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 805-642-8521
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 718-774-5900
Schroff Incorporated, Warwick, RI 02886 401-732-3770
§ Shinano Kenshi Corp. (SKC), N. Hollywood, CA 91605 818-764-4266
Starmron, Unit of Zero Corporation, N. Hollywood, CA 91605 818-841-1825
† Telecro Systems Corp., Corona, NY 11368 718-651-8900
† Zero Enclosures, Zero Corp., Burbank, CA 91502 ..... 818-846-4191;818-84 -1825
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561

Blowers, Scroll (Squirrel Cage)-2600

Amco Engineering, Schiller Pk., IL 60176, 708-671-6670;800-833-3156 ..... C•1611,1609
§ ebm Industries, Inc., Farmington, CT 06034, 203-674-1515 ..... C•1612-1613
† Fasco Industries, Inc., Hawker Siddeley No. 200, Chesterfield, MO 63017, 314-532-3505 ..... C•1622-1623
Micronel U.S., Vista, CA 92083, 619-727-7400 ..... C•1648
§ Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1661
† Ashland Elec. Prods., Inc., Rochester, NH 03867 603-335-1100
§ Comair Rotron, A KLI Company, Saugerties, NY 12477 914-246-3615
Emcor Products, Crento, Inc., Rochester, MN 55901 507-289-3371
† Hi-Tech, Inc., Zion, IL 60099 708-746-2447
† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 ..... 805-642 8521
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681

Blowers, Tangential-2600

Amco Engineering, Schiller Pk., IL 60176, 708-671-6670;800-833-3156 ..... C•1611
§ ebm Industries, Inc., Farmington, CT 06034, 203-674-1515 ..... C•1612-1613
† Fasco Industries, Inc., Hawker Siddeley No. 200, Chesterfield, MO 63017, 314-532-3505 ..... C•1622-1623
Micronel U.S., Vista, CA 92083, 619-727-7400 ..... C•1648
§ Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1661
Hitachi America, Ltd., Tarrytown, NY 10591 914-631-0600
† Hi-Tech, Inc., Zion, IL 60099 708-746-2447
† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 805-642-8521
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
Schroff Incorporated, Warwick, RI 02886 401-732-3770

Board Computers & Subassemblies, Multibus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, EXORBUS Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, PC Bus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, Q Bus/Unibus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, S100 Bus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, STD Bus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, VXI Bus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, VME Bus Compatible-2025 — *See Vol. D*

Boards, Adapter, IBM PC-2000 — *See Vol. D*

Boards, Circuit, Clad-1700

† Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
§ Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.) ..... C•1100-1101
APX-Arstan Products, Hicksville, NY 11801 516-433-1313
† Electronic Controls Design, Milwaukie, OR 97222 503-659-6100
† Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
International Microelectronics, Arlington, TX 76003 817-561-2244
KDI/Triangle Electronics, Whippany, NJ 07981 201-887-5700
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Submarine Signal Division, Raytheon Company, Portsmouth, RI 02871 401-847-8000
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930
§ Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888

Boards, Circuit, Molded-1700

Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Boards, Circuit, Unclad-1700

Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
§ Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.) ..... C•1100-1101
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
Electronic Controls Design, Milwaukie, OR 97222 503-659-6100
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
International Microelectronics, Arlington, TX 76003 817-561-2244
KDI/Triangle Electronics, Whippany, NJ 07981 201-887-5700
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888

Boards, Display, Graphic-2450 — *See Vol. B*

Boards, Integrated Circuit — See Boards, Plug-in (Vol. C)

Boards, Plug-in-3200

Advanced Control Sys., Hingham, MA 02043, 617-740-0223 ..... D•1127
§ Burr-Brown Corp., Tucson, AZ 85734, 602-746-1111 ..... D•1637
Crosspoint, Div. of Info-Lite Corp., Fairview, NJ 07022, 201-941-4455 ..... B•1673
§ Gordos, A Flint Industries Company, Rogers, AR 72756, 501-636-5000 ..... B•1488, D•1171
§ National Instruments Corp., Austin, TX 78730-5039, 512-794-0100 ..... D•1124,1189
Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064
† Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1684
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 619-452-9333 ..... C•1098
Texmate, Inc., Vista, CA 92083-8397, 619-598-9899 ..... D•1384
Transmagnetics, Farmingdale, NY 11735, 516-293-3100 ..... D•1197
§ Action Instruments, San Diego, CA 92123 619-279-5726
Advanced Hardware Architectures, Inc., Moscow, ID 83843 208-883-8000
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
Ampro Computers,Inc., Sunnyvale, CA 94086 408-522-2100
Analog Devices, Inc., Norwood, MA 02062-9106 617-329-4700
§ Augat Inc., Attleboro, MA 02703 617-222-2202
§† Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
§ Central Data Corp., Champaign, IL 61821 217-359-8010
Cherry Electrical Products, Cherry Corporation, Waukegan, IL 60087 708-662-9200
§ Colorgraphic Communications Corp., Atlanta, GA 30366 404-455-3921
Compac, Holbrook, NY 11741 516-585-3400
§ Consolink, Longmont, CO 80501 303-651-2642
§ Creative Micro Systems, Los Alamitos, CA 90720 213-493-2484
Dage Precision Industries, Inc., Fremont, CA 94538 415-683-3930
§† dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
Datel, Inc., Mansfield, MA 02048-1194 508-339-3000
Digital Equip., Marlborough, MA 01752
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
§ Dynatech Computer Company, Mountain View, CA 94039-7400 415-964-7400
E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
† Eastern Electronics Mfg. Corp., National Patent Dev. Corp., East Hartford, CT 06108 203-528-9821
§ EBY Company, Philadelphia, PA 19124 215-537-4700
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
† E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Enterprise Systems Corp., Dover, NH 03820 603-742-7363
GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
GEN/COMP Inc., Canton, MA 02021 617-828-2008
General Digital Corp., Enfield, CT 06082 203-741-7171
Ghielmetti, Inc., Westlake Village, CA 91361 800-228-1097
§ Gunther, W., GmbH, D 8500 Nurnberg 82, GERMANY ..... (0)911/65521 or 65520
† Hancock Electronics Corp., Hingham, MA 02043 617-740-4190

§ IDEAssociates, Inc., Billerica, MA 01821 508-663-6878
Industrial Computer Source, San Diego, CA 92111 619-279-0084
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
§ Intra-computer, Jamacia, NY 11418 718-297-5500
Ironics Incorporated, Ithaca, NY 14850 607-277-4060
JF Microsystems, Pasco, WA 99301-9619 ..... 509-297-4294;800-532-2737
Kalmus & Assocs., Inc., Broadview, IL 60153 708-343-7004
§ Keithley MetraByte, Taunton, MA 02780 508-880-3000
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Logic Technology, Inc., Mtn. View, CA 94043 415-967-1007
§ Matrox Electronic Systems, Ltd., Dorval, QU, CANADA H9P 2T4 514-685-2630
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Micro Industries, Westerville, OH 43081 614-895-0404
§ Mitel Semiconductor Div. of Mitel Corp., Kanata, Ont., CANADA K2K 1X3 613-592-2122
§ Monolithic Sys. Corp., Englewood, CO 80112 303-790-7400
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Omega Engineering, Stamford, CT 06907 800-826-6342
Omnibyte Corp., W. Chicago, IL 60185 708-231-6880
Precicontact, Inc., Langhorne, PA 19047 215-757-1202
† Racal-Dana Instrs. Inc., Irvine, CA 92718 714-859-8999
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
SBE, Concord, CA 94520 ..... 501-680-7722;800-347-COMM
Schroff Incorporated, Warwick, RI 02886 401-732-3770
§ Spectrum Signal Proc., Blaine, WA 98230 ... 1-800-663-8986 (US);604-438-7266 (Can.)
§ Technology 80, Inc., Minneapolis, MN 55427 612-542-9545
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
§† Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
† Vector Electronics Co.,, Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376
Ziatech, San Luis Obispo, CA 93401 805-541-0488

Boards, Plug-in, Extender-3200

§ Burr-Brown Corp., Tucson, AZ 85734, 602-746-1111 ..... D•1637
Optelecom, Inc., Gaithersburg, MD 20877, 301-840-2121 ..... B•1228
Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064
† Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1684
§ Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 619-452-9333 ... C•1098
Texmate, Inc., Vista, CA 92083-8397, 619-598-9899 ..... D•1384
Applied Data Systems, Baltimore, MD 21202 ..... 800-541-2003;410-576-0335
§† Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Comark Corp., Medfield, MA 02052 508-359-8161
Computer Systems Technical Support, Anaheim, CA 92807 714-632-1300
§ Creative Micro Systems, Los Alamitos, CA 90720 213-493-2484
Dage Precision Industries, Inc., Fremont, CA 94538 415-683-3930
dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
Davidge Corporation, Buellton, CA 93427 805-688-9598
§ EBY Company, Philadelphia, PA 19124 215-537-4700
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
† E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
General Digital Corp., Enfield, CT 06082 203-741-7171
† Hancock Electronics Corp., Hingham, MA 02043 617-740-4190
Hybricon Corporation, Ayer, MA 01432 508-772-5422
§ ICS Electronics Corp., Milpitas, CA 95035-5545 408-263-5500
Industrial Computer Source, San Diego, CA 92111 619-279-0084
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
KineticSystems, Lockport, IL 60441 815-838-0005
Matrix Corp., Raleigh, NC 27610 919-231-8000
Micro Industries, Westerville, OH 43081 614-895-0404
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Omega Engineering, Stamford, CT 06907 800-826-6342
Project Resources Inc., Wareham, MA 02571 508-295-7444
Prototek, Inc., Hamilton, OH 45015 513-874-5094
Schroff Incorporated, Warwick, RI 02886 401-732-3770
Solarcom Technology, Inc., Hayward, CA 94544 415-489-3141
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Boards, Plug-in, Interface-3200

Burr-Brown Corp., Tucson, AZ 85734, 602-746-1111 ..... D•1637
§ Gordos, A Flint Industries Company, Rogers, AR 72756, 501-636-5000 ..... B•1488, D•1170-1172
† ILC Data Device Corp., Bohemia, NY 11716-2482, 516-567-5600 ..... D•1177
Matrix Corp., Indianapolis, IN 46241, 317-248-2036 ..... D•1185
§ National Instruments Corp., Austin, TX 78730-5039, 512-794-0100 ..... D•1124,1188,1296-1297
Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1684
Texmate, Inc., Vista, CA 92083-8397, 619-598-9899 ..... D•1384
§ Action Instruments, San Diego, CA 92123 619-279-5726
§ Adaptec, Inc., Milpitas, CA 95035 408-945-8600
§ American Advantech Corp., San Jose, CA 95122 408-293-6786
Ampro Computers,Inc., Sunnyvale, CA 94086 408-522-2100
Andrew/KMW Systems, Austin, TX 78730 ..... 800-531-5167;512-338-3082
Augat Inc., Attleboro, MA 02703 617-222-2202
§† Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Bit 3 Computer Corporation, Minneapolis, MN 55431-1393 612-881-6955
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
C & C Technology Inc., West Chicago, IL 60185 708-231-0015
§ Central Data Corp., Champaign, IL 61821 217-359-8010
Comark Corp., Medfield, MA 02052 508-359-8161
Computer Systems Technical Support, Anaheim, CA 92807 714-632-1300
Data Translation, Inc., Marlboro, MA 01752 508-481-3700
Davidge Corporation, Buellton, CA 93427 805-688-9598
§ EBY Company, Philadelphia, PA 19124 215-537-4700
Electrologic, Inc., Signal Hill, CA 90806 213-595-0551
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
GEN/COMP Inc., Canton, MA 02021 617-828-2008
General Digital Corp., Enfield, CT 06082 203-741-7171
§ Gunther, W., GmbH, D 8500 Nurnberg 82, GERMANY ..... (0)911/65521 or 65520
† Hancock Electronics Corp., Hingham, MA 02043 617-740-4190
§ ICS Electronics Corp., Milpitas, CA 95035-5545 408-263-5500
Industrial Computer Source, San Diego, CA 92111 619-279-0084
Innovatek Microsystems, Inc., Millerton, NY 12546-9720 914-373-9003
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
Ironics Incorporated, Ithaca, NY 14850 607-277-4060
JF Microsystems, Pasco, WA 99301-9619 ..... 509-297-4294;800-532-2737
§ Keithley MetraByte, Taunton, MA 02780 508-880-3000
KineticSystems, Lockport, IL 60441 815-838-0005
† K-Systems of Texas, Inc., El Paso, TX 79936 915-598-9769
Lextel, Inc., Wakefield, MA 01880 617-245-5017
Logical Design Group, Inc., Raleigh, NC 27607 919-851-1101
Matrix Corp., Raleigh, NC 27610 919-231-8000
Micro Industries, Westerville, OH 43081 614-895-0404
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Omega Engineering, Stamford, CT 06907 800-826-6342
Opto 22, Huntington Bch., CA 92649 714-891-5861
Parsytec Inc., West Chicago, IL 60185 708-293-9500
§ Potter & Brumfield, A Siemens Co., Princeton, IN 47671-0001 812-386-1000
QSI Corporation, Salt Lake City, UT 84115 801-466-8770
Qualogy Inc., San Jose, CA 95134 408-434-5200
† Racal-Dana Instrs. Inc., Irvine, CA 92718 714-859-8999
§ Rapid Systems Inc., Seattle, WA 98103 206-547-8311
SBE, Concord, CA 94520 ..... 501-680-7722;800-347-COMM
§ Sensoray Corp., Fremont, CA 94538 415-657-7290
Serial Lab Prods., Inc., Marlboro, MA 01752 617-481-1684
Soltec Corp., San Fernando, CA 91340-1597 ..... 818-365-0800;800-423-2344
Strawberry Tree, Inc., Sunnyvale, CA 94086 408-736-8800
§ Technology 80, Inc., Minneapolis, MN 55427 612-542-9545
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
TL Inds. Inc., Northwood, OH 43619 419-666-8144
Transmagnetics, Farmingdale, NY 11735 516-293-3100
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co.,, Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
VME Microsystems Intl. Corp., Huntsville, AL 35803-3308 205-880-0444
XYZ Electronics, McCordsville, IN 46055 317-335-2128
Ziatech, San Luis Obispo, CA 93401 805-541-0488

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Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1684
§ Action Instruments, San Diego, CA 92123 619-279-5726
# Alligator Technologies, Fountain Valley, CA 92708 714-850-9984
Ampro Computers,Inc., Sunnyvale, CA 94086 408-522-2100
Avelem, Gargilesse, FRANCE 36190 33-54478672
C & C Technology Inc., West Chicago, IL 60185 708-231-0015
§ Capital Equipment Corporation, Burlington, MA 01803 617-273-1818
§ Central Data Corp., Champaign, IL 61821 217-359-8010
Charles River Data Systems, Inc., Framingham, MA 01701 508-626-1000
§† Clearpoint Research Corp., Hopkinton, MA 01748 508-435-2000
Comark Corp., Medfield, MA 02052 508-359-8161
§ Computer System Assocs., San Diego, CA 92121 619-566-3911
Creative Micro Systems, Los Alamitos, CA 90720 213-493-2484
§ Dallas Semiconductor, Dallas, TX 75067 214-450-0400
Dataram Corp., Princeton, NJ 08543-7528 ..... 609-799-0071;800-822-0071
Davidge Corporation, Buellton, CA 93427 805-688-9598
Enterprise Systems Corp., Dover, NH 03820 603-742-7363
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§ GENROCO, Inc., Slinger, WI 53086-9407 414-644-8700
† Hancock Electronics Corp., Hingham, MA 02043 617-740-4190
§ IDEAssociates, Inc., Billerica, MA 01821 508-663-6878
Industrial Computer Source, San Diego, CA 92111 619-279-0084
Ironics Incorporated, Ithaca, NY 14850 607-277-4060
JF Microsystems, Pasco, WA 99301-9619 ..... 509-297-4294;800-532-2737
KineticSystems, Lockport, IL 60441 815-838-0005
Logical Design Group, Inc., Raleigh, NC 27607 919-851-1101
Matrix Corp., Raleigh, NC 27610 919-231-8000
Memory X, Inc., San Diego, CA 92123 619-292-1151
Micro Electronic Technologies, Hopkinoon, MA 01748 508-435-9057
Micro Industries, Westerville, OH 43081 614-895-0404
§ Monolithic Sys. Corp., Englewood, CO 80112 303-790-7400
Pacific Microcomputers, Signal Technology, San Diego, CA 92121 619-453-8649
Parsytec Inc., West Chicago, IL 60185 708-293-9500
QSI Corporation, Salt Lake City, UT 84115 801-466-8770
SGS-THOMSON Microelectronics, Inc., Carrollton, TX 75006 214-466-6000
TL Inds. Inc., Northwood, OH 43619 419-666-8144
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co.,, Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
XYZ Electronics, McCordsville, IN 46055 317-335-2128
Ziatech, San Luis Obispo, CA 93401 805-541-0488

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§ American Advantech Corp., San Jose, CA 95122 408-293-6786
† Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§† Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Comark Corp., Medfield, MA 02052 508-359-8161
§ Computer System Assocs., San Diego, CA 92121 619-566-3911
Computer Systems Technical Support, Anaheim, CA 92807 714-632-1300
§ Creative Micro Systems, Los Alamitos, CA 90720 213-493-2484
Dage Precision Industries, Inc., Fremont, CA 94538 415-683-3930
dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
§ EBY Company, Philadelphia, PA 19124 215-537-4700
ELMA Electronic Inc., Fremont, CA 94539 415-656-3400
† E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
General Digital Corp., Enfield, CT 06082 203-741-7171
§ Global Specialties, Interplex Electronics, Inc., New Haven, CT 06509 ... 203-624-3103
Hybricon Corporation, Ayer, MA 01432 508-772-5422
ICS Electronics Corp., Milpitas, CA 95035-5545 408-263-5500
Industrial Computer Source, San Diego, CA 92111 619-279-0084
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
JF Microsystems, Pasco, WA 99301-9619 ..... 509-297-4294;800-532-2737
Logical Design Group, Inc., Raleigh, NC 27607 919-851-1101
Matrix Corp., Raleigh, NC 27610 919-231-8000
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Micro Industries, Westerville, OH 43081 614-895-0404
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
† Product Technology, Inc., Irvine, CA 92714 714-474-8998
Project Resources Inc., Wareham, MA 02571 508-295-7444
Prototek, Inc., Hamilton, OH 45015 513-874-5094
QSI Corporation, Salt Lake City, UT 84115 801-466-8770
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Solarcom Technology, Inc., Hayward, CA 94541 415-489-3141
† Star-Tron Corporation, Providence, RI 02908 401-274-5090
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930
TL Inds. Inc., Northwood, OH 43619 419-666-8144
Trend Circuits, Fremont, CA 94538-6148 415-651-1150
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
XYZ Electronics, McCordsville, IN 46055 317-335-2128
Ziatech, San Luis Obispo, CA 93401 805-541-0488

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§ **Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 619-452-9333** ... **C•1098**
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§ Circuitech, Inc., Division of Heyco, Inc., Eatontown, NJ 07724 201-542-6550
† E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
Matrix Corp., Raleigh, NC 27610 919-231-8000
Micro Industries, Westerville, OH 43081 614-895-0404
Racal-Dana Instrs. Inc., Irvine, CA 92718 714-859-8999

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Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... **C•1358**
† **GRIM Corporation, Medford, NJ 08055-0368, 609-267-7950** ..... **D•1072**
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† **Oxley Inc., Branford, CT 06405, 203-488-1033** ..... **B•1025**
Precision Filters, Ithaca, NY 14850, 607-277-3550 ..... **D•1192**
Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... **C•1684**
AMP, Harrisburg, PA 17105 ..... 717-564-0100;800-522-6752
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
Augat Inc., Attleboro, MA 02703 617-222-2202
Data Translation, Inc., Marlboro, MA 01752 508-481-3700
Digital Equip., Marlborough, MA 01752
Electronic Solutions, A Unit of Zero Corp., San Diego, CA 92121 619-452-9333
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Enerco, Inc., Seattle, WA 98108 206-762-1422
GEN/COMP Inc., Canton, MA 02021 617-828-2008
Ghielmetti, Inc., Westlake Village, CA 91361 800-228-1097
† Hancock Electronics Corp., Hingham, MA 02043 617-740-4190
§ IDEAssociates, Inc., Billerica, MA 01821 508-663-6878
Information Transfer Inc., Bloomfield, NY 14469 716-657-7074
† Inland Motor, Kollmorgen Corp., Sierra Vista, AZ 85635 602-459-1150
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Micro Industries, Westerville, OH 43081 614-895-0404
Oliver Advanced Engineering, Glendale, CA 91203 818-240-0080
Project Resources Inc., Wareham, MA 02571 508-295-7444
† Racal-Dana Instrs. Inc., Irvine, CA 92718 714-859-8999
Stag Microsystems Inc., Santa Clara, CA 95054 ..... 408-988-1118;1-800-227-8836
Stoelting Co., Wood Dale, IL 60191 708-860-9700
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Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
† Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376

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† Apollo Magnetics Corp., Los Angeles, CA 90057 213-381-2500
Cortec, Inc., Huntington Bch., CA 92649 714-897-2529
Cosmo Corporation, Cleveland, OH 44109 216-861-5594
Custom Bobbin Windings, A & K Corporation, Zanesville, OH 43702-2369 614-452-6973
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
§ Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
Electro Assemblies Corp., Northbrook, IL 60062-2319 708-498-6520
§† Electromech, Inc., Kearny, NJ 07032 201-997-0950
Engineering Design & Sls., Danville, VA 24541 804-792-6405
GC International Inc., Richardson, TX 75085-1198 214-234-3240
† Genisco Technology Corp., La Mirada, CA 90638 714-523-7001
Grand Transformers, Inc., Grand Haven, MI 49417 616-842-5430
§ ISKRA Electronics, Inc., Plainview, NY 11803 516-349-0222
§† Krystinel Corp., Paterson, NJ 07509 201-345-8900
† Magnetico Inc., Holtsville, NY 11742 516-654-1166
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Miles Platts Inc., Elk Grove Village, IL 60007 1-708-364-0363
† Moldtronics, Inc., Downers Grove, IL 60515 708-968-7000
§ Philips Components Discrete Products Division, A North American Philips Company, Riviera Beach, FL 33404 407-881-3200
Philips Components Discrete Products Div., A North American Philips Co., Saugerties, NY 12477 914-246-2811
Plasticorp, Harbor City, CA 90710 213-539-9530
Plastron Corp., Bensenville, IL 60106 708-595-2212
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
Quality Components, Inc., St. Marys, PA 15857 814-834-2817
§ RCD Components, Inc., Manchester, NH 03109 603-669-0054
Renco Electronics, Inc., Deer Pk, NY 11729 ..... 516-586-5566;1-800-645-5828
Sanlar, Inc. T/A, Harbison Industrial Products, Levittown, PA 19057 215-943-9000
† Shogyo International Corp., Great Neck, NY 11021 516-466-0911
Siemens Components, Inc., Special Products Div., Iselin, NJ 08830 201-321-3400
Staffall Inc., Cranston, RI 02910 401-461-5554
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
§ Tokin America, Inc., San Jose, CA 95134 408-432-8020
U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
Xylog Corp., Hackensack, NJ 07601 201-489-4040

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† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 818-843-4330
Chandler Products, Cleveland, OH 44117 216-481-4400

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§ **L-Com Inc., N. Andover, MA 01845, 508-682-6936** ..... **C•1424-1425**
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ..... **C•1484-1485,1488,1490,1808**
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† **S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500** .. **C•1094-1096**
§† Abalon Precision Mfg., Bronx, NY 10459 ..... 212-589-5682;1-800-888-ABALON
§ Adalet-PLM/Div. of Scott & Fetzer Co., Cleveland, OH 44135 216-267-9000
† Alarm Controls Corporation, Deer Park, NY 11729 516-586-4220
Alden Products Co., Brockton, MA 02403 508-583-0160
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
§ Brooks Electronics, Philadelphia, PA 19140 215-228-4433
Cabletron Systems, Inc., Rochester, NH 03867 603-332-9400
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
§ COMCAB, Nashport, OH 43830 614-828-2468
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
Extrusion Technology, Inc., Randolph, MA 02368 617-963-7200
Fil-Coil Company, Inc., Garden City, NY 11530 516-228-9445

§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Hammond Manufacturing Co., Buffalo, NY 14225 716-894-5710
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
International Configurations, Inc., Enfield, CT 06082 203-749-6380
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Marway Prods. Inc., Santa Ana, CA 92703 714-973-1800
§ PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900
§ Perma Power Elctrns., Chicago, IL 60648 312-763-0763
Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§† Rose Enclosures Sys., Inc., Frederick, MD 21701 301-696-9800
Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
† Shogyo International Corp., Great Neck, NY 11021 516-466-0911
Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
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† **Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800** ..... **C•1698**
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† **Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970** ..... **C•1851**
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† Air/Flex Inds. Inc., S. El Monte, CA 91733 818-579-7060
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§ Band-It - Idex, Inc., Denver, CO 80216 303-320-4555
Cable Systems, Inc., Everett, MA 02149 617-389-7080
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Federal Electronics, Cranston, RI 02921 401-944-6200
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GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
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† GSI Corp., Timonium, MD 21093 410-252-1768
† Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§ Markel Corp., Norristown, PA 19404 215-272-8960
Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
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§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
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† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
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Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
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† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

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§† Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Contact East, N. Andover, MA 01845 508-682-2000
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
† Eastern Electronics Mfg. Corp., National Patent Dev. Corp., East Hartford, CT 06108 203-528-9821
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Global Specialties, Interplex Electronics, Inc., New Haven, CT 06509 203-624-3103
† Melles Griot, Inc., Irvine, CA 92714 714-261-5600
Micro Industries, Westerville, OH 43081 614-895-0404
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Noll, J. A. Co., Monroeville, PA 15146 412-856-7566
§ PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
† Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888

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Bumpers-2500

† **Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151** ..... **C•1688**
§† **Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800** ..... **C•1586,1590**
† Alasco Rubber & Plastics Corp., Belmont, CA 94002 415-595-4100
† Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
† AME Corporation, Towaco, NJ 07082-0195 201-263-1700
Bumper Specialties, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
Gasket International Inc., Bloomfield, NJ 07003 201-338-6814

§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Herga Inc. Herga Electric Limited, West Chester, PA 19380 215-430-1970
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Minor Rubber Co., Inc., Bloomfield, NJ 07003 ..... 201-338-6800;800-433-6886
§ NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
# REDCO, Carson City, NV 89706 702-882-3100
Techno-Isel USA Division, Designatronics, New Hyde Park, NY 11040 .. 516-328-3970

Burnishers, Contact-5400

§ Applied Data Communications, Tustin, CA 92680 714-731-9000
† Contact East, N. Andover, MA 01845 508-682-2000
§ Eraser Co., Syracuse, NY 13221 315-454-3237
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
Shogyo International Corp., Great Neck, NY 11021 516-466-0911
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Burnishers, Flexible Head-5400

§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700

Bus Bars, Surface Mount-3200

Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... **C•1684**
§ Bussco Inc., El Segundo, CA 90245 213-322-6580
† Eldre Corporation, Rochester, NY 14623 716-427-7280
§ Electronic Applications Co., El Monte, CA 91734 818-442-3212
Rogers Corp. Div. Power Distbn.Div., Mesa, AZ 85205 602-830-3370
Rogers Corporation, Circuit Components Div., Tempe, AZ 85282 602-967-0624
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888

Bus Bars & Systems-3200

Aeroflex Laboratories Inc., ARX, Inc., Plainview, NY 11803, 516-694-6700 ..... **A•1720**
§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... **C•1166**
† Atlee Inc., North Andover, MA 01845, 508-681-1003 ..... **C•1679**
† ILC Data Device Corp., Bohemia, NY 11716-2482, 516-567-5600 ... **D•1176-1177**
† Janco Corp., Burbank, CA 91508, 818-846-1900 ..... **D•1726-1727**
LCT Electronic Corporation, Anaheim, CA 92801, 714-991-7317 ..... **C•1655**
Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... **C•1684**
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... **C•1852**
† American Etching & Mfg., Pacoima, CA 91331-2796 818-896-1187
† Basic Electronics, Inc., Stanton, CA 90680 714-530-2400
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Bussco Inc., El Segundo, CA 90245 213-322-6580
§ Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dage Precision Industries, Inc., Fremont, CA 94538 415-683-3930
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., Milwaukee, WI 53216 414-449-7487
† Eldre Corporation, Rochester, NY 14623 716-427-7280
Elgin Electronics, Erie, PA 16509-3570 814-864-4921
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
§ GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
† Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-352-3500
Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
Rogers Corp. Div. Power Distbn.Div., Mesa, AZ 85205 602-830-3370
Rogers Corporation, Power Distribution Div., Mesa, AZ 85205 602-830-3370
† Rogers Corp., Rogers, CT 06263 203-774-9605
Schroff Incorporated, Warwick, RI 02886 401-732-3770
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
§† Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Bus Compatible Instruments — See Instruments, Test and Measuring, GPIB Compatible (Vol. D)

Bushings, Glass, Plastic, Metal, Rubber, etc.-2500

† Graphite Metallizing Corp., Yonkers, NY 10702, 914-968-8400 ..... **B•1271**
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033, 908-245-0033;800-526-4182 ..... **C•1758**
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 ..... **C•1389**
† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... **C•1587**
† Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... **C•1598-1599**
§ Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§ Adalet-PLM/Div. of Scott & Fetzer Co., Cleveland, OH 44135 216-267-9000
§† Aimsco Inc., Cheler Corp., Seattle, WA 98108 ..... 206-762-8014;800-426-0244
† Alasco Rubber & Plastics Corp., Belmont, CA 94002 415-595-4100
Alberox Corporation, New Bedford, MA 02745 508-995-1725
† Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
† AME Corporation, Towaco, NJ 07082-0195 201-263-1700
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§† Atlantic Optical Moulding, Webster, MA 01570 508-943-1746
The Auburn Manufacturing Company, Middletown, CT 06457 203-346-6677
Autoswage Products, Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Bivar, Inc., Irvine, CA 92718 714-951-0808
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
§ Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
† Ceramaseal, New Lebanon, NY 12125 518-794-7800
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dayco Products, Inc., Dayton, OH 45401-1004 513-226-5926
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
§ Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§† General Manufacturing, Glendale, CA 91201 818-243-2069
† Industrial Dielectrics, Inc., Noblesville, IN 46060 317-773-1766
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
† Moldtronics, Inc., Downers Grove, IL 60515 708-968-7000
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7215
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
§ RAF Electronic Hardware, Seymour, CT 06483 203-888-2133
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
† Standard Insert Co., Penn Engrg. & Mfg. Corp., Horsham, PA 19044 215-956-0350
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk, NY 11040 ..... 516-328-0200;328-3300
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
§ Thermalloy, Inc., Dallas, TX 75381-0839 214-243-4321
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8746

Busses, Multibus, Q Bus, S100 Bus, STD Bus — See Board Computers & Subassemblies (Vol. D)

Buzzers, Electronic — See Bells, Buzzers, Gongs, Sirens & Aural Warning Devices (Vol. D)

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Cabinets & Accessories, Metal — See Enclosures, Equipment & Panel Mounting (Vol. C)

Cable, Audio-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... **C•1710-1711**
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... **C•1719-1721**
§ Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... **C•1732-1735**
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... **C•1399,1759**
Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... **B•1020, C•1764**
§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-9000 .... **C•1771**
National Wire & Cable Corp., Los Angeles, CA 90021-1780, 213-229-9411 ..... **C•1778,1779-1782,1788-1793**
RDI Electns., Inc., New Rochelle, NY 10801, 914-632-7270 ..... **C•1815**
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5494 ..... **C•1016**
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9781 ..... **C•1910**
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... **C•1820**
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... **C•1823**
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ... **C•1834-1850**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-5333;1-800-325-6979
§ Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
§ Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
† Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
§ Dukane Corp., Communications Sys. Div., St. Charles, IL 60174-9984 ... 708-584-2300
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661

§ General Cable Co., Guardian Prods. Div., Greenwich, CT 06830 ..... 800-243-8020; 203-661-0100
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Harris Corp., Dracon Div., Camarillo, CA 93012 805-987-9511
§ Independent Cable, Inc., Hudson, MA 01749 508-562-9913
International Components Corp., Melville, NY 11747 516-293-1500
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106 708-766-7800
§† Microtech, Boothwyn, PA 19061 215-459-3566
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Product Technology, Inc., Irvine, CA 92714 714-474-8998
§ Recoton Corp., Long Island City, NY 11101 718-392-6442
§ Remee Products Corp., Florida, NY 10921 914-651-4431
† Rockland Insulated Wire & Cable, Haverstraw, NY 10927 914-429-3103
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400

Cable, Battery Booster-6000

† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§ Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990

Cable, Coaxial-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1155,1710-1712
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1719
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726,1737-1739
§ General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... C•1753
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1754
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 ..... C•1399,1759
Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
§ L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1457,1767
§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 ..... C•1771
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
†# Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090 ..... A•1824-1826
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816-1817
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1845-1846
§† Adams-Russell, Inc., Div. of M/A COM, INC., Amesbury, MA 01913 508-388-5210
§ Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 401-726-0700
AMP, Harrisburg, PA 17105 ..... 717-564-0100;800-522-6752
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Andrew Corp., Orland Pk., IL 60462 800-255-1479
† Antenna Specialists, The Allen Group, Cleveland, OH 44139 216-349-8400
† Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§† Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§ Brooks Electronics, Philadelphia, PA 19140 215-228-4433
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
Cable Systems, Inc., Everett, MA 02149 617-389-7080
Cabletron Systems, Inc., Rochester, NH 03867 603-332-9400
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§† Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§† Capcon, Inc., New York, NY 10001 212-243-6275
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Ceramaseal, New Lebanon, NY 12125 518-794-7800
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
† Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
† CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
† Coaxitube Corp., Salisbury, MD 21801 301-546-3911
§ COMCAB, Nashport, OH 43830 614-828-2468
§† Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
† Compac, Holbrook, NY 11741 516-585-3400
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§ Covid, Inc., Tempe, AZ 85281 602-966-2221
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
§† E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
John Fluke Mfg. Co., Inc., Everett, Wa 98206, WA 98203 206-347-6100
† Gabriel Electronics, Scarborough, ME 04074 207-883-5161
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
# Glasgal Communications, Inc., Northvale, NJ 07647 201-768-8082
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§ Heath Co., St. Joseph, MI 49085 616-982-3200
Hewlett-Packard Co., Cupertino, CA 95014 800-752-0900
§ IDEAssociates, Inc., Billerica, MA 01821 508-663-6878
International Components Corp., Melville, NY 11747 516-293-1500
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Lance Industries, Sylmar, CA 91342-3832 818-367-1811
§† Markel Corp., Norristown, PA 19404 215-272-8960
§† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
† Micro Mode Prods., El Cajon, CA 92020 619-449-3844
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§† Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Plastoid Corporation, Hamburg, NJ 07419 201-827-7141
Precision Interconnect, Portland, OR 97224 503-620-9400
§† Precision Tube, N. Wales, PA 19454 215-699-5801
§† Probe Master, Inc., San Diego, CA 92111 ..... 619-560-9676; 800-772-1519
† Product Technology, Inc., Irvine, CA 92714 714-474-8998
† Reactel, Inc., Rockville, MD 20850 301-279-5535
§ Remee Products Corp., Florida, NY 10921 914-651-4431
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† ST Microwave Corp., Sub. of Signal Technlg. Corp., Sunnyvale, CA 94086 408-730-6300
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Terminal Data Corp., Rockville, MD 20855 301-921-8282

Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
† United Wire & Cable Corp., Worcester, MA 01604 508-757-6872
† Victor Cable Wire & Cable, W. Warwick, RI 02893 ..... 401-821-7800;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9936
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100
§ Wilton, Morgan Hill, CA 95037-2809 408-779-2000
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 800-960-5131

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1711
§† Bain Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1720-1722
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† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-4051 ..... C•1405-1407,1750-1763
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
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Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
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§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1366 ..... C•1211
†# Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-658-3030 ..... C•1804-1818
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
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† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1804-1844,1847-1850,1852-1853
§ Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§† American Insulated Wire Corp, Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
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§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
† Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0085 .. 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
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Cabletron Systems, Inc., Rochester, NH 03867 603-332-9400
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ COMCAB, Nashport, OH 43830 614-828-2468
Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Dilwol Wire & Cable Inc. Burlington, Ont., CANADA L7T 2X5 416-681-2343
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† The First Electronics Corp., Boston, MA 02125 617-288-2430
Gandalf Data Inc., Gandalf Technologies Inc., Wheeling, IL 60090 ..... 708-541-6060; 800-GANDALF
† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
§ Independent Cable, Inc., Hudson, MA 01749 508-562-9913
Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 ... 203-281-0817
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Optical Cable Corp., Roanoke, VA 24022-1967 1-800-622-7711
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
† Plastrol Corporation, Hamburg, NJ 07419 201-827-7141
Precision Interconnect, Portland, OR 97224 503-620-9400
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Pylon Flex Development Co. Ltd., Lachine, PQ, CANADA H8S 1Z5 514-637-1186
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Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Standard Wire & Cable Co., Rancho Dominquez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
Temp-Flex Cable Inc., S. Grafton, MA 01560 508-839-5987
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1711
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§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1823-1824
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† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
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§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-6000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
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§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
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§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
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§ Covid, Inc., Tempe, AZ 85281 602-966-2221
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
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§ Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
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§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ Ergotron, Inc., Eagan, MN 55122 612-452-8135
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
§ Globtek, Inc., N. Bergen, NJ 07047 201-861-0246
§ Golden Pacific Electronics, Inc. Placentia, CA 92670 714-993-6970
§ GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Independent Cable, Inc., Hudson, MA 01749 508-562-9913
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
§ International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673

ISL Products Int'l, Ltd., Syosset, NY 11791-6093 516-937-3475
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
† Lamtech Electronics, Garland, TX 75042 214-272-3504
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 ... 203-281-0817
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
Nu Data, Inc., Little Silver, NJ 07739 908-842-5757
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Optical Cable Corp., Roanoke, VA 24022-1967 1-800-622-7711
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
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Pylon Elex Development Co. Ltd., Lachine, PQ, CANADA H8S 1Z3 514-637-1186
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§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1711
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1720-1722
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§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1822-1824
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834-1850,1854-1855
† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
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§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
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† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
§ GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
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§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
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New England Keyboard Inc., Fitchburg, MA 01420 508-345-8332
Nu Data, Inc., Little Silver, NJ 07739 908-842-5757
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
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§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
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§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
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§ Telebyte Technology, Inc., Greenlawn, NY 11740 ..... 516-423-3232;800-835-3298
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
† Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
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Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
§ Via West Interface, Inc., Tucson, AZ 85705 ..... 602-623-5716;1-800-266-5716
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

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§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1717,1720
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§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1749
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† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1846-1850
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Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
† The First Electronics Corp., Boston, MA 02125 617-288-2430
Flex-Link Products, Inc., San Fernando, CA 91340 818-898-1451
§† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ General Cable Co., Guardian Prods. Div., Greenwich, CT 06830 ..... 800-243-8020; 203-661-0100
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† GSI Corp., Timonium, MD 21093 410-252-1768
† Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§ Markel Corp., Norristown, PA 19404 215-272-8960
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Precision Interconnect, Portland, OR 97224 503-620-9400
Radix Wire Co., Cleveland, OH 44132 216-731-9191
§ Remee Products Corp., Florida, NY 10921 914-651-4431
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006

† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
† Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800

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Cable, Flame Retardant-6000

§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1717,1719-1722
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726,1734-1736
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1749
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 ..... C•1759
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776,1785,1789-1793
† Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834-1850,1852-1855
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
§† Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
† CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
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§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
† GSI Corp., Timonium, MD 21093 410-252-1768
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§ Markel Corp., Norristown, PA 19404 215-272-8960
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 ... 203-281-0817
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Optical Cable Corp., Roanoke, VA 24022-1967 1-800-622-7711
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Remee Products Corp., Florida, NY 10921 914-651-4431
† Roanwell, New York, NY 10014 212-989-1090
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
† Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, Flat-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710,1712
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1284
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1722
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1749
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755-1756
§† 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463-1464
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
† Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1815
Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1822
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1843,1854-1855
† Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
§† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§ AMP, Harrisburg, PA 17105 ..... 717-564-0100;800 522 6752
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§# Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
† Basic Electronics, Inc., Stanton, CA 90680 714-530-2400
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Cable USA, Inc., Naples, FL 33942-3560 813-643-6400
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
† CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§ CW Industries, Southhampton, PA 18966 215-355-7080
§ Datatran Corp., Denver, CO 80223 303-778-0870
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
Flex-Link Products, Inc., San Fernando, CA 91340 818-898-1451
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
§ International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
International Microelectronics, Arlington, TX 76003 817-561-2244
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§ Lance Industries, Sylmar, CA 91342-3832 818-367-1811
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075

LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 ... 203-281-0817
§ Mingston Electronics, Inc,, MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
New England Keyboard Inc., Fitchburg, MA 01420 508-345-8332
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
Schroff Incorporated, Warwick, RI 02886 401-732-3770
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
† Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Cable, Heater-6000

National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
ARi Industries, Inc., Addison, IL 60101 ..... 708-953-9100;800-237-6725
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§ Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Globtek, Inc., N. Bergen, NJ 07047 201-861-0246
W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Letco International, New Braunfels, TX 78131-1200 512-625-6993
§ Markel Corp., Norristown, PA 19404 215-272-8960
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Remee Products Corp., Florida, NY 10921 914-651-4431
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, High Temperature (Over 125°C)-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1716-1717
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1738
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 ..... C•1748-1749
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
† Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1843-1844,1846-1850
§† Adams-Russell, Inc., Div. of M/A COM, INC., Amesbury, MA 01913 508-388-5210
§† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
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§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
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§† Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
Ceramaseal, New Lebanon, NY 12125 518-794-7800
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† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
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† Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
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§ Lutze, Inc., West Caldwell, NJ 07006 ..... 201-227-2371;800-447-2371
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§† Markel Corp., Norristown, PA 19404 215-272-8960
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§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
Radix Wire Co., Cleveland, OH 44132 216-731-9191
§ Remee Products Corp., Florida, NY 10921 914-651-4431
Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
† Simmonds Precision Engine Systems, BF Goodrich Aerospace, Norwich, NY 13815 607-335-5000
† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
† Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
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§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Cable, High Voltage (1,000 Volts & Over)-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710
Bertan Assocs., Hicksville, NY 11801, 516-433-3110 ..... D•1631
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1716,1720
† Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1314-1315
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1748
Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1845-1846
† Adams-Russell, Inc., Div. of M/A COM, INC., Amesbury, MA 01913 508-388-5210
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
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§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880

§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
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Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
Multi-Contact USA, Santa Rosa, CA 95401 707-575-7575
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
Radix Wire Co., Cleveland, OH 44132 216-731-9191
Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Simmonds Precision Engine Systems, BF Goodrich Aerospace, Norwich, NY 13815 607-335-5000
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§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
Varian Associates, Electron Device Business, Palo Alto, CA 94304 ..... 415-493-4000; 800-544-4636
Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

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DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
§ L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424
LCT Electronic Corporation, Anaheim, CA 92801, 714-991-7317 ..... C•1683
§ American Advantech Corp., San Jose, CA 95122 408-293-6786
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Capital Equipment Corporation, Burlington, MA 01803 617-273-1818
Compac, Holbrook, NY 11741 516-585-3400
Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
John Fluke Mfg. Co., Inc., Everett, Wa 98206, WA 98203 206-347-6100
ICS Electronics Corp., Milpitas, CA 95035-5545 408-263-5500
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
§† Probe Master, Inc., San Diego, CA 92111 ..... 619-560-9676; 800-772-1519
Strawberry Tree, Inc., Sunnyvale, CA 94086 408-736-8800
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311

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§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1719-1721
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726-1729,1734,1736,1739
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1749
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
§ Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
§ L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424-1425
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1767
§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776,1779-1786,1790-1795
† Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1684
Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1822,1824
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834-1850,1852-1853
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
Adirondack Wire & Cable, ACS Industries Inc., Woonsocket, RI 02895 1-401-769-1600
† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
† Bailey Controls Co., Wickliffe, OH 44092 216-585-8500
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Cable USA, Inc., Naples, FL 33942-3560 813-643-6400
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Ceramaseal, New Lebanon, NY 12125 518-794-7800
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§ Continental Wire & Cable, York, PA 17405 717-792-2644
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§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ General Cable Co., Guardian Prods. Div., Greenwich, CT 06830 ..... 800-243-8020; 203-661-0100
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
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§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Lutze, Inc., West Caldwell, NJ 07006 ..... 201-227-2371;800-447-2371
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Markel Corp., Norristown, PA 19404 215-272-8960
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
† National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Precision Interconnect, Portland, OR 97224 503-620-9400
§† Probe Master, Inc., San Diego, CA 92111 ..... 619-560-9676; 800-772-1519
§ Remee Products Corp., Florida, NY 10921 914-651-4431
† Rockland Insulated Wire & Cable, Haverstraw, NY 10927 914-429-3103
§ Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Storm Products Co., Hinsdale, IL 60521 708-323-9121
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§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Terminal Data Corp., Rockville, MD 20855 301-921-8282
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
S.S White Technologies Inc., Piscataway, NJ 08854-3761 908-752-8300
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

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§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
§† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
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Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† The First Electronics Corp., Boston, MA 02125 617-288-2430
† GSI Corp., Timonium, MD 21093 410-252-1768
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
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§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
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§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
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§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872

Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
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† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, Low Capacitance-6000

§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1722**
§† **Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1730,1735-1736**
§ **JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763**
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CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
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Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
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Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
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§ Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
§ Electro Standards Lab., Inc., Data Communications Products Div., Cranston, RI 02921 401-943-1164
Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
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LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Montrose Products Company, Interco'e, Auburn, MA 01501 508-791-3161
National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
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Precision Interconnect, Portland, OR 97224 503-620-9400
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§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
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§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
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§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
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§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, Microphone-6000

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Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
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§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
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§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
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§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
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§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 ... 203-281-0817
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§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1713
§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1719-1722**
§† **Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726-1727,1729-1731,1734-1736,1739**
§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1749**
General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... C•1753
† **GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755**
§† **Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764**
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1767,1769
§ **Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771**
Mercotac Inc., Carlsbad, CA 92009, 619-431-7723 ..... B•1295
MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776,1779-1793
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ... C•1807,1809
§ **Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1365 ..... D•1107**
† **Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813**
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
† **Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819**
† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820**
§† **Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1822-1823**
† **Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834-1844,1847-1855**
† Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
§ Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
AMP, Harrisburg, PA 17105 ..... 717-564-0100;800-522-6752
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223

§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
§ Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
† CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
Covid, Inc., Tempe, AZ 85281 602-966-2221
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† The First Electronics Corp., Boston, MA 02125 617-288-2430
† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
International Components Corp., Melville, NY 11747 516-293-1500
§ International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
International Microelectronics, Arlington, TX 76003 817-561-2244
§† JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Lance Industries, Sylmar, CA 91342-3832 818-367-1811
§ Lutze, Inc., West Caldwell, NJ 07006 ..... 201-227-2371;800-447-2371
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 203-281-0817
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
Mouser Electronics, Mansfield, TX 76063 800-346-6873
National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
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§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
Precision Interconnect, Portland, OR 97224 503-620-9400
§ Remee Products Corp., Florida, NY 10921 914-651-4431
† Rockland Insulated Wire & Cable, Haverstraw, NY 10927 914-429-3103
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
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Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
† Teledyne Aerospace Sys., Fairmont, MN 56031 507-235-3355
§† Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
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† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
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§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

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† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755
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§ Cable USA, Inc., Naples, FL 33942-3560 813-643-6400
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
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§† Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Compac, Holbrook, NY 11741 516-585-3400
† Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
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§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
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§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
§ Electro Standards Lab., Inc., Data Communications Products Div., Cranston, RI 02921 401-943-1164
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
# Glasgal Communications, Inc., Northvale, NJ 07647 201-768-8082
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§ Independent Cable, Inc., Hudson, MA 01749 508-562-9913
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
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§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
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§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
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§ Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Storm Products Co., Hinsdale, IL 60521 708-323-9121
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§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Terminal Data Corp., Rockville, MD 20855 301-921-8282
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1711
Autec Power Systems, Chatsworth, CA 91311, 818-341-6123 ..... D•1623
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726,1732-1733,1742
§† Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873, 908-247-7333 ..... C•1752
§ Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1386,1754
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1448
§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
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§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1814
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† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1852-1853
† Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
APX-Arstan Products, Hicksville, NY 11801 516-433-1313

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§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
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§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
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† Electroweave, Inc., Worcester, MA 01604 508-752-8932
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ETRI, Inc., Monroe, NC 28110 704-289-5423
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† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
International Configurations, Inc., Enfield, CT 06082 203-749-6380
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§† Linemaster Switch, Woodstock, CT 06281-0238 203-974-1000
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Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
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† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
§ Tumbler Corp. Cable Div., Fremont, CA 94539 415-657-3002
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† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

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Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1091
§† Accuride, Santa Fe Springs, CA 90670 213-903-0373
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† General Devices Co., Inc., Indianapolis, IN 46239-9632 317-897-7000
Jonathan Manufacturing Corp., Fullerton, CA 92631 714-526-4651
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900

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† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755-1756
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
Andrew Corp., Orland Pk., IL 60462 800-255-1479
§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
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§ Remee Products Corp., Florida, NY 10921 914-651-4431
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
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§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

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General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... C•1753
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834-1844,1846-1850
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§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
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§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
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§ Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
† GSI Corp., Timonium, MD 21093 410-252-1768
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
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§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
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Cable, Shielded-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1711
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ... C•1716-1717,1719-1721
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726-1739
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1749
§† Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873, 908-247-7333 ..... C•1752
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1754
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755-1756
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
§ JH America, Inc., Ji-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1768
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776,1779-1793
Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1365 ..... C•1810,1812, D•1107
†# Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090 ..... A•1824-1826
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816-1817
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1836-1850
† Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Caton Connector Corp., Kingston, MA 02364 617-585-4315
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
§† Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141

† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
† CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
Covid, Inc., Tempe, AZ 85281 602-966-2221
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§ CW Industries, Southhampton, PA 18966 215-355-7080
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Dymec Inc., Winchester, MA 01890 617-729-7870
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ Endevco Corporation, Allied Signal Aerospace Co., San Juan Capistrano, CA 92675 714-493-8181
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
† The First Electronics Corp., Boston, MA 02125 617-288-2430
† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ General Cable Co., Guardian Prods. Div., Greenwich, CT 06830 ..... 800-243-8020; 203-661-0100
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
§† Gordon Co.:Watlow, Richmond, IL 60071 815-678-2211
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§ Harris Corp., Dracon Div., Camarillo, CA 93012 805-987-9511
International Microelectronics, Arlington, TX 76003 817-561-2244
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§† Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, Gardena, CA 90247 213-532-6600
§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Plastoid Corporation, Hamburg, NJ 07419 201-827-7141
Precision Interconnect, Portland, OR 97224 503-620-9400
§† Precision Tube, N. Wales, PA 19454 215-699-5801
§† Remee Products Corp., Florida, NY 10921 914-651-4431
† Roanwell, New York, NY 10014 212-989-1090
† Rockland Insulated Wire & Cable, Haverstraw, NY 10927 914-429-3103
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
† Teledyne Aerospace Sys., Fairmont, MN 56031 507-235-3355
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Terminal Data Corp., Rockville, MD 20855 301-921-8282
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Cable, Speaker-6000

Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816

Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834-1844,1847-1850
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
Accusonic Systems Corp., A DSG Company, New Hyde Park, NY 11040 516-328-3300
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Lutze, Inc., West Caldwell, NJ 07006 ..... 201-227-2371;800-447-2371
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Remee Products Corp., Florida, NY 10921 914-651-4431
§ Shure Brothers Inc., Evanston, IL 60202-3696 708-866-2200
§ Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311

Cable, Telephone-6000

§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1721
§† Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873, 908-247-7333 ..... C•1752
General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... C•1753
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1448,1454,1456,1767-1768
§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1510,1815
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1822-1823
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834-1844,1847-1848,1850
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ COMCAB, Nashport, OH 43830 614-828-2468
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Glasgal Communications, Inc., Northvale, NJ 07647 201-768-8082
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 ... 203-281-0817
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Mouser Electronics, Mansfield, TX 76063 800-346-6873
† National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
Nu Data, Inc., Little Silver, NJ 07739 908-842-5757
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, Gardena, CA 90247 213-532-6600
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Plastoid Corporation, Hamburg, NJ 07419 201-827-7141
§ Remee Products Corp., Florida, NY 10921 914-651-4431
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500

§ Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, TFE Insulated-6000

§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1716
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726-1727,1736,1738
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 ..... C•1748-1749
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
† Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813
†# Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090 ..... A•1824-1826
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1843-1844,1846
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
§† Adams-Russell, Inc., Div. of M/A COM, INC., Amesbury, MA 01913 508-388-5210
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§† Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
† GSI Corp., Timonium, MD 21093 410-252-1768
† Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
Kaman Instrumentation, Colo Springs, CO 80907 1-719-599-1892
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§† Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Precision Interconnect, Portland, OR 97224 503-620-9400
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
Storm Products Co., Hinsdale, IL 60521 708-323-9121
§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, Thermocouple-6000

§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... C•1799
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
ARi Industries, Inc., Addison, IL 60101 ..... 708-953-9100;800-237-6725
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cable USA, Inc., Naples, FL 33942-3560 813-643-6400
Ceramaseal, New Lebanon, NY 12125 518-794-7800
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
† DELTA M Corporation, Oak Ridge, TN 37830 615-483-1569
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
Incotherm Limited, Hereford HR4 9SL ..... (44) 432 355880
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Love Controls Corp., Wheeling, IL 60090 708-541-3232
§ Markel Corp., Norristown, PA 19404 215-272-8960
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Richards, Arklay S., Co., Inc., Newton Highlands, MA 02161-1796 617-527-4385
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§ Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100

Cable, Transmission Line, Power-6000

National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1845-1846,1852-1853
† Adams-Russell, Inc., Div. of M/A COM, INC., Amesbury, MA 01913 508-388-5210
Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
† Kaman Instrumentation, Colo Springs, CO 80907 1-719-599-1892
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ Precision Tube, N. Wales, PA 19454 215-699-5801
§ Remee Products Corp., Florida, NY 10921 914-651-4431
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
Storm Products Co., Hinsdale, IL 60521 708-323-9121
Temp-Flex Cable, Inc., S. Grafton, MA 01560 508-839-5987
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100

Cable, Triaxial-6000

§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1754
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
 # Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090 ..... A•1824-1826
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000

§ Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§† Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
# Glasgal Communications, Inc., Northvale, NJ 07647 201-768-8082
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
† Independent Cable, Inc., Hudson, MA 01749 508-562-9913
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
§ Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
† Plastoid Corporation, Hamburg, NJ 07419 201-827-7141
Precision Interconnect, Portland, OR 97224 503-620-9400
Precision Tube, N. Wales, PA 19454 215-699-5801
§ Remee Products Corp., Florida, NY 10921 914-651-4431
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
§ Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§ Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, TV (Incl. Camera)-6000

§ Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1737-1738
General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... C•1753
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 ..... C•1399,1759
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1815
Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 508-754-3281
§ BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§ Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
Covid, Inc., Tempe, AZ 85281 602-966-2221
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
Plastoid Corporation, Hamburg, NJ 07419 201-827-7141
§ Remee Products Corp., Florida, NY 10921 914-651-4431
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
Victor Elec. Wire & Cable, W. Warwick, RI 02893 ..... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§ Wavetek RF Products, Inc., (Formerly Wavetek Indiana, Inc.), Indianapolis, IN 46203-6109 317-788-9351
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400

Cable, Twisted Pair-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1711
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1719,1721
§ General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... C•1753
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1754
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776,1779-1780,1782,1784-1786,1791-1792
Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1365 ..... C•1810,1812, D•1107
† Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1824
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1834,1837-1839,1848-1850
Adirondack Wire & Cable, ACS Industries Inc., Woonsocket, RI 02895 1-401-769-1600
† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 401-726-0700
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 508-754-3281
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
Cabletron Systems, Inc., Rochester, NH 03867 603-332-9400
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
§† Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ Endevco Corporation, Allied Signal Aerospace Co., San Juan Capistrano, CA 92675 714-493-8181
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§ Independent Cable, Inc., Hudson, MA 01749 508-562-9913
ISL Products Int'l, Ltd., Syosset, NY 11791-6093 516-937-3475
Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Kelly American, Inc., Brookfield, CT 06804 203-775-2590
§ Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§† Microtech, Boothwyn, PA 19061 215-459-3566
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473

Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Pacific Electricord, Gardena, CA 90247 213-532-6600
§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Precision Interconnect, Portland, OR 97224 503-620-9400
§ Remee Products Corp., Florida, NY 10921 914-651-4431
† Rockland Insulated Wire & Cable, Haverstraw, NY 10927 914-429-3103
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
§ Wilco Wire & Cable Co., Inc., San Jose, CA 95133 408-926-8880
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable, Welding-6000

Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1847
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Custom Cable Corp., Westbury, NY 11590 516-334-3600

Cable, Woven Conductor-6000

Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1726
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1755-1756
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
§† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
§† Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Cable Systems, Inc., Everett, MA 02149 617-389-7080
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131

Cable & Assemblies (MIL)-2440 — *See Vol. B*

Cable & Connectors, Satellite Antennas-1200 — *See Vol. D*

Cable Assemblies & Harnesses-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1713
† Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1163
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1284
Autec Power Systems, Chatsworth, CA 91311, 818-341-6123 ..... D•1623
Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1312,1314
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325,1595
Connectronics Corp., Toledo, OH 43607, 419-537-0020 ..... C•1328
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1741-1742
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
† E.M.S., Div. of Sandberg Industries, Tustin, CA 92680, 714-669-9473 .... C•1682
Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 .... C•1372-1373
§ Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1386,1754
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1756
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404-1405
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1765
† LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
† Litton Poly-Scientific, Div. of Litton Industries, Blacksburg, VA 24060-3100, 800-336-5917;703-953-4751 ..... B•1218-1220,1285-1286
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1448-1451, 1767
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463-1464
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776,1796
† Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100 ..... C•1798
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ... C•1485,1804
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1365 ..... C•1810-1812
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1496
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1814
§† Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090 ..... A•1824-1826
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1815
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816-1817
Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1515
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1820
§ S.I. Tech, Batavia, IL 60510, 708-232-8640 ..... B•1231
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§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Adirondack Wire & Cable, ACS Industries Inc., Woonsocket, RI 02895 1-401-769-1600
§† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Altek Co., Torrington, CT 06790 203-482-7626
† Altron, Inc., Anoka, MN 55303 612-427-7735
American Assembly Inc., Florida, NY 10921 914-651-3433
§† AMP, Harrisburg, PA 17105 ..... 717-564-0100;800-522-6752
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Interconnect Products, Endicott, NY 13760 607-754-4444
Andrew Corp., Orland Pk., IL 60462 800-255-1479
§† Antex Division, Marblehead, MA 01945 617-631-7100
† Apsco, Inc., Mentor, OH 44060 216-352-8961
† Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§# Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
† Automation Elctrns., R.J.A. Inds., Inc., Chatsworth, CA 91311 818-998-5124
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
Babcock Display Products, Inc., A Subsidiary of Babcock, Inc., Anaheim, CA 92805 714-491-5100
† Basic Electronics, Inc., Stanton, CA 90680 714-530-2400
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Bibco, Inc., Benton Harbor, MI 49022 ..... 616-925-8445;800-851-5701
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
† Branmag, Inc., North Tonawanda, NY 14120 716-693-5994
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Burton Electrical Engineering, Wyle Laboratories, El Segundo, CA 90245 213-322-0615
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
† Cable Systems, Inc., Everett, MA 02149 617-389-7080
Cabletest Products Co., Malden, MA 02148 617-665-2932
§ Cablex, Inc., Englewood, CO 80112 303-792-5760
† CAD Engrg. & Assembly Inc., Mentor, OH 44060 216-255-7744
† Cardinal Control Co., Kensington, CT 06037 203-828-6379
† Caribbean Assemblies, Inc., Winterspring, FL 32708 407-327-0602
# CCP/Technical Devices, Dayton, OH 45414 513-890-7881
† C.E. Precision Assemblies, Inc., Chandler, AZ 85226 602-940-0740
† Chalco Engrg. Corp., Chalco Industries, Inc., Gardena, CA 90248-1898 ..... 213-321-0121; 213-323-5525
Chenango Industries, Inc., Vestal, NY 13850 607-748-1572
Christiana Industries Corp., Chicago, IL 60626 312-465-6330
† CICOIL CORP., Valencia, CA 91355-3428 805-295-1295
† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
Circom Inc., Bensenville, IL 60106 708-595-4460
§# Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
† Coaxitube Corp., Salisbury, MD 21801 301-546-3911
§ COMCAB, Nashport, OH 43830 614-828-2468
Comm/Scope, Inc., Network Cable Div., Claremont, NC 28610 ..... 704-324-2200; 800-982-1708

§ Communication Devices, Inc., Scarborough, Ont., CAN M1B3R6 416-292-4463
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Computer Systems Technical Support, Anaheim, CA 92807 714-632-1300
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
† Corlund Electronics Corp., Newbury Park, CA 91320 805-499-6877
§ Covid, Inc., Tempe, AZ 85281 602-966-2221
Cross Electronics, Warrendale, PA 15086 412-776-1591
† CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
CUI Stack Inc., Beaverton, OR 97005 503-643-4899
§ CW Industries, Southhampton, PA 18966 215-355-7080
† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
† Danmar Inds., Moorpark, CA 93021 1-805-529-3788,1-800-666-6268
§ Dataprobe, Englewood, NJ 07631 201-569-6464
† Data Set Cable Co., Inc., Ridgefield, CT 06877 203-438-9684
† De Anza Mfg. Svcs. Inc., Sunnyvale, CA 94089 408-734-2020
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Diagostic Instrument Corp., Ayer, MA 01432 508-772-4572
Digital Equip., Marlborough, MA 01752
† Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
† Eastern Electronics Mfg. Corp., National Patent Dev. Corp., East Hartford, CT 06108 203-528-9821
Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
† Electro Prep Inc. & N-E-D Cable, Wareham, MA, MA 02571 508-291-2880
§ Electro Standards Lab., Inc., Data Communications Products Div., Cranston, RI 02921 401-943-1164
† Electro-Support Systems, Temecula, CA 92390 714-676-2751
† Electro-Tec Corporation A Kaydon Company, Blackburg, VA 24060 703-552-2111
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
†# ELMEC, Inc., Technautic Corp., Chandler, AZ 85226 602-961-7100
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
Everett/Charles Test Equipment, Inc., Pomona, CA 91767 714-621-9511
§† Excel Specialty Corp., Chicago, IL 60660 312-262-4781
§† E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
Federal Electronics, Cranston, RI 02921 401-944-6200
The Five Star Co., Plantsville, CT 06479 203-628-5561
Flex-Link Products, Inc., San Fernando, CA 91340 818-898-1451
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Cable Co., Kenly, NC 27542 919-284-5144
§† General Devices Co., Inc., Indianapolis, IN 46239-9632 317-897-7000
# General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
† General Technology Corp., Albuquerque, NM 87109 505-345-5591
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
† GRIM Corporation, Medford, NJ 08055-0968 609-267-7950
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
Richard Hirschmann of America Inc., Riverdale, NJ 07457 201-835-5002
§† Hollingsead International, Santa Fe Springs, CA 90670 213-921-3438
§ ICC, Inc., Orange, CA 92665 714-998-8310
§† IEC Electronics Corp., Newark, NY 14513 315-331-7742
§ Illinois Lock Co., The Eastern Co., Wheeling, IL 60090 708-537-1800
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
K & M Electronics, W. Springfield, MA 01089 413-781-1350
§ Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
† Lamtech Electronics, Garland, TX 75042 214-272-3504
§† Linemaster Switch, Woodstock, CT 06281-0238 203-974-1000
§† Lynn Electronics; Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
† Manage, Inc., Fibre Optics Elctrns. Sys. Grp., Chicopee, MA 01014 413-592-9123
† Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
† Maury Microwave Corp., Cucamonga, CA 91730 714-987-4715
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
† Memtec Corp., Salem, NH 03079 603-893-8080
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
† Metric Systems, Ft. Walton Beach, FL 32548-9990 904-244-9600
§ Mhotronics., Inc., Vernon Hills, IL 60061 708-913-9566
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
† MOLDCON Div. of Contex Electronics, W. Springfield, MA 01089 413-736-0371
Moore Reed & Co. Ltd., Andover, HAMPSHIRE SP 105AB 0264-324155
† MRL, Missouri Research Labs., St. Charles, MO 63301 .. 314-946-6900;1-800-325-0223
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Multi Products International, West Paterson, NJ 07424 201-890-1344
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
† National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
New England Keyboard Inc., Fitchburg, MA 01420 508-345-8332
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, Gardena, CA 90247 213-532-6600
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
Precision Interconnect, Portland, OR 97224 503-620-9400
† Precision Tube, N. Wales, PA 19454 215-699-5801
† Product Technology, Inc., Irvine, CA 92714 714-474-8998
Pylon Elex Development Co. Ltd., Lachine, PQ, CANADA H8S 1Z3 514-637-1186
Ragen Corp., Systems Div., N. Arlington, NJ 07032 201-997-1000
† Reactel, Inc., Rockville, MD 20850 301-279-5535
Regal Aljoy Wire & Cable, Levittown, NY 11756 516-735-4871
Ren Electronics Corporation, C.C.G., An Insico Co., S. Hadley, MA 01075 413-536-1800
§† Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
§† Rose Enclosures Sys., Inc., Frederick, MD 21701 301-696-9800
† Russtech Engineering Company, Inc., Mission Viejo, CA 92691 714-472-0880
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
Schroff Incorporated, Warwick, RI 02886 401-732-3770
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Simmonds Precision Engine Systems, BF Goodrich Aerospace, Norwich, NY 13815 607-335-5000
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Symbicon Assoc. Inc., Amherst, NH 03031 603-673-8898
§† Systron-Donner Microwave Div., Sylmar, CA 91342 818-362-9900
Techdyne, Inc., Lance Wire & Cable Div., Hamden, CT 06514 203-288-5571
† Tech Laboratories Inc., Palisades Pk., NJ 07650 201-944-2221
† Technical Services Laboratory Inc., Ft. Walton Beach, FL 32548 904-243-3722
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930
† Teledyne Aerospace Sys., Fairmont, MN 56031 507-235-3355
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
† Terminal Data Corp., Rockville, MD 20855 301-921-8282
Texas Optoelectronics, Inc., Garland, TX 75042 214-487-0085
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Time Mark Corp., Tulsa, OK 74116 918-438-1220
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Trionics, Inc., St. Charles, IL 60174 312-232-9117
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
# Unitrek Corporation, Vancouver, WA 98661 206-699-7277
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
# V-Tron Electronics Corp., S. Attleboro, MA 02703 508-761-9100
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677
† Western Reserve Electronics, Twinsburg, OH 44087 216-425-4951
† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
§† Wilco Wire & Cable Co., Inc., San Jose, CA 95133 408-926-8880
† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651
† Woven Electronics, Woven Electronics Corporation, Simpsonville, SC 29681 803-963-5131
Xylog Corp., Hackensack, NJ 07601 201-489-4040
Zercom Corporation, Merrifield, MN 56465-0084 218-765-3151
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

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§† Ohmite Manufacturing Co., Skokie, IL 60076 708-675-2600
Richard-Lee Co., Cranford, NJ 07016 201-276-0710

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POLYCASE PRODS., ECP Corp., Cleveland, OH 44103, 216-391-0444 ... C•1078

† American Aluminum, Mountainside, NJ 07092 ... 908-233-3500
American Radionic Co. Inc., Palm Coast, FL 32137 ... 904-445-6000
§ Gentron Corporation, Scottsdale, AZ 85260 ... 602-443-1288
† Hudson Tool & Die Co., Newark, NJ 07105 ... 201-589-1800
Inter-Technical Group Inc., WIMA Div., Elmsford, NY 10523 ... 914-347-2474
Ken-Tron Mfg., Inc., Owensboro, KY 42301 ... 502-684-0431
§† Keystone Electronics Corp., Astoria, NY 11105-2017 ... 718-956-8900
National Manufacturing Co., Inc., Chatham, NJ 07928 ... 201-635-8846
† Wall, A. T., Co., Warwick, RI 02886 ... 401-739-0740
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ... 818-846-4191;818-841-1825

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§ Bivar, Inc., Irvine, CA 92718, 714-951-8808 ... C•1015
Chicago Condenser Corp., Chicago, IL 60622, 312-227-7070 ... A•1019
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ... 201-288-4477; 800-447-5639
§ Mallory/North American Capacitor Co., Indianapolis, IN 46241 ... 317-856-3731
Sprague Electric Company, Distribution Division, Mansfield, MA 02048-9102 ... 508-339-8900
§† Teknational Inds., Inc., Rochester, NY 14620-1103 ... 716-232-1291

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† Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ... C•1404
Alden Products Co., Brockton, MA 02403 ... 508-583-0160
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 ... 203-265-8910
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 ... 203-743-9272
§ AVA Electronics Corporation, Drexel Hill, PA 19026 ... 215-284-2500
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 ... 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 ... 612-537-1010
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 ... 201-768-5400
§ Electronic Resources Inc., Sunnyvale, CA 94089 ... 408-745-1420
Fischer Connectors, Valencia, CA 91355 ... 805-295-0600;1-800-344-0445
† Glenair Inc., Glendale, CA 91201-2497 ... 818-247-6000
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ... 908-245-0033;800-526-4182
Hypertronics Corp., Hudson, MA 01749 ... 508-568-0451;800-225-9228
§ Ideal Industries, Sycamore, IL 60178 ... 815-895-5181
International Configurations, Inc., Enfield, CT 06082 ... 203-749-6380
ITT Cannon, Santa Ana, CA 92705-5684 ... 714-557-4700
Ken-Tron Mfg., Inc., Owensboro, KY 42301 ... 502-684-0431
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 ... 617-890-4750
§† Norelcom Inds., Farmingdale, NY 11735 ... 516-249-7245
§† Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 ... 315-468-6211
§ Penstock Engineering Labs., Penstock, Inc., Sunnyvale, CA 94086-4018 ... 408-730-0300;800-PENSTOCK
† Rowe Industries, Inc., Toledo, OH 43612 ... 419-729-9761
§ Stetco, Inc., Franklin Pk., IL 60131 ... 708-671-4208
§† Sunbank Electronics, Paso Robles, CA 93446 ... 805-238-2840
TELTEC, INC., Minneapolis, MN 55425 ... 612-854-9632
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 ... 803-676-2900
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 ... 309-693-3300

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§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ... C•1724-1725
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1745
§ Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100 ... C•1798
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 ... 908-925-8000
† AME Corporation, Towaco, NJ 07082-0195 ... 201-263-1700
§ Antex Division, Marblehead, MA 01945 ... 617-631-7100
† Brand Dielectrics, Inc., N. Windham, CT 06256 ... 203-423-6321
Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 ... 514-667-4700

† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
§† Remtek Corporation, Fremont, CA 94538 415-490-3999
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
Shin-Etsu Polymer America, Inc., Union City, CA 94587 415-475-9000
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174;800-526-3842

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AMP, Harrisburg, PA 17105 ..... 717-564-0100;800-522-6752
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
MOLEX, Inc., Lisle, IL 60532 708-969-4550
§ The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
Texas Instruments, Connector System, Attleboro, MA 02703 ..... 508-699-5269; 508-699-3450
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900

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§ Clean Room Prods., Ronkonkoma, NY 11779-6528 516-588-7000
§ Contact East, N. Andover, MA 01845 508-682-2000
EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 818-442-2572
§ Ferno-Salesmaker, Ferno-Washington, Inc., Wilmington, OH 45177 513-382-1451
John Fluke Mfg. Co., Inc., Everett, Wa 98206, WA 98203 206-347-6100
§ Hodge Manufacturing Co., Inc., Springfield, MA 01107 413-781-6800
Inter Metro Industries Corp., Wilkes-Barre, PA 18705 717-825-2741
† Kikusui International Corp., Torrance, CA 90503 ..... 213-371-4662;800-545-8784
Knurr USA Inc., Knurr A.G., Simi Valley, CA 93063 805-526-7733
§ Leader Instruments Corp., Hauppauge, NY 11788-3694 ..... 516-231-6900; 1-800-645-5104
LeCroy Corp., Chestnut Ridge, NY 10977 914-425-2000
§† Lyon Metal Products, Inc., Aurora, IL 60507 708-892-8941
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mobile-Tronics Co., Inc., San Clemente, CA 92674 714-361-4305
Parsons Manufacturing, Menlo Park, CA 94025-1476 415-324-4726
Skydyne Div., AAR Mfg., Port Jervis, NY 12771 ..... 914-856-6655;800-428-CASE
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603
§ Sunshine Instruments, Philadelphia, PA 19115 ..... 215-673-5600;800-343-1199
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

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† Albion Industries, Albion, MI 49224 517-629-9441
§ Casemaker, Stebco Industries, Inc., Chicago, IL 60609 312-254-1221
Crissman Manufacturing Co., Huntley, IL 60142 708-669-3995
† ECS Composites, Grants Pass, OR 97526 503-476-8871
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† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
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† The Mushield Co. Inc., Goffstown, NH 03045 603-666-4433
† Power Sys. Grp., Rantec Div., Emerson Elec. Co., Chatsworth, CA 91311 818-885-8223

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§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
† Calmark Corp., San Gabriel, CA 91776 818-287-0451
† Contours Inc., Meriden, CT 06450 203-237-8331
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† EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 818-442-2572
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§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
† Hamilton Metalcraft, Pasadena, CA 91103 818-795-4811
§ Hammond Manufacturing Co., Buffalo, NY 14225 716-894-5710
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Micro Industries, Westerville, OH 43081 614-895-0404
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Pacific Microcomputers, Signal Technology, San Diego, CA 92121 619-453-8649
Prototek, Inc., Hamilton, OH 45015 513-874-5094
Schroff Incorporated, Warwick, RI 02886 401-732-3770
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
Zendex Corp., Dublin, CA 94568 415-828-3000
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§ AAK Corp, Haverhill, MA 01832 ..... 508-373-3769;800-886-2225
§† Abalon Precision Mfg., Bronx, NY 10459 ..... 212-589-5682;1-800-888-ABALON
† Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
Alden Products Co., Brockton, MA 02403 508-583-0160
† American Aluminum, Mountainside, NJ 07092 908-233-3500
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Bit 3 Computer Corporation, Minneapolis, MN 55431-1393 612-881-6955
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Burbank Sheet Metal Works Inc., Burbank, CA 91502 818-846-0316
† Churchill Corp., Melrose, MA 02176 617-665-4700
† Contours Inc., Meriden, CT 06450 203-237-8331
Dickinson USA Inc., Dickinson Manufacturing Co. Ltd., Lynnwood, WA 98037 ..... 206-742-3677;800-659-9768; In Canada 604-525-6444
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Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
Fury Products, Inc, Chino, CA 91710 714-597-7861
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ GENROCO, Inc., Slinger, WI 53086-9407 414-644-8700
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† Hamilton Metalcraft, Pasadena, CA 91103 818-795-4811
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§ Heeger, Inc., City of Commerce, CA 90040 ..... 213-728-5108;728-4729;728-6913
Industrial Computer Source, San Diego, CA 92111 619-279-0084
§ LMB Heeger, Inc., Commerce, CA 90040 213-728-5108
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§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
MRL, Missouri Research Labs., St. Charles, MO 63301 .. 314-946-6900;1-800-325-0223
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Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
Schroff Incorporated, Warwick, RI 02886 401-732-3770
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Suckle Corp., Scranton, PA 18505 717-346-3871
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
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§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
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Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
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† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§† Alpha Metals, Jersey City, NJ 07304 201-434-6778
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§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
Auric Corp., Newark, NJ 07114 201-242-4100
§† Automated Prod. Equip. Corp., Medford, NY 11763 516-654-1197
Fidelity Chemical Products Corp., Newark, NJ 07114 201-242-4110
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Instant Board Circuits Grp., Novato, CA 94949 415-883-1717
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
Pace Inc., Laurel, MD 20723-1990 301-490-9860
Sel-Rex Div., OMI Intl. Corp., Nutley, NJ 07110 201-667-5200
† Technic, Inc., Providence, RI 02940-9650 401-781-6100
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§ Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
Castall Inc., E. Weymouth, MA 02189 617-337-6075
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§ Lilly-Ram Industries, Gardena, CA 90248 213-321-0710
† Master Bond, Hackensack, NJ 07601 201-343-8983
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Fidelity Chemical Products Corp., Newark, NJ 07114 201-242-4110
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§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† General Chemical Corporation, Pittsburg, CA 94565 415-685-1450
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
Micro-Etch Products, Inc., Stratford, CT 06497 203-378-8610

† Technic, Inc., Providence, RI 02940-9650 401-781-6100
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Tra-Con, Inc., Medford, MA 02155 617-391-5550
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§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
† Technic, Inc., Providence, RI 02940-9650 401-781-6100

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Fidelity Chemical Products Corp., Newark, NJ 07114 201-242-4110
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Dale Electronics, Inc., Columbus Div., Columbus, NE 68601-3647 402-563-6506
§ Dale Electronics, Inc., Norfolk Div., Norfolk, NE 68701-2242 402-371-0080
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§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
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† Ohmtek Inc., Vishay, Niagara Falls, NY 14304 716-283-4025
Project Resources Inc., Wareham, MA 02571 508-295-7444
Solitron Devices, Inc., Semiconductor Group, Riviera Beach, FL 33404-9978 ..... 407-848-4311;800-888-8763

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Circuits, Hybrid, Thin Film-3130 — *See Vol. A*

Circuits, Hybrid, Thin Film, Surface Mount-3130 — *See Vol. A*

Circuits, Integrated — See Integrated Circuits (Specific Types) (Vol. A)

Circuits, Printed Flexible-1700

§ Action Instruments, San Diego, CA 92123 619-279-5726
† Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
A E G Corporation, Somerville, NJ 08876-1269 908-231-8491
Associated Circuits Inc., Menlo Park, CA 94025 415-329-0478
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Aztec Industries, Inc., Mesa, AZ 85210 ..... 602-833-3131;800-729-3132
† Basic Electronics, Inc., Stanton, CA 90680 714-530-2400
Colt Technology Corp., Lenexa, KS 66219 913-888-1673
DOW SWITCH, Wilmington, MA 01887 617-935-6395
† Eldre Corporation, Rochester, NY 14623 716-427-7280
§† Electrofilm, Valencia, CA 91355 805-257-2240
† Electronic Systems Division, Boeing Defense & Space Grp., Seattle, WA 98124-2499 206-657-7474
Electronic Tele-Communications, Inc., Atlanta, GA 30340-2178 404-455-4890
† Flex-Link Products, Inc., San Fernando, CA 91340 818-898-1451
† General Technology Corp., Albuquerque, NM 87109 505-345-5591
GTI/Circuits Div., Leesburg, IN 46538 219-453-3261
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
Hughes Electronics Products Corp., Livonia, MI 48150 313-427-8310
Intaq Key Panels, GM Nameplate, Inc., Seattle, WA 98119 206-284-5475
ITL Circuits, Markham, Ontario, CANADA L3R 1C4 ..... 416-475-6658;416-492-9307
Jayco Plastics of California, Inc., Orange, CA 92665 714-974-1701
§ Mantex Corp., Oxford, MI 48371 313-628-8210
† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
† Minco Products, Minneapolis, MN 55432 612-571-3121
New England Keyboard Inc., Fitchburg, MA 01420 508-345-8332
Noble U.S.A., Inc., Rolling Meadows, IL 60008 708-364-6038
OMNI Switch USA, Inc., Phoenix, AZ 85027 602-582-0629
† Poly Circuits, Inc., Bensenville, IL 60106 708-860-3560
† Precision Graphics Inc., Raritan, NJ 08869 908-707-8880
† Proto Systems, Alpharetta, GA 30201 ..... 404-475-1330;800-331-1797
Rogers Corporation, Circuit Materials Div., Chandler, AZ 85244 602-963-4584
† Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
Rogers Corp., Rogers, CT 06263 203-774-9605
† Sheldahl, Inc., Northfield, MN 55057 507-663-8000
† Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
† Thermolab, Van Nuys, CA 91405 818-787-4084
† Wontronics, Los Angeles, CA 90039 213-660-6230

Circuits, Printed, Multilayer-1700

† Electronic Controls Design, Milwaukie, OR 97222, 503-659-6100 ..... D•1169
† Fema Elctrns. Corp., E. Brunswick, NJ 08816, 908-238-1223 ..... B•1073
International Sensor Systems, Inc., Aurora, NE 68818, 402-694-6111 .... A•1731
§ Action Instruments, San Diego, CA 92123 619-279-5726
Additive Circuits, AMP-AKZO Corp., Aquebogue, NY 11931 516-722-4100
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
Associated Circuits Inc., Menlo Park, CA 94025 415-329-0478
AT&T Microelectronics, Allentown, PA 18103 ..... 1-800-372-2447;In Can.: 1-800-553-2448
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
† Avanti Circuits, Inc., Phoenix, AZ 85023 1-800-234-1556
† Aydin Corp., Horsham, PA 19044 215-657-7510
Aztec Industries, Inc., Mesa, AZ 85210 ..... 602-833-3131;800-729-3132
BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Chenango Industries, Inc., Vestal, NY 13850 607-748-1572
Cherry Electrical Products, Cherry Corporation, Waukegan, IL 60087 708-662-9200
† Collins Commercial Avionics, Rockwell Intl., Cedar Rapids, IA 52498 319-395-1000
Colt Technology Corp., Lenexa, KS 66219 913-888-1673
C-S Electronic Sales, Inc., Frankfort, IN 46041 317-659-1874
† Data Circuits, Computer Logics Ltd., Mississauga, Ont., CANADA L4V 1H3 416-672-3833
§ Data-Design Labs., Cucamonga, CA 91730 714-987-2511
† Diversified Systems, Inc., Indianapolis, IN 46268 317-299-9547
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
DOW SWITCH, Wilmington, MA 01887 617-935-6395
† Electronic Systems Division, Boeing Defense & Space Grp., Seattle, WA 98124-2499 206-657-7474
Electronic Tele-Communications, Inc., Atlanta, GA 30340-2178 404-455-4890
† General Technology Corp., Albuquerque, NM 87109 505-345-5591
Hokuriku USA Ltd., Morton Grove, IL 60053 708-470-8440
Hughes Electronics Products Corp., Livonia, MI 48150 313-427-8310
IM/D Corp., Manchester, NH 03101 603-669-5224
† Interlogic Industries, Melville, NY 11747-4294 516-420-8111
† ITL Circuits, Markham, Ontario, CANADA L3R 1C4 ..... 416-475-6658;416-492-9307
† Kalmus & Assocs., Inc., Broadview, IL 60153 708-343-7004
† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
† Natel Engineering Co., Inc., Simi Valley, CA 93063-3449 805-581-3950
Pacific Coast Circuits, Inc., San Luis Obispo, CA 93401 805-544-4881
P.C. Boards, Inc., Chanute, KS 66720 316-431-0406
Philips Circuit Assemblies:North American Philips Corp., Slatersville, RI 02876-2078 401-762-3800
Philips ECG, North American Philips Co., Williamsport, PA 17701 717-323-4691
† Pho-Tronics Div., E. R. Wagner Mfg. Co., Milwaukee, WI 53224 414-355-6704
† Poly Circuits, Inc., Bensenville, IL 60106 708-860-3560
† Precision Graphics Inc., Raritan, NJ 08869 908-707-8880
† Proto Systems, Alpharetta, GA 30201 ..... 404-475-1330;800-331-1797
Ragen Corp., Systems Div., N. Arlington, NJ 07032 201-997-1000
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
† Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
† Rogers Corporation, Soladyne Div., San Diego, CA 92111 619-279-7872
Rogers Corp., Rogers, CT 06263 203-774-9605
† Sheldahl, Inc., Northfield, MN 55057 507-663-8000
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
Stetron International, Inc., Buffalo, NY 14203 716-854-3443
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§† Techniques, Inc., Englewood, NJ 07631 201-569-5900
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Trend Circuits, Fremont, CA 94538-6148 415-651-1150

† Truline Corporation, Farmersville, CA 93223 209-747-1261
Urban Electronics, Dover, MA 02030 617-329-4068
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
Wontronics, Los Angeles, CA 90039 213-660-6230

Circuits, Printed, Rigid, One & Two Sided-1700

† Fema Elctrns. Corp., E. Brunswick, NJ 08816, 908-238-1223 ..... B•1073
Gordos, A Flint Industries Company, Rogers, AR 72756, 501-636-5000 ..... B•1488, D•1170,1172
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Additive Circuits, AMP-AKZO Corp., Aquebogue, NY 11931 516-722-4100
AEL Defense Corp., Lansdale, PA 19446 215-822-2929
† Airtron, Litton Industries, Inc., Morris Plains, NJ 07950 201-539-5500
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
Associated Circuits Inc., Menlo Park, CA 94025 415-329-0478
A-Systems Inc., Charlottesville, VA 22901 804-295-7200
AT&T Microelectronics, Allentown, PA 18103 ..... 1-800-372-2447;In Can.: 1-800-553-2448
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
† Avanti Circuits, Inc., Phoenix, AZ 85023 1-800-234-1556
Aydin Corp., Horsham, PA 19044 215-657-7510
† Basler Elec., Electronic Product Group, Highland, IL 62249 ..... 618-654-2341; 800-645-2074
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Chenango Industries, Inc., Vestal, NY 13850 607-748-1572
Cherry Electrical Products, Cherry Corporation, Waukegan, IL 60087 708-662-9200
† Collins Commercial Avionics, Rockwell Intl., Cedar Rapids, IA 52498 319-395-1000
† Colt Technology Corp., Lenexa, KS 66219 913-888-1673
Compac, Holbrook, NY 11741 516-585-3400
Coreco, Inc., St. Laurent, Que., CANADA H4T 1V8 ..... 800-361-4914;514-333-1301
C-S Electronic Sales, Inc., Frankfort, IN 46041 317-659-1874
Data Circuits, Computer Logics Ltd., Mississauga, Ont., CANADA L4V 1H3 416-672-3833
Data I/O Corp., Redmond, WA 98073-9746 206-881-6444
† Diversified Systems, Inc., Indianapolis, IN 46268 317-299-9547
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
† Dynacircuits Inc., Franklin Park, IL 60131 708-451-1700
† Eastern Electronics Mfg. Corp., National Patent Dev. Corp., East Hartford, CT 06108 203-528-9821
† Electronic Controls Design, Milwaukie, OR 97222 503-659-6100
† Electronic Systems Division, Boeing Defense & Space Grp., Seattle, WA 98124-2499 206-657-7474
† EMDS, Inc., Gaithersburg, MD 20877 301-840-5710
The Five Star Co., Plantsville, CT 06479 203-628-5561
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
GECO, Millheim, PA 16854 814-349-5555
† General Technology Corp., Albuquerque, NM 87109 505-345-5591
GTI/Circuits Div., Leesburg, IN 46538 219-453-3261
Hokuriku USA Ltd., Morton Grove, IL 60053 708-470-8440
Hughes Electronics Products Corp., Livonia, MI 48150 313-427-8310
IM/D Corp., Manchester, NH 03101 603-669-5224
§ Instant Board Circuits Grp., Novato, CA 94949 415-883-1717
§ Integrity Technology Corp., Santa Clara, CA 95050 408-262-8640
† Interlogic Industries, Melville, NY 11747-4294 516-420-8111
† ITL Circuits, Markham, Ontario, CANADA L3R 1C4 ..... 416-475-6658;416-492-9307
† Kalmus & Assocs., Inc., Broadview, IL 60153 708-343-7004
Kemtron Circuits & Elctrns. Corp., Rockville Centre, NY 11570 516-766-2772
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
McCoy Electronics Co., A Sub. of Oak Industries, Mt. Holly Springs, PA 17065 717-486-3411
† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
† Modular Systems, Inc., Charlottesville, VA 22901 804-295-7882
† Natel Engineering Co., Inc., Simi Valley, CA 93063-3449 805-581-3950
† National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
OMNI Switch USA, Inc., Phoenix, AZ 85027 602-582-0629
§† Pacific Coast Circuits, Inc., San Luis Obispo, CA 93401 805-544-4881
P.C. Boards, Inc., Chanute, KS 66720 316-431-0406
Philips Circuit Assemblies:North American Philips Corp., Slatersville, RI 02876-2078 401-762-3800
Philips ECG, North American Philips Co., Williamsport, PA 17701 717-323-4691
† Pho-Tronics Div., E. R. Wagner Mfg. Co., Milwaukee, WI 53224 414-355-6704
§ Pioneer Components, Brooklyn, NY 11234 718-444-3880
† Poly Circuits, Inc., Bensenville, IL 60106 708-860-3560
† Precision Graphics Inc., Raritan, NJ 08869 908-707-8880
† Proto Systems, Alpharetta, GA 30201 ..... 404-475-1330;800-331-1797
Ragen Corp., Systems Div., N. Arlington, NJ 07032 201-997-1000
Ritz Electronics/Relco, New Dundee, Ont., CANADA N0B 2E0 519-696-2616
† Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
† Rogers Corporation, Soladyne Div., San Diego, CA 92111 619-279-7872
Rogers Corp., Rogers, CT 06263 203-774-9605
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731 619-452-9333
SFE Technologies, San Fernando, CA 91340 818-365-9411
† Sheldahl, Inc., Northfield, MN 55057 507-663-8000
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Signatron, A Subsidiary of Meteor Communications Corp., Lexington, MA 02173 617-861-1500
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
† Stetron International, Inc., Buffalo, NY 14203 716-854-3443
§† Techniques, Inc., Englewood, NJ 07631 201-569-5900
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Trend Circuits, Fremont, CA 94538-6148 415-651-1150
† Truline Corporation, Farmersville, CA 93223 209-747-1261
Urban Electronics, Dover, MA 02030 617-329-4068
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
§† Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
† Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
Wontronics, Los Angeles, CA 90039 213-660-6230
Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

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EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268, 818-442-2572 ..... C•1028
§† Heyco Molded Products, Inc., Kenilworth, NJ 07033, 908-245-0033;800-526-4182 ..... C•1758
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§ Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alinabal, Milford, CT 06460 203-877-3241
§† All-States, Inc., Chicago, IL 60640 312-728-0525
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., Fort Smith, AR 72903-7045 501-452-3987
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Band-It - Idex, Inc., Denver, CO 80216 303-320-4555
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§† Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† DEK, Inc., St. Charles, IL 60174 708-377-2575
§† Dennison Mfg. Co., Framingham, MA 01701 508-879-0511
§ Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro-Support Systems, Temecula, CA 92390 714-676-2751
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
† NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
Parker Hannifin Corp., Cleveland, OH 44112-1290 ..... 800-272-7537;800-C-PARKER
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Square D Co., Palatine, IL 60067 708-397-2600
§† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552

Clamps & Clips, Component-2500

§ AAVID Engineering, Inc., Laconia, NH 03247-0400, 603-528-3400 ..... C•1604
§† Atlee Inc., North Andover, MA 01845, 508-681-1003 ..... C•1014
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268, 818-442-2572 ..... C•1029
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175 ..... C•1364

§ **Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002** ..... **C•1398**
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... **C•1596**
§ **Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321** ..... **C•1667**
§† Abalon Precision Mfg., Bronx, NY 10459 ..... 212-589-5682;1-800-888-ABALON
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dayco Products, Inc., Dayton, OH 45401-1004 513-226-5926
§† DEK, Inc., St. Charles, IL 60174 708-377-2575
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† FIC Corp., Rockville, MD 20852 ..... 301-881-8124;800-638-6594
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Grayhill Inc., La Grange, IL 60525 708-354-1040
§† Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ IERC, Burbank, CA 91502 213-849-2481
Industrial Devices, Inc., Hackensack, NJ 07601 201-489-8989
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
Jan Hardware Mfg. Co., Melville, NY 11747 718-361-0800
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Lab-Line Instruments, Melrose Park, IL 60160 708-450-2600
† Micro Instrument Company, Escondido, CA 92029 619-746-2010
† Micro-Mounting Devices, Campbell, CA 95008 408-866-4626
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Parker Hannifin Corp., Hose Products Division, Wickliffe, OH 44092 216-943-5700
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
§ Schurter, Inc., Petaluma, CA 94952 707-778-6311
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§† Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Clamps & Clips, Ground-2500

Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... **C•1325**
§ **Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002** ..... **C•1398**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Electro-Support Systems, Temecula, CA 92390 714-676-2751
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Micro-Mounting Devices, Campbell, CA 95008 408-866-4626
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
† NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Square D Co., Palatine, IL 60067 708-397-2600
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Clamps, Synchro & Servo-2500

Alpha-Tech Inc., Riverdale, NJ 07457 201-831-1222
† Magtech Controls, Vernitron Corporation, San Diego, CA 92073 619-428-5581
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Timber-Top, Watertown, CT 06795 203-274-6706

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Cleaners, Magnetic Medium-1600

Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... **C•1147**
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523

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Cleaners & Solvents-1600

DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... **C•1350**
§ **Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388** ..... **C•1147**
§† **Kester Solder Div., Litton Sys., Inc., Des Plaines, IL 60018, 708-297-1600** ..... **C•1701**
§† Alpha Metals, Jersey City, NJ 07304 201-434-6778
Auric Corp., Newark, NJ 07114 201-242-4100
§† Automated Prod. Equip. Corp., Medford, NY 11763 516-654-1197
§ Caig Labs., Escondido, CA 92029-1431 619-743-7143
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
§ Clean Room Prods., Ronkonkoma, NY 11779-6528 516-588-7000
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Electronic Controls Design, Milwaukie, OR 97222 503-659-6100
§ Eraser Co., Syracuse, NY 13221 315-454-3237
Fidelity Chemical Products Corp., Newark, NJ 07114 201-242-4110
§† Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† General Chemical Corporation, Pittsburg, CA 94565 415-685-1450
† Gordon Brush Mfg. Co., Inc., Los Angeles, CA 90021-1786 213-627-6889
§ Heat System, Inc., Farmingdale, NY 11735 516-694-9555
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ L & R Mfg. Co., Kearny, NJ 07032 201-991-5330
§ Lilly-Ram Industries, Gardena, CA 90248 213-321-0710
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
† Micro-Circuits Co., Inc., New Buffalo, MI 49117 616-469-2744
† Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
§† Multicore Solders, Richardson, TX 75081 214-238-1214
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philips ECG, North American Philips Co., Williamsport, PA 17701 717-323-4691
PTS Corporation, Bloomington, IN 47401 812-824-9331
Sel-Rex Div., OMI Intl. Corp., Nutley, NJ 07110 201-667-5200
Shogyo International Corp., Great Neck, NY 11021 516-466-0911
† Sigma Plastronics, Inc., Whitmore Lake, MI 48189 313-231-2871
§† Sonicor Instrument Corp., Copiague, NY 11726 516-842-3344
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
§ Tegal Scientific, Inc., Concord, CA 94524 415-827-1054
Transene, Rowley, MA 01969 508-948-2501
§ VA-Tran Systems Inc., Chula Vista, CA 91911 619-423-4555

Clean Room Design & Construction-4100 — *See Vol. D*

Clean Room Equipment & Supplies-2550 — *See Vol. D*

Clips, Alligator-2100

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... **C•1155**
§ **Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571** ..... **C•1325,1595**
§ **E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175** ..... **C•1364**
§ **Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002** ..... **C•1398**
§ **Pomona Electronics, Pomona, CA 91766, 714-623-3463** .. **C•1493,1495,1497,1499**
† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911** ..... **C•1523-1525,1821**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ John Fluke Mfg. Co., Inc., Everett, Wa 98206, WA 98203 206-347-6100
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Industrial Devices, Inc., Hackensack, NJ 07601 201-489-8989
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Multi-Amp Corp., TBG, Dallas, TX 75237 214-333-3201
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500

Clips & Holders, Fuse-Also See Panels, Fuse-4300 — *See Vol. B*

Clips, Battery-2100

† **S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500** .. **C•1094-1096**
† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911** ..... **C•1523-1525,1821, D•1491**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† Atlee Inc., North Andover, MA 01845 508-681-1003
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
International Microelectronics, Arlington, TX 76003 817-561-2244
Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060

Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Clips, Board, Harness-1700

Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1751
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175 ..... C•1364
§ Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
DEK, Inc., St. Charles, IL 60174 708-377-2575
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Siemens Components, Inc., Special Products Div., Iselin, NJ 08830 201-321-3400
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Clips, Breadboard-4200

Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175 ..... C•1364
§ Grayhill Inc., La Grange, IL 60525, 708-354-1040 ..... C•1387
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
DEK, Inc., St. Charles, IL 60174 708-377-2575
§ E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
§ Emulation Technology, Inc., Santa Clara, CA 95051 408-982-0660
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Clips, Fahnestock-2100

Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325
§ Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175 ..... C•1364
§ Grayhill Inc., La Grange, IL 60525, 708-354-1040 ..... C•1387
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 .. C•1493,1495,1497,1499
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
§ Augat Inc., Attleboro, MA 02703 617-222-2202
§ Components Corp., Denville, NJ 07834 201-627-0290
§ Contact, Inc., Hudson, NH 03051 603-883-7708
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Everett/Charles Test Equipment, Inc., Pomona, CA 91767 714-621-9511
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Global Specialties, Interplex Electronics, Inc., New Haven, CT 06509 203-624-3103
§ Industrial Devices, Inc., Hackensack, NJ 07601 201-489-8989
† Jettron Products Inc., E. Hanover, NJ 07936 201-887-0571
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Micro Electronic Systems, Inc., Bridgewater, CT 06752 203-350-5004
† Micro Instrument Company, Escondido, CA 92029 619-746-2010
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Multi-Amp Corp., TBG, Dallas, TX 75237 214-333-3201
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
§ Schurter, Inc., Petaluma, CA 94952 707-778-6311
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Clips, Transistor & Diode — See Retainers, Transistor & Diode (Vol. C)

Clips (MIL), Electrical-2440 — *See Vol. B*

Clocks, Time Keeping - Also See Oscillators, Clock-2200 — *See Vol. D*

Clocks & Controllers, Thermal-2200 — *See Vol. D*

Clutches, Friction-3500 — *See Vol. B*

Clutches, Magnetic-3500 — *See Vol. B*

Clutches, Positive-3500 — *See Vol. B*

Coating Services — See Services, Coating (Vol. D)

Coatings, Antistatic-1600

Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
§† 3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368 ..... D•2236-2237
† Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744 ..... C•1145
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§† ACL Inc., Elk Grove, IL 60007 ..... 708-981-9212;1-800-782-8420
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
† Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
# Electrostatic Consulting Assocs., Groton, MA 01450 508-448-5583
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
† Evaporated Coatings, Inc., Willow Grove, PA 19090 215-659-3080
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
† Master Bond, Hackensack, NJ 07601 201-343-8983
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
† Optical & Conductive Coatings, Meridian Inds., Inc., Pacheco, CA 94553 415-798-6066
§ Simco Co., Hatfield, PA 19440 215-822-2171
Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
† Swedlow, Inc., Liberty Mirror Products, Brackenridge, PA 15014 412-224-1800
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§† Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Coatings, Compounds, Lubricants, etc., Heat Conductive-1600

Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1676,1690
† William F. Nye, Inc., New Bedford, MA 02742-0927, 508-996-6721 ..... C•1146
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§ Contact East, N. Andover, MA 01845 508-682-2000
† The Cool-Amp Conducto-Lube Co., Lake Oswego, OR 97035 503-624-6426
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
§ EG & G Wakefield Engineering, Wakefield, MA 01880 617-245-5900
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† EMCA-REMEX Products, National Starch & Chem. Co., Montgomeryville, PA 18936 215-855-1000
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§† Hobart Tafa Technologies, Hobart Bros. Co., Concord, NH 03301 603-224-9585
HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
† IERC, Burbank, CA 91502 213-849-2481
Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
† Master Bond, Hackensack, NJ 07601 201-343-8983
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
§† Multicore Solders, Richardson, TX 75081 214-238-1214
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Transene, Rowley, MA 01969 508-948-2501
Underwood Industries of N.Y., Inc., d/b/a Viking Products, Waverly, NY 14892 607-565-4551

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§ Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1676
§† 3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368 ..... D•2236-2237

† **Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744** ..... **C•1145**
† **Oxley Inc., Branford, CT 06405, 203-488-1033** ..... **B•1335**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§† Alpha Metals, Jersey City, NJ 07304 201-434-6778
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
Aztec Industries, Inc., Mesa, AZ 85210 ..... 602-833-3131;800-729-3132
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
§ Contact East, N. Andover, MA 01845 508-682-2000
† The Cool-Amp Conducto-Lube Co., Lake Oswego, OR 97035 503-624-6426
† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Electro-Science Labs., Inc., King of Prussia, PA 19406-1533 215-272-8000
Electrostatic Consulting Assocs., Groton, MA 01450 508-448-5583
† EMCA-REMEX Products, National Starch & Chem. Co., Montgomeryville, PA 18936 215-855-1000
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
Ercon Incorporated, Waltham, MA 02154 617-899-1497
† Evaporated Coatings, Inc., Willow Grove, PA 19090 215-659-3080
Ferro Corporation, Electronic Materials Div., Santa Barbara, CA 93117-3092 805-968-5000
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† Hobart Tafa Technologies, Hobart Bros. Co., Concord, NH 03301 603-224-9585
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
† Master Bond, Hackensack, NJ 07601 201-343-8983
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
† Optical & Conductive Coatings, Meridian Inds., Inc., Pacheco, CA 94553 415-798-6066
† Orcus, Kansas City, MO 64112 913-897-5128
Polytronix, Inc., Richardson, TX 75081 214-238-7045
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
Sel-Rex Div., OMI Intl. Corp., Nutley, NJ 07110 201-667-5200
Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
† Swedlow, Inc., Liberty Mirror Products, Brackenridge, PA 15014 412-224-1800
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550
Transene, Rowley, MA 01969 508-948-2501
§† Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717

Coatings, Corrosion Resistant-1600

§ **Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388** ..... **C•1147**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
† Alpha Industries, Inc., Woburn, MA 01801 617-935-5150
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
§ Caig Labs., Escondido, CA 92029-1431 619-743-7143
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
Conap, Inc., Olean, NY 14760 716-372-9650
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
§ Contact East, N. Andover, MA 01845 508-682-2000
† The Cool-Amp Conducto-Lube Co., Lake Oswego, OR 97035 503-624-6426
† Cotronics, Brooklyn, NY 11235 718-646-7996
† Dennis Chemical, St. Louis, MO 63103 314-771-1800
§ Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electra-ssembly, Lancer Chemical, Warren, RI 02885 401-245-5493
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
Ferro Corporation, Frit Division, Cleveland, OH 44101 216-641-8580
Ferro Corporation, Powder Coatings Div., Cleveland, OH 44101 216-641-8580
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§† Hobart Tafa Technologies, Hobart Bros. Co., Concord, NH 03301 603-224-9585
HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
† IERC, Burbank, CA 91502 213-849-2481
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
† Master Bond, Hackensack, NJ 07601 201-343-8983
Micro-Circuits Co., Inc., New Buffalo, MI 49117 616-469-2744
§† Multicore Solders, Richardson, TX 75081 214-238-1214
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
† Polygenex International Inc., Cary, NC 27513 919-380-8100
Polytronix, Inc., Richardson, TX 75081 214-238-7045
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Transene, Rowley, MA 01969 508-948-2501

Coatings, Electromagnetic Wave Absorbing-1600

Oxley Inc., Branford, CT 06405, 203-488-1033 ..... **B•1335**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
† Dontech, Inc., Doylestown, PA 18901 215-348-5010
# Electrostatic Consulting Assocs., Groton, MA 01450 508-448-5583
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
Ercon Incorporated, Waltham, MA 02154 617-899-1497
† Evaporated Coatings, Inc., Willow Grove, PA 19090 215-659-3080
§ Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§† Hobart Tafa Technologies, Hobart Bros. Co., Concord, NH 03301 603-224-9585
HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
† Micro-Circuits Co., Inc., New Buffalo, MI 49117 616-469-2744
† Swedlow, Inc., Liberty Mirror Products, Brackenridge, PA 15014 412-224-1800
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500

Coatings, Fungicidal-1600

§† **Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388** ..... **C•1147**
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Hobart Tafa Technologies, Hobart Bros. Co., Concord, NH 03301 603-224-9585
HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
† Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523

Coatings, High Temperature, Ceramic, Plasma Spray — See Services, Coating (Vol. D)

Coatings, Insulating-3100

Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... **C•1674**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§ Ambroid Co., Topsfield, MA 01983 508-887-8248
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† CAD Engrg. & Assembly Inc., Mentor, OH 44060 216-255-7744
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
Castall Inc., E. Weymouth, MA 02189 617-337-6075
ChemRex Inc., ResTech Prods. Div., Commerce City, CO 80022 303-289-5651
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
† Conap, Inc., Olean, NY 14760 716-372-9650
† Cotronics, Brooklyn, NY 11235 718-646-7996
† Dennis Chemical, St. Louis, MO 63103 314-771-1800
§† Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electra-ssembly, Lancer Chemical, Warren, RI 02885 401-245-5493
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Electro-Science Labs., Inc., King of Prussia, PA 19406-1533 215-272-8000
† EMCA-REMEX Products, National Starch & Chem. Co., Montgomeryville, PA 18936 215-855-1000
§ Evaporated Coatings, Inc., Willow Grove, PA 19090 215-659-3080
Ferro Corporation, Electronic Materials Div., Santa Barbara, CA 93117-3092 805-968-5000
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
Gasket International Inc., Bloomfield, NJ 07003 201-338-6814
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§† HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
† IERC, Burbank, CA 91502 213-849-2481
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
§† Krystinel Corp., Paterson, NJ 07509 201-345-8900
§ Lilly-Ram Industries, Gardena, CA 90248 213-321-0710
† Master Bond, Hackensack, NJ 07601 201-343-8983
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
§† Multicore Solders, Richardson, TX 75081 214-238-1214
§ Murata Manufacturing Co., Ltd., Nagaoka-Kyo-Shi, Kyoto, JAPAN 617 ... 075-951-9111
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
† Polygenex International Inc., Cary, NC 27513 919-380-8100
Polytronix, Inc., Richardson, TX 75081 214-238-7045
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550
Underwood Industries of N.Y., Inc., d/b/a Viking Products, Waverly, NY 14892 607-565-4551
† Whittaker Corp., Providence Chemicals Div., E. Providence, RI 02916 ... 401-434-1770
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Coatings, Moisture Repellant & Waterproofing-1600

§ **Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388** ..... **C•1147**

Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744 ..... C•1145
† William F. Nye, Inc., New Bedford, MA 02742-0927, 508-996-6721 ..... C•1146
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
† Conap, Inc., Olean, NY 14760 716-372-9650
† Diagostic Instrument Corp., Ayer, MA 01432 508-772-4572
§ Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Electro-Science Labs., Inc., King of Prussia, PA 19406-1533 215-272-8000
Ferro Corporation, Frit Division, Cleveland, OH 44101 216-641-8580
Ferro Corporation, Powder Coatings Div., Cleveland, OH 44101 216-641-8580
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
† Master Bond, Hackensack, NJ 07601 201-343-8983
§† Multicore Solders, Richardson, TX 75081 214-238-1214
† Polygenex International Inc., Cary, NC 27513 919-380-8100
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Coatings, Protective-1600

§† Datak Corp., Sparks, NV 89431, 702-359-7474 ..... C•1583,1685
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Injectoral Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§† Alpha Metals, Jersey City, NJ 07304 201-434-6778
§ Ambroid Co., Topsfield, MA 01983 508-887-8248
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
Auric Corp., Newark, NJ 07114 201-242-4100
§ Caig Labs., Escondido, CA 92029-1431 619-743-7143
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
† Conap, Inc., Olean, NY 14760 716-372-9650
† Diagostic Instrument Corp., Ayer, MA 01432 508-772-4572
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electra-ssembly, Lancer Chemical, Warren, RI 02885 401-245-5493
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Electro-Science Labs., Inc., King of Prussia, PA 19406-1533 215-272-8000
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
† Epoxy Technology, Inc., Billerica, MA 01821 ..... 508-667-3805;800-227-2201
Ferro Corporation, Frit Division, Cleveland, OH 44101 216-641-8580
Ferro Corporation, Powder Coatings Div., Cleveland, OH 44101 216-641-8580
Fidelity Chemical Products Corp., Newark, NJ 07114 201-242-4110
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
Gasket International Inc., Bloomfield, NJ 07003 201-338-6814
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§† Hobart Tafa Technologies, Hobart Bros. Co., Concord, NH 03301 603-224-9585
§† HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
§ Lilly-Ram Industries, Gardena, CA 90248 213-321-0710
† Master Bond, Hackensack, NJ 07601 201-343-8983
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
Micro-Circuits Co., Inc., New Buffalo, MI 49117 616-469-2744
Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
§† Multicore Solders, Richardson, TX 75081 214-238-1214
† Nova Tran Corporation, Union Carbide Corporation, Clear Lake, WI 54005 715-263-2333
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
† Polygenex International Inc., Cary, NC 27513 919-380-8100
Polytronix, Inc., Richardson, TX 75081 214-238-7045
Sel-Rex Div., OMI Intl. Corp., Nutley, NJ 07110 201-667-5200
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
† Technic, Inc., Providence, RI 02940-9650 401-781-6100
Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
† Whittaker Corp., Providence Chemicals Div., E. Providence, RI 02916 ... 401-434-1770

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Communication Systems, Megaplex-1900 — *See Vol. D*

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Comparators, Phase-2900 — *See Vol. D*

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Component Handling Equipment, Surface Mount-4100 — *See Vol. D*

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Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
† Castall Inc., E. Weymouth, MA 02189 617-337-6075
ChemRex Inc., ResTech Prods. Div., Commerce City, CO 80022 303-289-5651
§ Compac, Holbrook, NY 11741 516-585-3400
Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
† Conap, Inc., Olean, NY 14760 716-372-9650
§ Contact East, N. Andover, MA 01845 508-682-2000
† Cotronics, Brooklyn, NY 11235 718-646-7996
† Danmar Inds., Moorpark, CA 93021 1-805-529-3788,1-800-666-6268
† Dennis Chemical, St. Louis, MO 63103 314-771-1800
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
§† EG & G Wakefield Engineering, Wakefield, MA 01880 617-245-5900
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Epic Resins, General Fiberglass Supply, Inc., Waukesha, WI 53186 414-521-2255
† Epoxy Technology, Inc., Billerica, MA 01821 ..... 508-667-3805;800-227-2201
Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
† Industrial Dielectrics, Inc., Noblesville, IN 46060 317-773-1766
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
# Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
Leepoxy Plastics, Inc., Ft. Wayne, IN 46809 219-747-7411
§ Lilly-Ram Industries, Gardena, CA 90248 213-321-0710
† Master Bond, Hackensack, NJ 07601 201-343-8983
§ 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
Plasticorp, Harbor City, CA 90710 213-539-9530
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
† Sigma Plastronics, Inc., Whitmore Lake, MI 48189 313-231-2871
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 617-878-7015
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550
Transene, Rowley, MA 01969 508-948-2501
Underwood Industries of N.Y., Inc., d/b/a Viking Products, Waverly, NY 14892 607-565-4551
† Whittaker Corp., Providence Chemicals Div., E. Providence, RI 02916 401-434-1770
Wiring Analyzers, Inc., Edmonds, WA 98020-0417 ..... 800-221-5979 (excl. CA)
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Compounds, Insulating-3100

Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670-1671
§† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
† Ablestik Laboratories, Rancho Dominguez, CA 90221 213-764-4600
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
† Castall Inc., E. Weymouth, MA 02189 617-337-6075
Conap, Inc., Olean, NY 14760 716-372-9650
§ Contact East, N. Andover, MA 01845 508-682-2000
† Dennis Chemical, St. Louis, MO 63103 314-771-1800
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Epic Resins, General Fiberglass Supply, Inc., Waukesha, WI 53186 414-521-2255
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
† Industrial Dielectrics, Inc., Noblesville, IN 46060 317-773-1766
Leepoxy Plastics, Inc., Ft. Wayne, IN 46809 219-747-7411
§ 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Tra-Con, Inc., Medford, MA 02155 617-391-5550
Transene, Rowley, MA 01969 508-948-2501
Underwood Industries of N.Y., Inc., d/b/a Viking Products, Waverly, NY 14892 607-565-4551
Wiring Analyzers, Inc., Edmonds, WA 98020-0417 ..... 800-221-5979 (excl. CA)

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† AME Corporation, Towaco, NJ 07082-0195, 201-263-1700 ..... B•1644
§† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
† Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675,1688
Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 .... C•1689
Elastomeric Technologies, Inc., Hatboro, PA 19040, 215-672-0787;215-672-4741 ..... C•1357
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375-1377

§† **3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368** ..... **D•2236-2237**
Shin-Etsu Polymer America, Inc., Union City, CA 94587, 415-475-9000 .. **C•1521**
A.C. Interface Inc., Rancho Santa Margarita, CA 92688 714-858-1866
Advanced Connector Technology, Ventura, CA 93001 805-653-5753
§ CHR, Furon, New Haven, CT 06509 203-777-3631
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
Cotronics, Brooklyn, NY 11235 718-646-7996
Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Ercon Incorporated, Waltham, MA 02154 617-899-1497
Instrument Specialties Co. Headquarters, Delaware Water Gap, PA 18327-0136 717-424-8510
§† Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
Monsanto Co., St. Louis, MO 63167 314-694-1000
† Orcus, Kansas City, MO 64112 913-897-5128
§† Parker Seal Group, Irvine, CALIFORNIA 92715 714-851-3763
# REDCO, Carson City, NV 89706 702-882-3100
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
I I Stanley Co. INC., Stanley Electric Co. LTD., Irvine, CA 92714 ..... 1-800-LED-LCD1
Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Thermoset Plastics Inc., Indianapolis, IN 46220 317-259-4161
§ Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717

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Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744 ..... **C•1145**
§† ACL Inc., Elk Grove, IL 60007 ..... 708-981-9212;1-800-782-8420
Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§ Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
§ Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717

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Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... **C•1674**
† Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... **C•1675,1688**
Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 .... **C•1689**
§† **3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368** ..... **D•2236**
§† **NRD Inc., Subsidiary of Mark IV Inds., Inc., Grand Island, NY 14072, 716-773-7634** ..... **D•2238**
Shin-Etsu Polymer America, Inc., Union City, CA 94587, 415-475-9000 .. **C•1521**
ADE, Inc., Chicago, IL 60633 312-646-3400
American Cyanamid Co., Metal Coated Fibers Dept., Wayne, NJ 07470 .. 201-831-2856
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
† Barrington Plastics, Mt. Laurel, NJ 08054 609-235-5151
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
† Contact East, N. Andover, MA 01845 508-682-2000
§ Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
EG & G Wakefield Engineering, Wakefield, MA 01880 617-245-5900
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† EMCA-REMEX Products, National Starch & Chem. Co., Montgomeryville, PA 18936 215-855-1000
† Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
† Industrial Dielectrics, Inc., Noblesville, IN 46060 317-773-1766
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
Litton Potentiometer Div., Mt. Vernon, NY 10551 914-664-7733
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Monsanto Co., St. Louis, MO 63167 314-694-1000
† Orcus, Kansas City, MO 64112 913-897-5128
Rogers Corp., Rogers, CT 06263 203-774-9605
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
§† Simco Co., Hatfield, PA 19440 215-822-2171
Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Tra-Con, Inc., Medford, MA 02155 617-391-5550
† United Foam Plastics, Georgetown, MA 01833 508-352-2200
§† Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

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Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... **C•1376**
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... **C•1480**
† Air/Flex Inds. Inc., S. El Monte, CA 91733 818-579-7060
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Ergotron, Inc., Eagan, MN 55122 612-452-8135
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
§ The Wiremold Company, W. Hartford, CT 06110 203-233-6251
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

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WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 **C•1568-1577**
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... **C•1568-1577**
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Bussmann:Cooper Industries, St. Louis, MO 63178 314-394-2877
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ ICC, Inc., Orange, CA 92665 714-998-8310
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
§ National Instruments Corp., Austin, TX 78730-5039 512-794-0100
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300

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§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... **C•1802**
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Interconnect Products, Endicott, NY 13760 607-754-4444
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Hirose Electric U.S.A., Inc. (HRS). Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
§ ICC, Inc., Orange, CA 92665 714-998-8310
§ International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... **C•1155**
† **Alden Products Co., Brockton, MA 02403, 508-583-0160** ..... **C•1161**
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... **C•1175**
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... **C•1275**
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841** ..... **C•1281,1287**
Ault, Incorporated, Minneapolis, MN 55428, 612-493-1900 ..... **D•1618-1619**
† **BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300** .. **C•1296-1306**
C & C Jetronic, Inc., Princeton, NJ 08540, 609-921-8540 ..... **C•1393**
§ **Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571** ..... **C•1324**
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... **C•1350**
Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... **C•1358**
§ **E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175** ..... **C•1364**
§ **Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002** ..... **C•1398**
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 ..... **C•1399**
§ **Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840** ..... **C•1409**
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... **C•1424-1425**
§ **LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366)** ..... **C•1427**
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... **C•1457,1460-1462, D•1878,1886**
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Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... **C•1468-1469,1471**
§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... **C•1481**
§ **Pomona Electronics, Pomona, CA 91766, 714-623-3463** .. **C•1493-1496,1498-1499**
§ **Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722** ..... **A•1629, C•1500,1503-1506**
Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578, 708-438-4000 ..... **C•1509**
§ **Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090** ..... **A•1824-1826**
† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911** ..... **A•2391, C•1523-1525,1821**
§ **Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700** ..... **C•1542**
† **Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020** ..... **C•1556-1561**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400

† Air/Flex Inds. Inc., S. El Monte, CA 91733 818-579-7060
§ American Advantech Corp., San Jose, CA 95122 408-293-6786
Amphenol Corporation Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Interconnect Products, Endicott, NY 13760 607-754-4444
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
§ Ark Les Corporation, Watertown, MA 02172 617-924-2330
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§† Bird Electronic Corp., Cleveland, OH 44139-2794 216-248-1200
BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
§ Compac, Holbrook, NY 11741 516-585-3400
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connector Corp., Chicago, IL 60646 312-539-3108
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
† Deloronics Corporation, S. El Monte, CA 91733 818-579-7130
§ EBY Company, Philadelphia, PA 19124 215-537-4700
† Elcom Systems, Inc., Boca Raton, FL 33487 407-994-1774
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ EXFO E.O. Engineering, Quebec City, Quebec, CANADA G1N 3Y2 418-683-0211
† The First Electronics Corp., Boston, MA 02125 617-288-2430
Fischer Connectors, Valencia, CA 91355 ..... 805-295-0600;1-800-344-0445
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
Globtek, Inc., N. Bergen, NJ 07047 201-861-0246
GTE Fiberoptic Products, Williamsport, PA 17701 .... 717-326-6591;1-800-FBR-OPTICS
§ Hewlett-Packard Co., Cupertino, CA 95014 800-752-0900
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
International Configurations, Inc., Enfield, CT 06082 203-749-6380
§ International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
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† Jettron Products Inc., E. Hanover, NJ 07936 201-887-0571
§† Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
Lucas Weinschel, Gaithersburg, MD 20884-6001 301-948-3434
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
† Maury Microwave Corp., Cucamonga, CA 91730 714-987-4715
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
† Micro Mode Prods., El Cajon, CA 92020 619-449-3844
§ Midwest Microwave, Saline, MI 48176-9569 ..... 313-429-4773;800-521-4410
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Panel Components Corp., Santa Rosa, CA 95406 707-523-0600
Parker Hannifin Corp., Tube Fittings, Columbus, OH 43228 614-279-7070
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Recoton Corp., Long Island City, NY 11101 718-392-6442
† RLC Electronics, Inc., Mt. Kisco, NY 10549 914-241-1334
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
Spectrum Control, Inc., Erie, PA 16505 814-455-0966
Staffall Inc., Cranston, RI 02910 401-461-5554
† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
† Teleplex, Inc., Alford Division, Woburn, MA 01801 617-935-8610
§ Test Probes, Inc., San Diego, CA 92121 619-552-2090
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Vann Instruments, Albuquerque, NM 87106 505-265-2498
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Wiltron, Morgan Hill, CA 95037-2809 408-778-2000
† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651

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DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
† Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
† Electro Prep Inc. & N-E-D Cable, Wareham, MA, MA 02571 508-291-2880
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930

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§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
Calmark Corp., San Gabriel, CA 91776, 818-287-0451 ..... C•1019
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Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1383,1385
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
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Amphenol Interconnect Products, Endicott, NY 13760 607-754-4444
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
§ EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
Ei North America, New York, NY 10021 212-517-5622
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
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§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Hewlett-Packard Co., Cupertino, CA 95014 800-752-0900
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† Hudson Tool & Die Co., Newark, NJ 07105 201-589-1800
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ICC, Inc., Orange, CA 92665 714-998-8310
§ Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
§ International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
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§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
† Sabritec, Irvine, CA 92714 714-660-1970
† Siltronics Ltd., Dover, MA 02030 617-329-4068
† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§† Terminal Data Corp., Rockville, MD 20855 301-921-8282
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† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651

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§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
† Eastern Electronics Mfg. Corp., National Patent Dev. Corp., East Hartford, CT 06108 203-528-9821
§ EBY Company, Philadelphia, PA 19124 215-537-4700
† Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400

GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
†Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† IEH Corp., New York, NY 10012 212-677-1881
§† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
Panel Components Corp., Santa Rosa, CA 95406 707-523-0600
§Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
†Star-Tron Corporation, Providence, RI 02909 401-274-5090
TELTEC, INC., Minneapolis, MN 55425 612-854-9632
†Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
Urban Electronics, Dover, MA 02030 617-329-4068
Wieland Inc., New Rochelle, NY 10801 914-633-0222

Connector Boxes & Strips, Power Outlet-2500

Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ..... C•1331
MCG Elctrns., Deer Park, NY 11729, 516-586-5125 ..... B•1375
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ..... C•1488-1489,1492
Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1495
§Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1502-1503
†S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
§Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... C•1516-1518
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alden Products Co., Brockton, MA 02403 508-583-0160
§† Brooks Electronics, Philadelphia, PA 19140 215-228-4433
§Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§Contact East, N. Andover, MA 01845 508-682-2000
Equipto Electronics Corp., Aurora, IL 60506 708-897-4691
§GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
International Configurations, Inc., Enfield, CT 06082 203-749-6380
§† Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§Perma Power Elctrns., Chicago, IL 60648 312-763-0763
†Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§SL Waber, Inc., Mt. Laurel, NJ 08054 ..... 609-866-8888;800-257-8384
§Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§The Wiremold Company, W. Hartford, CT 06110 203-233-6251
†Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Connectors, AC Power-2100

Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1162
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1308
§Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ..... A•1610, C•1331
Delta Products Corporation, Fremont, CA 94538, 415-770-0660 ..... C•1346
§Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1386
§Golden Pacific Electronics, Inc, Placentia, CA 92670, 714-993-6970 ..... D•1776
§Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1460-1462, D•1878,1886
§MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ..... C•1485-1486,1804,1807-1808, D•2222
§Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... A•1629, C•1500-1503,1506
§Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... A•1638, C•1516-1519
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 617-787-5880
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Connectronics Corp., Toledo, OH 43607 419-537-0020
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
§Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
Integrity Technology Corp., Santa Clara, CA 95050 408-262-8640
International Configurations, Inc., Enfield, CT 06082 203-749-6380
Kaut & Bux Manufacturing Co., Mundelein, IL 60060 708-949-8505
Lamb Industries, Inc., Portland, OR 97225 ..... 503-297-8878;800-824-9374
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
†Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
Senior Inds., Inc., Wood Dale, IL 60191 312-350-1600
§Superior Electric, Bristol, CT 06010 203-582-9561
§Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
§USD Products , Div. of Bussmann, Chicago, IL 60656 708-867-4600
ΦU.S. Instrument Rentals, Inc., AT&T Capital Corp., D/FW Airport, TX 75261 800-874-7123

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Connectors, Audio-2100

†ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
†Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
§Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
§LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1454,1460-1462, D•1886
§Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481
§Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493-1494
§Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578, 708-438-4000 ..... C•1508-1509
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1510,1815
†Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1513
†Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
§Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1539-1542
†Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ..... C•1556-1561
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
Alden Products Co., Brockton, MA 02403 508-583-0160
†Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
†Armel Electronics, N. Bergen, NJ 07047 201-869-4201
Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
C-S Electronic Sales, Inc., Frankfort, IN 46041 317-659-1874
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§Ercona, Patchogue, NY 11772 516-758-0700
§GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§Golden Pacific Electronics, Inc, Placentia, CA 92670 714-993-6970
§Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
§Hugin Industries Inc., Los Altos, CA 94022 415-961-2950
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
§ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§Kings Electronics Co., Inc., Tuckahoe, NY 10707 914-793-5000
§† Microtech, Boothwyn, PA 19061 215-459-3566
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Multi-Contact USA, Santa Rosa, CA 95401 707-575-7575
§Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
§Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651

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Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
§Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1595
†Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
Electrochem Industries, Wilson Greatbatch Ltd., Clarence, NY 14031, 716-759-2828 ..... D•1451
 # Engineered Assemblies & Components Corp., Teterboro, NJ 07608, 201-288-4477;800-447-5639 ..... D•1452
Hitran Corporation, Flemington, NJ 08822-9943, 908-782-5525 ..... D•1795
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
Memory Protection Devices, Inc., Farmingdale, NY 11735, 516-293-5891 ..... D•1469
§Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... D•1484-1485

† S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523,1821, D•1491
§† Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 .... C•1526-1532
†# Tauber Elctrns. Inc., San Diego, CA 92117, 619-274-7242 ..... D•1496
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§ Adcour, Inc., Sharon, MA 02067 617-784-8123
§ Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 617-787-5880
# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Battery Specialities, Costa Mesa, CA 92626 ... 714-755-0888;1-800-352-3706 (Toll free in CA)
§ Bogen Communications, Inc., Sound Prods., Ramsey, NJ 07446 201-934-8500
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
Eagle-Picher, Seneca, MO 64865 417-776-2256
§† Elcon Products International Company, Fremont, CA 94538 415-490-4200
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Golden Pacific Electronics, Inc, Placentia, CA 92670 714-993-6970
§† Gruenberg Oven Co., Inc., Williamsport, PA 17701 717-326-1755
# House of Batteries, Costa Mesa, CA 92627 ..... 714-642-8222;800-432-3385
§ Hugin Industries Inc., Los Altos, CA 94022 415-961-2950
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ International Components Corp., Melville, NY 11747 516-293-1500
† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Nesco Battery Systems, National Electro-Sales Corp., Van Nuys, CA 91406-7840 ..... 818-781-0505;1-800-423-2664
PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
Plainview Batteries, Inc., Plainview, NY 11803 516-249-2873
§ Renata U. S., Dallas, TX 75207 ..... 214-630-2563;800-527-0719
§ Rose Electronics, Inc., Energy Products Group, San Jose, CA 95131 408-943-0440
Senior Inds., Inc., Wood Dale, IL 60191 312-350-1600
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145
Yardney Technical Products, Inc., Pawcatuck, CT 06379 203-599-1100
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1711
† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
† Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1161
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
Autec Power Systems, Chatsworth, CA 91311, 818-341-6123 ..... D•1623
C & C Jetronic, Inc., Princeton, NJ 08540, 609-921-8540 ..... C•1393
† Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1312-1314
§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1316-1317,1320-1321
Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
Connectronics Corp., Toledo, OH 43607, 419-537-0020 ..... C•1328
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1741-1742
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1353-1354
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175 ..... C•1364
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365-1369
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1380-1384
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1395
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400,1402-1403
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1422-1423,1765
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1442-1445
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1449,1451,1454,1459-1462,1767, D•1886
Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
§† 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463-1464
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... C•1468
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Multi-Contact USA, Santa Rosa, CA 95401, 707-575-7575 ..... C•1475,1477
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481-1482
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1365 ..... C•1811
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1496,1499
Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578, 708-438-4000 ..... C•1508-1509
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1513,1515
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538,1540,1542
§† Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ..... C•1556,1558-1561
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1564-1567
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 617-787-5880
Andrew Corp., Orland Pk., IL 60462 800-255-1479
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
§ Burton Electrical Engineering, Wyle Laboratories, El Segundo, CA 90245 213-322-0615
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
Cable Systems, Inc., Everett, MA 02149 617-389-7080
Cabletron Systems, Inc., Rochester, NH 03867 603-332-9400
Cambridge Products, Bloomfield, CT 06002 ..... 203-243-1761, 800-243-8814
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-535-1000
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 800-234-0021;800-451-1851
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-3700
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 1A4 416-475-8000
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
Direct Sound Corporation, New York, NY 10011 212-691-9050
§† EBY Company, Philadelphia, PA 19124 215-537-4700
§ EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
§† Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
† Giannini Institute, Indio, CA 92201 619-347-2833
GTE Fiberoptic Products, Williamsport, PA 17701 ... 717-326-6591;1-800-FBR-OPTICS
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
§ Hugin Industries Inc., Los Altos, CA 94022 415-961-2950
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ICC, Inc., Orange, CA 92665 714-998-8310
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§† IEH Corp., New York, NY 10012 212-677-1881
Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
§ International Components Corp., Melville, NY 11747 516-293-1500
International Configurations, Inc., Enfield, CT 06082 203-749-6380
§ International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
International Microelectronics, Arlington, TX 76003 817-561-2244
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
Jettron Products Inc., E. Hanover, NJ 07936 201-887-0571
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
† Maury Microwave Corp., Cucamonga, CA 91730 714-987-4715
§ Mhotronics, Inc., Vernon Hills, IL 60061 708-913-9566
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
† Micro Mode Prods., El Cajon, CA 92020 619-449-3844
§† Microtech, Boothwyn, PA 19061 215-459-3566

§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
† Min-E-Con, Costa Mesa, CA 92626 714-434-7312
§ Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
§ Pacific Electricord, Gardena, CA 90247 213-532-6600
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
§ RMS Company, Connector Division, Minneapolis, MN 55432 612-786-1520
Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
† Sabritec, Irvine, CA 92714 714-660-1970
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Square D Co., Palatine, IL 60067 708-397-2600
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 201-933-4452
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§† Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Φ U.S. Instrument Rentals, Inc., AT&T Capital Corp., D/FW Airport, TX 75261 800-874-7123
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
[illegible] Richmond, VA 23236 804-794-2877
[illegible] New Rochelle, NY 10801 914-633-0222
† Wire Pro Inc., Cadiz, NJ 08079 ..... 609-935-7601;609-935-7651

Connectors, Circular, MS/AN-2100

Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1162
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
C & C Jetronic, Inc., Princeton, NJ 08540, 609-921-8540 ..... C•1393
† Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1314
Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ Direct Sound Corporation, New York, NY 10011, 212-691-9050 ..... C•1349
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1366-1368,1370-1371
Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1395-1396
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 ..... C•1399
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1402-1403
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1449-1451,1460-1462, D•1886
Mercotac Inc., Carlsbad, CA 92009, 619-431-7723 ..... B•1295
Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578, 708-438-4000 ..... C•1508
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1514-1515
Superior Electric, Bristol, CT 06010, 203-582-9561 ..... C•1537
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538,1540
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
Autoswage Products, Shelton, CT 06484 203-929-1401
Braxton Mfg., Watertown, CT 06795 203-274-6781
Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
§ Burton Electrical Engineering, Wyle Laboratories, El Segundo, CA 90245 213-322-0615
Ceramaseal, New Lebanon, NY 12125 518-794-7800
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ CUI Stack Inc., Beaverton, OR 97005 503-643-4899
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
† Hoffman Engineering Corp., Stamford, CT 06902 203-325-8933
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
ICC, Inc., Orange, CA 92665 714-998-8310
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
RMS Company, Connector Division, Minneapolis, MN 55432 612-786-1520
Sabritec, Irvine, CA 92714 714-660-1970
† Sealtron, Inc., Cincinnati, OH 45215 513-733-8400
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
§† Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330

Connectors, Data-2100

§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481
Stewart Connector Sys., Inc., Insilco, Glen Rock, PA 17327, 717-235-7512 ..... C•1533
Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1564
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700

Connectors, DIN-2100

Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
§ CW Industries, Southhampton, PA 18966, 215-355-7080 ... B•1010-1011, C•1332
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Electronic Precision Technology Inc., Cambridge, MA 02140, 617-661-2454 ..... C•1359-1361
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1584
Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 ..... C•1372
§ Golden Pacific Electronics, Inc, Placentia, CA 92670, 714-993-6970 ..... D•1776
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1395
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400,1402
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1444-1445
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1449-1451,1461-1462,1767, D•1886
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463
Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1480
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1365 ..... C•1811
§ Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578, 708-438-4000 ..... C•1508-1509
† RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1510
Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... C•1516,1518
Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 .... C•1526-1532
§ Sullins Electronics Corp., San Marcos, CA 92069, 619-744-0125 ... C•1534-1535
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538
§ Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1545,1547,1549
Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1579
§ Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910

Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
# CCP/Technical Devices, Dayton, OH 45414 513-890-7881
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
CTS Corporation, Elkhart, IN 46514 219-293-7511
CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
§ CUI Stack Inc., Beaverton, OR 97005 503-643-4899
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§ Edac Inc., Scarborough, Ont., CAN M1V 5B6 416-754-3322
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-283-4477; 800-447-5639
§† Erni Components, Richmond, VA 23236 804-794-6367
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Interlogic Industries, Melville, NY 11747-4294 516-420-8111
§ International Components Corp., Melville, NY 11747 516-293-1500
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§ Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Mhotronics., inc., Vernon Hills, IL 60061 708-913-9566
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Nichifu America, Inc., Poitstown, PA 19464 215-323-7120
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Schroff Incorporated, Warwick, RI 02886 401-732-3770
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Siltronics Ltd., Dover, MA 02030 617-329-4068
§ SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
§† Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 201-933-4452
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
† Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
Wieland Inc., New Rochelle, NY 10801 914-633-0222
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Connectors, D Subminiature-2100

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1155
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1320
§† CW Industries, Southhampton, PA 18966, 215-355-7080 ... B•1011, C•1332-1333
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 .... C•1372,1374
Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1380
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394-1396
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400,1402-1403
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1422-1423,1765
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424-1425
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1449,1458-1459, D•1886
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ... C•1468-1471
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730, 714-945-1365 ..... C•1811
† RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1510
Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1513-1514
† U.S. Terminals inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1579

§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Canada Corporation, An LPL Company, Scarborough, Ontario, CANADA M1B 2X6 416-291-4401
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Applied Components, AC Interface, Rancho Santa Margarita, CA 92688 714-858-9488
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§# Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
# CCP/Technical Devices, Dayton, OH 45414 513-890-7881
§† Cinch Connector Division, Labinal Components & Systems inc., Elk Grove Village, IL 60007 312-981-6000
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
Direct Sound Corporation, New York, NY 10011 212-691-9050
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§ Dynacast inc., Yorktown Heights, NY 10598 914-962-6300
§ EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
Ei North America, New York, NY 10021 212-517-5622
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ Ercona, Patchogue, NY 11772 516-758-0700
§ Erni Components, Richmond, VA 23236 804-794-6367
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
§ ICC, Inc., Orange, CA 92665 714-998-8310
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
§ International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
§ Mhotronics., inc., Vernon Hills, IL 60061 708-913-9566
§† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Murata Erie North America, Inc., Smyrna, GA 30080 404-436-1300
§ Murata Manufacturing Co., Ltd., Nagaoka-Kyo-Shi, Kyoto, JAPAN 617 075-951-9111
National Telephone & Electronics Inc., Miami, FL 33172 305-592-0551
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
§ Pacific Electricord, Gardena, CA 90247 213-532-6600
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210

§ Remee Products Corp., Florida, NY 10921 914-651-4431
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
† Sabritec, Irvine, CA 92714 714-660-1970
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Spectrum Control, Inc., Erie, PA 16505 814-455-0966
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Terminal Data Corp., Rockville, MD 20855 301-921-8282
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
§† Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
Wieland Inc., New Rochelle, NY 10801 914-633-0222
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Connectors, Edgeboard – See Connectors, Printed Circuit, Card Edge (Vol. C)

Connectors, Elastomeric-2100

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Connectronics Corp., Toledo, OH 43607, 419-537-0020 ..... C•1328
Elastomeric Technologies, Inc., Hatboro, PA 19040, 215-672-0787;215-672-4741 ..... C•1357
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375-1379
Glolite Sales Ltd/Glowlite Div., Pauls Valley, OK 73075, 405-238-5541;800-654-3662 ..... B•1811
Shin-Etsu Polymer America, Inc., Union City, CA 94587, 415-475-9000 .. C•1521
Advanced Connector Technology, Ventura, CA 93001 805-653-5753
Conductive Rubber Technology, Inc., Bothell, WA 98021 206-486-8559
Elform, Inc., Reno, NV 89510 702-829-1905
Greenwich Instruments USA, Charlotte, NC 28205 704-376-1021
GTE Fiberoptic Products, Williamsport, PA 17701 ... 717-326-6591;1-800-FBR-OPTICS
† Kemlon Products & Development Company, Houston, TX 77021 713-747-5020
† Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238

Connectors, Fiber Optic-2475 – *See Vol. B*

Connectors, Filtered, EMI/RFI-Also See Gaskets, Shielding, RF-2100

§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ... A•1610-1611, C•1330-1331
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 .... C•1372-1374
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1676
Genisco Electronics Corporation, San Diego, CA 92173, 619-661-5100 .. A•1677
† Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ... C•1468-1471
§ Murata Erie North America, Inc., Smyrna, GA 30080, 404-436-1300 .. A•1696,1698
§ Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... A•1638-1639, C•1516
Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
Amphenol Canada Corporation, An LPL Company, Scarborough, Ontario, CANADA M1B 2X6 416-291-4401
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
Compac, Holbrook, NY 11741 516-585-3400
Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Connectronics Corp., Toledo, OH 43607 419-537-0020
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
§ Ercona, Patchogue, NY 11772 516-758-0700
† Frequency Electronics, Inc., Mitchel Field, NY 11553 516-794-4500
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ KCK America Inc., Mitsubishi Materials Corporation, Schaumburg, IL 60173-4516 708-884-8688
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
§ Murata Manufacturing Co., Ltd., Nagaoka-Kyo-Shi, Kyoto, JAPAN 617 ... 075-951-9111
† Oxley Inc., Branford, CT 06405 203-488-1033
Panel Components Corp., Santa Rosa, CA 95406 707-523-0600
§ Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Sabritec, Irvine, CA 92714 714-660-1970
H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
§ Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Spectrum Control, Inc., Erie, PA 16505 814-455-0966
† Stetco, Inc., Franklin Pk., IL 60131 708-671-4208
ST Research Corporation, Newington, VA 22122 703-550-7000
Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100

Connectors, Flat Cable (Incl. Flexible)-2100

† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1321-1322
§† CW Industries, Southhampton, PA 18966, 215-355-7080 ..... B•1010-1011, C•1332-1333
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§† DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1353,1355
§ Electronic Precision Technology Inc., Cambridge, MA 02140, 617-661-2454 ..... C•1359,1361
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1380-1382,1385
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394,1396
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1401-1402
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1422
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1459
§† 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1480-1482
Shin-Etsu Polymer America, Inc., Union City, CA 94587, 415-475-9000 .. C•1521
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1579
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Comatel USA, Inc., Danbury, CT 06810 203-797-9445
Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
DOW SWITCH, Wilmington, MA 01887 617-935-6395
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§ EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
Elform, Inc., Reno, NV 89510 702-829-1905
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Mhotronics., Inc., Vernon Hills, IL 60061 708-913-9566
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086

Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
§ PCD, Peabody, MA 01960 508-532-8800
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ RMS Company, Connector Division, Minneapolis, MN 55432 612-786-1520
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
† Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Souriau, Inc., Valencia, CA 91355 805-257-4830
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 201-933-4452
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
T-Bar Data Switch Corp., Shelton, CT 06484 203-926-1801
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Φ U.S. Instrument Rentals, Inc., AT&T Capital Corp., D/FW Airport, TX 75261 800-874-7123
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
Wieland Inc., New Rochelle, NY 10801 914-633-0222
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Connectors, Fused-2100

§ **Corcom, Inc., Libertyville, IL 60048, 708-680-7400** ..... C•1331
Delta Products Corporation, Fremont, CA 94538, 415-770-0660 ..... A•1613, C•1346
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ..... C•1486,1804,1807
§ **Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722** ... A•1629, C•1505
§ **Schurter, Inc., Petaluma, CA 94952, 707-778-6311** ..... A•1638, C•1516-1519
Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1578
§ Bussmann:Cooper Industries, St. Louis, MO 63178 314-394-2877
E-T-A Circuit Breakers, Chicago, IL 60648 708-647-8303
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300

Connectors, Heavy Duty, Power-2100

§ **Altech Corp., Somerville, NJ 08876, 908-707-8484** ..... C•1169
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† **BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300** .. C•1296-1306
§ **Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400** ..... C•1307-1309
Connectronics Corp., Toledo, OH 43607, 419-537-0020 ..... C•1328
Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ..... A•1610, C•1331
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ **Electronic Precision Technology Inc., Cambridge, MA 02140, 617-661-2454** ..... C•1359,1361
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365-1367,1369
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1386
§ **LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366)** ..... C•1427
§ **LMI Connectors Inc., Champlain, NY 12919, 518-298-5360** ..... C•1442,1444
§ **MOLEX, Inc., Lisle, IL 60532, 708-969-4550** ..... C•1474
Multi-Contact USA, Santa Rosa, CA 95401, 707-575-7575 ..... C•1477
§ **Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722** ..... C•1500-1503, 1506
§ **Schurter, Inc., Petaluma, CA 94952, 707-778-6311** ..... C•1516,1518
§ **WECO Electrical Connectors, Inc., Moocers, NY 12958, 518-298-4810** C•1568-1577
§ **WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136** ..... C•1568-1577
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
§ Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
§ Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 617-787-5880
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
§ Burton Electrical Engineering, Wyle Laboratories, El Segundo, CA 90245 213-322-0615
Canfield Connector, Canfield Industries, Youngstown, OH 44514 216-758-8299
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§ Erni Components, Richmond, VA 23236 804-794-6367
E-T-A Circuit Breakers, Chicago, IL 60648 708-647-8303
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
§ Hugin Industries Inc., Los Altos, CA 94022 415-961-2950
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
International Configurations, Inc., Enfield, CT 06082 203-749-6380
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
† Kemlon Products & Development Company, Houston, TX 77021 713-747-5020
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Panel Components Corp., Santa Rosa, CA 95406 707-523-0600
§† Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Sabritec, Irvine, CA 92714 714-660-1970
§ Square D Co., Palatine, IL 60067 708-397-2600
§ Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ USD Products , Div. of Bussmann, Chicago, IL 60656 708-867-4600
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651

Connectors, Hermetically & Glass Sealed-2100

† **BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300** .. C•1296-1306

Connectors, Hermetically Sealed, Pressurized, or Waterproof-2100

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† **BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300** .. C•1296-1306
Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1311-1312,1314-1315
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ **Direct Sound Corporation, New York, NY 10011, 212-691-9050** ..... C•1349
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365-1367,1369
§ **Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002** ..... C•1398
§ **LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366)** ..... C•1427
§ **Pomona Electronics, Pomona, CA 91766, 714-623-3463** ..... C•1493-1494,1499
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
Connectronics Corp., Toledo, OH 43607 419-537-0020
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
† Frequency Electronics, Inc., Mitchel Field, NY 11553 516-794-4500
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
Jettron Products Inc., E. Hanover, NJ 07936 201-887-0571
† Kemlon Products & Development Company, Houston, TX 77021 713-747-5020
§† Kings Electronics Co., Inc., Tuckahoe, NY 10707 914-793-5000
Lucas Weinschel, Gaithersburg, MD 20884-6001 301-948-3434
MACOM, Inc., Burlington, MA 01803 617-272-3000
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
PAVE Technology Co., Inc., Dayton, OH 45414-3445 513-890-1100
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Sabritec, Irvine, CA 92714 714-660-1970
† Sealtron, Inc., Cincinnati, OH 45215 513-733-8400
§† Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
§† Souriau, Inc., Valencia, CA 91355 805-257-4830
Standex Electronics, Standex International, Cincinnati, OH 45209 513-871-3777
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Tricon Industries, Inc., Electromechanical Division, Downers Grove, IL 60515-4076 708-964-2330
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
† Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100

Connectors, High Density, Multipin-2100

† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1275-1276,1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1285
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1316-1318,1320-1322
Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
§† CW Industries, Southhampton, PA 18966, 215-355-7080 ... B•1010-1011, C•1332
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
Direct Sound Corporation, New York, NY 10011, 212-691-9050 ..... C•1349
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1353,1355
§ Electronic Precision Technology Inc., Cambridge, MA 02140, 617-661-2454 ..... C•1359-1361
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1368-1370
§ Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 ..... C•1372
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1378,1676
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1380,1382-1385
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394-1397
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400-1403
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1422-1423,1765
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 .... C•1442,1444-1445
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481-1482
Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 .... C•1526-1532
Sullins Electronics Corp., San Marcos, CA 92069, 619-744-0125 ... C•1534-1535
Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1544-1545,1549
§† Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1565
Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
Compac, Holbrook, NY 11741 516-585-3400
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Connectronics Corp., Toledo, OH 43607 419-537-0020
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§ EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ICC, Inc., Orange, CA 92665 714-998-8310
§† IEH Corp., New York, NY 10012 212-677-1881
§ Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
† Kemlon Products & Development Company, Houston, TX 77021 713-747-5020
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
§ Min-E-Con, Costa Mesa, CA 92626 714-434-7312
Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
PCD, Peabody, MA 01960 508-532-8800
Precicontact, Inc., Langhorne, PA 19047 215-757-1202
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
† Siltronics Ltd., Dover, MA 02030 617-329-4068
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ West Electronic Sales Team, Westminster, CA 92683 .... 714-898-0120;213-495-5569
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Connectors, High Voltage (1,000 Volts & Over)-2100

† Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1161-1163
† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Bertan Assocs., Hicksville, NY 11801, 516-433-3110 ..... D•1631
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
† Caton Connector Corp., Kingston, MA 02364, 617-585-4315 .. C•1311-1312,1314
Connectronics Corp., Toledo, OH 43607, 419-537-0020 ..... C•1328
§ Direct Sound Corporation, New York, NY 10011, 212-691-9050 ..... C•1349
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365,1367-1371
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1386
† Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404-1405
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493-1495
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1513-1515
Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§ Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alberox Corporation, New Bedford, MA 02745 508-995-1725
§ Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
High Voltage Technology Inc., Yonkers, NY 10701 914-423-6636
§ Hobson Bros., Chicago, IL 60630-3884 312-283-3600
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
Isolation Products, Inc., Sunnyvale, CA 94086 408-730-4672
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† Kings Electronics Co., Inc., Tuckahoe, NY 10707 914-793-5000
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Multi-Contact USA, Santa Rosa, CA 95401 707-575-7575
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
† Sealtron, Inc., Cincinnati, OH 45215 513-733-8400
Siltronics Ltd., Dover, MA 02030 617-329-4068
† Simmonds Precision Engine Systems, BF Goodrich Aerospace, Norwich, NY 13815 607-335-5000
§† Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
§ Square D Co., Palatine, IL 60067 708-397-2600
Standex Electronics, Standex International, Cincinnati, OH 45209 513-871-3777
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300

Connectors, IDC (Insulation Displacement Contact)-2100

† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1316-1317,1320-1322
§† CW Industries, Southhampton, PA 18966, 215-355-7080 ... B•1010-1011, C•1332
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1353
§ Electronic Precision Technology Inc., Cambridge, MA 02140, 617-661-2454 ..... C•1359,1361
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1380,1382-1385

§ **Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958** ..... C•1394
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400,1402-1403
§ **JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051** ..... C•1406-1407,1760-1763
§ **J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243** ..... C•1411-1421
§ **Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110** ..... C•1422-1423,1765
§ **3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info.** ..... C•1464
§ **MOLEX, Inc., Lisle, IL 60532, 708-969-4550** ..... C•1474
§† **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... C•1481
§ **Weidmuller Inc., Richmond, VA 23236, 804-794-2877** ..... C•1579
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
# CCP/Technical Devices, Dayton, OH 45414 513-890-7881
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Comatel USA, Inc., Danbury, CT 06810 203-797-9445
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§ EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ Erni Components, Richmond, VA 23236 804-794-6367
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
International Microelectronics, Arlington, TX 76003 817-561-2244
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
§ PCD, Peabody, MA 01960 508-532-8800
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
§ Souriau, Inc., Valencia, CA 91355 805-257-4830
Standex Electronics, Standex International, Cincinnati, OH 45209 513-871-3777
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§† Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ West Electronic Sales Team, Westminster, CA 92683 ..... 714-898-0120;213-495-5569
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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Connectors, LCD-2100

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841** ..... C•1281
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1378-1379
§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... C•1480-1481
Shin-Etsu Polymer America, Inc., Union City, CA 94587, 415-475-9000 ..... C•1521
Advanced Connector Technology, Ventura, CA 93001 805-653-5753
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
Elastomeric Technologies, Inc., Hatboro, PA 19040 ..... 215-672-0787;215-672-4741
† Elform, Inc., Reno, NV 89510 702-829-1905
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
Teledyne Kinetics, Div. of Teledyne, Inc., Solana Beach, CA 92075 619-755-1181
† UCE, Inc., Norwalk, CT 06854 203-838-7509

Connectors, Lead Frame-2100

Die-Tech Inc., York Haven, PA 17370, 717-938-6771 ..... C•1347

Connectors, Magnetron-2100

† Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404

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Connectors, Missile (Umbilicals, Interstage, Post Boost)-2440 — *See Vol. B*

Connectors, Mixed Contact Configurations-2100

§ **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752** ..... C•1175
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
Connectronics Corp., Toledo, OH 43607, 419-537-0020 ..... C•1328
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365,1367-1370
Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 ..... C•1372
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375
§ **Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958** ..... C•1397
§ **Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002** ..... C•1398
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1403
§ **LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366)** ..... C•1427
Multi-Contact USA, Santa Rosa, CA 95401, 707-575-7575 ..... C•1475-1477
§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... C•1480
Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Babcock Display Products, Inc., A Subsidiary of Babcock, Inc., Anaheim, CA 92805 714-491-5100
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
Compac, Holbrook, NY 11741 516-585-3400
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Covid, Inc., Tempe, AZ 85281 602-966-2221
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
§ EBY Company, Philadelphia, PA 19124 215-537-4700
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§ Erni Components, Richmond, VA 23236 804-794-6367
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
§ Hugin Industries Inc., Los Altos, CA 94022 415-961-2950
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
IEH Corp., New York, NY 10012 212-677-1881
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ RMS Company, Connector Division, Minneapolis, MN 55432 612-786-1520
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651

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3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
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§ **Schurter, Inc., Petaluma, CA 94952, 707-778-6311** ..... C•1516
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§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644
International Microelectronics, Arlington, TX 76003 817-561-2244

JAE Electronics Inc., Irvine, CA 92718 714-753-2600
§ LMI Connectors Inc., Champlain, NY 12919 518-298-5360
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
Weidmuller Inc., Richmond, VA 23236 804-794-2877
Wieland Inc., New Rochelle, NY 10801 914-633-0222

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§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1321
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§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
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§† Superior Electric, Bristol, CT 06010, 203-582-9561 ..... C•1537
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§ Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810. C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Bussco Inc., El Segundo, CA 90245 213-322-6580
Cable Systems, Inc., Everett, MA 02149 617-389-7080
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
§† EBY Company, Philadelphia, PA 19124 215-537-4700
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† IEH Corp., New York, NY 10012 212-677-1881
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
Lectronic Research Labs., Inc., Camden, NJ 08104 609-541-4200
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
Staffall Inc., Cranston, RI 02910 401-461-5554
§ Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
Tricon Industries, Inc., Electromechanical Division, Downers Grove, IL 60515-4076 708-964-2330
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376

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Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
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§† CW Industries, Southhampton, PA 18966, 215-355-7080 ..... B•1010-1011, C•1332-1333
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§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1408-1409
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
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§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1442-1444
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§† Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1544-1545,1547,1549
§† Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1564-1567
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§ Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
Aromat Corp., Matsushita Electrical Works Ltd., New Providence, NJ 07974 908-464-3550
Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
† Caton Connector Corp., Kingston, MA 02364 617-585-4315
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Cincinnati Electrosystems, Loveland, OH 45140 513-831-6800
Comatel USA, Inc., Danbury, CT 06810 203-797-9445
Compac, Holbrook, NY 11741 516-585-3400
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
§ Components Corp., Denville, NJ 07834 201-627-0290
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
† CTS Corporation, Elkhart, IN 46514 219-293-7511
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
§ Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
† Dixson, Inc., Grand Junction, CO 81503 303-244-1241
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§† EBY Company, Philadelphia, PA 19124 215-537-4700
§ EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
§ Edac Inc., Scarborough, Ont., CAN M1V 5B6 416-754-3322
§† Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† IEH Corp., New York, NY 10012 212-677-1881
§ Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
International Microelectronics, Arlington, TX 76003 817-561-2244
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900

Lectronic Research Labs., Inc., Camden, NJ 08104 609-541-4200
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
§† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
Mingston Electronics, Inc., MEC Inc.(Taiwan), City of Industry, CA 91746 818-330-2086
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
§ PCD, Peabody, MA 01960 508-532-8800
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
Schroff Incorporated, Warwick, RI 02886 401-732-3770
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
§ Souriau, Inc., Valencia, CA 91355 805-257-4830
Staffall Inc., Cranston, RI 02910 401-461-5554
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 201-933-4452
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§† Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§† Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Urban Electronics, Dover, MA 02030 617-329-4068
§ USD Products , Div. of Bussmann, Chicago, IL 60656 708-867-4600
§† Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651

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§† AirBorn, Inc., Addison, TX 75001-9519, 214-931-3200 ..... C•1160
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
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§† CW Industries, Southhampton, PA 18966, 215-355-7080 ..... B•1010-1011, C•1332-1333
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1352
Elastomeric Technologies, Inc., Hatboro, PA 19040, 215-672-0787;215-672-4741 ..... C•1357
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365-1367
§ Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 .... C•1372,1374
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375-1379
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394-1395,1397
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
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§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1422-1423,1765
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Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Advanced Connector Technology, Ventura, CA 93001 805-653-5753
Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
Alden Products Co., Brockton, MA 02403 508-583-0160
§ Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 617-787-5880
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Carrol Components Corporation, Camarillo, CA 93012 805-484-0540
† Caton Connector Corp., Kingston, MA 02364 617-585-4315
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
Comatel USA, Inc., Danbury, CT 06810 203-797-9445
Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Components Corp., Denville, NJ 07834 201-627-0290
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644
† CTS Corporation, Elkhart, IN 46514 219-293-7511
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
§ Delta Electronics Mfg. Corp., Beverly, MA 01915 508-927-1060
Direct Sound Corporation, New York, NY 10011 212-691-9050
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
DOW SWITCH, Wilmington, MA 01887 617-935-6395
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§† EBY Company, Philadelphia, PA 19124 215-537-4700
EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
§† Edac Inc., Scarborough, Ont., CAN M1V 5B6 416-754-3322
Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
Elcon Products International Company, Fremont, CA 94538 415-490-4200
† Electronics Research Associates Inc., Winsted, CT 06098 203-379-2731
Elform, Inc., Reno, NV 89510 702-829-1905
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§ Erni Components, Richmond, VA 23236 804-794-6367
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
§ Hugin Industries Inc., Los Altos, CA 94022 415-961-2950
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ICC, Inc., Orange, CA 92665 714-998-8310
§ Interconnect Devices, inc., Kansas City, KS 66106 913-342-5544
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
Lectronic Research Labs., Inc., Camden, NJ 08104 609-541-4200
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Mhotronics., Inc., Vernon Hills, IL 60061 708-913-9566
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
† Min-E-Con, Costa Mesa, CA 92626 714-434-7312
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
† PCD, Peabody, MA 01960 508-532-8800
Pomona Electronics, Pomona, CA 91766 714-623-3463
§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322

Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
Schroff Incorporated, Warwick, RI 02886 401-732-3770
† Sealtron, Inc., Cincinnati, OH 45215 513-733-8400
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
§ Souriau, Inc., Valencia, CA 91355 805-257-4830
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Teledyne Kinetics, Div. of Teledyne, Inc., Solana Beach, CA 92075 619-755-1181
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Tricon Industries, Inc., Electromechanical Division, Downers Grove, IL 60515-4076 708-964-2330
USD Products , Div. of Bussmann, Chicago, IL 60656 708-867-4600
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
§ Wago Corp., Brown Deer, WI 53223 414-354-5511
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Connectors, Rack & Panel-2100

† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247, 603-524-5101 ..... C•1293
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1314
§ Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ..... C•1331
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1366
Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1383,1385
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394-1395
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400,1403
J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1422-1423,1765
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1442
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1458-1459, D•1882
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ... C•1468-1469
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493-1495
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1510
Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1513-1515
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
§ Superior Electric, Bristol, CT 06010, 203-582-9561 ..... C•1537
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538
Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 .... C•1547
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810. C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
§ Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 617-787-5880
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
† Bailey Controls Co., Wickliffe, OH 44092 216-585-8500
BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
Comatel USA, Inc., Danbury, CT 06810 203-797-9445
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connectronics Corp., Toledo, OH 43607 419-537-0020
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
† CTS Corporation, Elkhart, IN 46514 219-293-7511
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§† Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
§ Edac Inc., Scarborough, Ont., CAN M1V 5B6 416-754-3322
Ei North America, New York, NY 10021 212-517-5622
§† Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
§† Elcon Products International Company, Fremont, CA 94538 415-490-4200
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
† Kemlon Products & Development Company, Houston, TX 77021 713-747-5020
Lectronic Research Labs., Inc., Camden, NJ 08104 609-541-4200
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Min-E-Con, Costa Mesa, CA 92626 714-434-7312
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Radiall, Inc., Stratford, CT 06497 203-386-1030
Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
† Sabritec, Irvine, CA 92714 714-660-1970
Schroff Incorporated, Warwick, RI 02886 401-732-3770
§ Schurter, Inc., Petaluma, CA 94952 707-778-6311
§† Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651

Connectors, RF, Coaxial & Triaxial-2100

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1155,1711
† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
† C & C Jetronic, Inc., Princeton, NJ 08540, 609-921-8540 ..... C•1393
Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1314
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325,1595
† Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
Connectronics Corp., Toledo, OH 43607, 419-537-0020 ..... C•1328
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365,1367-1369
Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 .... C•1372-1374
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1396
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1403
Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424-1425
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1452
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... C•1468
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493,1499
§ Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090 ..... A•1824-1826

† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1513,1515
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ..... C•1556-1561
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§ Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Andrew Corp., Orland Pk, IL 60462 800-255-1479
† Antenna Specialists, The Allen Group, Cleveland, OH 44139 216-349-8400
§† ANZAC, M/A-COM, Burlington, MA 01803 617-273-3333
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
§ B & L Coaxial Connections Ltd., Scarborough, CANADA M1V 2J9 416-292-3906
§† Bird Electronic Corp., Cleveland, OH 44139-2794 216-248-1200
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
§ Cambridge Products, Bloomfield, CT 06002 ..... 203-243-1761, 800-243-8814
† C.E. Precision Assemblies, Inc., Chandler, AZ 85226 602-940-0740
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
§ Communication Devices, Inc., Scarborough, Ont., CAN M1B3R6 416-292-4463
§ Compac, Holbrook, NY 11741 516-585-3400
# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
† Connector Industries of America Div., Microdot Mfg., Cincinnati, OH 45215 513-772-3680
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Covid, Inc., Tempe, AZ 85281 602-966-2221
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
§ Delta Electronics Mfg. Corp., Beverly, MA 01915 508-927-1060
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§ Direct Sound Corporation, New York, NY 10011 212-691-9050
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
§† EMC Technology Inc, Cherry Hill, NJ 08034 609-429-7800
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
† Frequency Electronics, Inc., Mitchel Field, NY 11553 516-794-4500
Gabriel Electronics, Scarborough, ME 04074 207-883-5161
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
† Imtronics Industries, St. Petersburg, FL 33716 813-572-9010
§ Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
§ International Components Corp., Melville, NY 11747 516-293-1500
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§† Kings Electronics Co., Inc., Tuckahoe, NY 10707 914-793-5000
† Light Control Systems Inc., M/A COM Inc., Tyngsboro, MA 01879 508-649-9870
Lucas Weinschel, Gaithersburg, MD 20884-6001 301-948-3434
MACOM, Inc., Burlington, MA 01803 617-272-3000
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§† Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
† Maury Microwave Corp., Cucamonga, CA 91730 714-987-4715
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
† Micro Mode Prods., El Cajon, CA 92020 619-449-3844
§† Microtech, Boothwyn, PA 19061 215-459-3566
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
§† Midwest Microwave, Saline, MI 48176-9569 ..... 313-429-4773;800-521-4410
§ Murata Manufacturing Co., Ltd., Nagaoka-Kyo-Shi, Kyoto, JAPAN 617 ... 075-951-9111
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
§ Penstock Engineering Labs., Penstock, Inc., Sunnyvale, CA 94086-4018 ..... 408-730-0300;800-PENSTOCK
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§† Radiall, Inc., Stratford, CT 06497 203-386-1030
§† Remee Products Corp., Florida, NY 10921 914-651-4431
§ RF Industries, Celltronics, San Diego, CA 92121 619-587-0656
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Sabritec, Irvine, CA 92714 714-660-1970
§ Sitco Antennas Div.of Simplicity Tool Corp., Portland, OR 97220 503-253-2000
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
§† Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
§† Specialty Connector Co., Franklin, IN 46131 317-738-2800
§ Spectrum Control, Inc., Erie, PA 16505 814-455-0966
§ Stetco, Inc., Franklin Pk., IL 60131 708-671-4208
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
Whittaker Corp., Electronic Resources Div., Simi Valley, CA 93063 805-584-4100
§ Wiltron, Morgan Hill, CA 95037-2809 408-778-2000

Connectors, Solderless-2100

ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Beau Products Div., Vernitron Corp., Laconia, NH 03247, 603-524-5101 ..... C•1292-1293
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§† DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1354
Elastomeric Technologies, Inc., Hatboro, PA 19040, 215-672-0787;215-672-4741 ..... C•1357
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1366
Fujipoiy, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1379
§† J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1886
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... C•1468,1470-1471
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493-1494
Shin-Etsu Polymer America, Inc., Union City, CA 94587, 415-475-9000 .. C•1521
§† Superior Electric, Bristol, CT 06010, 203-582-9561 ..... C•1537
§† Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 .... C•1547
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ..... C•1556-1561
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 . C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
Advanced Connector Technology, Ventura, CA 93001 805-653-5753
§ Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
Alden Products Co., Brockton, MA 02403 508-583-0160
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-268-8001
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Bussco Inc., El Segundo, CA 90245 213-322-6580
Cambridge Products, Bloomfield, CT 06002 ..... 203-243-1761, 800-243-8814
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
† CTS Corporation, Elkhart, IN 46514 219-293-7511
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
Direct Sound Corporation, New York, NY 10011 212-691-9050
§† Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
Elform, Inc., Reno, NV 89510 702-829-1905
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ICC, Inc., Orange, CA 92665 714-998-8310

§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
International Microelectronics, Arlington, TX 76003 817-561-2244
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ LMI Connectors Inc., Champlain, NY 12919 518-298-5360
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§† Microtech, Boothwyn, PA 19061 215-459-3566
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Patton-MacGuyer Inc., Providence, RI 02905 401-941-6000
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§† Pioneer Components, Brooklyn, NY 11234 718-444-3880
§† Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
Remee Products Corp., Florida, NY 10921 914-651-4431
§ RMS Company, Connector Division, Minneapolis, MN 55432 612-786-1520
† Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
Rogers Corp., Rogers, CT 06263 203-774-9605
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Siltronics Ltd., Dover, MA 02030 617-329-4068
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
§† Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Square D Co., Palatine, IL 60067 708-397-2600
Standex Electronics, Standex International, Cincinnati, OH 45209 513-871-3777
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 201-933-4452
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§† Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
Teledyne Kinetics, Div. of Teledyne, Inc., Solana Beach, CA 92075 619-755-1181
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Connectors, Splicing-2100

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
Remee Products Corp., Florida, NY 10921 914-651-4431
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 201-933-4452
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Connectors, Stripline-2100

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281
Comm Con Connectors Inc., Montrose, CA 91020, 818-957-2018 ..... C•1323
Elastomeric Technologies, Inc., Hatboro, PA 19040, 215-672-0787;215-672-4741 ..... C•1357
§ Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644
§† EMC Technology Inc, Cherry Hill, NJ 08034 609-429-7800
Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§ Erni Components, Richmond, VA 23236 804-794-6367
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
§† Kings Electronics Co., Inc., Tuckahoe, NY 10707 914-793-5000
MACOM, Inc., Burlington, MA 01803 617-272-3000
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
† Micro Mode Prods., El Cajon, CA 92020 619-449-3844
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Rogers Corporation, Flexible Interconnections Div., Chandler, AZ 85244 602-963-4584
§† Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
§ Wiltron, Morgan Hill, CA 95037-2809 408-778-2000
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Connectors, Surface Mount-2100

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1317
Comm Con Connectors Inc., Montrose, CA 91020, 818-957-2018 ..... C•1323
§ CW Industries, Southhampton, PA 18966, 215-355-7080 ... B•1010-1011, C•1332
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1355
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1366
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1379
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1380
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394,1397
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1401
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Shin-Etsu Polymer America, Inc., Union City, CA 94587, 415-475-9000 .. C•1521
† Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 .... C•1526-1532
Sullins Electronics Corp., San Marcos, CA 92069, 619-744-0125 ... C•1534-1535
Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538
§ Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1544-1549
† Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1551-1555
§ WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810. C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
AirBorn, Inc., Addison, TX 75001-0519 214-931-3200
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Bussmann:Cooper Industries, St. Louis, MO 63178 314-394-2877
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§ Edac Inc., Scarborough, Ont., CAN M1V 5B6 416-754-3322
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
Elform, Inc., Reno, NV 89510 702-829-1905
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† IEH Corp., New York, NY 10012 212-677-1881
International Configurations, Inc., Enfield, CT 06082 203-749-6380
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
Lectronic Research Labs., Inc., Camden, NJ 08104 609-541-4200
MACOM, Inc., Burlington, MA 01803 617-272-3000
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361

† Min-E-Con, Costa Mesa, CA 92626 714-434-7312
§ The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
§ RMS Company, Connector Division, Minneapolis, MN 55432 612-786-1520
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 201-933-4452
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
Telco Intercontinental, Houston, TX 77095 713-855-2218
Teledyne Kinetics, Div. of Teledyne, Inc., Solana Beach, CA 92075 619-755-1181
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
Wieland Inc., New Rochelle, NY 10801 914-633-0222
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Connectors, Telephone, Modular-2100

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1456
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1480-1481
Stewart Connector Sys., Inc., Insilco, Glen Rock, PA 17327, 717-235-7512 ..... C•1533
Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1541
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Daitron, Inc., Tigard, OR 97223 503-620-2879
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Jensen Tools, Inc., Axia, inc., Phoenix, AZ 85044 602-968-6241
Kycon Cable & Connector, Inc., San Jose, CA 95125 408-295-1110
§ Oupiin America, Inc., Simi Valley, CA 93065 805-520-0862
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
Telco Intercontinental, Houston, TX 77095 713-855-2218

Connectors, Test-2100

† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180, 605-665-9301 ..... C•1334
§ Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006, 818-446-6175 ..... C•1364
Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 ..... C•1368
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
† Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
Multi-Contact USA, Santa Rosa, CA 95401, 707-575-7575 ..... C•1476-1477
† Oxley Inc., Branford, CT 06405, 203-488-1033 ..... B•1025, C•1479
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493-1494
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
§† Air-O-Tronics, Trush, Inc., Cazenovia, NY 13035 315-655-2387
Alden Products Co., Brockton, MA 02403 508-583-0160
§ Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 617-787-5880
§ Aries Electronics, Frenchtown, NJ 08825 908-996-6841
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-9800
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Comatel USA, Inc., Danbury, CT 06810 203-797-9445
Components Corp., Denville, NJ 07834 201-627-0290
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
§ ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981
PCD, Peabody, MA 01960 508-532-8800
Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
Production Automation, Inc., Santa Clara, CA 95054 408-980-9880
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Russtech Engineering Company, Inc., Mission Viejo, CA 92691 714-472-0880
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Connectors, Thermocouple-2100

† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1365,1367-1370
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
Mercotac Inc., Carlsbad, CA 92009, 619-431-7723 ..... B•1295
Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... B•1854
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
† Alberox Corporation, New Bedford, MA 02745 508-995-1725
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
Ceramaseal, New Lebanon, NY 12125 518-794-7800
Conax Buffalo Corporation, Buffalo, NY 14225 716-684-4500
† Connector Industries of America Div., Microdot Mfg., Cincinnati, OH 45215 513-772-3680
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ GIC Thermodynamics, Royal Oak, MI 48073 313-280-1648
§† Gordon Co.:Watlow, Richmond, IL 60071 815-678-2211
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Love Conirols Corp., Wheeling, IL 60090 708-541-3232
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ Pyrocom Co., Seattle, WA 98133 206-365-3535
Richards, Arklay S., Co., Inc., Newton Highlands, MA 02161-1796 617-527-4385
§ S-Products Inc., Fairfield, CT 06430 203-331-9546
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877

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† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
Foxconn International, Hon Hai, Brea, CA 92621, 714-256-1888 ..... C•1372
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493-1494
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ..... C•1556-1561
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Compac, Holbrook, NY 11741 516-585-3400
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Covid, Inc., Tempe, AZ 85281 602-966-2221
§ CSD Industries, Inc., dba C Enterprises , San Marcos, CA 92069 ..... 619-744-8182; 800-334-3815;800-423-3345
§ Daitron, Inc., Tigard, OR 97223 503-620-2879

Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
Fischer Connectors, Valencia, CA 91355 ..... 805-295-0600;1-800-344-0445
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
† Imtronics Industries, St. Petersburg, FL 33716 813-572-9010
§ International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
JAE Electronics Inc., Irvine, CA 92718 714-753-2600
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700

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† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1276-1277
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1286
CW Industries, Southhampton, PA 18966, 215-355-7080 ... B•1010-1011, C•1332
§† DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1352
§ Electronic Precision Technology Inc., Cambridge, MA 02140, 617-661-2454 ..... C•1359,1361
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680, 714-669-9473 .... C•1682
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1403
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1408-1409
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1444
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... C•1468,1470-1471
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 .... C•1526-1532
§ Sullins Electronics Corp., San Marcos, CA 92069, 619-744-0125 ... C•1534-1535
§† Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1545,1547,1549
§† Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
§ Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
† Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
Comatel USA, Inc., Danbury, CT 06810 203-797-9445
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
† CTS Corporation, Elkhart, IN 46514 219-293-7511
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
§ Dale Electronics, Inc., Yankton Div., Yankton, SD 57078-0180 605-665-9301
dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
§† EBY Company, Philadelphia, PA 19124 215-537-4700
§ Edac Inc., Scarborough, Ont., CAN M1V 5B6 416-754-3322
§† Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
§† E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135 408-922-9000
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† IEH Corp., New York, NY 10012 212-677-1881
§ Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§† Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Norwesco Interconnect Devices, Gastonia, NC 28053 704-868-3581
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ PCD, Peabody, MA 01960 508-532-8800
§ Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
Project Resources Inc., Wareham, MA 02571 508-295-7444
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ..... 312-342-6300 x210
§ RMS Company, Connector Division, Minneapolis, MN 55432 612-786-1520
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Schroff Incorporated, Warwick, RI 02886 401-732-3770
§ Schurter, Inc., Petaluma, CA 94952 707-778-6311
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§† Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
Urban Electronics, Dover, MA 02030 617-329-4068
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
§† Wire-Pro, Inc., Salem, NJ 08079 ..... 609-935-7601;609-935-7651
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1275
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1283,1286
† BTC Electronic Components, Old Bridge, NJ 08857, 908-679-9300 .. C•1296-1306
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1378-1379
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1396
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1443-1444
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Multi-Contact USA, Santa Rosa, CA 95401, 707-575-7575 ..... C•1475-1477
Sullins Electronics Corp., San Marcos, CA 92069, 619-744-0125 ... C•1534-1535
Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1545-1549
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1564-1567
Advanced Circuit Technology, Nashua, NH 03062 ..... 603-880-6000;800-234-FLEX
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
§ Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autoswage Products, Shelton, CT 06484 203-929-1401
† Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
CTS Corporation, Elkhart, IN 46514 219-293-7511
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
Elastomeric Technologies, Inc., Hatboro, PA 19040 ..... 215-672-0787;215-672-4741
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Erni Components, Richmond, VA 23236 804-794-6367
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† IEH Corp., New York, NY 10012 212-677-1881
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
JAE Electronics Inc., Irvine, CA 92718 714-753-2600
§ KEL Connectors, Inc., KEL Corp., Sunnyvale, CA 94086 408-720-9044
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Min-E-Con, Costa Mesa, CA 92626 714-434-7312
§ The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 805-484-0981

§ PCD, Peabody, MA 01960 ... 508-532-8800
§† Positronic Industries, Inc., Springfield, MO 65801 ... 417-866-2322
§ Power Dynamics Inc., West Orange, NJ 07052 ... 201-736-5722
§ RMS Company, Connector Division, Minneapolis, MN 55432 ... 612-786-1520
§ Robinson Nugent, Inc., New Albany, IN 47150 ... 812-948-0564
Rowe Industries, Inc., Toledo, OH 43612 ... 419-729-9761
§ Samtec, Inc., New Albany, IN 47150 ... 812-944-6733
§ Scanbe, Unit of Zero Corporation, El Monte, CA 91731 ... 619-452-9333
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 ... 201-933-4452
Teledyne Kinetics, Div. of Teledyne, Inc., Solana Beach, CA 92075 ... 619-755-1181
TELTEC, INC., Minneapolis, MN 55425 ... 612-854-9632
† Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 ... 603-889-5156
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 ... 803-676-2900

Connectors & Terminals, Push-on, Quick Disconnect-2100

ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ... C•1157-1159
§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ... C•1164,1169
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ... C•1175
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247, 603-524-5101 ... C•1293
Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ... C•1315
† Connector Corp., Chicago, IL 60646, 312-539-3108 ... C•1327
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ... C•1350,1353-1355
Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ... C•1394,1396-1397
§ J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ... C•1411-1413,1415-1421
§ LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ... C•1427
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ... C•1442,1444
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ... C•1474
Multi-Contact USA, Santa Rosa, CA 95401, 707-575-7575 ... C•1475,1477
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ... C•1481,1802
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ... C•1496
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ... C•1500-1501, 1506
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ... C•1513-1515
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ... C•1523-1525
Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ... C•1545-1546,1549
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ... C•1556-1561
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ... C•1564-1567
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810. C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ... C•1568-1577
† Accurate Electronics Corp., Elyria, OH 44036 ... 216-366-6330;1-800-325-8979
Air Electro Inc., Van Nuys, CA 91406 ... 213-873-6400;818-988-4400
Alden Products Co., Brockton, MA 02403 ... 508-583-0160
§ Alpha Products, Inc., Westlake Village, CA 91362 ... 818-889-9304
§ Amerace Corporation, Hackettstown, NJ 07840 ... 201-852-1122
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 ... 203-265-8910
§ Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 ... 203-743-9272
§ Anderson Power Products, Div. of High Voltage Engineering, Boston, MA 02135 ... 617-787-5880
§ Ark Les Corporation, Watertown, MA 02172 ... 617-924-2330
Ark-Les Corp, Raleigh, NC 27620 ... 919-231-2000
† Armel Electronics, N. Bergen, NJ 07047 ... 201-869-4201
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 ... 508-222-2202
Augat/RDI, Carol Stream, IL 60188 ... 708-682-4100
Autosplice, Inc., San Diego, CA 92121 ... 619-535-0077
Autoswage Products, Shelton, CT 06484 ... 203-929-1401
§ AVA Electronics Corporation, Drexel Hill, PA 19026 ... 215-284-2500
† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 ... 818-843-4330
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 ... 203-334-4124
§† Brim Electronics, Fair Lawn, NJ 07410 ... 201-796-2886
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 ... 203-838-4444
Ceramaseal, New Lebanon, NY 12125 ... 518-794-7800
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 ... 312-981-6000
# Clifford of Vermont, Inc., Bethel, VT 05032 ... 802-234-9921;800-451-4381
§ Cole Hersee Co., Boston, MA 02127-2467 ... 617-268-2100
Comatel USA, Inc., Danbury, CT 06810 ... 203-797-9445
Computer System Products, Minneapolis, MN 55447 ... 612-476-6866;800-422-2537
§ Concord Electronics Corporation, New York, NY 10012 ... 1-212-777-6571
Connectronics Corp., Toledo, OH 43607 ... 419-537-0020
Cosmo Corporation, Cleveland, OH 44109 ... 216-861-5594
Curtis Industries, Milwaukee, WI 53219-0910 ... 414-649-4200
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 ... 201-768-5400
† Detoronics Corporation, S. El Monte, CA 91733 ... 818-579-7130
Direct Sound Corporation, New York, NY 10011 ... 212-691-9050
Doran Manufacturing Co., Cincinnati, OH 45225 ... 513-681-5424
§† Elcon Products International Company, Fremont, CA 94538 ... 415-490-4200
† Electronic Essentials, Woodside, NY 11377 ... 718-898-8300
ELEC-TRON, Inc., Wichita, KS 67216 ... 316-522-3401
ELMA Electronic Inc., Fremont, CA 94538 ... 415-656-3400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ... 201-288-4477; 800-447-5639
Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 ... 214-550-9025
§† E-Z Hook, Tektest Inc., Arcadia, CA 91006 ... 818-446-6175
§ GC-Thorsen, Rockford, IL 61105-1209 ... 815-968-9661
Helwig Carbon Products, Inc., Milwaukee, WI 53224 ... 414-354-2411
† Heyco Molded Products, Inc., Kenilworth, NJ 07033 ... 908-245-0033;800-526-4182
§ Hugin Industries Inc., Los Altos, CA 94022 ... 415-961-2950
† Hypertronics Corp., Hudson, MA 01749 ... 508-568-0451;800-225-9228
§ ICC, Inc., Orange, CA 92665 ... 714-998-8310
§† ICO-RALLY Corporation, Palo Alto, CA 94303 ... 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 ... 815-895-5181
§† Interconnect Devices, Inc., Kansas City, KS 66106 ... 913-342-5544
§ International Components Corp., Melville, NY 11747 ... 516-293-1500
ITT Cannon, Santa Ana, CA 92705-5684 ... 714-557-4700
§† ITT Sealectro, Inc., New Britian, CT 06051 ... 203-223-2700
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 ... 612-943-5500
§† Keystone Electronics Corp., Astoria, NY 11105-2017 ... 718-956-8900
Lectronic Research Labs., inc., Camden, NJ 08104 ... 609-541-4200
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 ... 514-733-8311
MACOM, Inc., Burlington, MA 01803 ... 617-272-3000
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 ... 617-890-4750
§ Marathon Special Prods., Marathon Electric, Bowling Green, OH 43402 ... 419-352-8441
§ Martin Sound Prods. Inc., Cleveland, OH 44143-2297 ... 216-442-2286
3M-Electronic Products Division, Austin, TX 78769-2963 ... 1-800-225-5373 Sls. & Prod. Info.
§ Methode Electronics, Inc., Chicago, IL 60656 ... 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 ... 708-392-3500
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ MSC Automation, Miller Sales Co., Wauconda, IL 60084 ... 708-526-9200;800-323-5294
§† Nichifu America, Inc., Pottstown, PA 19464 ... 215-323-7120
ODU-USA, Inc., ODU-KONTAKT GmbH, Camarillo, CA 93012 ... 805-484-0981
† Patton-MacGuyer Inc., Providence, RI 02905 ... 401-941-6000
§† Pioneer Components, Brooklyn, NY 11234 ... 718-444-3880
§ PTS Corporation, Bloomington, IN 47401 ... 812-824-9331
† Pyle-National, Inc. LPL Co., Chicago, IL 60651 ... 312-342-6300 x210
§ Qualtek Electronics Corp., Mentor, OH 44060 ... 216-951-3300
§ Reliance Comm/Tec, Reliance Electric, Cleveland, OH 44117 ... 800-245-4501
§ RMS Company, Connector Division, Minneapolis, MN 55432 ... 612-786-1520
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 ... 215-489-3700
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 ... 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 ... 914-736-3500
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 ... 401-461-8220
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 ... 714-996-0960
Staffatt Inc., Cranston, RI 02910 ... 401-461-5554
Standex Electronics, Standex International, Cincinnati, OH 45209 ... 513-871-3777
§ Stocko Connectors, Stocko Corporation, Carlstadt, NJ 07072 ... 201-933-4452
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 ... 312-792-2700
§ Switches Unlimited, Inc., Woodside, NY 11377 ... 718-478-5000;800-221-0487
§† Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 ... 203-735-9311
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 ... 803-676-2900
Tricon Industries, Inc., Electromechanical Division, Downers Grove, IL 60515-4076 ... 708-964-2330
Two Technologies,inc., Horsham, PA 19044 ... 215-441-5305
§† Tyton Corp., Milwaukee, WI 53223 ... 414-355-1130;800-535-5552
§ USD Products , Div. of Bussmann, Chicago, IL 60656 ... 708-867-4600
§ Useco Div., Litton Inds, Van Nuys, CA 91409 ... 818-786-6381
§ Vaco Products, Chicago, IL 44139-3395 ... 708-677-9500
Viking Electronics, Inc., Chatsworth, CA 91311 ... 818-341-4330
§ Visual Communications Co., Inc., San Diego, CA 92126 ... 619-549-6900
§ Wago Corp., Brown Deer, WI 53223 ... 414-354-5511
§ Weidmuller Inc., Richmond, VA 23236 ... 804-794-2877
Wieland Inc., New Rochelle, NY 10801 ... 914-633-0222
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ... 914-666-2911;800-882-8020

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Airflyte Elctrns. Co., Bayonne, NJ 07002 ... 201-436-2230
Autosplice, Inc., San Diego, CA 92121 ... 619-535-0077
Autoswage Products, Shelton, CT 06484 ... 203-929-1401
§ Bussco Inc., El Segundo, CA 90245 ... 213-322-6580
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 ... 416-475-8500
§ Hugin Industries Inc., Los Altos, CA 94022 ... 415-961-2950
Instrument Specialties Co. Headquarters, Delaware Water Gap, PA 18327-0136 ... 717-424-8510
§ Interconnect Devices, Inc., Kansas City, KS 66106 ... 913-342-5544
§† Keystone Electronics Corp., Astoria, NY 11105-2017 ... 718-956-8900
§ Mantex Corp., Oxford, MI 48371 ... 313-628-8210
Methode Electronics, Inc., Chicago, IL 60656 ... 708-867-9600
† Micro-Products Engineering Co., Newark, NJ 07108 ... 201-824-8467
The J. M. Ney Company, Bloomfield, CT 06002 ... 203-242-2281

Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Simco Co., Hatfield, PA 19440 215-822-2171
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§ Tapeswitch Corp. of America, Farmingdale, NY 11735 516-694-6312
Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800

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Contacts, Brush-2500

Mercotac Inc., Carlsbad, CA 92009, 619-431-7723 ..... B•1295
† Danmar Inds., Moorpark, CA 93021 1-805-529-3788,1-800-666-6268
† Kirkwood Industries Inc., Cleveland, OH 44135 216-267-6200
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
† Unit Industries, Fullerton, CA 92631 714-871-4161

Contacts, Electrical-2500

† AirBorn, Inc., Addison, TX 75001-0519, 214-931-3200 ..... C•1160
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Graphite Metallizing Corp., Yonkers, NY 10702, 914-968-8400 ..... B•1271
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1388-1391
Mercotac Inc., Carlsbad, CA 92009, 619-431-7723 ..... B•1295
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538
§† Air Electro Inc., Van Nuys, CA 91406 ..... 213-873-6400;818-988-4400
Airflyte Elctrns. Co., Bayonne, NJ 07002 201-436-2230
Alden Products Co., Brockton, MA 02403 508-583-0160
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol, Bendix Connector Operations, Sidney, NY 13838 607-563-5011
†# Array Connector Corporation, Miami, FL 33152-1250 305-591-7530
§ Arrow Hart Components, Cooper Industries, Charlottesville, VA 22906-9050 804-974-5100
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
Augat Inc., Attleboro, MA 02703 617-222-2202
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-9800
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
Ceramaseal, New Lebanon, NY 12125 518-794-7800
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
Compac, Holbrook, NY 11741 516-585-3400
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
§ Components Corp., Denville, NJ 07834 201-627-0290
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
† Danmar Inds., Moorpark, CA 93021 1-805-529-3788,1-800-666-6268
Deringer Mfg. Co., Mundelein, IL 60060 708-566-4100
Eagle Electric Mfg. Co. Inc., Long Island City, NY 11101 718-937-8000
§ Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., Milwaukee, WI 53216 414-449-7487
Ei North America, New York, NY 10021 212-517-5622
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Everett/Charles Test Equipment, Inc., Pomona, CA 91767 714-621-9511
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Hasco Components International Co., Bellrose Village, NY 11001 516-328-9292
† Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ICC, Inc., Orange, CA 92665 714-998-8310
§† IEH Corp., New York, NY 10012 212-677-1881
Instrument Specialties Co. Headquarters, Delaware Water Gap, PA 18327-0136 717-424-8510
§† Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Kirkwood Industries Inc., Cleveland, OH 44135 216-267-6200
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
† Micro-Circuits Co., Inc., New Buffalo, MI 49117 616-469-2744
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ Middleberg Corporation/Middco Connectors, Canton, CT 06019 203-693-8361
§† Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Ostby-Barton Test Probes, Warwick, RI 02886 401-739-7310
§ Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578 708-438-4000
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
Staffall Inc., Cranston, RI 02910 401-461-5554
§† Superior Carbon Products, Inc., Walnut Grove, MS 39189 601-253-2442
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
† Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Texas Instruments, Connector System, Attleboro, MA 02703 ..... 508-699-5269; 508-699-3450
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Tricon Industries, Inc., Electromechanical Division, Downers Grove, IL 60515-4076 708-964-2330
† Unit Industries, Fullerton, CA 92631 714-871-4161
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381

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† ECS Composites, Grants Pass, OR 97526, 503-476-8871 ..... C•1027
§† 3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368 ..... D•2236-2237
† Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE ..... C•1106-1107
§ Star Case Manufacturing Co., Inc., Munster, IN 46321, 219-922-4440;800-822-STAR (outside IN);800-782-CASE (inside IN) ... C•1097
§ Akro-Mils, Myers Industries, Akron, OH 44301 216-253-5593
† American Aluminum, Mountainside, NJ 07092 908-233-3500
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
† EDAK Inc., EDAK Ltd., Melbourne, FL 32934 ..... 407-242-2953;800-462-8478
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Gemini Inc., Cannon Falls, MN 55009 ..... 507-263-3957;800-533-3631
† Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
† Instrument Enclosures, Sun Valley, CA 91352 818-768-4622
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
§† Lyon Metal Products, Inc., Aurora, IL 60507 708-892-8941
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Metric Systems, Ft. Walton Beach, FL 32548-9990 904-244-9600
† MFG, Parabam Div., Carson, CA 90745 213-549-5044
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Thermodyne International Ltd., Long Beach, CA 90810 213-603-1976
† United Foam Plastics, Georgetown, MA 01833 508-352-2200
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561
† Zero Plastics, A Unit of Zero Corp., Chicopee, MA 01020 ..... 413-267-5561 Ext. 432

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† **Melcor/Materials Elctrn. Prods., Trenton, NJ 08648, 609-393-4178** .. **C•1641-1644**
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§ Casso-Solar, Pomona, NY 10970 914-354-2500
† EDAK Inc., EDAK Ltd., Melbourne, FL 32934 ..... 407-242-2953;800-462-8478
† EG & G Rotron, Custom Div., Woodstock, NY 12498 914-679-5201
Incotherm Limited, Hereford HR4 9SL ..... (44) 432 355880
† Noren Products Inc., Menlo Pk., CA 94025 415-322-9500
Products for Research, Danvers, MA 01923 508-774-3250
§ Product Technology, Inc., Irvine, CA 92714 714-474-8998
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§ Temptronic Corporation, Newton, MA 02158 617-969-2501

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§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400** .. **C•1751**
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§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., Fort Smith, AR 72903-7045 501-452-3987
Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

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§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400** .. **C•1750**
§† **Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873, 908-247-7333** ..... **C•1752**
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† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911** ..... **C•1821**
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§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Cable Systems, Inc., Everett, MA 02149 617-389-7080
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Eagle Electric Mfg. Co. Inc., Long Island City, NY 11101 718-937-8000
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
§† Excel Specialty Corp., Chicago, IL 60660 312-262-4781
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
International Configurations, Inc., Enfield, CT 06082 203-749-6380
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§ McGill Manufacturing Co., Inc., Valparaiso, IN 46383 219-465-2200
Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
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§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ SL Waber, Inc., Mt. Laurel, NJ 08054 ..... 609-866-8888;800-257-8384
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Todd Systems, Inc., Yonkers, NY 10701 914-963-3400
§ TURCK Inc., Minneapolis, MN 55441-2656 ..... 612-553-9224;1-800-328-0580; 1-800-544-PROX
§† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100

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§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100

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§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Brooks Electronics, Philadelphia, PA 19140 215-228-4433
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
† Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Excel Specialty Corp., Chicago, IL 60660 312-262-4781
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
ITT Sealectro, Inc., New Britian, CT 06051 203-223-2700
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
§ Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
§ Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§† Probe Master, Inc., San Diego, CA 92111 ..... 619-560-9676; 800-772-1519
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Telco Intercontinental, Houston, TX 77095 713-855-2218

§ Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376

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§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
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Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
R.F. Electronics, Inc., Irvine, CA 92714-5517 714-263-0661
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SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
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§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
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† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Meyer Wire & Cable Co., Div. of Cole Hersee Co., Hamden, CT 06514 ... 203-281-0817
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
MOLDCON Div. of Contex Electronics, W. Springfield, MA 01089 413-736-0371
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§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
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Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100

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§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
§ Carolina Steel & Wire, Lexington, SC 29073-0829 803-359-5501
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
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§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
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Connect-Air International, Inc., Auburn, WA 98002 206-939-4880
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§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
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§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
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§ Dayco Products, Inc., Dayton, OH 45401-1004 513-226-5926
§ Snaptite/Allied, Erie, PA 16505 814-833-6131

Couplings, Shaft, Rigid & Flexible-2400

§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1586-1587
§† Micro Mo Electronics, Inc., St. Petersburg, FL 33701, 813-822-2529 ..... B•1920
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alpha-Tech Inc., Riverdale, NJ 07457 201-831-1222
Ball Screws & Actuators Co., San Jose, CA 95136-1305 408-629-1132
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Dayco Products, Inc., Dayton, OH 45401-1004 513-226-5926
EI & S, Prime Technology Inc., North Branford, CT 06471 203-481-5721
§ Foredom Elec. Co., Blackstone Inds. Inc., Bethel, CT 06801 203-792-8622
§ Helical Prods. Co., Inc., Santa Maria, CA 93456-1069 805-928-3851
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† Machine Components Corp., Plainview, NY 11803 516-694-7222
§ Naugler Engineering, Inc., Beverly, MA 01915 617-922-5634
† Perfect Gear & Instrument, Designatronics, Inc., New Hyde Park, NY 11040 516-328-3300
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Precision Mechanisms, Westbury, NY 11590 ..... 516-ED3-5955
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
§† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
S.S White Technologies Inc., Piscataway, NJ 08854-3761 908-752-8300

Covers, Protective (Incl. Dustcovers)-1400

Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006
§ Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015
Electro Space Fabricators, Topton, PA 19562-0067, 215-682-7181 ..... C•1037
Hammond Manufacturing Co., Buffalo, NY 14225, 716-894-5710 ..... C•1058
Rose Enclosures Sys., Inc., Frederick, MD 21701, 301-696-9800 ..... C•1093
§ Schrack North America Corp., Ronkonkoma, NY 11779-7209, 516-737-0099 ..... B•1571,1576
† Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE ..... C•1106-1107
† STRONGBOX, Culver City, CA 90231-2726, 213-305-8288 ..... C•1108-1109
§ Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... C•1132
§† AME Corporation, Towaco, NJ 07082-0195 201-263-1700
§ Amherst International Corp., Manchester, NH 03101 ... 603-644-3555;1-800-547-5600
Augat/RDI, Carol Stream, IL 60188 708-682-4100
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Heath Co., St. Joseph, MI 49085 616-982-3200
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Leader Instruments Corp., Hauppauge, NY 11788-3694 ..... 516-231-6900; 1-800-645-5104
§ Potter & Brumfield, A Siemens Co., Princeton, IN 47671-0001 812-386-1000
† Precision Tech. Sewing, Palo Alto, CA 94303 415-856-2128
Robison Electronics, San Luis Obispo, CA 93403-8121 805-544-8000
§† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
§ Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561
§ Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174;800-526-3842

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§ Bivar, Inc., Irvine, CA 92718 714-951-8808
† Hudson Tool & Die Co., Newark, NJ 07105 201-589-1800
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
† Moldtronics, Inc., Downers Grove, IL 60515 708-968-7000
§ Morris Enterprises, Sepulveda, CA 91343 818-894-9103
National Manufacturing Co., Inc., Chatham, NJ 07928 201-635-8846
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
† Robison Electronics, San Luis Obispo, CA 93403-8121 805-544-8000
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140

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† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
AMP, Harrisburg, PA 17105 ..... 717-564-0100;800-522-6752
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877

§ Contact East, N. Andover, MA 01845 508-682-2000
§ Edsyn, Inc., Van Nuys, CA 91406 ..... 818-989-2324;213-873-5115
§ Eraser Co., Syracuse, NY 13221 315-454-3237
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ General Hardware Mfg., New York, NY 10013 212-431-6100
§ GreenLee Textron Inc.:Subsidiary of Textron Inc., Rockford, IL 61109 ... 815-397-7070
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Multicore Solders, Richardson, TX 75081 214-238-1214
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Pasternack Enterprises, Irvine, CA 92713 714-261-1920
§ Pioneer Components, Brooklyn, NY 11234 718-444-3880
§† Plato Products, Inc., Glendora, CA 91740 818-967-3821
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Ungar, Div. Eldon Inds., Inc., Buena Park, CA 90621 714-994-2510
Vaco Products, Chicago, IL 44139-3395 708-677-9500
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

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§† **Datak Corp., Sparks, NV 89431, 702-359-7474** ..... **C•1583**
Memtron Technologies, Inc., Frankenmuth, MI 48734, 517-652-2656;800-234-7525 ..... **B•1824**
Aztec Industries, Inc., Mesa, AZ 85210 ..... 602-833-3131;800-729-3132
† DOW SWITCH, Wilmington, MA 01887 617-935-6395
† GM Nameplate, Inc., Seattle, WA 98119 206-284-2200
Markem Corp., Keene, NH 03431 603-352-1130
§† Miller Dial Corp., El Monte, CA 91731 818-444-4555
† Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75003 ..... 214-231-6663; 214-924-3289;1-800-331-6600
Stanpat Prods., Woonsocket, RI 02895 401-766-8400
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
† Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386

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§ **Beckman Industrial Corp., Affiliate of Emerson Electric Co., Fullerton, CA 92635, 714-447-2300** ..... **A•2017**
§ **Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433** ..... **C•1017**
Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... **C•1595**
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... **C•1584**
§† **Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800** ..... **C•1587**
† **S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500** .. **C•1094-1096**
Selco Products Co., SEL Sales, Inc., Buena Park, CA 90621, 714-521-8673 ..... **C•1594**
§ **Spectrol Electronics Corp., Ontario, CA 91761, 714-923-3313** ..... **A•2068**
Alpha-Tech Inc., Riverdale, NJ 07457 201-831-1222
† Barrington Plastics, Mt. Laurel, NJ 08054 609-235-5151
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Clarostat Mfg. Co., Inc., Hawker Siddeley, PLC., Dover, NH 03820-1507 603-742-1120,800-872-0042
§ Cosmo Corporation, Cleveland, OH 44109 216-861-5594
§† Davies, Harry, Molding Co., Chicago, IL 60639 312-622-8966
§† Electronic Hardware, Farmingdale, NY 11735 516-752-1950
† Hallmark Technologies, Mt. Dora, FL 32757 800-874-9063
† Homalite, Whitco, Inc., Wilmington, DE 19804 302-652-3686
Jayco Plastics of California, Inc., Orange, CA 92665 714-974-1701
§ Jumo Process Control, Inc., Coatsville, PA 19320 215-380-8002
† Kilo International, Provo, UT 84606 714-593-4626
LaFrance Corp., Philadelphia, PA 19153-3893 215-365-8000
§ LFE Instruments, Clinton, MA 01510-3099 508-835-1000
§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
† Perfect Gear & Instrument, Designatronics, Inc., New Hyde Park, NY 11040 516-328-3300
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§† Rogan, Northbrook, IL 60062 708-498-2300
† Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75003 ..... 214-231-6663; 214-924-3289;1-800-331-6600
§† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
§ Triplett Corporation, Bluffton, OH 45817-9987 419-358-5015
† Wontronics, Los Angeles, CA 90039 213-660-6230

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§ **Bourns, Inc., Electronic Components Sls., Riverside, CA 92507-2114, 714-781-5500;800-782-2070;801-750-7200** ..... **A•2018**
§ **ETI Systems, Polaris Indl. Entprs., Oceanside, CA 92054, 619-757-7770** ..... **A•2040-2041, B•1256,1258**
§ **Spectrol Electronics Corp., Ontario, CA 91761, 714-923-3313** ..... **A•2068**
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§ Cosmo Corporation, Cleveland, OH 44109 216-861-5594
Front Panel Devices, Inc., Ronkonkoma, NY 11779 516-737-3322
Harrel, Inc., E. Norwalk, CT 06855 203-866-2573
Jan Hardware Mfg. Co., Melville, NY 11747 718-361-0800
† Kilo International, Provo, UT 84606 714-593-4626
† Litton Potentiometer Div., Mt. Vernon, NY 10551 914-664-7733
§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
Microavionics Corp., Costa Mesa, CA 92626 714-957-6904
§ Ragen Data Systems, Inc., Subsidiary of Meggit U.S.A., Central Islip, NY 11722 516-234-3800
Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300

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Disks, Magnetic, 8" Flexible-2000 — *See Vol. D*

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Disks, Memory, Flexible — See Memory Systems, Disk, Flexible (Vol. D)

Disks, Optical Encoder — See Encoders, Shaft Angle, Optical (Vol. B)

Dispensers, Adhesive-1600

§ Contact East, N. Andover, MA 01845 508-682-2000
Creative Automation Co., Sun Valley, CA 91352 818-767-6220
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Fusion Inc., Willoughby, OH 44094 216-946-3300
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
† Hedrich USA, Inc., Goldsboro, NC 27534 919-751-1144
§ IVEK Corp., N. Springfield, VT 05150 802-886-2238
§† Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Orientation Inc., Hudson, MA 01749 508-568-0509
§ Roean Industries, Inc., Pacoima, CA 91331 818-767-7047
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
† Tridak, Brookfield, CT 06804 203-775-1287
§ Zevatech, Inc., Morrisville, NC 27560 919-460-0111

Dispensers, DIP & IC — See Machines, Component Handling (Vol. D)

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Display Power Supplies — See Converters, DC to DC (Vol. D), Power Supplies, AC Output (Vol. D)

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Displays, Dot Matrix-2450 — *See Vol. B*

Displays, Edge Lighted & Back Lighted-2450 — *See Vol. B*

Displays, Electroluminescent-2450 — *See Vol. B*

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Dividers, Power (LF, HF, VHF, UHF)-3450 — *See Vol. A*

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Down Converters-3450 — *See Vol. A*

Drafting Machines-4200

Applied Software Tech., Inc., Atlanta, GA 30329 404-663-8660
Ergotron, Inc., Eagan, MN 55122 612-452-8135

Drafting Symbols, Dry Transfer, Pressure Sensitive, etc. (Incl. Lettering)-4200

§† Datak Corp., Sparks, NV 89431, 702-359-7474 ..... C•1583,1685
§ Injectorail Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
§ Bishop Graphics, Inc., Agoura, CA 91304 818-991-2600
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
Stanpat Prods., Woonsocket, RI 02895 401-766-8400

Drawers, Sliding-1400

† Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ..... C•1018
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... B•1806
§† General Devices Co., Inc., Indianapolis, IN 46239-9632, 317-897-7000 ... C•1056
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064-1065,1069
§ Precision Fabrication Technologies, Inc., Monon, IN 47959, 1-800-558-7297;219-253-6666 ..... C•1087,1089
† Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1091
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 619-452-9333 ... C•1099
TDJ Co., Inc., San Diego, CA 92110, 619-276-5920 ..... C•1111
Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ..... C•1113-1115
TECLAB, Kalamazoo Technical Furniture, Kalamazoo, MI 49005, 616-372-6000;800-832-5227 ..... C•1117-1119
Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... C•1140
† Amco Engineering, Schiller Pk., IL 60176 ..... 708-671-6670;800-833-3156
§ Augat Inc., Attleboro, MA 02703 617-222-2202
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Crissman Manufacturing Co., Huntley, IL 60142 708-669-3995
§ Equipto, Aurora, IL 60506 ..... 708-859-1000;800-323-0801
§ Hodge Manufacturing Co., Inc., Springfield, MA 01107 413-781-6800
§† Lyon Metal Products, Inc., Aurora, IL 60507 708-892-8941
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561

Drills & Accessories, Manual & Power-5400

§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Foredom Elec. Co., Blackstone Inds. Inc., Bethel, CT 06801 203-792-8622
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ General Hardware Mfg., New York, NY 10013 212-431-6100
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
MMI-Mirco Machines, Inc., Santa Clara, CA 95052 408-727-0100
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Drivers & Decoders For Readouts-2450 — *See Vol. B*

Drivers, Chopper-1100 — *See Vol. D*

Drivers, Hardware & Software-2000 — *See Vol. D*

Drivers, Nut-5400

§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, Inc., E. Greenwich, RI 02818 401-885-0911
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500

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Drivers, Speaker-1300 — *See Vol. D*

Drivers, Surface Mount-1100 — *See Vol. D*

Drivers, Switch-3450 — *See Vol. A*

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Drives & Drive Mechanisms (Dial)-2400

F-P Electronics, Mississauga, Ont., CANADA L4W 2P1, 416-624-3020 ... B•1077
§ Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1587-1588
Micro Mo Electronics, Inc., St. Petersburg, FL 33701, 813-822-2529 ..... B•1920
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040, 516-328-0200;328-3300 ..... B•1312
§† Bailey Controls Co., Wickliffe, OH 44092 216-585-8500
# Ball Screws & Actuators Co., San Jose, CA 95136-1305 408-629-1132
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Fujitsu America, Inc., Computer Products Group, San Jose, CA 95134 ... 408-432-1300
§ Machine Components Corp., Plainview, NY 11803 516-694-7222
NIDEC Corporation, Torrington, CT 06790 203-482-4422
† Perfect Gear & Instrument, Designatronics, Inc., New Hyde Park, NY 11040 516-328-3300
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Reproduction Technologies Inc., Bristol, IN 46507-0518 219-848-5233
§† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
† Transicoil, Inc., Eagle-Picher, Valley Forge, PA 19485 215-539-4400

Drives/Subsystems, Core Disk Emulator-2000 — *See Vol. D*

Drives/Subsystems, Disk, 3½" Diskette-2000 — *See Vol. D*

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Ducts, Wiring-6000

§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
§ Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
§ DEK, Inc., St. Charles, IL 60174 708-377-2575
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Fuses Unlimited, D.E.I., Van Nuys, CA 91406 818-786-8111
§ Gould Shawmut, Newburyport, MA 01950 ..... 508-462-6662/3131
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
POLYCASE PRODS., ECP Corp., Cleveland, OH 44103 216-391-0444
§ Square D Co., Palatine, IL 60067 708-397-2600
§ The Wiremold Company, W. Hartford, CT 06110 203-233-6251

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Dummy Loads, Microwave-2900 — *See Vol. D*

Dummy Loads, Power-2900 — *See Vol. D*

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Dummy Loads, Resistive-2900 — *See Vol. D*

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Earth Stations, TV, Receive Only-1900 — *See Vol. D*

Earth Stations; TV, Receive/Transmit-1900 — *See Vol. D*

Edge Clips, Surface Mount-2500

Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Cornatel USA, Inc., Danbury, CT 06810 203-797-9445
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
NEC Electronics, Inc., Mountain View, CA 94039 415-960-6000

Edge Connectors, Surface Mount-2100

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1397
J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
Sullins Electronics Corp., San Marcos, CA 92069, 619-744-0125 ... C•1534-1535
§ Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1545,1549
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Telco Intercontinental, Houston, TX 77095 713-855-2218
Texas Instruments, Connector System, Attleboro, MA 02703 ..... 508-699-5269; 508-699-3450

§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900

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Elastomers, Heat Shrinkable — See Caps, Forms & Tapes, Heat Shrinkable (Vol. C)

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ECM Sets (MIL)-2440 — *See Vol. B*

ECM Systems (MIL)-2440 — *See Vol. B*

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Electronic Warfare (EW) Sets (MIL)-2440 — *See Vol. B*

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Emulators, RTS-2900 — *See Vol. D*

Emulators, Terminal-2900 — *See Vol. D*

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Encapsulation Services — See Services, Encapsulation (Vol. D)

Enclosures, Circuit Board, Module, & Relay Mounting-1400

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006-1007
† Amco Engineering, Schiller Pk., IL 60176, 708-671-6670;800-833-3156 ..... C•1008-1009,1011
Ango Electronics Corp., Harrison, NJ 07029, 201-484-1115 ..... C•1012
§ Bopla Enclosures, Frederick, MD 21701, 301-696-9300 ..... C•1016
§ Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
† Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ..... C•1018
† Calmark Corp., San Gabriel, CA 91776, 818-287-0451 ..... C•1019
§† Compac, Holbrook, NY 11741, 516-585-3400 ..... C•1021-1025
† ECS Composites, Grants Pass, OR 97526, 503-476-8871 ..... C•1027
† EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268, 818-442-2572 ..... C•1029
Electronic Enclosures, Div. Wyle Laboratories, El Segundo, CA 90245, 213-643-8181 ..... C•1030-1032
Electro Space Fabricators, Topton, PA 19562-0067, 215-682-7181 ..... C•1034,1036-1037
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1039-1041
Emcor Products, Crenlo, Inc., Rochester, MN 55901, 507-289-3371 ..... C•1043
† E.M.S., Div. of Sandberg Industries, Tustin, CA 92680, 714-669-9473 .... C•1682
† Gemini Inc., Cannon Falls, MN 55009, 507-263-3957;800-533-3631 .. C•1054-1055
† General Devices Co., Inc., Indianapolis, IN 46239-9632, 317-897-7000 ... C•1056
§ Grayhill Inc., La Grange, IL 60525, 708-354-1040 ..... B•1490-1491
§ Hammond Manufacturing Co., Buffalo, NY 14225, 716-894-5710 ..... C•1058
Lansing Instrument Corp., Ithaca, NY 14851-0730, 607-272-3265;800-847-3535 ..... C•1063
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064-1069
§ PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 .... C•1070-1074
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216, 718-774-5900 ..... C•1077
POLYCASE PRODS., ECP Corp., Cleveland, OH 44103, 216-391-0444 ... C•1078
Powerbox Inc., Boulder, CO 80302, 303-444-1461;800-444-1461 ..... C•1079
§ Precision Fabrication Technologies, Inc., Monon, IN 47959, 1-800-558-7297;219-253-6666 ..... C•1081-1086,1088-1089
† Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1090-1091
† Reeves-Hoffman Div., Dynamics Corporation of America, Carlisle, PA 17013, 717-243-5929 ..... A•1740-1741
§† Rose Enclosures Sys., Inc., Frederick, MD 21701, 301-696-9800 ..... C•1093
† S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
§ Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 619-452-9333 ... C•1099
Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.) ..... C•1100
† Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE ..... C•1106
† STRONGBOX, Culver City, CA 90231-2726, 213-305-8288 ..... C•1108-1109
TDJ Co., Inc., San Diego, CA 92110, 619-276-5920 ..... C•1110-1111
† Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ..... C•1113,1115
Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ..... C•1120,1122,1124
Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... C•1133,1135,1138-1143

§† Abalon Precision Mfg., Bronx, NY 10459 ..... 212-589-5682;1-800-888-ABALON
Alden Products Co., Brockton, MA 02403 508-583-0160
§ Alusett U.S.A., Inc., Pleasantville, NY 10570 914-737-0120
† American Aluminum, Mountainside, NJ 07092 908-233-3500
† Astro Dynamics, Inc., Woburn, MA 01801 617-935-4944
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
§ Automatic Switch Co., Florham Park, NJ 07932 1-201-966-2000
Basler Elec., Electronic Product Group, Highland, IL 62249 ..... 618-654-2341; 800-645-2074
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
† Compu-Craft Fabricators Inc., Warminster, PA 18974 215-443-7107
† Contours Inc., Meriden, CT 06450 203-237-8331
Controls Unlimited, Inc., Perry, OH 44081 216-259-2500
§ Covox, Inc., Eugene, OR 97402 503-342-1271
Creative Micro Systems, Los Alamitos, CA 90720 213-493-2484
Crissman Manufacturing Co., Huntley, IL 60142 708-669-3995
Data Translation, Inc., Marlboro, MA 01752 508-481-3700
D. L. Custom, Markham, Ont, CANADA L3R 2M5 416-475-0275
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
§ Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
Extrusion Technology, Inc., Randolph, MA 02368 617-963-7200
Formax, Brookfield, CT 06804 203-775-9492
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
§ Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
† Hamilton Metalcraft, Pasadena, CA 91103 818-795-4811
§† Hardigg Inds., Inc., South Deerfield, MA 01373 413-665-2163
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
† Hudson Tool & Die Co., Newark, NJ 07105 201-589-1800
Hybricon Corporation, Ayer, MA 01432 508-772-5422
§ IERC, Burbank, CA 91502 213-849-2481
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
International Microelectronics, Arlington, TX 76003 817-561-2244
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
KineticSystems, Lockport, IL 60441 815-838-0005
§ Line Electric Products, Hartford, CT 06141 ..... 203-659-3573;1-800-331-1137
Mallory/North American Capacitor Co., Indianapolis, IN 46241 317-856-3731
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Micro Industries, Westerville, OH 43081 614-895-0404
† Miller, W. A., Co., Oquossoc, ME 04964-0337 ..... 207-864-3344;800-227-1415
Mouser Electronics, Mansfield, TX 76063 800-346-6873
MRL, Missouri Research Labs., St. Charles, MO 63301 .. 314-946-6900;1-800-325-0223
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Octagon Systems, Westminster, CO 80030 303-430-1500
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Opto 22, Huntington Bch., CA 92649 714-891-5861
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
† Princeton Case Co., Inc., Union, NJ 07083 908-687-1750
† Product Technology, Inc., Irvine, CA 92714 714-474-8998
Project Resources Inc., Wareham, MA 02571 508-295-7444
Pro-Log Corp., Monterey, CA 93940 408-372-4593
† Proto Stamping Corp., Redwood City, CA 94063 415-365-0498
Prototek, Inc., Hamilton, OH 45015 513-874-5094
Qualogy Inc., San Jose, CA 95134 408-434-5200
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
Ren Electronics Corporation, C.C.G., An Insico Co., S. Hadley, MA 01075 413-536-1800
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
§ Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
Schroff Incorporated, Warwick, RI 02886 401-732-3770
† SKB Coporation, Orange, CA 92667 714-637-1252
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
Suckle Corp., Scranton, PA 18505 717-346-3871

§ Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
Teradyne Connection Sys., Teradyne, Inc., Nashua, NH 03060 603-889-5156
§ Time Mark Corp., Tulsa, OK 74116 918-438-1220
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376
XYZ Electronics, McCordsville, IN 46055 317-335-2128
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660
Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561

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† Amco Engineering, Schiller Pk., IL 60176, 708-671-6670;800-833-3156 ..... C•1009,1011
§ Atlas/Soundolier, Fenton, MO 63026, 314-349-3110 ..... C•1013
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§ Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
† Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ..... C•1018
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§† Hardigg Inds., Inc., South Deerfield, MA 01373, 413-665-2163 ..... C•1059
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† Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1090-1091
§ Rose Enclosures Sys., Inc., Frederick, MD 21701, 301-696-9800 ..... C•1093
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§ Sescom, Inc., Henderson, NV 89015-4249, 702-565-3400 ..... C•1102
† Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE ..... C•1106
§ Star Case Manufacturing Co., Inc., Munster, IN 46321, 219-922-4440;800-822-STAR (outside IN);800-782-CASE (inside IN) ... C•1097
† STRONGBOX, Culver City, CA 90231-2726, 213-305-8288 ..... C•1108-1109
TDJ Co., Inc., San Diego, CA 92110, 619-276-5920 ..... C•1110-1111
† Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ..... C•1113,1115
TECLAB, Kalamazoo Technical Furniture, Kalamazoo, MI 49005, 616-372-6000;800-832-5227 ..... C•1117-1119
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§ Underwater Kinetics, San Marcos, CA 92069, 619-744-7560 ..... C•1127-1129
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† A & J Manufacturing Co., Tustin, CA 92680 714-544-9570
§† Abalon Precision Mfg., Bronx, NY 10459 ..... 212-589-5682;1-800-888-ABALON
§ Action Instruments, San Diego, CA 92123 619-279-5726
Adalet-PLM/Div. of Scott & Fetzer Co., Cleveland, OH 44135 216-267-9000
Adams Rite Products, Inc., Glendale, CA 91204 818-241-5121
Advance, A Unit of Zero Corporation, N. Hollywood, CA 91605 818-983-0333
Ahamtor Inc., 999 Inc., Temecula, CA 92390 714-676-4151
Alden Products Co., Brockton, MA 02403 508-583-0160
Alusett U.S.A., Inc., Pleasantville, NY 10570 914-737-0120
§† American Aluminum, Mountainside, NJ 07092 908-233-3500
Ango Electronics Corp., Harrison, NJ 07029 201-484-1115
Arrem Plastics, Inc., Addison, IL 60101 708-628-2450
† Astro Dynamics, Inc., Woburn, MA 01801 617-935-4944
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
§ Automatic Switch Co., Florham Park, NJ 07932 1-201-966-2000
Axis Corporation, San Diego, CA 92123 619-560-7737
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
§ C&D Charter Power Systems, Plymouth Meeting, PA 19462 215-828-9000
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
Carol Metal Products, Gurnee, IL 60031 708-244-3230
† Churchill Corp., Melrose, MA 02176 617-665-4700
§ COMCAB, Nashport, OH 43830 614-828-2468
† Compu-Craft Fabricators Inc., Warminster, PA 18974 215-443-7107
† Contours Inc., Meriden, CT 06450 203-237-8331
Controls Unlimited, Inc., Perry, OH 44081 216-259-2500
† Craig Systems Corp., Eastern Technologies, Ltd., Amesbury, MA 01913-4848 508-388-5662
Creative Micro Systems, Los Alamitos, CA 90720 213-493-2484
Crissman Manufacturing Co., Huntley, IL 60142 708-669-3995
Dage Precision Industries, Inc., Fremont, CA 94538 415-683-3930
§ Dahlstrom of Canada Ltd., Toronto, Ontario, CANADA M4G 37E 416-421-5900
§ Dickinson USA Inc., Dickinson Manufacturing Co. Ltd., Lynnwood, WA 98037 ..... 206-742-3677;800-659-9768; In Canada 604-525-6444
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
† ECS Composites, Grants Pass, OR 97526 503-476-8871
† EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 818-442-2572
Electrorack Products Co., Anaheim, CA 92806 714-776-5420
Electro Space Fabricators, Topton, PA 19562-0067 215-682-7181
† Enclosure Corp., Bristol, PA 19007 215-785-2900
Enterprise Systems Corp., Dover, NH 03820 603-742-7363
Everest Electronic Equipment, Inc., Anaheim, CA 92806 714-634-2200
Formax, Brookfield, CT 06804 203-775-9492
Front Panel Devices, Inc., Ronkonkoma, NY 11779 516-737-3322
Glasgal Communications, Inc., Northvale, NJ 07647 201-768-8082
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
† Hamilton Metalcraft, Pasadena, CA 91103 818-795-4811
§ Harris Corp., Dracon Div., Camarillo, CA 93012 805-987-9511
Heeger, Inc., City of Commerce, CA 90040 ..... 213-728-5108;728-4729;728-6913
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
† Innovatek Microsystems, Inc., Millerton, NY 12546-9720 914-373-9003
† Instrument Enclosures, Sun Valley, CA 91352 818-768-4622
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Knurr USA Inc., Knurr A.G., Simi Valley, CA 93063 805-526-7733
† Langley:Fleet Aerospace, Inc., San Diego, CA 92112 619-264-3181
LMB Heeger, Inc., Commerce, CA 90040 213-728-5108
Mallory/North American Capacitor Co., Indianapolis, IN 46241 317-856-3731
§ Mantex Corp., Oxford, MI 48371 313-628-8210
Matrix Corp., Raleigh, NC 27610 919-231-8000
Midget Louver, Norwalk, CT 06851 203-866-2342
† Miller, W. A., Co., Oquossoc, ME 04964-0337 ..... 207-864-3344;800-227-1415
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Parsons Manufacturing, Menlo Park, CA 94025-1476 415-324-4726
† Princeton Case Co., Inc., Union, NJ 07083 908-687-1750
† Proto Stamping Corp., Redwood City, CA 94063 415-365-0498
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
§† Recortec, Inc., Sunnyvale, CA 94089 408-734-1290
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
§ Ritz Electronics/Relco, New Dundee, Ont., CANADA N0B 2E0 519-696-2616
Schroff Incorporated, Warwick, RI 02886 401-732-3770
† SKB Coporation, Orange, CA 92667 714-637-1252
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603
Stanley-Vidmar, Stanley Works, Allentown, PA 18103 215-797-6600
Stantron, Unit of Zero Corporation, N. Hollywood, CA 91605 818-841-1825
Suckle Corp., Scranton, PA 18505 717-346-3871
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
TEGAM, Inc., Madison, OH 44057 800-666-1010
§ Ten-Tec, Inc., Sevierville, TN 37862 615-453-7172
§† Thermodyne International Ltd., Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
† Tridak, Brookfield, CT 06804 203-775-1287
Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Viking Cases, St. Petersburg, FL 33716 813-577-1216
Vynckier, Inc., Hawthorne, NY 10532 714-896-0772
Xcel Controls Inc., Mishawaka, IN 46544 219-259-7804
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561

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§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006-1007,1168,1170
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§ **Pomona Electronics, Pomona, CA 91766, 714-623-3463** ..... **C•1499**
§ **Precision Fabrication Technologies, Inc., Monon, IN 47959, 1-800-558-7297;219-253-6666** ..... **C•1083,1088**
† **S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500** .. **C•1094-1096**
§ **Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.)** ..... **C•1100-1101**
† **Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE** ..... **C•1106-1107**
Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ..... **C•1120-1122,1124**
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Advance, A Unit of Zero Corporation, N. Hollywood, CA 91605 818-983-0333
Cardinal Prods., Inc., Santa Ana, CA 92704 714-546-1224
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
† Compu-Craft Fabricators Inc., Warminster, PA 18974 215-443-7107
Crissman Manufacturing Co., Huntley, IL 60142 708-669-3995
D. L. Custom, Markham, Ont, CANADA L3R 2M5 416-475-0275
Formax, Brookfield, CT 06804 203-775-9492
§ Global Specialties, Interplex Electronics, Inc., New Haven, CT 06509 203-624-3103
§† Hardigg Inds., Inc., South Deerfield, MA 01373 413-665-2163
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
† Instrument Enclosures, Sun Valley, CA 91352 818-768-4622
† Langley:Fleet Aerospace, Inc., San Diego, CA 92112 619-264-3181
Matrix Corp., Raleigh, NC 27610 919-231-8000
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
§ Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
Stantron, Unit of Zero Corporation, N. Hollywood, CA 91605 818-841-1825
§ Universal Data Systems, Inc., Motorola Information Systems Group, Huntsville, AL 35805-1993 205-430-8000
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

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§ **Precision Fabrication Technologies, Inc., Monon, IN 47959, 1-800-558-7297;219-253-6666** ..... **C•1083-1084,1088**
† **S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500** .. **C•1094-1096**
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Buckeye Stamping Co., Columbus, OH 43207 614-445-8433
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Electro Space Fabricators, Topton, PA 19562-0067 215-682-7181
† Hamilton Metalcraft, Pasadena, CA 91103 818-795-4811
§† Hardigg Inds., Inc., South Deerfield, MA 01373 413-665-2163
Heeger, Inc., City of Commerce, CA 90040 ..... 213-728-5108;728-4729;728-6913
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
Industrial Computer Source, San Diego, CA 92111 619-279-0084
† Instrument Enclosures, Sun Valley, CA 91352 818-768-4622
† Interface Products, Inc., Oceanside, CA 92056 619-945-0230
LMB Heeger, Inc., Commerce, CA 90040 213-728-5108
§ Mantex Corp., Oxford, MI 48371 313-628-8210
New England Keyboard Inc., Fitchburg, MA 01420 508-345-8332
Qualogy Inc., San Jose, CA 95134 408-434-5200
§ Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
§† Rose Enclosures Sys., Inc., Frederick, MD 21701 301-696-9800
Schroff Incorporated, Warwick, RI 02886 401-732-3770
Suckle Corp., Scranton, PA 18505 717-346-3871
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660

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† **S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500** .. **C•1094-1096**
† **STRONGBOX, Culver City, CA 90231-2726, 213-305-8288** ..... **C•1108**
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Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... **C•1130-1133,1137,1140-1144**
Ahamtor Inc., 999 Inc., Temecula, CA 92390 714-676-4151
BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Buckeye Stamping Co., Columbus, OH 43207 614-445-8433
Burbank Sheet Metal Works Inc., Burbank, CA 91502 818-846-0316
§ Dataware Electronics Inc., Mukilteo, WA 98275 206-742-8577
§ Dickinson USA Inc., Dickinson Manufacturing Co. Ltd., Lynnwood, WA 98037 ..... 206-742-3677;800-659-9768; In Canada 604-525-6444
Easi File Corporation, Irvine, CA 92718 714-855-4121
Electrorack Products Co., Anaheim, CA 92806 714-776-5420
Enterprise Systems Corp., Dover, NH 03820 603-742-7363
Fury Products, Inc. Chino, CA 91710 714-597-7861
† Langley:Fleet Aerospace, Inc., San Diego, CA 92112 619-264-3181
National Manufacturing Co., Inc., Chatham, NJ 07928 201-635-8846
§ PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
TEGAM, Inc., Madison, OH 44057 800-666-1010
U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

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§ **Altech Corp., Somerville, NJ 08876, 908-707-8484** ..... **C•1006-1007**
§ **Bopla Enclosures, Frederick, MD 21701, 301-696-9300** ..... **C•1016**
§ **Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433** ..... **C•1017**
† **Gemini Inc., Cannon Falls, MN 55009, 507-263-3957;800-533-3631** .. **C•1054-1055**
Graham Electronic Manufacturing Inc., Escondido, CA 92025, 619-747-9177;800-628-4095 ..... **C•1057**
§ **Hammond Manufacturing Co., Buffalo, NY 14225, 716-894-5710** ..... **C•1058**
§† **Hardigg Inds., Inc., South Deerfield, MA 01373, 413-665-2163** ..... **C•1059**
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§ **PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400** .... **C•1070-1074**
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§† **Rose Enclosures Sys., Inc., Frederick, MD 21701, 301-696-9800** ..... **C•1093**
† **S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500** .. **C•1094-1096**
Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.) ..... **C•1100-1101**
Simco, Miami, FL 33177, 305-233-9900;800-780-9090 ..... **C•1103-1105**
† **Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE** ..... **C•1106**
§ **Star Case Manufacturing Co., Inc., Munster, IN 46321, 219-922-4440;800-822-STAR (outside IN);800-782-CASE (inside IN)** ... **C•1097**
Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ..... **C•1115**
Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ..... **C•1120-1121**
§ **Underwater Kinetics, San Marcos, CA 92069, 619-744-7560** ..... **C•1127-1129**
Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... **C•1134-1136,1138-1139**
ADE, Inc., Chicago, IL 60633 312-646-3400
Arrem Plastics, Inc., Addison, IL 60101 708-628-2450
Baker Co., Inc., Sanford, ME 04073 1-800-992-2537
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Cardinal Prods., Inc., Santa Ana, CA 92704 714-546-1224
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
† ECS Composites, Grants Pass, OR 97526 503-476-8871
EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 818-442-2572
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
General Devices Co., Inc., Indianapolis, IN 46239-9632 317-897-7000
Heeger, Inc., City of Commerce, CA 90040 ..... 213-728-5108;728-4729;728-6913
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
Hybricon Corporation, Ayer, MA 01432 508-772-5422
International Instrumentation, Inc., Westlake Vlg, CA 91361 805-495-7673
International Microelectronics, Arlington, TX 76003 817-561-2244
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Klockner Moeller, Franklin, MA 02038 508-520-7080
Knurr USA Inc., Knurr A.G., Simi Valley, CA 93063 805-526-7733
† Langley:Fleet Aerospace, Inc., San Diego, CA 92112 619-264-3181
LMB Heeger, Inc., Commerce, CA 90040 213-728-5108
Mallory/North American Capacitor Co., Indianapolis, IN 46241 317-856-3731
§ Mantex Corp., Oxford, MI 48371 313-628-8210
† Miller, W. A., Co., Oquossoc, ME 04964-0337 ..... 207-864-3344;800-227-1415
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900
§ Parsons Manufacturing, Menlo Park, CA 94025-1476 415-324-4726
Plastic Forming, Woodridge, CT 06525 203-397-1338
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
† Premier Metal Prods. Co., Bronx, NY 10451 212-993-9200
† Princeton Case Co., Inc., Union, NJ 07083 908-687-1750
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
§ Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
† Schell Inc., St. Petersburg, FL 33733 ..... 813-822-2600; 800-237-2600
† SKB Coporation, Orange, CA 92667 714-637-1252
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
§† Thermodyne International Ltd., Long Beach, CA 90810 213-603-1976
§ Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
United Foam Plastics, Georgetown, MA 01833 508-352-2200

§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 ... 213-316-9984
† Vertox Co., Garden Grove, CA 92643 ... 714-530-4541
Vynckier, Inc., Hawthorne, NY 10532 ... 714-896-0772
Western Case, Inc., Tustin, CA 92680 ... 714-838-8460
† Zero Corp., Zero East Div., Monson, MA 01057 ... 413-267-5561
† Zero Plastics, A Unit of Zero Corp., Chicopee, MA 01020 ... 413-267-5561 Ext. 432

Enclosures, Portable, Metallic & Nonmetallic-1400

Ango Electronics Corp., Harrison, NJ 07029, 201-484-1115 ... C•1012
Autec Power Systems, Chatsworth, CA 91311, 818-341-6123 ... D•1624
§ Bopla Enclosures, Frederick, MD 21701, 301-696-9300 ... C•1016
§ Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ... C•1017
† Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ... C•1018
† ECS Composites, Grants Pass, OR 97526, 503-476-8871 ... C•1027
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ... B•1806, C•1039-1041
† Equipto Electronics Corp., Aurora, IL 60506, 708-897-4691 ... C•1044-1045
Everest Electronic Equipment, Buford, GA 30518, 404-932-2900 ... C•1050
† Gemini Inc., Cannon Falls, MN 55009, 507-263-3957;800-533-3631 .. C•1054-1055
Graham Electronic Manufacturing Inc., Escondido, CA 92025, 619-747-9177;800-628-4095 ... C•1057
§† Hardigg Inds., Inc., South Deerfield, MA 01373, 413-665-2163 ... C•1059-1061
IET Labs, Inc., Westbury, NY 11590, 516-334-5959 ... D•1258-1259
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ... C•1064,1068
§ PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 .... C•1070-1074
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216, 718-774-5900 ... C•1077
POLYCASE PRODS., ECP Corp., Cleveland, OH 44103, 216-391-0444 ... C•1078
§ Precision Fabrication Technologies, Inc., Monon, IN 47959, 1-800-558-7297;219-253-6666 ... C•1083,1088
† Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ... C•1090-1091
§† Reeves-Hoffman Div., Dynamics Corporation of America, Carlisle, PA 17013, 717-243-5929 ... A•1740-1741
† S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
§ Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.) ... C•1100
Simco, Miami, FL 33177, 305-233-9900;800-780-9090 ... C•1103-1105
† Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE ... C•1106-1107
§ Star Case Manufacturing Co., Inc., Munster, IN 46321, 219-922-4440;800-822-STAR (outside IN);800-782-CASE (inside IN) ... C•1097
† STRONGBOX, Culver City, CA 90231-2726, 213-305-8288 ... C•1108-1109
† Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ... C•1113,1115
Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ... C•1121,1123-1125
§ Underwater Kinetics, San Marcos, CA 92069, 619-744-7560 ... C•1127-1129
Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ... C•1130-1136,1138-1140,1144
§† Abalon Precision Mfg., Bronx, NY 10459 ... 212-589-5682;1-800-888-ABALON
Adams Rite Products, Inc., Glendale, CA 91204 ... 818-241-5121
ADE, Inc., Chicago, IL 60633 ... 312-646-3400
† Alden Products Co., Brockton, MA 02403 ... 508-583-0160
Alusett U.S.A., Inc., Pleasantville, NY 10570 ... 914-737-0120
† Amco Engineering, Schiller Pk., IL 60176 ... 708-671-6670;800-833-3156
† American Aluminum, Mountainside, NJ 07092 ... 908-233-3500
Amherst International Corp., Manchester, NH 03101 ... 603-644-3555;1-800-547-5600
† Astro Dynamics, Inc., Woburn, MA 01801 ... 617-935-4944
Baker Co., Inc., Sanford, ME 04073 ... 1-800-992-2537
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 ... 203-288-8001
§† Bud Industries, Inc., Willoughby, OH 44094-0431 ... 216-946-3200
Cardinal Prods., Inc., Santa Ana, CA 92704 ... 714-546-1224
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 ... 216-831-4000
† Compu-Craft Fabricators Inc., Warminster, PA 18974 ... 215-443-7107
§ Control Cable, Inc., Baltimore, MD 21207 ... 301-298-4411
† Craig Systems Corp., Eastern Technologies, Ltd., Amesbury, MA 01913-4848 ... 508-388-5662
Crissman Manufacturing Co., Huntley, IL 60142 ... 708-669-3995
§ Davies, Harry, Molding Co., Chicago, IL 60639 ... 312-622-8966
† EDAK Inc., EDAK Ltd., Melbourne, FL 32934 ... 407-242-2953;800-462-8478
† EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 ... 818-442-2572
Electronic Solutions, A Unit of Zero Corp., San Diego, CA 92121 ... 619-452-9333
Electro Space Fabricators, Topton, PA 19562-0067 ... 215-682-7181
Emcor Products, Crenlo, Inc., Rochester, MN 55901 ... 507-289-3371
Everest Electronic Equipment, Inc., Anaheim, CA 92806 ... 714-634-2200
Extrusion Technology, Inc., Randolph, MA 02368 ... 617-963-7200
§ Ferno-Salesmaker, Ferno-Washington, Inc., Wilmington, OH 45177 ... 513-382-1451
Formax, Brookfield, CT 06804 ... 203-775-9492
General Devices Co., Inc., Indianapolis, IN 46239-9632 ... 317-897-7000
§ Hammond Manufacturing Co., Buffalo, NY 14225 ... 716-894-5710
§ Hoffman Engineering, Anoka, MN 55303 ... 612-421-2240
† Instrument Enclosures, Sun Valley, CA 91352 ... 818-768-4622
International Instrumentation, Inc., Westlake Vlg., CA 91361 ... 805-495-7673
† Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 ... 602-968-6241
§† Keystone Electronics Corp., Astoria, NY 11105-2017 ... 718-956-8900
Knurr USA Inc., Knurr A.G., Simi Valley, CA 93063 ... 805-526-7733
† Langley:Fleet Aerospace, Inc., San Diego, CA 92112 ... 619-264-3181
† Lectro Magnetics, Inc., Los Angeles, CA 90016 ... 213-870-9383;USA 800-969-9383
LMB Heeger, Inc., Commerce, CA 90040 ... 213-728-5108
McCoy Electronics Co., A Sub. of Oak Industries, Mt. Holly Springs, PA 17065 ... 717-486-3411
J. R. Merritt Controls, Inc., Norwalk, CT 06854 ... 203-855-9100;800-333-5762
† Miller, W. A., Co., Oquossoc, ME 04964-0337 ... 207-864-3344;800-227-1415
Parsons Manufacturing, Menlo Park, CA 94025-1476 ... 415-324-4726
The Pedro Companies, St. Paul, MN 55101 ... 612-224-9491
Plastic Forming, Woodridge, CT 06525 ... 203-397-1338
§ Pomona Electronics, Pomona, CA 91766 ... 714-623-3463
Precision Tech. Sewing, Palo Alto, CA 94303 ... 415-856-2128
† Princeton Case Co., Inc., Union, NJ 07083 ... 908-687-1750
† Proto Stamping Corp., Redwood City, CA 94063 ... 415-365-0498
Pylon Elex Development Co. Ltd., Lachine, PQ, CANADA H8S 1Z3 ... 514-637-1186
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ... 416-239-3363;800-268-6000
Rittal Corp., Springfield, OH 45504-9807 ... 800-477-4000
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO ... 519-696-2616
§ Rose Enclosures Sys., Inc., Frederick, MD 21701 ... 301-696-9800
† Schell Inc., St. Petersburg, FL 33733 ... 813-822-2600; 800-237-2600
Schroff Incorporated, Warwick, RI 02886 ... 401-732-3770
† SKB Corporation, Orange, CA 92667 ... 714-637-1252
Stanley-Vidmar, Stanley Works, Allentown, PA 18103 ... 215-797-6600
Stantron, Unit of Zero Corporation, N. Hollywood, CA 91605 ... 818-841-1825
† Stevens Products, Inc., E. Orange, NJ 07019 ... 201-672-2140
Suckle Corp., Scranton, PA 18505 ... 717-346-3871
§ Switches Unlimited, Inc., Woodside, NY 11377 ... 718-478-5000;800-221-0487
§ Ten-Tec, Inc., Sevierville, TN 37862 ... 615-453-7172
§† Thermodyne International Ltd., Long Beach, CA 90810 ... 213-603-1976
† Trilobyte Computer Corporation, San Leandro, CA 94577 ... 415-895-1100
Triplett Corporation, Bluffton, OH 45817-9987 ... 419-358-5015
§ Unibox, Div. of Amerex, Riverside, CA 92516 ... 714-686-1400
United Foam Plastics, Georgetown, MA 01833 ... 508-352-2200
§ U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 ... 213-316-9984
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ... 818-365-9661;800-423-5659; 800-426-4652
§ Viking Cases, St. Petersburg, FL 33716 ... 813-577-1216
Vynckier, Inc., Hawthorne, NY 10532 ... 714-896-0772
Western Case, Inc., Tustin, CA 92680 ... 714-838-8460
York Metal Products, Inc., Long Island City, NY 11106 ... 718-932-3660
† Zero Corp., Zero East Div., Monson, MA 01057 ... 413-267-5561
† Zero Plastics, A Unit of Zero Corp., Chicopee, MA 01020 ... 413-267-5561 Ext. 432

Enclosures, Power Distribution-1400

Extrusion Technology, Inc., Randolph, MA 02368, 617-963-7200 ... C•1051
Graham Electronic Manufacturing Inc., Escondido, CA 92025, 619-747-9177;800-628-4095 ... C•1057
Mid-Eastern Industries, Technology Dynamics Inc., Bergenfield, NJ 07621-2915, 201-385-0500 ... D•1898
§ Pulizzi Engineering, Inc., Santa Ana, CA 92704-6865, 714-540-4229 ... D•2224
Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ... C•1121
Adalet-PLM/Div. of Scott & Fetzer Co., Cleveland, OH 44135 ... 216-267-9000
§ Brooks Electronics, Philadelphia, PA 19140 ... 215-228-4433
§ Cablex, Inc., Englewood, CO 80112 ... 303-792-5760
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 ... 216-831-4000
Dickinson USA Inc., Dickinson Manufacturing Co. Ltd., Lynnwood, WA 98037 ... 206-742-3677;800-659-9768; In Canada 604-525-6444
E-T-A Circuit Breakers, Chicago, IL 60648 ... 708-647-8303
† Langley:Fleet Aerospace, Inc., San Diego, CA 92112 ... 619-264-3181
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 ... 508-588-6110
Vector Electronic Co., Inc., Sylmar, CA 91342 ... 818-365-9661;800-423-5659; 800-426-4652
Vynckier, Inc., Hawthorne, NY 10532 ... 714-896-0772

Enclosures, Shielded-1400

† Amco Engineering, Schiller Pk., IL 60176, 708-671-6670;800-833-3156 ... C•1008,1010
† Amuneal Manufacturing Corp., Philadelphia, PA 19124, 215-535-3000 ... C•1687
Ango Electronics Corp., Harrison, NJ 07029, 201-484-1115 ... C•1012
† Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ... C•1018
§† Compac, Holbrook, NY 11741, 516-585-3400 ... C•1021-1023,1025
D. L. Custom, Markham, Ont, CANADA L3R 2M5, 416-475-0275 ... C•1026
† Electronic Enclosures, Div. Wyle Laboratories, El Segundo, CA 90245, 213-643-8181 ... C•1030-1032
Electro Space Fabricators, Topton, PA 19562-0067, 215-682-7181 .. C•1034,1037
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ... B•1806, C•1040-1041
Emcor Products, Crenlo, Inc., Rochester, MN 55901, 507-289-3371 ... C•1043
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680, 714-669-9473 .... C•1682
† Equipto Electronics Corp., Aurora, IL 60506, 708-897-4691 ... C•1044-1045,1048
Everest Electronic Equipment, Buford, GA 30518, 404-932-2900 ... C•1050
† Gemini Inc., Cannon Falls, MN 55009, 507-263-3957;800-533-3631 .. C•1054-1055
† General Devices Co., Inc., Indianapolis, IN 46239-9632, 317-897-7000 ... C•1056
Graham Electronic Manufacturing Inc., Escondido, CA 92025, 619-747-9177;800-628-4095 ... C•1057
§ Hammond Manufacturing Co., Buffalo, NY 14225, 716-894-5710 ... C•1058
§† Hardigg Inds., Inc., South Deerfield, MA 01373, 413-665-2163 ... C•1059
IET Labs, Inc., Westbury, NY 11590, 516-334-5959 ... D•1258-1259
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ... C•1698
† The Mushield Co. Inc., Goffstown, NH 03045, 603-666-4433 ... C•1700
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ... C•1064-1066,1068-1069
§ PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 .... C•1070-1074
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216, 718-774-5900 ... C•1077
† Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ... C•1090-1091
§† Rose Enclosures Sys., Inc., Frederick, MD 21701, 301-696-9800 ... C•1093
† S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
§ Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.) ... C•1100-1101
Simco, Miami, FL 33177, 305-233-9900;800-780-9090 ... C•1103-1105
† Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE ... C•1106-1107

† **STRONGBOX, Culver City, CA 90231-2726, 213-305-8288** ..... **C•1108**
Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ..... **C•1120,1123,1125**
§ **Underwater Kinetics, San Marcos, CA 92069, 619-744-7560** ..... **C•1127-1129**
Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... **C•1133,1137**
† A & J Manufacturing Co., Tustin, CA 92680 714-544-9570
§† Abalon Precision Mfg., Bronx, NY 10459 ..... 212-589-5682;1-800-888-ABALON
§ Action Instruments, San Diego, CA 92123 619-279-5726
Adams Rite Products, Inc., Glendale, CA 91204 818-241-5121
ADE, Inc., Chicago, IL 60633 312-646-3400
† Ad-Vance Magnetics, Inc., Rochester, IN 46975 219-223-3158
† American Aluminum, Mountainside, NJ 07092 908-233-3500
§† ANZAC, M/A-COM, Burlington, MA 01803 617-273-3333
† Ark Elctrns. Corp., Southampton, PA 18966 215-322-6510
Arrem Plastics, Inc., Addison, IL 60101 708-628-2450
† Astro Dynamics, Inc., Woburn, MA 01801 617-935-4944
Atlee Inc., North Andover, MA 01845 508-681-1003
Baker Co., Inc., Sanford, ME 04073 1-800-992-2537
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
Burbank Sheet Metal Works Inc., Burbank, CA 91502 818-846-0316
Cardinal Prods., Inc., Santa Ana, CA 92704 714-546-1224
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
† Churchill Corp., Melrose, MA 02176 617-665-4700
† Compu-Craft Fabricators Inc., Warminster, PA 18974 215-443-7107
† Craig Systems Corp., Eastern Technologies, Ltd., Amesbury, MA 01913-4848 508-388-5662
§ Dahlstrom of Canada Ltd., Toronto, Ontario, CANADA M4G 37E 416-421-5900
§ Dataware Electronics Inc., Mukilteo, WA 98275 206-742-8577
§ Dickinson USA Inc., Dickinson Manufacturing Co. Ltd., Lynnwood, WA 98037 ..... 206-742-3677;800-659-9768; In Canada 604-525-6444
† ECS Composites, Grants Pass, OR 97526 503-476-8871
† EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 818-442-2572
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
Electronic Solutions, A Unit of Zero Corp., San Diego, CA 92121 619-452-9333
Electrorack Products Co., Anaheim, CA 92806 714-776-5420
† Enclosure Corp., Bristol, PA 19007 215-785-2900
Everest Electronic Equipment, Inc., Anaheim, CA 92806 714-634-2200
Extrusion Technology, Inc., Randolph, MA 02368 617-963-7200
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
† Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
† Hudson Tool & Die Co., Newark, NJ 07105 201-589-1800
Hybricon Corporation, Ayer, MA 01432 508-772-5422
† Instrument Enclosures, Sun Valley, CA 91352 818-768-4622
† Integrated Microwave, San Diego, CA 92121-1009 619-259-2600
§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Knurr USA Inc., Knurr A.G., Simi Valley, CA 93063 805-526-7733
† Langley:Fleet Aerospace, Inc., San Diego, CA 92112 619-264-3181
† Lectro Magnetics, Inc., Los Angeles, CA 90016 ..... 213-870-9383;USA 800-969-9383
† Lindgren RF Enclosures, Inc., Glendale Hgts., IL 60139 708-307-7200
LMB Heeger, Inc., Commerce, CA 90040 213-728-5108
† Magnetic Radiation Labs, Itasca, IL 60143 708-285-0800
§ Mantex Corp., Oxford, MI 48371 313-628-8210
Matrix Corp., Raleigh, NC 27610 919-231-8000
§† 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
† Miller, W. A., Co., Oquossoc, ME 04964-0337 ..... 207-864-3344;800-227-1415
National Manufacturing Co., Inc., Chatham, NJ 07928 201-635-8846
† Orcus, Kansas City, MO 64112 913-897-5128
The Pedro Companies, St. Paul, MN 55101 612-224-9491
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
† Proto Stamping Corp., Redwood City, CA 94063 415-365-0498
Prototek, Inc., Hamilton, OH 45015 513-874-5094
Ray Proof, Shielding Systems Corp., Norwalk, CT 06856-5060 800-243-5704
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
† Schell Inc., St. Petersburg, FL 33733 ..... 813-822-2600; 800-237-2600
Schroff Incorporated, Warwick, RI 02886 401-732-3770
§† Simco Co., Hatfield, PA 19440 215-822-2171
† SKB Coporation, Orange, CA 92667 714-637-1252
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
Suckle Corp., Scranton, PA 18505 717-346-3871
§† Thermodyne International Ltd., Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
† Trilobyte Computer Corporation, San Leandro, CA 94577 415-895-1100
Triplett Corporation, Bluffton, OH 45817-9987 419-358-5015
§ Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vynckier, Inc., Hawthorne, NY 10532 714-896-0772
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561

Enclosures, Shipping, Metallic & Nonmetallic-1400

† **ECS Composites, Grants Pass, OR 97526, 503-476-8871** ..... **C•1027**
Extrusion Technology, Inc., Randolph, MA 02368, 617-963-7200 ..... **C•1051**
† **Gemini Inc., Cannon Falls, MN 55009, 507-263-3957;800-533-3631** .. **C•1054-1055**
Graham Electronic Manufacturing Inc., Escondido, CA 92025, 619-747-9177;800-628-4095 ..... **C•1057**
§† **Hardigg Inds., Inc., South Deerfield, MA 01373, 413-665-2163** ..... **C•1059-1061**
3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368 ..... **D•2236-2237**
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216, 718-774-5900 ..... **C•1077**
† **Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200** ..... **C•1091**
Serco Products Division:Serco Mold, Inc., Covina, CA 91723, 818-331-0517;800-843-8172(Calif.) ..... **C•1100**
† **Skydyne Div., AAR Mfg., Port Jervis, NY 12771, 914-856-6655;800-428-CASE** ..... **C•1106-1107**
§ **Star Case Manufacturing Co., Inc., Munster, IN 46321, 219-922-4440;800-822-STAR (outside IN);800-782-CASE (inside IN)** ... **C•1097**
§ **Underwater Kinetics, San Marcos, CA 92069, 619-744-7560** ..... **C•1127-1129**
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§† ADE, Inc., Chicago, IL 60633 312-646-3400
§† American Aluminum, Mountainside, NJ 07092 908-233-3500
† Astro Dynamics, Inc., Woburn, MA 01801 617-935-4944
Cardinal Prods., Inc., Santa Ana, CA 92704 714-546-1224
† Craig Systems Corp., Eastern Technologies, Ltd., Amesbury, MA 01913-4848 508-388-5662
† EDAK Inc., EDAK Ltd., Melbourne, FL 32934 ..... 407-242-2953;800-462-8478
Electro Space Fabricators, Topton, PA 19562-0067 215-682-7181
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
General Devices Co., Inc., Indianapolis, IN 46239-9632 317-897-7000
† Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
† Instrument Enclosures, Sun Valley, CA 91352 818-768-4622
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
† Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
McCoy Electronics Co., A Sub. of Oak Industries, Mt. Holly Springs, PA 17065 717-486-3411
MRL, Missouri Research Labs., St. Charles, MO 63301 .. 314-946-6900;1-800-325-0223
Parsons Manufacturing, Menlo Park, CA 94025-1476 415-324-4726
The Pedro Companies, St. Paul, MN 55101 612-224-9491
Plastic Forming, Woodridge, CT 06525 203-397-1338
Precision Tech. Sewing, Palo Alto, CA 94303 415-856-2128
† Princeton Case Co., Inc., Union, NJ 07083 908-687-1750
§ Pylon Elex Development Co. Ltd., Lachine, PQ, CANADA H8S 1Z3 514-637-1186
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
† Schell Inc., St. Petersburg, FL 33733 ..... 813-822-2600; 800-237-2600
§ Simco Co., Hatfield, PA 19440 215-822-2171
† SKB Coporation, Orange, CA 92667 714-637-1252
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603
Suckle Corp., Scranton, PA 18505 717-346-3871
§† Thermodyne International Ltd., Long Beach, CA 90810 213-603-1976
United Foam Plastics, Georgetown, MA 01833 508-352-2200
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800
§ Viking Cases, St. Petersburg, FL 33716 813-577-1216
Western Case, Inc., Tustin, CA 92680 714-838-8460
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561
† Zero Plastics, A Unit of Zero Corp., Chicopee, MA 01020 ..... 413-267-5561 Ext. 432

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PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 ..... C•1076
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† Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386

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† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§ W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
§ Tetra-Etch, W. L. Gore & Associates, Inc., Flagstaff, AZ 86002 602-526-1290

Etchants, Printed Circuit-1700

§† Datak Corp., Sparks, NV 89431, 702-359-7474 ..... C•1685
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† General Chemical Corporation, Pittsburg, CA 94565 415-685-1450
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630

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§ Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
§ Contact East, N. Andover, MA 01845 508-682-2000
§† EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 818-442-2572
§ Eraser Co., Syracuse, NY 13221 315-454-3237
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§ Micro Electronic Systems, Inc., Bridgewater, CT 06752 203-350-5004
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Reliability, Incorporated, Houston, TX 77218 713-492-0550
§† Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

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† Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§† Aimsco Inc., Cheler Corp., Seattle, WA 98108 ..... 206-762-8014;800-426-0244
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
BMW, Inc./Atlas Tack Corp., Lynn, MA 01903 617-593-0200
† Braxton Mfg., Watertown, CT 06795 203-274-6781
§† General Manufacturing, Glendale, CA 91201 818-243-2069
† International Eyelets, Inc., Carlsbad, CA 92008-9812 ... 619-931-1446;1-800-333-9353
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§ Pace Inc., Laurel, MD 20723-1990 301-490-9860
† Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
† Wall, A. T., Co., Warwick, RI 02886 401-739-0740
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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American Cyanamid Co., Metal Coated Fibers Dept., Wayne, NJ 07470 .. 201-831-2856
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§ CHR, Furon, New Haven, CT 06509 203-777-3631
§ Contact East, N. Andover, MA 01845 508-682-2000
† Maine Poly, Inc., Greene, ME 04236 207-946-7440
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
§ Simco Co., Hatfield, PA 19440 215-822-2171
Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§ Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717
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Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Terminal Data Corp., Rockville, MD 20855 301-921-8282

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§ U.S. Toyo Fan Corp., San Gabriel, CA 91776, 818-287-5297 ..... C•1668-1669
§ Alpha Dist. Corp., Richfield, OH 44286 ..... 216-659-7100; 1-800-628-0841
† Amco Engineering, Schiller Pk., IL 60176 ..... 708-671-6670;800-833-3156
† Ashland Elec. Prods., Inc., Rochester, NH 03867 603-335-1100
§ Baknor Industries Inc., Mississauga, ONT., CANADA L5L 1X1 416-828-2400
† Brailsford & Co., Rye, NY 10580 914-967-1820
Buehler Products, Inc., Raleigh, NC 27636 919-469-8522
Canon U.S.A., Elctrn. Comps. Div., Lake Success, NY 11042 516-488-6700
Chicago Blower Corp., Glendale Heights, IL 60139 708-858-2600
† Eastern Air Devices, Inc., Dover, NH 03820 603-742-3330
§† EG & G Rotron, Custom Div., Woodstock, NY 12498 914-679-5201
§ Electric Motor Engineering, Mission Viejo, CA 92691 714-583-9802
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
† Equipto Electronics Corp., Aurora, IL 60506 708-897-4691
Everest Electronic Equipment, Buford, GA 30518 404-932-2900
Everest Electronic Equipment, Inc., Anaheim, CA 92806 714-634-2200
§† General Devices Co., Inc., Indianapolis, IN 46239-9632 317-897-7000
§ General Industries, Elyria, OH 44035 216-323-3136
Globe Motors, Dayton, OH 45404 513-228-3171
† Hi-Tech, Inc., Zion, IL 60099 708-746-2447
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
§ Howard Industries, Inc., Milford, IL 60953 815-889-4105
† IMC Magnetics Corp., Eastern Div., Westbury, NY 11590 516-334-7070
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§ Japanese Products Corp., Elmsford, NY 10523 914-592-8880
† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 805-642-8521
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
§ MG Electronics, Hauppauge, NY 11788 516-582-3400
§ Mitsubishi Elctrns. America, Inc., Elctrn. Device Grp., Sunnyvale, CA 94086 408-730-5900
Motor-Tronics, Inc., Vista, CA 92083 619-727-7430
§† NIDEC Corporation, Torrington, CT 06790 203-482-4422
§ Oriental Motor U.S.A. Corporation, Torrance, CA 90503 213-515-2264
§ Oriental Motor USA Corp., Super Vexta, Torrance, CA 90505-5217 213-515-2264
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
§ Raltron Electronics, Miami, FL 33172 305-593-6033
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
Schroff Incorporated, Warwick, RI 02886 401-732-3770
§ Shinano Kenshi Corp. (SKC), N. Hollywood, CA 91605 818-764-4266
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
Sunon, Mission Viejo, CA 92691 714-583-9802
Techron Div., Crown Intl., Inc., Elkhart, IN 46517 219-294-8300
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800
§ Worldnet Marketing Inc., Costa Mesa, CA 92626 714-545-7118
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561

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† Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ..... C•1018
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† Ashland Elec. Prods., Inc., Rochester, NH 03867 603-335-1100
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Chicago Blower Corp., Glendale Heights, IL 60139 708-858-2600
† Eastern Air Devices, Inc., Dover, NH 03820 603-742-3330
† Hi-Tech, Inc., Zion, IL 60099 708-746-2447
§ Howard Industries, Inc., Milford, IL 60953 815-889-4105
† IMC Magnetics Corp., Eastern Div., Westbury, NY 11590 516-334-7070
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600

† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 805-642-8521
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
§ Oriental Motor U.S.A. Corporation, Torrance, CA 90503 213-515-2264
§ Oriental Motor USA Corp., Super Vexta, Torrance, CA 90505-5217 213-515-2264
§ Peter Parts & Assocs., Webster, NY 14580 716-265-2540
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Chicago Blower Corp., Glendale Heights, IL 60139 708-858-2600
§ Comair Rotron, A KLI Company, Saugerties, NY 12477 914-246-3615
Daitron, Inc., Tigard, OR 97223 503-620-2879
† Dynamic Air Engrg., Inc., Santa Ana, CA 92705-5697 714-540-1000
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ General Industries, Elyria, OH 44035 216-323-3136
§ Globe Motors, Dayton, OH 45404 513-228-3171
† Hi-Tech, Inc., Zion, IL 60099 708-746-2447
§ Howard Industries, Inc., Milford, IL 60953 815-889-4105
† IMC Magnetics Corp., Eastern Div., Westbury, NY 11590 516-334-7070
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Japanese Products Corp., Elmsford, NY 10523 914-592-8880
† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 805-642-8521
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
§ MG Electronics, Hauppauge, NY 11788 516-582-3400
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ NIDEC Corporation, Torrington, CT 06790 203-482-4422
§ Oriental Motor USA Corp., Super Vexta, Torrance, CA 90505-5217 213-515-2264
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900
§ Raltron Electronics, Miami, FL 33172 305-593-6033
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
Sunon, Mission Viejo, CA 92691 714-583-9802
Techmar Corp., Los Angeles, CA 90066 ..... 213-827-8897;1-800-TECHMAR

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† Fasco Industries, Inc., Hawker Siddelem No. 200, Chesterfield, MO 63017, 314-532-3505 ..... C•1623
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§ Daitron, Inc., Tigard, OR 97223 503-620-2879
† Dynamic Air Engrg., Inc., Santa Ana, CA 92705-5697 714-540-1000
† Eastern Air Devices, Inc., Dover, NH 03820 603-742-3330
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§ Howard Industries, Inc., Milford, IL 60953 815-889-4105
† IMC Magnetics Corp., Eastern Div., Westbury, NY 11590 516-334-7070
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
§ Oriental Motor USA Corp., Super Vexta, Torrance, CA 90505-5217 213-515-2264
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§ Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300

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§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800
† Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
§† Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
Adams Rite Products, Inc., Glendale, CA 91204 818-241-5121
§† Aimsco Inc., Cheler Corp., Seattle, WA 98108 ..... 206-762-8014;800-426-0244
† Alinabal, Milford, CT 06460 203-877-3241
† Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
§† AME Corporation, Towaco, NJ 07082-0195 201-263-1700
§ Arrow Fastener, Saddlebrook, NJ 07662 201-843-6900
† Associated Spring, Barnes Grp., Bristol, CT 06010 203-583-1331
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-9800
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 818-843-4330
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§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
Chandler Products, Cleveland, OH 44117 216-481-4400
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Cornell Manufacturing, An Elgin Co., Orangeburg, NY 10962 914-365-0400
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
§ Dimco-Gray, Dayton, OH 45458 513-433-7600
† Dupree, Inc., Chino, CA 91710 714-597-4889
§ Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
† Dzus Fastener, W. Islip, NY 11795 516-669-6000
§† Eberhard Mfg. Co., Div., Eastern Co., Strongsville, OH 44136 216-238-9720
EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268 818-442-2572
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
Equipto Electronics Corp., Aurora, IL 60506 708-897-4691
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§† FISHERTECH, Fisher Gauge Limited, Peterborough, Ontario, CANADA K9J 6Y9 705-748-9522
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
† Hoffman Engineering Corp., Stamford, CT 06902 203-325-8933
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Milford Rivet & Mach., Milford, CT 06460 203-878-4631
† Morris, J. I., Co., Southbridge, MA 01550 508-764-4394
§† NKR Precision Manufacturing, Harriman, NY 10926 914-782-8562
† NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† Penn Engineering & Manufacturing Corp., Danboro, PA 18916 ..... 215-766-8853; 800-237-4736
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§† Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
§† RAF Electronic Hardware, Seymour, CT 06483 203-888-2133
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
† Southco, Inc., Concordville, PA 19331 215-459-4000
§† Standard Insert Co., Penn Engrg. & Mfg. Corp., Horsham, PA 19044 215-956-0350
§† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
† Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
§ West Electronic Sales Team, Westminster, CA 92683 .... 714-898-0120;213-495-5569
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800
Simco, Miami, FL 33177, 305-233-9900;800-780-9090 ..... C•1103-1105
Superior Electric, Bristol, CT 06010, 203-582-9561 ..... C•1537
† Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§† Aimsco Inc., Cheler Corp., Seattle, WA 98108 ..... 206-762-8014;800-426-0244
Alberox Corporation, New Bedford, MA 02745 508-995-1725
§† All-States, Inc., Chicago, IL 60640 312-728-0525
† Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., Fort Smith, AR 72903-7045 501-452-3987
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-9800
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Bivar, Inc., Irvine, CA 92718 714-951-8808
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Carlon, A Div. of Lamson & Sessions, Cleveland, OH 44122 216-831-4000
§ Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
§† Dennison Mfg. Co., Framingham, MA 01701 508-879-0511
Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
† Dzus Fastener, W. Islip, NY 11795 516-669-6000
§† Eberhard Mfg. Co., Div., Eastern Co., Strongsville, OH 44136 216-238-9720
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
Hanscom, H. F., Co., Inc., Providence, RI 02905 401-941-1455
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666

§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
§ Mallory/North American Capacitor Co., Indianapolis, IN 46241 317-856-3731
† NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§† RAF Electronic Hardware, Seymour, CT 06483 203-888-2133
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
† Southco, Inc., Concordville, PA 19331 215-459-4000
§† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
§ West Electronic Sales Team, Westminster, CA 92683 .... 714-898-0120;213-495-5569

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Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1366-1367
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Markel Corp., Norristown, PA 19404, 215-272-8960 ..... C•1677
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† Alberox Corporation, New Bedford, MA 02745 508-995-1725
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
† AME Corporation, Towaco, NJ 07082-0195 201-263-1700
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
Augat Alcoswitch, Augat Inc., N. Andover, MA 01845 508-685-4371
† Ceramaseal, New Lebanon, NY 12125 518-794-7800
§ Compac, Holbrook, NY 11741 516-585-3400
Conax Buffalo Corporation, Buffalo, NY 14225 716-684-4500
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
Metuchen Capacitors, Inc., Old Bridge, NJ 08857 908-679-3366
Mini-Systems, Inc., Electronic Package Div., Plainville, MA 02762 508-695-2000
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Parker Seal Group, Irvine, CALIFORNIA 92715 714-851-3763
PAVE Technology Co., Inc., Dayton, OH 45414-3445 513-890-1100
Schott Electronics, Seymour, CT 06483 203-881-0102
Temescal/Airco Coating Technology, The BOC Group, Inc., Fairfield, CA 94533 707-425-1010
Veeco Instruments Inc., Plainview, NY 11803 516-349-8300

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Autoswage Products, Shelton, CT 06484 203-929-1401
Braxton Mfg., Watertown, CT 06795 203-274-6781
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Fiberoptics Technology, Inc., Pomfret, CT 06258 ..... 203-928-0443, 800-433-5248
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300

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† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Conforming Matrix, Toledo, OH 43611 419-729-3777
Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Gordon Instruments, Inc., Orchard Park, NY 14127 ..... 716-662-5353;1-800-333-2672
International Resistive Company, Boone, NC 28607 704-264-8861
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75003 ..... 214-231-6663; 214-924-3289;1-800-331-6600

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§† **Kester Solder Div., Litton Sys., Inc., Des Plaines, IL 60018, 708-297-1600** ..... **C•1701**
§† Alpha Metals, Jersey City, NJ 07304 201-434-6778
Caig Labs., Escondido, CA 92029-1431 619-743-7143
† Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Fusion Inc., Willoughby, OH 44094 216-946-3300
§† Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† Multicore Solders, Richardson, TX 75081 214-238-1214
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
Superior Flux & Mfg. Co., Cleveland, OH 44143 216-461-3315
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Tricon Industries, Inc., Brazing Alloys & Chemical Products Div., Downers Grove, IL 60515-4012 708-963-0220

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§ Alusett U.S.A., Inc., Pleasantville, NY 10570 914-737-0120
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
† Craig Systems Corp., Eastern Technologies, Ltd., Amesbury, MA 01913-4848 508-388-5662
† Emcor Products, Crenlo, Inc., Rochester, MN 55901 507-289-3371
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
Hybricon Corporation, Ayer, MA 01432 508-772-5422
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
Stantron, Unit of Zero Corporation, N. Hollywood, CA 91605 818-841-1825
Suckle Corp., Scranton, PA 18505 717-346-3871
§† Thermodyne International Ltd., Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660
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Atlee Inc., North Andover, MA 01845 508-681-1003
† The Auburn Manufacturing Company, Middletown, CT 06457 203-346-6677
Carey Electronics Engineering Co., Springfield, OH 45505 513-323-6300
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§† CHR, Furon, New Haven, CT 06509 203-777-3631
† Compac, Holbrook, NY 11741 516-585-3400
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
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† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
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† Mitec Electronics, Pointe Claire, QUEBEC, CANADA H9R 3X3 514-694-6666
PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
§† Parker Seal Group, Irvine, CALIFORNIA 92715 714-851-3763
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
§† Press-On Products, Addison, IL 60101 708-628-2255
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† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
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† Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75003 ..... 214-231-6663; 214-924-3289;1-800-331-6600
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† Spira Manufacturing Corp., North Hollywood, CA 91605 818-764-8222
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
§† Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
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§ Automatic Timing & Controls Co., King of Prussia, PA 19406 ..... 215-337-5500; 800-441-8245
† Bourns Instruments Inc., Riverside, CA 92507 714-781-5148
Computer Instruments Div., Hempstead, NY 11550 516-483-8200
HBM, Inc., Marlboro, MA 01752 508-624-4500
Heidenhain Corp., Schaumberg, IL 60173 708-490-1191
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
Lucas Schaevitz, Pennsauken, NJ 08110-1489 609-662-8000
† Marlow Industries, Inc., Dallas, TX 75238-1645 214-340-4900
Teledyne Gurley, Troy, NY 12181 ..... 518-272-6300;800-759-1844
§ Temposonics Sensors Division, MTS Sys. Corp., Research Triangle Park, NC 27709 919-677-0100
Trans-Tek, Ellington, CT 06029 203-872-8351
† Warren-Knight Instrument Co., Warren Industries, Inc., Philadelphia, PA 19116 215-464-9300

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BURGESS-SAIA, Inc., Buffalo Grove, IL 60089, 708-215-9600 ..... **B•1249**
§ **Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800** ..... **C•1587**
§† **Micro Mo Electronics, Inc., St. Petersburg, FL 33701, 813-822-2529** ..... **B•1299-1301,1920, D•2243**
Motor Technology, Inc., Dayton, OH 45429, 513-294-1041 ..... **B•1303,1305**
† **Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040, 516-328-0200;328-3300** ..... **B•1312**
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
† Bowmar Instrument Corp., Aerospace Div., Ft. Wayne, IN 46809 219-747-3121
† EEMCO, Datron, Inc., Los Angeles, CA 90039 818-247-7060
§ Empire Magnetics, Rohnert Park, CA 94928 707-584-2801
Escap Products, Hauppauge, NY 11788 516-234-3900
§† FISHERCAST, Fisher Gauge Limited, Peterborough, Ontario, CANADA K9J 6Y9 705-748-9522
H D Systems, Inc., Hauppauge, NY 11788 516-231-6630
† IMC Magnetics Corp., Eastern Div., Westbury, NY 11590 516-334-7070
† Industrial Control Co., Rockledge, FL 32955 407-259-7105
† Lucas Western Inc., Electro Systems Division, Brea, CA 92621 714-671-4500
§† Machine Components Corp., Plainview, NY 11803 516-694-7222
† Maxon Precision Motors, Inc., Burlingame, CA 94010 415-697-9614
† Micro-Products Engineering Co., Newark, NJ 07108 201-824-8467
† Moore Reed & Co. Ltd., Andover, HAMPSHIRE SP 105AB 0264-324155
† Perfect Gear & Instrument, Designatronics, Inc., New Hyde Park, NY 11040 516-328-3300
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§† Plastimatic, Inc., Glynwed Int'l., Fairfield, NJ 07004 201-575-0038
Portescap U.S., Inc., Hauppauge, NY 11788 516-234-3900
† Precision Mechanisms, Westbury, NY 11590 ..... 516-ED3-5955
† Precision Specialties, Inc., Northridge, CA 91324 818-349-9774
§† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
† Transicoil, Inc., Eagle-Picher, Valley Forge, PA 19485 215-539-4400
† Transicoil Inc., Robinson-Halpern Products, Trooper, PA 19403 215-539-4400
† Valley Electromagnetics, ECM Motor Co., Elkhorn, WI 53121 414-723-6400

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Garner Glass Co., Claremont, CA 91711 714-624-5071

GTI/Electronics Div., Hadley, PA 16130 412-253-3161

Glass Parts-2500

§† Atlantic Optical Moulding, Webster, MA 01570 508-943-1746
§ Corning Glass Works, Materials Business, Corning, NY 14831 607-974-7149
§† Ercona, Patchogue, NY 11772 516-758-0700
Garner Glass Co., Claremont, CA 91711 714-624-5071
GTI/Electronics Div., Hadley, PA 16130 412-253-3161
† Kontes, Kimble Div. of Owens/IL, Vineland, NJ 08360 800-223-7150
† Oxley Inc., Branford, CT 06405 203-488-1033
Schott Glass Technologies, Inc., Duryea, PA 18642 717-457-7485

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Graphite Parts-2500

† Graphite Metallizing Corp., Yonkers, NY 10702, 914-968-8400 ..... B•1271
† Aremco Products, Inc., Ossining, NY 10562 914-762-0685
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
† Barrington Plastics, Mt. Laurel, NJ 08054 609-235-5151
§ Danmar Inds., Moorpark, CA 93021 ..... 1-805-529-3788;1-800-666-6268
† Dylon Graphite Company, Dylon Industries, Inc., Cleveland, OH 44144 .. 216-651-1300
Laser Technology, Inc., N. Hollywood, CA 91604 818-763-7091
Stackpole Carbon Company, St. Marys, PA 15857 814-781-1234
§† Superior Carbon Products, Inc., Walnut Grove, MS 39189 601-253-2442

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ebm Industries, Inc., Farmington, CT 06034, 203-674-1515 ..... C•1613
§† **ETRI, Inc., Monroe, NC 28110, 704-289-5423 ..... C•1616,1620**
† **McLean Engineering, Zero Corporation, Princeton Junction, NJ 08550, 609-799-0100 ..... C•1633**
† **Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064**
PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 .... C•1071-1072
§† **Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1091**
§ Fourjay Industries, Dayton, OH 45413-0617 513-890-6444
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
LaFrance Corp., Philadelphia, PA 19153-3893 215-365-8000
§ Martin Sound Prods. Inc., Cleveland, OH 44143-2297 216-442-2286
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
§ Speco Div., Components Specialties, Inc., Lindenhurst, NY 11757 ..... 516-957-8700; 800-645-5516
Suckle Corp., Scranton, PA 18505 717-346-3871
Techmar Corp., Los Angeles, CA 90066 ..... 213-827-8897;1-800-TECHMAR
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Grommets & Bushings-2500

† **AME Corporation, Towaco, NJ 07082-0195, 201-263-1700 ..... B•1644**
§ **Heyco Molded Products, Inc., Kenilworth, NJ 07033, 908-245-0033;800-526-4182 ..... C•1758**
§ **Oshino Lamps Limited, Shinagawa-Ku, Tokyo, JAPAN, 03-3471-8548 ..... B•1180-1181**
§† **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1801**
§† Aimsco Inc., Cheler Corp., Seattle, WA 98108 ..... 206-762-8014;800-426-0244
Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 818-843-4330
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§† Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ E-A-R Specialty Composites, Cabot Safety Corp., Indianapolis, IN 46268 317-872-1111
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
† Gasket International Inc., Bloomfield, NJ 07003 201-338-6814
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
† Minor Rubber Co., Inc., Bloomfield, NJ 07003 ..... 201-338-6800;800-433-6886
† NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
# REDCO, Carson City, NV 89706 702-882-3100
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
† Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
§ Thermalloy, Inc., Dallas, TX 75381-0839 214-243-4321
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145

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§† **Atlee Inc., North Andover, MA 01845, 508-681-1003 ..... C•1014,1679**
§† **Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015**
§ **Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017**
§† **Calmark Corp., San Gabriel, CA 91776, 818-287-0451 ..... C•1019**
§† **EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268, 818-442-2572 ..... C•1028-1029**
§ **Electro Space Fabricators, Topton, PA 19562-0067, 215-682-7181 .. C•1035-1037**
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1444
Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064-1065,1069
§† **Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1091**
§† **Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 619-452-9333 ..... C•1098-1099**
§ **Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667**
All-States, Inc., Chicago, IL 60640 312-728-0525
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Compac, Holbrook, NY 11741 516-585-3400
§ Components Corp., Denville, NJ 07834 201-627-0290
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
Schroff Incorporated, Warwick, RI 02886 401-732-3770
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
Suckle Corp., Scranton, PA 18505 717-346-3871
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
Unibox, Div. of Amerex, Riverside, CA 92516 714-686-1400
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800
U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

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§† **Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015**
† **Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ..... C•1018**
§† **Calmark Corp., San Gabriel, CA 91776, 818-287-0451 ..... C•1019**
§† **Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325,1595**
† **EG & G Birtcher, EG & G, Inc., El Monte, CA 91734-1268, 818-442-2572 ..... C•1029**
§ **General Devices Co., Inc., Indianapolis, IN 46239-9632, 317-897-7000 ... C•1056**
§† **Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1588,1590**
† **Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064-1065,1069**
§ **PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 .... C•1071-1072**
§† **Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1091**
Simco, Miami, FL 33177, 305-233-9900;800-780-9090 ..... C•1103-1105
† **STRONGBOX, Culver City, CA 90231-2726, 213-305-8288 ..... C•1108-1109**
TDJ Co., Inc., San Diego, CA 92110, 619-276-5920 ..... C•1110-1111
† **Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ..... C•1113,1115**
† **Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599**
† **Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... C•1140**
† Adams Rite Products, Inc., Glendale, CA 91204 818-241-5121
§† Aimsco Inc., Cheler Corp., Seattle, WA 98108 ..... 206-762-8014;800-426-0244
† Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 818-843-4330
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Davies, Harry, Molding Co., Chicago, IL 60639 312-622-8966
§† Eberhard Mfg. Co., Div., Eastern Co., Strongsville, OH 44136 216-238-9720
§† Electronic Hardware, Farmingdale, NY 11735 516-752-1950
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
§ Hammond Manufacturing Co., Buffalo, NY 14225 716-894-5710
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
§ Martin Sound Prods. Inc., Cleveland, OH 44143-2297 216-442-2286
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§† RAF Electronic Hardware, Seymour, CT 06483 203-888-2133
Schroff Incorporated, Warwick, RI 02886 401-732-3770
Skydyne Div., AAR Mfg., Port Jervis, NY 12771 ..... 914-856-6655;800-428-CASE
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
† Southco, Inc., Concordville, PA 19331 215-459-4000
§† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800

§† Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

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§† **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175**
Anco Electronics, Inc., Rancho Cucamonga, CA 91730, 1-800-545-ANCO ..... D•1080
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1276,1279
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1283,1286, 1288**
§ **Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1316-1317**
Comm Con Connectors Inc., Montrose, CA 91020, 818-957-2018 ..... C•1323
Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1385
§ **Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1408-1409**
§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1480-1482**
Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 ..... C•1526-1527,1529
Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 .... C•1547
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
LZR Electronics, Inc., Gaithersburg, MD 20879 301-921-4600
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
† Mini-Systems, Inc., Electronic Package Div., Plainville, MA 02762 508-695-2000
Morris Enterprises, Sepulveda, CA 91343 818-894-9103
Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
Schott Electronics, Seymour, CT 06483 203-881-0102
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900

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§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1283,1286, 1288**
Comm Con Connectors Inc., Montrose, CA 91020, 818-957-2018 ..... C•1323
Altech Corp., Somerville, NJ 08876 908-707-8484
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958

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Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1165
Alberox Corporation, New Bedford, MA 02745 508-995-1725
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
† Electronic Specialty Corp., Vancouver, WA 98665 206-574-5000
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Line Electric Products, Hartford, CT 06141 ..... 203-659-3573;1-800-331-1137
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
† Moldtronics, Inc., Downers Grove, IL 60515 708-968-7000
§ Morris Enterprises, Sepulveda, CA 91343 818-894-9103
Staffall Inc., Cranston, RI 02910 401-461-5554
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381

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§ **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175**
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
§ **Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1316,1322**
§† **CW Industries, Southhampton, PA 18966, 215-355-7080 ..... C•1332-1333**
§ **DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1353**
§ **JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763**
§ **J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 .... C•1411-1416,1418-1421**
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1443-1444
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Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1545,1549
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135 408-922-9000
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§† 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300

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Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1165,1169
§ **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175**
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1283**
§ **Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1316**
§† **CW Industries, Southhampton, PA 18966, 215-355-7080 ..... C•1332-1333**
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1353
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§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481-1482**
Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 ..... C•1526-1527,1529
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Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1545,1547,1549
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810. C•1568-1577
§ **WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577**
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
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† Electronic Specialty Corp., Vancouver, WA 98665 206-574-5000
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
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General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§ McKenzie Technology, Fremont, CA 94538 415-651-2700
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Mhotronics, Inc., Vernon Hills, IL 60061 708-913-9566
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ West Electronic Sales Team, Westminster, CA 92683 .... 714-898-0120;213-495-5569

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§ **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175**
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1283**
§ **Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1318**
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§ **JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763**
§ **Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1408-1409**
§ **J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 .... C•1411-1416,1418-1421**
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§ **Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 ..... C•1545,1549**
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§ **WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577**
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Components Corp., Denville, NJ 07834 201-627-0290
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644

Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135 408-922-9000
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ ICC, Inc., Orange, CA 92665 714-998-8310
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
Siemens Components, Inc., Special Products Div., Iselin, NJ 08830 201-321-3400
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900

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Comm Con Connectors Inc., Montrose, CA 91020, 818-957-2018 ..... C•1323
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† Airpax-Cambridge Division, A North American Philips Co., Cambridge, MD 21613 301-228-4600
Alberox Corporation, New Bedford, MA 02745 508-995-1725
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
† Electronic Specialty Corp., Vancouver, WA 98665 206-574-5000
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Milross Controls, Inc., Southampton, PA 18966 215-355-0200

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§ ebm Industries, Inc., Farmington, CT 06034, 203-674-1515 ..... C•1612-1613
§ EG & G Wakefield Engineering, Wakefield, MA 01880, 617-245-5900 ..... C•1614
† McLean Engineering, Zero Corporation, Princeton Junction, NJ 08550, 609-799-0100 ..... C•1632-1633
† McLean Midwest, Sub. of Zero Corporation, Brooklyn Pk., MN 55443, 612-561-9400 ..... C•1634-1635
Melcor/Materials Elctrn. Prods., Trenton, NJ 08648, 609-393-4178 .. C•1641-1644
† Thermacore Inc., Lancaster, PA 17601, 717-569-6551 ..... C•1666
§† AAVID Engineering, Inc., Laconia, NH 03247-0400 603-528-3400
Ahamtor Inc., 999 Inc., Temecula, CA 92390 714-676-4151
† ATI (Aham Tor Inc.), 999 Company, Temecula, CA 92390-0739 714-676-4151
† Bemco, Simi Valley, CA 93065 805-583-4970
Brinkmann Instruments, Inc., Westbury, NY 11590-9974 516-334-7500
† EG & G Rotron, Custom Div., Woodstock, NY 12498 914-679-5201
† Electro Impulse, Neptune, NJ 07754-0278 908-776-5800
† Electro Optical Industries Inc., Santa Barbara, CA 93111 ..... 805-964-6701 (ext. 280)
Energy Systems, Vancouver, WA 98682 206-896-8310
Frequency & Time Systems, Inc., Datum, Inc., Beverly, MA 01915 508-927-8220
† FTS Systems, Inc., Stone Ridge, NY 12484 914-687-0071
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
† Kooltronic, Inc., Hopewell, NJ 08525 609-466-3400
† Kooltronic, Inc., Ventura, CA 93003 805-642-8521
† Lepel Corp., Edgewood, NY 11717 516-586-3300
† Lytron Incorporated, Woburn, MA 01801 617-933-7300
† Marlow Industries, Inc., Dallas, TX 75238-1645 214-340-4900
† Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
Micronel U.S., Vista, CA 92083 619-727-7400
† Noren Products Inc., Menlo Pk., CA 94025 415-322-9500
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
§ Science/Electronics, Dayton, OH 45401-0986 513-859-5555
Technipower, A Penril Co., Danbury, CT 06813 203-748-7001
§ Temptronic Corporation, Newton, MA 02158 617-969-2501
VA-Tran Systems Inc., Chula Vista, CA 91911 619-423-4555

Heat Guns, Production-5400

§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
§ Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ GTE Sylvania, Emissive Products/Process Heat, Exeter, NH 03833 603-772-4331
Hydro-Gen Products Inc., Fort Collins, CO 80522-1517 800-779-0126
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Master Appliance Corp., Racine, WI 53403 414-633-7791
Micronel U.S., Vista, CA 92083 619-727-7400
Nemeth Engineering Associates, Inc., Crestwood, KY 40014 502-241-1502
§ Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945 617-631-7100
† OAL Associates, Inc., Escondido, CA 92033 619-743-7143
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Pamran Inc., Racine, WI 53404 414-637-7999
§† Remtek Corporation, Fremont, CA 94538 415-490-3999
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Ungar, Div. Eldon Inds., Inc., Buena Park, CA 90621 714-994-2510
§ Brian R. White Co., Inc., Ukiah, CA 95482 707-462-9795

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§† AAVID Engineering, Inc., Laconia, NH 03247-0400, 603-528-3400 ..... C•1604
§† Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670,1672-1673
Crydom Company, Lakewood, CA 90711-3699, 213-865-3536 ..... B•1450,1453
§† EG & G Wakefield Engineering, Wakefield, MA 01880, 617-245-5900 ..... C•1614
Energy Systems, Vancouver, WA 98682, 206-896-8310 ..... D•1247
Marlow Industries, Inc., Dallas, TX 75238-1645, 214-340-4900 ..... C•1630-1631
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
§ Philips ECG, North American Philips Co., Williamsport, PA 17701, 717-323-4691 ..... A•2119
† Thermacore Inc., Lancaster, PA 17601, 717-569-6551 ..... C•1666
§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
Accel Industrial Heat Sink Corp., Los Angeles, CA 90063 213-261-5156
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Ahamtor Inc., 999 Inc., Temecula, CA 92390 714-676-4151
† Astro Dynamics, Inc., Woburn, MA 01801 617-935-4944
† ATI (Aham Tor Inc.), 999 Company, Temecula, CA 92390-0739 714-676-4151
Atlee Inc., North Andover, MA 01845 508-681-1003
† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
§ Distributor & Special Products, Thomson Consumer Electronics, Inc., Deptford, NJ 08096 609-853-2525
Dubbeldee Harris Diamond Corp.:D. Drukker & Zn. N.V., Mt. Arlington, NJ 07856 201-770-1420
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
§ Hobson Bros., Chicago, IL 60630-3884 312-283-3600
§ IERC, Burbank, CA 91502 213-849-2481
Merrill, Inc., Gwynedd Valley, PA 19437 215-361-1297
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
† M P C, Santa Ana, CA 92704 714-775-0211
† Noren Products Inc., Menlo Pk., CA 94025 415-322-9500
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
§ Semikron, Inc., Hudson, NH 03051-0066 ..... 603-883-8102;1-800-258-1308
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
Staver Co., Inc., Bay Shore, NY 11706 516-666-8000
Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
Texas Instruments, Connector System, Attleboro, MA 02703 ..... 508-699-5269; 508-699-3450
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
† Tran-Tec Corp., Columbus, NE 68601 402-564-2748
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800

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§† AAVID Engineering, Inc., Laconia, NH 03247-0400, 603-528-3400 ..... C•1604
† Thermacore Inc., Lancaster, PA 17601, 717-569-6551 ..... C•1666
§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
† American Etching & Mfg., Pacoima, CA 91331-2796 818-896-1187
† Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
Douglas Randall, Pawcatuck, CT 06379 203-599-2075
§ EG & G Wakefield Engineering, Wakefield, MA 01880 617-245-5900
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
† Noren Products Inc., Menlo Pk., CA 94025 415-322-9500
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
Staver Co., Inc., Bay Shore, NY 11706 516-666-8000
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Transene, Rowley, MA 01969 508-948-2501

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§† AAVID Engineering, Inc., Laconia, NH 03247-0400, 603-528-3400 ..... C•1604
Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670,1672-1673
§ EG & G Wakefield Engineering, Wakefield, MA 01880, 617-245-5900 ..... C•1614
Energy Systems, Vancouver, WA 98682, 206-896-8310 ..... D•1247
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Powerbox Inc., Boulder, CO 80302, 303-444-1461;800-444-1461 ..... C•1079
† Thermacore Inc., Lancaster, PA 17601, 717-569-6551 ..... C•1666
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Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Bussco Inc., El Segundo, CA 90245 213-322-6580
Extrusion Technology, Inc., Randolph, MA 02368 617-963-7200
IERC, Burbank, CA 91502 213-849-2481
† Micro-Etch Products, Inc., Stratford, CT 06497 203-378-8610
† M P C, Santa Ana, CA 92704 714-775-0211
† Noren Products Inc., Menlo Pk., CA 94025 415-322-9500
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
† Products Engrg. Corp., Azusa, CA 91702 818-969-5879
† Star-Tron Corporation, Providence, RI 02909 401-274-5090

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§† Eberhard Mfg. Co., Div., Eastern Co., Strongsville, OH 44136 216-238-9720
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Southco, Inc., Concordville, PA 19331 215-459-4000

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§† Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
† Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
† Melles Griot, Inc., Irvine, CA 92714 714-261-5600
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
† Sage Laboratories, Inc., Natick, MA 01760 508-653-0844
† Schott Electronics, Seymour, CT 06483 203-881-0102
Telephonics Corporation/PRD Instruments, Huntington, NY 11743 ..... 516-549-6415/6428

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§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423
† Mini-Systems, Inc., Electronic Package Div., Plainville, MA 02762, 508-695-2000 ..... A•1735
† American Etching & Mfg., Pacoima, CA 91331-2796 818-896-1187
EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
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§† ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
K-Two Industries, Palo Alto, CA 94306 408-720-9316
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941

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Honeycomb Sheets, Panels, etc.-2500

† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500

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§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006-1007,1165
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1355
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1039
Hammond Manufacturing Co., Buffalo, NY 14225, 716-894-5710 ..... C•1058
POLYCASE PRODS., ECP Corp., Cleveland, OH 44103, 216-391-0444 ... C•1078
BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Electro Space Fabricators, Topton, PA 19562-0067 215-682-7181
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
† Hudson Tool & Die Co., Newark, NJ 07105 201-589-1800

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Indexing Mechanism, Electromechanical-2400

§ Daedal, Harrison City, PA 15636 412-744-4451
§ Industrial Indexing Systems, Inc., Victor, NY 14564 716-924-9181
International Machine & Tool Corp., Warwick, RI 02888 401-467-6905
§ Machine Components Corp., Plainview, NY 11803 516-694-7222
† Magtech Controls, Vernitron Corporation, San Diego, CA 92073 619-428-5581
§ ServoByte Inc., Millbury, MA 01527 508-865-0225

Indexing Tables, Electromechanical-2400

§ Daedal, Harrison City, PA 15636 412-744-4451
§ Design Components, Inc., Franklin, MA 02038 ..... 508-528-7300;800-341-4811
International Machine & Tool Corp., Warwick, RI 02888 401-467-6905
Parker Hannifin Corp., Schrader Bellows Division, Akron, OH 44309-0631 216-375-5202

Indicator Lights — See Lights, Indicator (Vol. B)

Indicators, Angle-Also See Encoders, Shaft Position-5500 — *See Vol. B*

Indicators, Azimuth-5500 — *See Vol. B*

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Indicators, Circuit Condition, On, Off, etc. (Electromechanical)-Also See Indicators, Instrument, Flag, Pointer, etc.-2460 — *See Vol. B*

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Indicators, Null-2900 — *See Vol. D*

Indicators, Numeric Readout — See Tubes, Readout (Vol. A)

Indicators, Phase Rotation-2200 — *See Vol. D*

Indicators, Phase Sequence-2200 — *See Vol. D*

Indicators, Positioning-2200 — *See Vol. D*

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Indicators, Pressure — See Gauges, Pressure (Vol. D)

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Indicators, RF — See Meters, Frequency (Vol. D)

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Indicators, Servo-4900 — *See Vol. D*

Indicators, Shorted Turn — See Testers, Coil (Vol. D)

Indicators, Sound Level — See Meters, Audio Level (Vol. D)

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Indicators, Temperature — See Meters, Temperature (Vol. D)

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Infrared Soldering — See Soldering Equipment, Infrared (Vol. D)

Inks for Thick Film Microcircuits-1700

† **Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744 ..... C•1145**
† Displays, Inc., Lewistown, PA 17044 717-242-2541
Ercon Incorporated, Waltham, MA 02154 617-899-1497
† Ferro Corporation, Electronic Materials Div., Santa Barbara, CA 93117-3092 805-968-5000
Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Tocos America, Inc., Tokyo Cosmos Electric Co., Ltd., Arlington Heights, IL 60005-3904 708-364-7277
Transene, Rowley, MA 01969 508-948-2501

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Instruments, Test & Measuring, GPIB (IEEE 488) Compatible-2900 — *See Vol. D*

Instruments, Test & Measuring, Personal Computer-2900 — *See Vol. D*

Insulation Materials-3100

† **Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670-1673**
Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1688
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1690
§ **Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100 ..... C•1798**
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
† The Auburn Manufacturing Company, Middletown, CT 06457 203-346-6677
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
ChemRex Inc., ResTech Prods. Div., Commerce City, CO 80022 303-289-5651
§† CHR, Furon, New Haven, CT 06509 203-777-3631
Cogebi, Inc., Dover, NH 03820 603-749-6896
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
Conap, Inc., Olean, NY 14760 716-372-9650
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Epic Resins, General Fiberglass Supply, Inc., Waukesha, WI 53186 414-521-2255
Ferro Corporation, Electronic Materials Div., Santa Barbara, CA 93117-3092 805-968-5000
§ Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
§† HumiSeal Div., CHASE Corporation, Woodside, NY 11377 718-932-0800
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
† Industrial Dielectrics, Inc., Noblesville, IN 46060 317-773-1766
Kam Components, Inc., Nesconset, NY 11767 516-585-0666
† Liberty Polyglas, Inc., West Mifflin, PA 15122 412-466-8611
Lydall Inc., Manning Div., Troy, NY 12181 518-273-6320
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ Murata Manufacturing Co., Ltd., Nagaoka-Kyo-Shi, Kyoto, JAPAN 617 ... 075-951-9111
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
† NY Glass Plastics, Calnetics Corp., Paramount, CA 90723 213-636-1035
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Parker Seal Group, Irvine, CALIFORNIA 92715 714-851-3763
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
† Rogers Corp., Rogers, CT 06263 203-774-9605
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
† Saphikon, Inc., Milford, NH 03055 603-673-5831
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
Soundcoat Co., Inc., Deer Park, NY 11729-5701 516-242-2200
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
United Foam Plastics, Georgetown, MA 01833 508-352-2200
§† Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661; 800-423-5659; 800-426-4652
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
§† Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174; 800-526-3842
§ Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Insulation Parts, Fabricated-3100

§† **Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670-1673**
§† **Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015**
† **Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675,1688**
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375-1376,1690
§ **Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1388-1389**
§† **Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667**
† **Unicorp, Orange, NJ 07050, 201-674-1700; 800-526-1389 ..... C•1598-1599**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330; 1-800-325-8979
† Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
§† Atlantic Optical Moulding, Webster, MA 01570 508-943-1746
† The Auburn Manufacturing Company, Middletown, CT 06457 203-346-6677
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
Cogebi, Inc., Dover, NH 03820 603-749-6896
§† Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
§ Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
Garner Glass Co., Claremont, CA 91711 714-624-5071
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100; 800-541-2500; 215-922-6046
Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033; 800-526-4182
† Industrial Dielectrics, Inc., Noblesville, IN 46060 317-773-1766
Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§ Markel Corp., Norristown, PA 19404 215-272-8960
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
† Quartzite Processing, Inc., Malden, MA 02148 617-322-3611
† Robison Electronics, San Luis Obispo, CA 93403-8121 805-544-8000
† Saphikon, Inc., Milford, NH 03055 603-673-5831
Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
† Star Porcelain, Trenton, NJ 08638 609-392-3154
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
† Tran-Tec Corp., Columbus, NE 68601 402-564-2748
United Foam Plastics, Georgetown, MA 01833 508-352-2200
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661; 800-423-5659; 800-426-4652

Insulators, Antenna-3100

§ **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1751**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330; 1-800-325-8979
† Alberox Corporation, New Bedford, MA 02745 508-995-1725
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Jennings, San Jose, CA 95122-2696 408-292-4025
§ Markel Corp., Norristown, PA 19404 215-272-8960
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7245

† Star Porcelain, Trenton, NJ 08638 609-392-3154
Unadilla Antenna Mfg. Co., Andover, MA 01810 508-475-7831

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Insulators, Clip, Test & Battery-3100

§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Insulators, Heat Sinks-3100

AAVID Engineering, Inc., Laconia, NH 03247-0400, 603-528-3400 ..... C•1604
Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670-1673
§† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
† Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675,1688
§† EG & G Wakefield Engineering, Wakefield, MA 01880, 617-245-5900 ..... C•1614
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375,1690
§† CHR, Furon, New Haven, CT 06509 203-777-3631
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291

Insulators, Mica-3100

§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
† Apollo Magnetics Corp., Los Angeles, CA 90057 213-381-2500
Cogebi, Inc., Dover, NH 03820 603-749-6896
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106 708-766-7800
Power Devices Inc., Laguna Hills, CA 92653 714-582-6712
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
§ Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291

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Integrated Circuit Interconnect Systems-3200

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1285,1287
§ Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Electro-Films, Inc., Warwick, RI 02886, 401-738-9150 ..... C•1680-1681
Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... C•1684
Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
Antona Corp., Los Angeles, CA 90024-5603 213-473-8995
Ark Les Corporation, Watertown, MA 02172 617-924-2330
§ AT&T Microelectronics, Allentown, PA 18103 ..... 1-800-372-2447;In Can.: 1-800-553-2448
BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
§† dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Contfols, Inc., Southampton, PA 18966 215-355-0200
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Project Resources Inc., Wareham, MA 02571 508-295-7444
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Rogers Corporation, Circuit Materials Div., Chandler, AZ 85244 602-963-4584
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731 619-452-9333
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Integrated Circuit Design Aids-4200

† Applied Micro Circuits Corp., San Diego, CA 92121 619-450-9333
Austria Mikro Systeme International, Unterpremstaetten, AUSTRIA A-8141 ..... (03136) 36 66-0
Cherry Semiconductor Corp, East Greenwich, RI 02818 401-885-3600
Data Environment, Inc., Beaverton, OR 97291 503-643-4292
Exar Corp., San Jose, CA 95161-9007 408-732-7970
§ Fujitsu Microelectronics Inc., Integrated Circuits Division, San Jose, CA 95134 408-922-9000
Gennum Corporation, Linear Technology Inc., Burlington, ON, CANADA L7R 3Y3 ..... 800-263-9353;416-632-2996
HILEVEL Technology, Irvine, CA 92718 714-727-2100
† Holt Inc., Irvine, CA 92718 714-859-8800
# Indiana Microelectronics Center Corp. for Science & Technology, Fort Wayne, IN 46825 219-482-8200
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
§† LSI Logic Corp., Milpitas, CA 95035 408-433-8000
MCE Semiconductor, Inc., West Palm Beach, FL 33407 407-845-2837
§† Raytheon Semiconductor, Mountain View, CA 94043 415-966-7639
SGS-THOMSON Microelectronics, Inc., Carrollton, TX 75006 214-466-6000
Solitron Devices, Inc., Semiconductor Group, Riviera Beach, FL 33404-9978 ..... 407-848-4311;800-888-8763
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
§† VLSI Technology, Inc., San Jose, CA 95131 408-434-7673

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Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1276
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1287
Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1311
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1355
Elastomeric Technologies, Inc., Hatboro, PA 19040, 215-672-0787;215-672-4741 ..... C•1357
Electro-Films, Inc., Warwick, RI 02886, 401-738-9150 ..... C•1680-1681
Fujipoly, Inc., Cranford, NJ 07016, 908-272-3850 ..... C•1375-1379
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1380-1382,1384
Graham Electronic Manufacturing Inc., Escondido, CA 92025, 619-747-9177;800-628-4095 ..... C•1057

L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... **C•1424**
Marway Prods. Inc., Santa Ana, CA 92703, 714-973-1800 ..... **D•2212**
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... **C•1463-1464**
§ **MOLEX, Inc., Lisle, IL 60532, 708-969-4550** ..... **C•1474**
Precision Filters, Ithaca, NY 14850, 607-277-3550 ..... **D•1192**
Product Technology, Inc., Irvine, CA 92714, 714-474-8998 ..... **C•1684**
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ **WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136** ..... **C•1568-1577**
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
† Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ AT&T Microelectronics, Allentown, PA 18103 ..... 1-800-372-2447;In Can.: 1-800-553-2448
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
Bit 3 Computer Corporation, Minneapolis, MN 55431-1393 612-881-6955
Computer Peripherals Inc., Newbury Pk., CA 91320 ..... 805-499-5751;800-854-7600
Creative Micro Systems, Los Alamitos, CA 90720 213-493-2484
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
Ghielmetti, Inc., Westlake Village, CA 91361 800-228-1097
Hybricon Corporation, Ayer, MA 01432 508-772-5422
Interlogic Industries, Melville, NY 11747-4294 516-420-8111
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
MarLee Switch Co., Upland, CA 91786 714-982-8988
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Opto 22, Huntington Bch., CA 92649 714-891-5861
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Precision Interconnect, Portland, OR 97224 503-620-9400
Project Resources Inc., Wareham, MA 02571 508-295-7444
Rogers Corp. Div. Power Distbn.Div., Mesa, AZ 85205 602-830-3370
Teledyne Kinetics, Div. of Teledyne, Inc., Solana Beach, CA 92075 619-755-1181
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... **C•1155**
† **ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800** ..... **C•1157-1159**
Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... **C•1161**
§ **Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571** ..... **C•1325**
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... **C•1399,1759**
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... **C•1423,1765**
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... **C•1424-1425**
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 .. **C•1450, D•1886**
† **RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274** ..... **C•1511,1815**
† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911** ..... **C•1523-1525,1821**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Interconnect Products, Endicott, NY 13760 607-754-4444
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
§† Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
Staffall Inc., Cranston, RI 02910 401-461-5554
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
Telco Intercontinental, Houston, TX 77095 713-855-2218

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Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... **C•1325**
§ **Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800** ..... **C•1586,1589**
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... **C•1155**
† **ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800** ..... **C•1157-1159**
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... **C•1175**
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... **C•1278**
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841** ..... **C•1281**
§ **Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571** ..... **C•1324-1325,1595**
Connector Corp., Chicago, IL 60646, 312-539-3108 ..... **C•1327**
Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ..... **C•1330**
§ **CUI Stack Inc., Beaverton, OR 97005, 503-643-4899** ..... **D•1695**
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... **C•1350,1354**
§ **Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213** .. **C•1388-1389**
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L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... **C•1424-1425**
§ **LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366)** ..... **C•1427**
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... **C•1446-1452,1455, D•1886**
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§ **Schurter, Inc., Petaluma, CA 94952, 707-778-6311** ..... **C•1516,1520**
† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911** ..... **C•1523-1525,1821**
§† **Superior Electric, Bristol, CT 06010, 203-582-9561** ..... **C•1537**
§† **Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700** ..... **C•1539-1542**
† **Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020** ..... **C•1556-1561**
† **U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145** ..... **C•1563**
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
† Alden Products Co., Brockton, MA 02403 508-583-0160
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§† Augat Inc., Attleboro, MA 02703 617-222-2202
Autoswage Products, Shelton, CT 06484 203-929-1401
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
Barber-Colman Co., Indl. Instrs. Div., Rockford, IL 61125-7040 815-877-0241
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
§ Communication Devices, Inc., Scarborough, Ont., CAN M1B3R6 416-292-4463
Connectronics Corp., Toledo, OH 43607 419-537-0020
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
C-S Electronic Sales, Inc., Frankfort, IN 46041 317-659-1874
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† EBY Company, Philadelphia, PA 19124 215-537-4700
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639

EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
† Imtronics Industries, St. Petersburg, FL 33716 813-572-9010
§ International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§ Jolo Industries, Inc., Garden Grove, CA 92643 714-554-6840
§† Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lab-Line Instruments, Melrose Park, IL 60160 708-450-2600
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§† Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§† Raytheon Co., Quincy, MA 02169 617-479-5300
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Senior Inds., Inc., Wood Dale, IL 60191 312-350-1600
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Telco Intercontinental, Houston, TX 77095 713-855-2218
Tricon Industries, Inc., Electromechanical Division, Downers Grove, IL 60515-4076 708-964-2330
§ Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376

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Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1743
§ DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394
§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423,1765
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424-1425
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1446-1447,1450,1454-1455, D•1886
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
† RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 .... C•1510-1511,1815
Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Interconnect Products, Endicott, NY 13760 607-754-4444
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dataprobe, Englewood, NJ 07631 201-569-6464
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ International Components Corp., Melville, NY 11747 516-293-1500
International Microelectronics, Arlington, TX 76003 817-561-2244
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 ... 215-699-5373
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
Senior Inds., Inc., Wood Dale, IL 60191 312-350-1600
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Telco Intercontinental, Houston, TX 77095 713-855-2218
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100

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§† Janco Corp., Burbank, CA 91508, 818-846-1800 ..... B•1726-1727
State of the Art, Inc., State College, PA 16803-1797, 814-355-8004 ..... A•1986
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§† Excel Specialty Corp., Chicago, IL 60660 312-262-4781
† Mini-Systems, Inc., Thick/Thin Film Division, North Attleboro, MA 02761 508-695-0203
Mini-Systems, Inc., Sunbelt Microelectronic Division, Deltona, FL 32725 407-574-0208
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

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AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281-1282,1284
§# Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1318
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325,1595
Dale Electronics, Inc., Norfolk Div., Norfolk, NE 68701-2242, 402-371-0080 ..... A•1896
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423,1765
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493
§† RCD Components, Inc., Manchester, NH 03109, 603-669-0054 ..... A•1982
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Allen Bradley Co., Electronic Components Div., A Rockwell International Co., El Paso, TX 79936 ..... 915-592-4888;800-592-4888
Altron, Inc., Anoka, MN 55303 612-427-7735
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bussco Inc., El Segundo, CA 90245 213-322-6580
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Components Corp., Denville, NJ 07834 201-627-0290
§ Contact East, N. Andover, MA 01845 508-682-2000
Crane Electronics, Inc., Cincinnati, OH 45212 800-676-7644
Cross Electronics, Warrendale, PA 15086 412-776-1591
† dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
§ E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
§ EBY Company, Philadelphia, PA 19124 215-537-4700
Eldre Corporation, Rochester, NY 14623 716-427-7280
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§† E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
† Fancort Industries, Inc., W. Caldwell, NJ 07006 201-575-0610
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Hokuriku USA Ltd., Morton Grove, IL 60053 708-470-8440
International Components Corp., Melville, NY 11747 516-293-1500
§ International Resistive Company, Boone, NC 28607 704-264-8861
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Micro-Ohm Corp., Duarte, CA 91010 818-3575377
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
§ Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Noble U.S.A., Inc., Rolling Meadows, IL 60008 708-364-6038
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Quality Components, Inc., St. Marys, PA 15857 814-834-2817
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Telco Intercontinental, Houston, TX 77095 713-855-2218
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376

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§ Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
Lodestone Pacific, Anaheim, CA 92807, 714-630-1343 ..... A•1210
† S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Ballco Inc., Snellville, GA 30278-1078 404-979-5900
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Bishop Graphics, Inc., Agoura, CA 91304 818-991-2600
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
§ Contact East, N. Andover, MA 01845 508-682-2000
Data Environment, Inc., Beaverton, OR 97291 503-643-4292
§ E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
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§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Gennum Corporation, Linear Technology Inc., Burlington, ON, CANADA L7R 3Y3 ..... 800-263-9353;416-632-2996
§ Global Specialties, Interplex Electronics, Inc., New Haven, CT 06509 203-624-3103
§ Heath Co., St. Joseph, MI 49085 616-982-3200
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457 201-835-5002
† Holt Inc., Irvine, CA 92718 714-859-8800
§ International Components Corp., Melville, NY 11747 516-293-1500
International Manufacturing Services, Portsmouth, RI 02871-2418 401-683-9700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
MicroSignals Inc., L.I.C., NY 11101 ..... 718-937-7955;718-937-0391;800-648-2252
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Pace Inc., Laurel, MD 20723-1990 301-490-9860
§ PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
Stock Model Parts, Designatronics Inc., New Hyde Pk., NY 11040 516-328-3300
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Teledyne Components, Mountain View, CA 94039-7267 415-968-9241
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co.,, Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
§ Victory Engineering Corp., Springfield, NJ 07081 201-379-5900

Kits, Connector-2100

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
† Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404-1405
Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1480-1481
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ... C•1484,1490
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Babcock Display Products, Inc., A Subsidiary of Babcock, Inc., Anaheim, CA 92805 714-491-5100
CableStar, Incorporated, Glasgow, KY 42141 800-338-8223
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Covid, Inc., Tempe, AZ 85281 602-966-2221
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
Hewlett-Packard Co., Cupertino, CA 95014 800-752-0900
Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
International Microelectronics, Arlington, TX 76003 817-561-2244
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
J.A.W. Industries, Inc., Warrington, PA 18976 215-343-8990
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-3697;201-389-8800
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
† Maury Microwave Corp., Cucamonga, CA 91730 714-987-4715
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Star-Tron Corporation, Providence, RI 02909 401-274-5090
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Kits, Enclosure Prototyping-1400

ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1039
Lansing Instrument Corp., Ithaca, NY 14851-0730, 607-272-3265;800-847-3535 ..... C•1063
Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064,1068
§ PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 ..... C•1070,1072-1073
† S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
Simco, Miami, FL 33177, 305-233-9900;800-780-9090 ..... C•1103-1105
† STRONGBOX, Culver City, CA 90231-2726, 213-305-8288 ..... C•1108-1109
† Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ..... C•1113-1115
Advance, A Unit of Zero Corporation, N. Hollywood, CA 91605 818-983-0333
Alusett U.S.A., Inc., Pleasantville, NY 10570 914-737-0120
Buckeye Stamping Co., Columbus, OH 43207 614-445-8433
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
§ Precision Fabrication Technologies, Inc., Monon, IN 47959 ..... 1-800-558-7297; 219-253-6666
Rittal Corp., Springfield, OH 45504-9807 800-477-4000
SKB Coporation, Orange, CA 92667 714-637-1252
Stantron, Unit of Zero Corporation, N. Hollywood, CA 91605 818-841-1825
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Kits, Fiber Optic-2475 — *See Vol. B*

Kits, Marking (Dial, Instrument, Equipment, etc.)-2400

§† Datak Corp., Sparks, NV 89431, 702-359-7474 ..... C•1583
Allen Avionics, Inc., Mineola, NY 11501 516-248-8080
§ Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
§ Eastern Marking Machines, Hempstead, NY 11550 516-483-7070
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
Metron Optics Inc., Solana Beach, CA 92075-0690 619-755-4477
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Kits, Potentiometer, Rheostat-4750 — *See Vol. A*

Kits, Printed Circuit-1700

§† Datak Corp., Sparks, NV 89431, 702-359-7474 ..... C•1685
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§† Automated Prod. Equip. Corp., Medford, NY 11763 516-654-1197
Ballco Inc., Snellville, GA 30278-1078 404-979-5900
§ Bishop Graphics, Inc., Agoura, CA 91304 818-991-2600
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
§ Emco Electronics, Lindenhurst, NY 11803 516-845-7080
Foredom Elec. Co., Blackstone Inds. Inc., Bethel, CT 06801 203-792-8622
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Pace Inc., Laurel, MD 20723-1990 301-490-9860
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731 619-452-9333
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Kits, Programming Board-4200

† Crosspoint, Div. of Info-Lite Corp., Fairview, NJ 07022, 201-941-4455 ... B•1673

Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
Data Environment, Inc., Beaverton, OR 97291 503-643-4292
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Micro Industries, Westerville, OH 43081 614-895-0404
Project Resources Inc., Wareham, MA 02571 508-295-7444
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Kits, Shielding-4525

Amuneal Manufacturing Corp., Philadelphia, PA 19124, 215-535-3000 ... C•1687
Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 .... C•1689
Fair-Rite Prods., Wallkill, NY 12589, 914-895-2055 ..... A•1284
Lodestone Pacific, Anaheim, CA 92807, 714-630-1343 ..... A•1210
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
§ 3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368 ..... D•2237
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
The Mushield Co. Inc., Goffstown, NH 03045, 603-666-4433 ..... C•1700
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
† Craig Systems Corp., Eastern Technologies, Ltd., Amesbury, MA 01913-4848 508-388-5662
Ferronics, Fairport, NY 14450 716-388-1020
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
Instrument Specialties Co. Headquarters, Delaware Water Gap, PA 18327-0136 717-424-8510
Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Kits, Terminal-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-6484 ..... C•1007,1166
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§† Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500

Kits, Training Aid-4200

† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
Data Environment, Inc., Beaverton, OR 97291 503-643-4292
Diversified Case Co., Whitesboro, NY 13492 315-736-3028
§ E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
§ Emco Electronics, Lindenhurst, NY 11803 516-845-7080
§ Global Specialties, Interplex Electronics, Inc., New Haven, CT 06509 203-624-3103
Hewlett-Packard Co., Cupertino, CA 95014 800-752-0900
§ LJ Technical Systems, Hauppauge, NY 11788 516-234-2100
MCE Semiconductor, Inc., West Palm Beach, FL 33407 407-845-2837
§ Paccom, Redmond, WA 98052 ..... 206-883-9200;800-426-6254
§ Pace Inc., Laurel, MD 20723-1990 301-490-9860
§ PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Components, Mountain View, CA 94039-7267 415-968-9241

Knobs - Also see Dials, Instrument-2400

§ Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325,1595
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1584
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1585-1586,1589-1590
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1592
§ Selco Products Co., SEL Sales, Inc., Buena Park, CA 90621, 714-521-8673 ..... C•1594
§ Augat Alcoswitch, Augat Inc., N. Andover, MA 01845 508-685-4371
Bas Bleu Indl. Co., Ltd., Taipei, TAIWAN 10008 ..... (02)331-6519
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Clarostat Mfg. Co., Inc., Hawker Siddeley, PLC., Dover, NH 03820-1507 603-742-1120,800-872-0042
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
§ Cosmo Corporation, Cleveland, OH 44109 216-861-5594
§† Davies, Harry, Molding Co., Chicago, IL 60639 312-622-8966
Dimco-Gray, Dayton, OH 45458 513-433-7600
§† Electronic Hardware, Farmingdale, NY 11735 516-752-1950
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† FISHERCAST, Fisher Gauge Limited, Peterborough, Ontario, CANADA K9J 6Y9 705-748-9522
§ Front Panel Devices, Inc., Ronkonkoma, NY 11779 516-737-3322
International Microelectronics, Arlington, TX 76003 817-561-2244
ISL Products Int'l, Ltd., Syosset, NY 11791-6093 516-937-3475
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Microavionics Corp., Costa Mesa, CA 92626 714-957-6904
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
§ Peter Parts & Assocs., Webster, NY 14580 716-265-2540
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§ Piher International Corp., Mt. Prospect, IL 60056 ..... 708-390-6680;800-323-6693
Plasticorp, Harbor City, CA 90710 213-539-9530
§† Radial Controls, Indianapolis, IN 46220 317-255-2796
§ Raytheon Co., Quincy, MA 02169 617-479-5300
§† Rogan, Northbrook, IL 60062 708-498-2300
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500

Knobs, Collet-2400

Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... B•1695, C•1584
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1592
§ Selco Products Co., SEL Sales, Inc., Buena Park, CA 90621, 714-521-8673 ..... C•1594
Bas Bleu Indl. Co., Ltd., Taipei, TAIWAN 10008 ..... (02)331-6519
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473

Knobs, Limit Stop-2400

Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1584
§ Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1586
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1592
Augat Alcoswitch, Augat Inc., N. Andover, MA 01845 508-685-4371
Bas Bleu Indl. Co., Ltd., Taipei, TAIWAN 10008 ..... (02)331-6519
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Clarostat Mfg. Co., Inc., Hawker Siddeley, PLC., Dover, NH 03820-1507 603-742-1120,800-872-0042
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Front Panel Devices, Inc., Ronkonkoma, NY 11779 516-737-3322
† Microavionics Corp., Costa Mesa, CA 92626 714-957-6904
§ Raytheon Co., Quincy, MA 02169 617-479-5300
§† Rogan, Northbrook, IL 60062 708-498-2300

Knobs, Locking, Control Shaft-2400

Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1584
§ ETI Systems, Polaris Indl. Entprs., Oceanside, CA 92054, 619-757-7770 ..... A•2041, B•1256,1258
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1585-1586,1589-1590
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1592
Bas Bleu Indl. Co., Ltd., Taipei, TAIWAN 10008 ..... (02)331-6519
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Cosmo Corporation, Cleveland, OH 44109 216-861-5594
† Dupree, Inc., Chino, CA 91710 714-597-4889
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Front Panel Devices, Inc., Ronkonkoma, NY 11779 516-737-3322
† Kilo International, Provo, UT 84606 714-593-4626
† Microavionics Corp., Costa Mesa, CA 92626 714-957-6904
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† Raytheon Co., Quincy, MA 02169 617-479-5300

Knobs, Slip Clutch-2400

Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 .... C•1586,1589-1590
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1592
Bas Bleu Indl. Co., Ltd., Taipei, TAIWAN 10008 ..... (02)331-6519
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Illinois Lock Co., The Eastern Co., Wheeling, IL 60090 708-537-1800
§† Machine Components Corp., Plainview, NY 11803 516-694-7222

Knobs, Torque, Incremental, Ratio Drive-2400

Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 .... C•1585-1586,1589
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1592
Selco Products Co., SEL Sales, Inc., Buena Park, CA 90621, 714-521-8673 ..... C•1594
§ Augat Alcoswitch, Augat Inc., N. Andover, MA 01845 508-685-4371
Bas Bleu Indl. Co., Ltd., Taipei, TAIWAN 10008 ..... (02)331-6519
§ Clarostat Mfg. Co., Inc., Hawker Siddeley, PLC., Dover, NH 03820-1507 603-742-1120,800-872-0042
§ Cosmo Corporation, Cleveland, OH 44109 216-861-5594
§ Machine Components Corp., Plainview, NY 11803 516-694-7222
† Microavionics Corp., Costa Mesa, CA 92626 714-957-6904
§ Raytheon Co., Quincy, MA 02169 617-479-5300

Labels, Coatings, Crayons, Pellets, etc., Temperature Indicating-

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§† Datak Corp., Sparks, NV 89431, 702-359-7474 ..... C•1583
PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 ..... C•1076
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800-1801
† S & S Associates, Inc., San Luis Obispo, CA 93401, 805-544-2500 .. C•1094-1096
† Barrington Plastics, Mt. Laurel, NJ 08054 609-235-5151
§ Bishop Graphics, Inc., Agoura, CA 91304 818-991-2600

§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
§ Computerware, Inc., Vienna, VA 22182-2266 703-821-8200
† DOW SWITCH, Wilmington, MA 01887 617-935-6395
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ EPC Identification Sys., Rohnert Park, CA 94928 707-585-8811
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† GM Nameplate, Inc., Seattle, WA 98119 206-284-2200
Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
§ Grafoplast S.P.A., Wiremarkers, Genova, ITALY 16154 ..... + 10. 621687
† Hallmark Technologies, Mt. Dora, FL 32757 800-874-9063
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
† Intaq Key Panels, GM Nameplate, Inc., Seattle, WA 98119 206-284-5475
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
Jayco Plastics of California, Inc., Orange, CA 92665 714-974-1701
† JRW Industries, Inc., Harrisburg, PA 17110 717-236-1418
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ Mantex Corp., Oxford, MI 48371 313-628-8210
† Markem Corp., Keene, NH 03431 603-352-1130
§† Miller Dial Corp., El Monte, CA 91731 818-444-4555
Oliver Advanced Engineering, Glendale, CA 91203 818-240-0080
Paneltec, Santa Clara, CA 95054 408-496-1175
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
† Skyway Magnetics, Warner Springs, CA 92086 619-782-3342
† Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75003 ..... 214-231-6663; 214-924-3289;1-800-331-6600
Stanpat Prods., Woonsocket, RI 02895 401-766-8400
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
† Wontronics, Los Angeles, CA 90039 213-660-6230
§† Zebra Technologies Corporation, Vernon Hills, IL 60061-3109 708-634-6700

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Atlee Inc., North Andover, MA 01845, 508-681-1003 ..... C•1679
§ Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
† Alinabal, Milford, CT 06460 203-877-3241
§ Arlon, Flexible Technologies Division, E. Providence, RI 02914 ..... 401-434-2340; 1-800-735-2340
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† Rogers Corporation, Circuit Materials Div., Chandler, AZ 85244 602-963-4584
Rogers Corp., Rogers, CT 06263 203-774-9605
† Sko-Die, Inc., Morton Grove, IL 60053 708-965-1130

Laminates, Metal Clad (Including Copper)-2500

§ Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
† Alinabal, Milford, CT 06460 203-877-3241
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
§ Arlon, Flexible Technologies Division, E. Providence, RI 02914 ..... 401-434-2340; 1-800-735-2340
§† Astro-Valcour Inc., Buhrmann-Tetterode, Hawthorne, NJ 07507 201-423-3000
Bergquist, Minneapolis, MN 55435 800-347-4572
§ Bishop Graphics, Inc., Agoura, CA 91304 818-991-2600
§ Egis Corporation, Barrington Hills, IL 60010 708-639-1555
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† General Elec. Co., Electromaterials Dept., Coshocton, OH 43812 614-622-5310
§ Instant Board Circuits Grp., Novato, CA 94949 415-883-1717
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† Miller Dial Corp., El Monte, CA 91731 818-444-4555
§† Norplex Oak Inc., La Crosse, WI 54602-1448 608-784-6070
Polyflon Company, Crane Co., New Rochelle, NY 10801 914-636-7222
† PolyPly Inc., Amsterdam, NY 12010 518-843-3900
Rogers Corporation, Circuit Materials Div., Chandler, AZ 85244 602-963-4584
† Rogers Corporation, Microwave & Circuit Matls. Div., Chandler, AZ 85226 602-961-1382
† Rogers Corp., Rogers, CT 06263 203-774-9605
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800

Laminates, Plastic Impregnated (Unclad)-2500

† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
American Cyanamid Co., Metal Coated Fibers Dept., Wayne, NJ 07470 .. 201-831-2856
AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
§ Arlon, Flexible Technologies Division, E. Providence, RI 02914 ..... 401-434-2340; 1-800-735-2340
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Barrington Plastics, Mt. Laurel, NJ 08054 609-235-5151
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† General Elec. Co., Electromaterials Dept., Coshocton, OH 43812 614-622-5310
† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Liberty Polyglas, Inc., West Mifflin, PA 15122 412-466-8611
§† Norplex Oak Inc., La Crosse, WI 54602-1448 608-784-6070
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
† Rogers Corporation, Microwave & Circuit Matls. Div., Chandler, AZ 85226 602-961-1382
Rogers Corp., Rogers, CT 06263 203-774-9605
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635

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Latches, Panels & Cabinets-2400

Adams Rite Products, Inc., Glendale, CA 91204 818-241-5121
† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 818-843-4330
† Dzus Fastener, W. Islip, NY 11795 516-669-6000
§† Eberhard Mfg. Co., Div., Eastern Co., Strongsville, OH 44136 216-238-9720
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
NEC Electronics, Inc., Mountain View, CA 94039 415-960-6000
Skydyne Div., AAR Mfg., Port Jervis, NY 12771 ..... 914-856-6655;800-428-CASE

LCDs — See Diodes, Liquid Crystal (Vol. B)

Lead Assemblies, High Voltage-Also See Connectors; Cable Assemblies & Harnesses-6000

† **Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1163**
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† **Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1313-1314**
Energy Systems, Vancouver, WA 98682, 206-896-8310 ..... D•1247
† **Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404-1405**
† **Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1515**
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alberox Corporation, New Bedford, MA 02745 508-995-1725
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Cardinal Control Co., Kensington, CT 06037 203-828-6379
Ceramaseal, New Lebanon, NY 12125 518-794-7800
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
† Electro Prep Inc. & N-E-D Cable, Wareham, MA, MA 02571 508-291-2880
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Excel Specialty Corp., Chicago, IL 60660 312-262-4781
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§† FISHERTECH, Fisher Gauge Limited, Peterborough, Ontario, CANADA K9J 6Y9 705-748-9522
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
Hipotronics Inc., Brewster, NY 10509 914-279-8091
† Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
§ Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Multi-Contact USA, Santa Rosa, CA 95401 707-575-7575
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Simmonds Precision Engine Systems, BF Goodrich Aerospace, Norwich, NY 13815 607-335-5000
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Trionics, Inc., St. Charles, IL 60174 312-232-9117

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Limit Stops, Mechanical-2500

§ **Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1586**
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Dillon, Weigh-Tronix, Inc., Fairmont, MN 56031 507-238-4461
† Perfect Gear & Instrument, Designatronics, Inc., New Hyde Park, NY 11040 516-328-3300
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Precision Mechanisms, Westbury, NY 11590 ..... 516-ED3-5955
† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
§ Tapeswitch Corp. of America, Farmingdale, NY 11735 516-694-6312

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Locators, Open Short-2900 — *See Vol. D*

Locks, Dial & Shaft-2400

§ **Illinois Lock Co., The Eastern Co., Wheeling, IL 60090, 708-537-1800 .... B•1710**
§ **Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1586-1588**
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† Aimsco Inc., Cheler Corp., Seattle, WA 98108 ..... 206-762-8014;800-426-0244
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ Heath Co., St. Joseph, MI 49085 616-982-3200
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Shallco, Inc., Smithfield, NC 27577 ..... 919-934-3135; 1-800-876-3135

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Lubricants-1600

† **William F. Nye, Inc., New Bedford, MA 02742-0927, 508-996-6721 ..... C•1146**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
Amoco Oil Co., Lubricants Business Unit, Oak Brook, IL 60521-1857 800-876-3221
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Caig Labs., Escondido, CA 92029-1431 619-743-7143
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
§ Contact East, N. Andover, MA 01845 508-682-2000
† The Cool-Amp Conducto-Lube Co., Lake Oswego, OR 97035 503-624-6426
§† CVC Products, Inc., Rochester, NY 14603 716-458-2550
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† ICI Advanced Materials, Exton, PA 19341 215-363-4500
Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Lilly-Ram Industries, Gardena, CA 90248 213-321-0710
Metron Optics Inc., Solana Beach, CA 92075-0690 619-755-4477
† Miller-Stephenson Chem. Co., Inc., Danbury, CT 06810-0950 203-743-4447
Monsanto Co., St. Louis, MO 63167 314-694-1000
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Philips ECG, North American Philips Co., Williamsport, PA 17701 717-323-4691
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
† TACC International Corp. Formulated Resins Grp., Rockland, RI 02370 .. 617-878-7015
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500

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DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Alpha Metals, Jersey City, NJ 07304 201-434-6778
§ AMP-AKZO Corporation, Melville, NY 11747 516-454-4400
§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
† Contact East, N. Andover, MA 01845 508-682-2000
Corning Glass Works, Materials Business, Corning, NY 14831 607-974-7149
Electra-ssembly, Lancer Chemical, Warren, RI 02885 401-245-5493
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
§ Glenmarc Manufacturing Inc., Vernon Hills, IL 60061 708-634-6080
§ McKenzie Technology, Fremont, CA 94538 415-651-2700
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

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Materials, Shock, Noise, & Vibration Control-2500

Aeroflex Laboratories Inc., ARX, Inc., Plainview, NY 11803 516-694-6700
§† CHR, Furon, New Haven, CT 06509 203-777-3631
§† E-A-R Specialty Composites, Cabot Safety Corp., Indianapolis, IN 46268 317-872-1111
Soundcoat Co., Inc., Deer Park, NY 11729-5701 516-242-2200
United Foam Plastics, Georgetown, MA 01833 508-352-2200

Materials, Thick Film-1600

DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Electro-Science Labs., Inc., King of Prussia, PA 19406-1533 215-272-8000
Ercon Incorporated, Waltham, MA 02154 617-899-1497
Ferro Corporation, Electronic Materials Div., Santa Barbara, CA 93117-3092 805-968-5000
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000

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§† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064
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§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1579
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
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Maxus Electronic Corp., Boulder, CO 80301 303-447-1226
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Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ..... **C•1125**
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† CELCO, Mahwah, NJ 07430 201-327-1123
Cohu, Inc., Elctrns. Div., San Diego, CA 92123 619-277-6700
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Enterprise Systems Corp., Dover, NH 03820 603-742-7363
§† Hardigg Inds., Inc., South Deerfield, MA 01373 413-665-2163
§ Hoffman Engineering, Anoka, MN 55303 612-421-2240
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
† Magnetic Radiation Labs, Itasca, IL 60143 708-285-0800
MRL, Missouri Research Labs., St. Charles, MO 63301 .. 314-946-6900;1-800-325-0223
Omni Vision Inc., Glendale Heights, IL 60139 708-893-1720
Qualogy Inc., San Jose, CA 95134 408-434-5200
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161

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§† CHR, Furon, New Haven, CT 06509 203-777-3631
§ E-A-R Specialty Composites, Cabot Safety Corp., Indianapolis, IN 46268 317-872-1111
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§† Hardigg Inds., Inc., South Deerfield, MA 01373 413-665-2163
† Q.V.S., Inc., East Orange, NJ 07017 201-673-3996
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
Techno-Isel USA Division, Designatronics, New Hyde Park, NY 11040 .. 516-328-3970
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161

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§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
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DOW SWITCH, Wilmington, MA 01887 617-935-6395
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The Hall Company, Urbana, OH 43078 513-652-1376
† Hallmark Technologies, Mt. Dora, FL 32757 800-874-9063
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† JRW Industries, Inc., Harrisburg, PA 17110 717-236-1418
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
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§† Miller Dial Corp., El Monte, CA 91731 818-444-4555
† Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75009 ..... 214-231-6663; 214-924-3289;1-800-331-6600
§† Stanpat Prods., Woonsocket, RI 02895 401-766-8400
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† Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386
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Cornell Manufacturing, An Elgin Co., Orangeburg, NY 10962 914-365-0400
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Ealing Electro-Optics, Holliston, MA 01746 ..... 508-429-8370;1-800-343-4912
† Melles Griot, Inc., Irvine, CA 92714 714-261-5600
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§ **Schurter, Inc., Petaluma, CA 94952, 707-778-6311** ..... **A•1638, C•1518-1519**
§† Brooks Power Systems, Bensalem, PA 19020 ..... 215-244-0264;1-800-523-1551
§ Contact East, N. Andover, MA 01845 508-682-2000
International Configurations, Inc., Enfield, CT 06082 203-749-6380
§ Qualtek Electronics Corp., Mentor, OH 44060 216-951-3300

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§† Casso-Solar, Pomona, NY 10970 914-354-2500
† ELVO:Division of Zumbach Electronics Corporation, Mt. Kisco, NY 10549-1407 914-241-1008
The Grieve Corporation, Round Lake, IL 60073-9989 708-546-8225
§† Multicore Solders, Richardson, TX 75081 214-238-1214
† OAL Associates, Inc., Escondido, CA 92033 619-743-7143
OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Sikama International, Inc., Santa Barbara, CA 93117 805-683-6379

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† **Gemini Inc., Cannon Falls, MN 55009, 507-263-3957;800-533-3631** ..... **C•1055**
Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... **C•1699**
§† **NRD Inc., Subsidiary of Mark IV Inds., Inc., Grand Island, NY 14072, 716-773-7634** ..... **D•2238**
§† ADE, Inc., Chicago, IL 60633 312-646-3400
§† Astro-Valcour Inc., Buhrmann-Tetterode, Hawthorne, NJ 07507 201-423-3000
§† BayStat, Bay Packaging & Converting Co., Inc., Menlo Park, CA 94025 415-364-3205
Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§ Clean Room Prods., Ronkonkoma, NY 11779-6528 516-588-7000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
† Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
† Maine Poly, Inc., Greene, ME 04236 207-946-7440
§† 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
† Polygenex International Inc., Cary, NC 27513 919-380-8100
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
§† Simco Co., Hatfield, PA 19440 215-822-2171
† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† United Foam Plastics, Georgetown, MA 01833 508-352-2200

Packaging Materials, Foam & Plastic-1400

† **Gemini Inc., Cannon Falls, MN 55009, 507-263-3957;800-533-3631** ..... **C•1055**
§† **3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368** ..... **D•2236-2237**
§† ADE, Inc., Chicago, IL 60633 312-646-3400
§† Astro-Valcour Inc., Buhrmann-Tetterode, Hawthorne, NJ 07507 201-423-3000
† Barrington Plastics, Mt. Laurel, NJ 08054 609-235-5151
§† BayStat, Bay Packaging & Converting Co., Inc., Menlo Park, CA 94025 415-364-3205
§ E-A-R Specialty Composites, Cabot Safety Corp., Indianapolis, IN 46268 317-872-1111
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
§† Hardigg Inds., Inc., South Deerfield, MA 01373 413-665-2163
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
† Press-On Products, Addison, IL 60101 708-628-2255
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
REDCO, Carson City, NV 89706 702-882-3100
Robison Electronics, San Luis Obispo, CA 93403-8121 805-544-8000
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
† United Foam Plastics, Georgetown, MA 01833 508-352-2200
§† Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717
† Zero Plastics, A Unit of Zero Corp., Chicopee, MA 01020 ..... 413-267-5561 Ext. 432

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§† **Bergquist, Minneapolis, MN 55435, 800-347-4572** ..... **B•1800, C•1670,1672-1673**
§† **Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850** ..... **C•1674**
§† **Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321** ..... **C•1667**
§† Bivar, Inc., Irvine, CA 92718 714-951-8808
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
§† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
International Resistive Company, Boone, NC 28607 704-264-8861
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Mini-Systems, Inc., Thick/Thin Film Division, North Attleboro, MA 02761 508-695-0203
Mini-Systems, Inc., Sunbelt Microelectronic Division, Deltona, FL 32725 407-574-0208
§ NTE Electronics, Inc., Bloomfield, NJ 07003 201-748-5089
† Robison Electronics, San Luis Obispo, CA 93403-8121 805-544-8000
§ Schurter, Inc., Petaluma, CA 94952 707-778-6311
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291

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§† Casso-Solar, Pomona, NY 10970 914-354-2500
Ritz Electronics/Relco, New Dundee, Ont., CANADA N0B 2E0 519-696-2616

Paints, Metallic, Conductive-1600

† **Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744** ..... **C•1145**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§ Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§ Contact East, N. Andover, MA 01845 508-682-2000
# Electrostatic Consulting Assocs., Groton, MA 01450 508-448-5583
† E/M Corporation, W. Lafayette, IN 47906 317-497-6346
Ercon Incorporated, Waltham, MA 02154 617-899-1497
† Master Bond, Hackensack, NJ 07601 201-343-8983
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§ Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717

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† **Micro-Circuits Co., Inc., New Buffalo, MI 49117, 616-469-2744** ..... **C•1145**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§ Contact East, N. Andover, MA 01845 508-682-2000
# Electrostatic Consulting Assocs., Groton, MA 01450 508-448-5583
† EMCA-REMEX Products, National Starch & Chem. Co., Montgomeryville, PA 18936 215-855-1000
Ercon Incorporated, Waltham, MA 02154 617-899-1497
Ferro Corporation, Electronic Materials Div., Santa Barbara, CA 93117-3092 805-968-5000
§† Kepro Circuit Systems, Fenton, MO 63026-2992 314-343-1630
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
§ Murata Manufacturing Co., Ltd., Nagaoka-Kyo-Shi, Kyoto, JAPAN 617 075-951-9111
Transene, Rowley, MA 01969 508-948-2501

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ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... **C•1155**
† **ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800** ..... **C•1157-1159**
§ **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752** ..... **C•1175**

Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412, 708-455-8830 ..... C•1742
Crosspoint, Div. of Info-Lite Corp., Fairview, NJ 07022, 201-941-4455 ... B•1673
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... B•1806
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424-1426
LCR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1456
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ..... C•1555-1561
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-9979
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
Amphenol Interconnect Products, Endicott, NY 13760 607-754-4444
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-8821;800-451-4381
† Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2109
§ COMCAB, Nashport, OH 43830 614-828-2468
§ Communication Devices, Inc., Scarborough, Ont. CAN M1B3R8 416-292-4483
Computer System Products, Minneapolis, MN 55447 ..... 612-476-6866;800-422-2537
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Datum Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dataprobe, Englewood, NJ 07631 201-569-0464
§ Electro Standards Lab., Inc., Data Communications Products Div., Cranston, RI 02921 401-943-1164
§ Elite Electronics Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
Front Panel Devices, Inc., Ronkonkoma, NY 11779 516-737-3022
§ Furman Sound, Inc., Greenbrae, CA 94904 415-927-1225
# Glasgal Communications, Inc., Northvale, NJ 07647 201-768-3082
† GRIM Corporation, Medford, NJ 08055-0968 609-267-7950
GTE Fiberoptic Products, Williamsport, PA 17701 ... 717-326-6591;1-800-FBR-OPTICS
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
The Hall Company, Urbana, OH 43078 513-652-1976
§† Keptel/Armiger, Tinton Falls, NJ 07724 ..... 800-526-2697;201-389-8800
§ Kings Electronics Co., Inc., Tuckahoe, NY 10707 914-793-5000
§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
Nu Data, Inc., Little Silver, NJ 07739 908-842-0757
Omega Engineering, Stamford, CT 06907 800-826-6342
Shore Far East Ltd., Peekskill, NY 10566 914-736-3600
Stocking Co., Wood Dale, IL 60191 708-860-9700
† STRONGBOX, Culver City, CA 90231-2726 213-305-8288
§† Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
§ Telenex Corporation, A Unit of General Signal Corp., Mt. Laurel, NJ 08054 609-234-7900
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
§ Tinnerman Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
‡ Virginia Panel Corporation, Waynesboro, VA 22980 703-949-8378
York Metal Products, Inc., Long Island City, NY 11106 718-932-3660

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ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... B•1806
Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 503-222-2202
§ dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5600
E.M.S., Div. of Sendberg Industries, Tustin, CA 92680 714-669-9473
§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Project Resources Inc., Wareham, MA 02571 508-295-7444
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4052
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

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§ Tschni-Tool, Plymouth Meeting, PA 19462 215-825-4900

Pins, Cotter, Dowel, Taper, etc.-2500

Autoswage Products, Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-3300;328-3000

Pins, Electrically Conductive-2100

Crosspoint, Div. of Info-Lite Corp., Fairview, NJ 07022, 201-941-4455 ... B•1673
DuPont Connector Systems, DuPont Electrs., Wilmington, DE 19880-0039, 800-237-2374 ..... C•1350, 1354
§† Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1478
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Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-9979
† AME Corporation, Towaco, NJ 07082-0195 201-263-1700
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
§ Augat Inc., Attleboro, MA 02703 617-222-2202
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-9800
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connectronics Corp., Toledo, OH 43607 419-537-0020
§† dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
GTI/Electronics Div., Hadley, PA 16130 412-253-3161
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§ Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Scanbe, Unit of Zero Corporation, El Monte, CA 91731 619-452-9333
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-8090
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381

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Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 818-843-4330

Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
GTI/Electronics Div., Hadley, PA 16130 412-253-3161
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§ Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

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† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§† Atochem North America, Philadelphia, PA 19102 215-587-7520
† Bacon Industries, Watertown, MA 02172-2399 617-926-2550
Canadian Thermoplastics Op., Ferro Corp., Ferro Indl. Prods. Ltd. Thermoplas.Div., Oakville, ONT. L6J 2X1 416-845-4277
Conap, Inc., Olean, NY 14760 716-372-9650
† Dennis Chemical, St. Louis, MO 63103 314-771-1800
§ Dolph, John C., Co., Monmouth Junction, NJ 08852 201-329-2333
§† Dynaloy, Inc., Hanover, NJ 07936 201-887-9270
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Ferro Corporation, Filled & Reinforced Plastics Div., Evansville, IN 47711 812-423-5218
Ferro Corporation, Plastic Colorants & Dispersions, Stryker, OH 43557 419-682-3311
† Hardman Inc. A Harcros Chemical Group Company, Belleville, NJ 07109 201-751-3000
† ICI Advanced Materials, Exton, PA 19341 215-363-4500
† Industrial Dielectrics, Inc., Noblesville, IN 46060 317-773-1766
Insulcast, Permagile Inds. Inc., Plainview, NY 11803 516-349-1100
Leepoxy Plastics, Inc., Ft. Wayne, IN 46809 219-747-7411
§ Lilly-Ram Industries, Gardena, CA 90248 213-321-0710
Mereco Products Div., Metachem Resins Corp., West Warwick, RI 02893 401-822-9300
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
Monsanto Co., St. Louis, MO 63167 314-694-1000
† PolyPly Inc., Amsterdam, NY 12010 518-843-3900
† Rogers Corporation, Molding Materials Div., Manchester, CT 06040 203-646-5500
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
† Shogyo International Corp., Great Neck, NY 11021 516-466-0911
† Sigma Plastronics, Inc., Whitmore Lake, MI 48189 313-231-2871
Tra-Con, Inc., Medford, MA 02155 617-391-5550
§ Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717
† Whittaker Corp., Providence Chemicals Div., E. Providence, RI 02916 401-434-1770

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§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090

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Pliers-5400

§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§ Edsyn, Inc., Van Nuys, CA 91406 ..... 818-989-2324;213-873-5115
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Pioneer Components, Brooklyn, NY 11234 718-444-3880
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500

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Plotters, X-Y, & Accessories-3000 — *See Vol. D*

Plug & Jack Sets-2100

† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1161
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† Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
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† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Barber-Colman Co., Indl. Instrs. Div., Rockford, IL 61125-7040 815-877-0241
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Communication Devices, Inc., Scarborough, Ont., CAN M1B3R6 416-292-4463
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Direct Sound Corporation, New York, NY 10011 212-691-9050
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019 800-237-2374
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ GIC Thermodynamics, Royal Oak, MI 48073 313-280-1648
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
International Components Corp., Melville, NY 11747 516-293-1500
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9978 ..... 407-848-4311;800-888-8763
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Tricon Industries, Inc., Electromechanical Division, Downers Grove, IL 60515-4076 708-964-2330
Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145

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† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821

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Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cinch Connector Division, Labinal Components & Systems inc., Elk Grove Village, IL 60007 312-981-6000
§ Coax Connection, Yorktown Hgts., NY 10598 ..... 914-962-2303;800-431-2103
Compac, Holbrook, NY 11741 516-585-3400
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Direct Sound Corporation, New York, NY 10011 212-691-9050
§† Eagle Electric Mfg. Co. Inc., Long Island City, NY 11101 718-937-8000
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
International Components Corp., Melville, NY 11747 516-293-1500
International Configurations, Inc., Enfield, CT 06082 203-749-6380
International Microelectronics, Arlington, TX 76003 817-561-2244
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
ITT Sealectro, Inc., New Britain, CT 06051 203-223-2700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Midwest Microwave, Saline, MI 48176-9569 ..... 313-429-4773;800-521-4410
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Samtec, Inc., New Albany, IN 47150 812-944-6733
* Secma, Inc., Secme, Irvine, CA 92714 714-261-0610
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 914-724-6440
Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9078 ..... 407-848-4311;800-888-8763
Staffall Inc., Cranston, RI 02910 401-461-5554
† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Telco Intercontinental, Houston, TX 77095 713-855-2218
Todd Systems, Inc., Yonkers, NY 10701 914-963-3400

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NRD Inc., Subsidiary of Mark IV Inds., Inc., Grand Island, NY 14072, 716-773-7634 ..... D•2238
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7245
Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700

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§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7245
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
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§† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840

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Alden Products Co., Brockton, MA 02403 508-583-0160
Amphenol Spectra-Strip/ITD, Hamden, CT 06514 203-281-3200
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Cinch Connector Division, Labinal Components & Systems inc., Elk Grove Village, IL 60007 312-981-6000
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§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Direct Sound Corporation, New York, NY 10011 212-691-9050
§† Eagle Electric Mfg. Co. Inc., Long Island City, NY 11101 718-937-8000
§ EBY Company, Philadelphia, PA 19124 215-537-4700
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ CC Thorsen, Rockford, IL 61105-1200 815-968-5661
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
International Components Corp., Melville, NY 11747 516-293-1500
International Configurations, inc., Enfield, CT 06082 203-749-6380
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Johnson, E. F., Co., Minneapolis, MN 55459-0059 612-943-5500
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Microdot, Interconnect Systems Division, Montgomeryville, PA 18936 215-699-5373
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ SL Waber, Inc., Mt. Laurel, NJ 08054 ..... 609-866-0898;800-257-8384
Solitron/Microwave, Solitron Devices, Inc., Riviera Bch., FL 33404-9078 ..... 407-848-4311;800-888-8763
§ Spemco Switches, St. Clair Shores, MI 48080 800-432-2828
Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Todd Systems, Inc., Yonkers, NY 10701 914-963-3400
Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
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Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
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§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
† Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
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§ Altech Corp., Somerville, NJ 08876 908-707-8484
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
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§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§† Raytheon Co., Quincy, MA 02169 617-479-5300
Spectra Lux Corp., Kirkland, WA 98034 206-747-0560
Stimpson Company, Inc., Bayport, NY 11705-1097 516-472-2000
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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† **Shogyo International Corp., Great Neck, NY 11021, 516-466-0911** ..... **C•1523-1525,1821**
§† **Superior Electric, Bristol, CT 06010, 203-582-9561** ..... **C•1537**
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Bussco Inc., El Segundo, CA 90245 213-322-6580
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
§† EBY Company, Philadelphia, PA 19124 215-537-4700
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Graphite Metallizing Corp., Yonkers, NY 10702 914-968-8400
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§† Pomona Electronics, Pomona, CA 91766 714-623-3463
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§† Raytheon Co., Quincy, MA 02169 617-479-5300
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
Staffall Inc., Cranston, RI 02910 401-461-5554
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... **C•1800**
Autoswage Products, Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722

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Preforms, Precious Metal-2500

Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
§† Electronic Essentials, Woodside, NY 11377 718-898-6300
Insulaton Components Associates, Inc., Downey, CA 90241 213-861-7268
§† Multicore Solders, Richardson, TX 75081 214-238-1214
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
† Sko-Die, Inc., Morton Grove, IL 60053 708-965-1130
Tricon Industries, Inc., Brazing Alloys & Chemical Products Div., Downers Grove, IL - 60515-4012 708-963-0220
† Wilkinson, Westlake Village, CA 91359 ..... 818-889-0050;800-822-4653

Preforms, Soldering-4600

Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
Tricon Industries, Inc., Brazing Alloys & Chemical Products Div., Downers Grove, IL 60515-4012 708-963-0220

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Probes, Logic Test-2900 — *See Vol. D*

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Protocol Converters-1900 — *See Vol. D*

Prototyping Equipment, Circuit Board-4200

Data Environment, Inc., Beaverton, OR 97291 503-643-4292
† ELVO:Division of Zumbach Electronics Corporation, Mt. Kisco, NY 10549-1407 914-241-1008
† GRIM Corporation, Medford, NJ 08055-0968 609-267-7950
§Φ HiTech Equipment Corp., San Diego, CA 92126 619-566-1892
§ Regulus Systems, Foster City, CA 94404 415-593-4197
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

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Pullers, Circuit Board-5400

§ Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015
§† Calmark Corp., San Gabriel, CA 91776, 818-287-0451 ..... C•1019
§ Electro Space Fabricators, Topton, PA 19562-0067, 215-682-7181 .. C•1035-1037
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 619-452-9333 ..... C•1098-1099
§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
§ Augat Inc., Attleboro, MA 02703 617-222-2202
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
† Contours Inc., Meriden, CT 06450 203-237-8331
† dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
Electronic Solutions, A Unit of Zero Corp., San Diego, CA 92121 619-452-9333
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
† Micro-Products Engineering Co., Newark, NJ 07108 201-824-8467
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
Unitrack Industries, Inc., West Chester, PA 19380 215-692-0800
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Pullers, Tube-5400

Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

Pulleys-2500

Belting Industries Co., Inc., Kenilworth, NJ 07033 201-272-8591
§ Plastimatic, Inc., Glynwed Int'l., Fairfield, NJ 07004 201-575-0038
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000
Sterling Instruments, New Hyde Pk, NY 11040 516-328-3300
† Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk, NY 11040 ..... 516-328-0200;328-3300

Pulsers, Diode — See Power Supplies, AC Input, Greater than 1,000 VDC Output (Vol. D)

Pulsers, Logic Test-2900 — *See Vol. D*

Pumps, Vacuum-4100 — *See Vol. D*

Punches, Chassis-5400

Texmate, Inc., Vista, CA 92083-8397, 619-598-9899 ..... D•1387
§ GreenLee Textron Inc.:Subsidiary of Textron Inc., Rockford, IL 61109 ... 815-397-7070
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Pyrometers, Infrared-2900 — *See Vol. D*

Pyrometers, Optical, Noninfrared-5300 — *See Vol. B*

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Reamers-5400

Parker Hannifin Corp., Tube Fittings, Columbus, OH 43228 614-279-7070
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Receivers, AM/FM (Incl. Precision Test)-2900 — *See Vol. D*

Receivers, Communication-1900 — *See Vol. D*

Receivers, Fiber Optic-2475 — *See Vol. B*

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References, DC Voltage-2900 — *See Vol. D*

Refrigerants, Spray-1600

Power Designs, Inc., Westbury, NY 11590, 516-333-6200 ..... D•1986
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
§ Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010

Refrigerated Cooling Equipment — See Air Conditioners (Vol. C)

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Relays, Opto-Isolated-4500 — *See Vol. B*

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Relays, Power-4500 — *See Vol. B*

Relays, Printed Circuit Mounting (Incl. Transistor & DIP Case Types)-4500 — *See Vol. B*

Relays, Programmable-4500 — *See Vol. B*

Relays, RF (Incl. Antenna & Coaxial)-4500 — *See Vol. B*

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Resistance Comparators — See Bridges, Resistance (Vol. D)

Resistor Hardware-2500

Caddock Electronics, Inc., Riverside, CA 92507, 714-788-1700 ..... **A•1853**
KOA Speer Electronics, Bradford, PA 16701, 814-362-5536 ..... **A•1934**
Micro-Ohm Corp., Duarte, CA 91010, 818-3575377 ..... **A•1947**
Milwaukee Resistor Corp., Milwaukee, WI 53204, 414-271-9900 ..... **A•1952**
§† Ohmite Manufacturing Co., Skokie, IL 60076, 708-675-2600 ..... **A•1962**
§ Allen- Bradley Co., Div. of Industrial Control Grp., Milwaukee, WI 53201 414-382-2000
§† Bivar, Inc., Irvine, CA 92718 714-951-8808
§† Dale Electronics, Inc., Columbus Div., Columbus, NE 68601-3647 402-563-6506
§† Dale Electronics, Inc., Norfolk Div., Norfolk, NE 68701-2242 402-371-0080
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
International Resistive Company, Boone, NC 28607 704-264-8861
§ Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
Resistors, Inc., Chicago, IL 60650 708-652-7555
Vishay Resistive Systems, Malvern, PA 19355 215-644-1300

Resistor Networks, Surface Mount-4700 — *See Vol. A*

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Resistors, Voltage Sensitive-4700 — *See Vol. A*

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Resolvers, Synchro-4900 — *See Vol. D*

Resonators, Ceramic-2300 — *See Vol. A*

Resonators, Ceramic, Surface Mount-2700 — *See Vol. A*

Resonators, Microwave, Dielectric-3450 — *See Vol. A*

Resonators, SAW-2300 — *See Vol. A*

Retainers, Battery-2500

Avex Electronics, Bensalem, PA 19020, 215-638-1515;800-345-1295 .... D•1432
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1595
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608, 201-288-4477;800-447-5639 ..... D•1452
Memory Protection Devices, Inc., Farmingdale, NY 11735, 516-293-5891 ..... D•1469
Plainview Batteries, Inc., Plainview, NY 11803, 516-249-2873 ..... D•1478
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... D•1484-1485
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... D•1491
Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 ..... C•1526-1527,1529,1532
Tauber Elctrns. Inc., San Diego, CA 92117, 619-274-7242 ..... D•1496
§† Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
†# Alexander Batteries, New Product/OEM Divison, San Diego, CA 92198 619-480-4445
Battery Specialities, Costa Mesa, CA 92626 ... 714-755-0888;1-800-352-3706 (Toll free in CA)
§ Bogen Communications, Inc., Sound Prods., Ramsey, NJ 07446 201-934-8500
Golden Pacific Electronics, Inc, Placentia, CA 92670 714-993-6970
House of Batteries, Costa Mesa, CA 92627 ..... 714-642-8222;800-432-3385
ISL Products Int'l, Ltd., Syosset, NY 11791-6093 516-937-3475
Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† NCE:National Custom Enterprises, Inc., Burnsville, MN 55337-2559 612-890-1360
§ PacTec, LaFrance Corp., Philadelphia, PA 19153 215-365-8400
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Renata U. S., Dallas, TX 75207 214-630-2563,800-527-0719
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
§ Rose Electronics, Inc., Energy Products Group, San Jose, CA 95131 408-943-0440
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500

Retainers, Relay-4500 — *See Vol. B*

Retainers, Transistor & Diode-2500

Atlee Inc., North Andover, MA 01845 508-681-1003
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
Siemens Components, Inc., Special Products Div., Iselin, NJ 08830 201-321-3400

Retainers, Tube-2500

§† IERC, Burbank, CA 91502 213-849-2481

Reticles-3700 — *See Vol. B*

Retractors & Carriers — See Cable Retractors (Vol. C)

RFI Measuring Equipment-2900 — *See Vol. D*

RFI Shielding — See Shields, RF (Vol. C)

RFI Testing Services — See Services, Electrical Measurement & Test (Vol. D)

Rheostats-4700 — See Vol. A

Rheostats, Motorized-4750 — See Vol. A

Ribbons for Printers-2000 — See Vol. D

Rings, Retaining-2600

† Applied Plastics Technology, Bristol, RI 02809 401-253-9201
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Cinch Connector Division Labinal Components & Systems, Inc., Elk Grove Village, IL 60007 312-981-3000
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
ITW Fastex Distributor Business, Wood Dale, IL 60191-1169 708-350-8200
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Products, Div. of Designetronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-3300/328-3306
§ Technit-Tool, Plymouth Meeting, PA 19462 215-825-4930
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161

Rings, Slip — See Slip Rings (Vol. B)

Rivets-2500

† Art Wire/Deduco, Cedar Knolls, NJ 07927 201-267-2000
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-5800
Autosplice, Inc., San Diego, CA 92121 619-535-0037
Autoswage Products, Shelton, CT 06484 800-628-1401
Deringer Mfg. Co., Mundelein, IL 60060 708-566-1100
§ Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ Hayco Molded Products, Inc., Kenilworth, NJ 07033 ..... 800-526-0023/233-5264/497
ITW Fastex Distributor Business, Wood Dale, IL 60191-1169 708-350-8200
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Milford Rivet & Mach., Milford, CT 06460 203-878-4601
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
† Southco, Inc., Concordville, PA 19331 215-459-4000
Stimpson Company, Inc., Bayport, NY 11705-1057 516-472-2000
Tricon Industries Inc., Brazing Alloys & Chemical Products Div., Downers Grove, IL 60515-4012 708-963-0220

Robotic Pick & Place — See Arms & Manipulators, Robotic (Vol. D)

Robotics — See Arms & Manipulators, Robotic (Vol. D); Control Systems, Robotic (Vol. D)

Robots, Machine Vision-4900 — See Vol. D

Robots, Pick and Place-4900 — See Vol. D

Robots, X-Y-Z-4900 — See Vol. D

Rods, Ground-2500

§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§ PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Union Carbide Chemicals & Plastics Company Inc., Industrial Chemicals Div., Crystal, San Diego, CA 92123 619-279-4500

Rotators — See Antenna Rotators (Vol. D)

Rotors, Motor & Generator — See Motor & Generator Armatures, Rotors, Stators (Vol. B)

Rubber, Conductive-1600

† AME Corporation, Towaco, NJ 07082-0195, 201-263-1700 ..... B•1644
† Chomerics, Inc.-W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
† Cut Craft, Inc., Ft. Worth, TX 76162, 817-332-6151 ..... C•1675,1688
NTK Technical Ceramics, NGK Spark Plugs (USA), Mt. Prospect, IL 60056, 708-824-1133 ..... A•1700
† Alasco Rubber & Plastics Corp., Belmont, CA 94002 415-595-4100
§ CHR, Furon, New Haven, CT 06509 203-777-3631
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
Elastomeric Technologies, Inc., Hatboro, PA 19040 ..... 215-672-0787;215-672-4741
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Ercon Incorporated, Waltham, MA 02154 617-899-1497
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
International Instrumentation, Inc., Westlake Vlg., CA 91361 805-495-7673
Jayco Plastics of California, Inc., Orange, CA 92665 714-974-1701
Lucas Duralith Corporation, Millville, NJ 08332 609-825-6900
§† 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
† Minor Rubber Co., Inc., Bloomfield, NJ 07003 ..... 201-338-6800;800-433-6886
§† Parker Seal Group, Irvine, CALIFORNIA 92715 714-851-3763
† Press-On Products, Addison, IL 60101 708-628-2255
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
§ Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-5862
Stenon International, Inc., Buffalo, NY 14203 716-854-3443
§ Technit-Tool, Plymouth Meeting, PA 19462 215-825-4930
† Tecknit (Instrom Facility), Cranford, NJ 07016 908-272-5600
§ Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717

Rubber Guards (For Equipment) — See Bumpers (Vol. C)

Rubber, Silicone-1600

† AME Corporation, Towaco, NJ 07082-0195, 201-263-1700 ..... B•1644
† Cut Craft, Inc., Ft. Worth, TX 76107, 817-332-6151 ..... C•1675,1688
Fujipoly, Inc., Carteret, NJ 07016, 908-372-9260 ..... C•1676,1650
Jayco Plastics of California, Inc., Orange, CA 92665, 714-974-1701 ..... B•1815
† Jettron Products Inc., E. Hanover, NJ 07936, 201-887-8577 ..... C•1404
† Alasco Rubber & Plastics Corp., Belmont, CA 94002 415-595-4100
† Bacon Industries, Watertown, MA 02172-2395 617-926-2550
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2856
† Cadillac Plastic & Chem. Co. Div. of MA. Hanna, Troy, MI 48083 313-589-1200
† Castall Inc., E. Weymouth, MA 02189 617-337-9075
§† CHR, Furon, New Haven, CT 06509 203-777-3631
† Conap, Inc., Olean, NY 14760 716-372-9650
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
§† Dow Corning Corp., Midland, MI 48686-0994 517-496-4000
Plastomeric Technologies, Inc., Hatboro, PA 19040 ..... 215-672-0787;215-672-4741
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
† Gasket International Inc., Bloomfield, NJ 07003 201-338-6814
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Herdman Inc. A Hercros Chemical Group Company, Belleville, NJ 07109 201-751-2600
† Kam Components, Inc., Nesconset, NY 11767 516-585-4636
§ Lew-Ham Industries, Gardena, CA 90248 213-321-6710
Lucas Duralith Corporation, Millville, NJ 08332 609-825-6900
† Minor Rubber Co., Inc., Bloomfield, NJ 07003 ..... 201-338-6800;800-433-6886
Nor-Cass Products Inc., Verga Technologies, Fairfield, NJ 07004 ..... 201-575-5037; 800-554-5700
† Press-On Products, Addison, IL 60101 708-628-2255
# RECO, Carson City, NV 89706 702-882-3110
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4335
† TACC International Corp., Formulated Resins Grp., Rockland, RI 02870 ... 617-878-7010
Tra-Con, Inc., Medford, MA 02155 617-391-5550

Satellite Antennas — See Antennas, Satellite (Vol. D)

Satellite Earth Stations, Transmit & Receive-1900 — See Vol. D

Scale Expanders, Meter — See Multipliers, Meter (Vol. D)

Scalers, Binary, Decade-2925 — See Vol. D

Scales, Mail-2400

§ Jan Hardware Mfg. Co., Melville, NY 11747, 516-501-6600 ..... C•1657
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Dillon, Weigh-Tronix, Inc., Fairmont, MN 56031 507-238-4461
§ Jewell Electrical Instruments, Manchester, NH 03105 603-669-6400
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10474 212-524-4455
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-255-4501
§ Sunshine Instruments, Philadelphia, PA 19116 ..... 215-673-5300;800-343-1199

Scales, Electronic (Counting/Weighing)-2300 — See Vol. D

Scanners, Bar Code — See Readers, Bar Code (Vol. D)

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Scanners, Fiber Optic-2475 — See Vol. D

Scanners, Flying Spot-1900 — See Vol. D

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Scanners, Optical-2900 — See Vol. D

Scanners, Optical, Page-2000 — See Vol. D

Scanners, Reed-2900 — See Vol. D

Scissors-5400

§† Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ Paladin Corp., Newbury Park, CA 91320 805-499-0316
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4930
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010

Scope Dollies — See Carts & Dollies, Instrument & Equipment (Vol. C)

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SCR Firing Controls — See Controls, SCR (Vol. D)

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Scramblers/Descramblers, Video-1900 — *See Vol. D*

Scramblers, Speech-1900 — *See Vol. D*

Screening, Mesh, Conductive (Incl. Copper)-4525

Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675,1688
§† CHR, Furon, New Haven, CT 06509 203-777-3631
Two Technologies,Inc., Horsham, PA 19044 215-441-5305

Screens, Printed Circuit-1700

§† Hybridyne, Inc., Tucson, AZ 85745, 602-629-0001 ..... A•1729
† Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† Displays, Inc., Lewistown, PA 17044 717-242-2541
Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
§ NAZ-DAR/K.C., Thrall Enterprises, Chicago, IL 60622 312-943-8338
Wontronics, Los Angeles, CA 90039 213-660-6230

Screwdrivers-5400

§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§ Foredom Elec. Co., Blackstone Inds. Inc., Bethel, CT 06801 203-792-8622
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
Kedman Co., Salt Lake City, UT 84125 801-973-9112
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, Inc., E. Greenwich, RI 02818 401-885-0911
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Pioneer Components, Brooklyn, NY 11234 718-444-3880
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

Screws, Lead, Feed & Translatory — See Drives & Drives Mechanisms (Dial) (Vol. C)

Screws, Fastening-2500

Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
† Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
All-States, Inc., Chicago, IL 60640 312-728-0525
† Avibank Manufacturing, Inc., Burbank, CA 91503-0391 818-843-4330
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Equipto Electronics Corp., Aurora, IL 60506 708-897-4691
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
† Morris, J. I., Co., Southbridge, MA 01550 508-764-4394
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Southco, Inc., Concordville, PA 19331 215-459-4000
Sterling Instruments, New Hyde Pk, NY 11040 516-328-3300
Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300

Scribers-5400

Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† Coherent General, Inc., Sturbridge, MA 01566 508-347-2681
† Coherent, Inc., Palo Alto, CA 94303 415-493-2111
§ Contact East, N. Andover, MA 01845 508-682-2000
§ General Hardware Mfg., New York, NY 10013 212-431-6100
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, Inc., E. Greenwich, RI 02818 401-885-0911
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
U. S. Laser Corp., Wyckoff, NJ 07481 201-848-9200

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Sealing Equipment, Metal to Glass/Ceramic-4100 — *See Vol. D*

Seals & Feedthrus, Environmental — See Feedthrus & Seals, Environmental (Vol. C)

Seals, Ceramic To Metal-2500

† Alberox Corporation, New Bedford, MA 02745 508-995-1725
† Ceramaseal, New Lebanon, NY 12125 518-794-7800
Coors Ceramics Co., Electronic Products Group, Golden, CO 80401 303-277-4592
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
Ferro Corporation, Electronic Glass Department, Cleveland, OH 44101 .. 216-641-8580
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
HiTemp Technologies, Inc., San Jose, CA 95131-1101 408-922-0740
† Master Bond, Hackensack, NJ 07601 201-343-8983
† Simmonds Precision Engine Systems, BF Goodrich Aerospace, Norwich, NY 13815 607-335-5000
† United Supertek, Inc., San Jose, CA 95131-1101 408-922-0730
Wilbrecht Electronics, St. Paul, MN 55107 612-222-2791

Seals, Glass To Metal-2500

† Reeves-Hoffman Div., Dynamics Corporation of America, Carlisle, PA 17013, 717-243-5929 ..... A•1740-1741
† Airpax-Cambridge Division, A North American Philips Co., Cambridge, MD 21613 301-228-4600
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Ceramaseal, New Lebanon, NY 12125 518-794-7800
† Connector Industries of America Div., Microdot Mfg., Cincinnati, OH 45215 513-772-3680
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
Ferro Corporation, Electronic Glass Department, Cleveland, OH 44101 .. 216-641-8580
† Fifth Dimension, Inc., Trenton, NJ 08638 609-393-8350
The Fredericks Company, Huntingdon Valley, PA 19006 215-947-2500
GTI/Electronics Div., Hadley, PA 16130 412-253-3161
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
† Master Bond, Hackensack, NJ 07601 201-343-8983
† Mini-Systems, Inc., Electronic Package Div., Plainville, MA 02762 508-695-2000
PAVE Technology Co., Inc., Dayton, OH 45414-3445 513-890-1100
† Schott Electronics, Seymour, CT 06483 203-881-0102
† Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
Wilbrecht Electronics, St. Paul, MN 55107 612-222-2791

Seals, Hermetic-Also See Services, Hermetic Sealing-2500

† AME Corporation, Towaco, NJ 07082-0195, 201-263-1700 ..... B•1644
† Reeves-Hoffman Div., Dynamics Corporation of America, Carlisle, PA 17013, 717-243-5929 ..... A•1740-1741
Airpax-Cambridge Division, A North American Philips Co., Cambridge, MD 21613 301-228-4600
† Alberox Corporation, New Bedford, MA 02745 508-995-1725
Ceramaseal, New Lebanon, NY 12125 518-794-7800
† Connector Industries of America Div., Microdot Mfg., Cincinnati, OH 45215 513-772-3680
† Detoronics Corporation, S. El Monte, CA 91733 818-579-7130
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
The Fredericks Company, Huntingdon Valley, PA 19006 215-947-2500
GTI/Electronics Div., Hadley, PA 16130 412-253-3161
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
HiTemp Technologies, Inc., San Jose, CA 95131-1101 408-922-0740
† Master Bond, Hackensack, NJ 07601 201-343-8983
† Micro Mode Prods., El Cajon, CA 92020 619-449-3844
† Mini-Systems, Inc., Electronic Package Div., Plainville, MA 02762 508-695-2000
Mini-Systems, Inc., Thick/Thin Film Division, North Attleboro, MA 02761 508-695-0203
Mini-Systems, Inc., Sunbelt Microelectronic Division, Deltona, FL 32725 407-574-0208
PAVE Technology Co., Inc., Dayton, OH 45414-3445 513-890-1100
† Schott Electronics, Seymour, CT 06483 203-881-0102
Wilbrecht Electronics, St. Paul, MN 55107 612-222-2791

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† AME Corporation, Towaco, NJ 07082-0195, 201-263-1700 ..... B•1644
† Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
The Auburn Manufacturing Company, Middletown, CT 06457 203-346-6677
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Parker Seal Group, Irvine, CALIFORNIA 92715 714-851-3763
† Press-On Products, Addison, IL 60101 708-628-2255
# REDCO, Carson City, NV 89706 702-882-3100
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386

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Security Systems, Access Control-2000 — *See Vol. D*

Security Systems, Data-2325 — *See Vol. D*

Seismographs-2900 — *See Vol. D*

Seizers-5400

§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

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§ Jan Hardware Mfg. Co., Melville, NY 11747 718-361-0600
§† Krystinel Corp., Paterson, NJ 07509 201-345-8900
† Lectro Magnetics, Inc., Los Angeles, CA 90016 ..... 213-870-9383;USA 800-969-9383
Lindgren RF Enclosures, Inc., Glendale Hgts., IL 60139 708-307-7200
† Magnetic Radiation Labs, Itasca, IL 60143 708-285-0800
† Magnetics, Spang & Co., Butler, PA 16003-0391 412-282-8282
Permafuster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
† Products Engrg. Corp., Azusa, CA 91702 818-969-5879
† Proto Stamping Corp., Redwood City, CA 94063 415-365-0498
Quality Components, Inc., St. Marys, PA 15857 814-834-2817
Schlegel Corp., Rochester, NY 14692 716-427-7200
† Schonstedt Instrument Co., Reston, VA 22090 703-471-1050
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
Thorn EMI Electron Tubes Inc., Fairfield, NJ 07006 201-575-5586
§ Tokin America, Inc., San Jose, CA 95134 408-432-8020
§ Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386
Wontronics, Los Angeles, CA 90039 213-660-6230
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Shields, Photomultiplier-4525

† Ad-Vance Magnetics, Inc., Rochester, IN 46975, 219-223-3158 ..... C•1686
† Amuneal Manufacturing Corp., Philadelphia, PA 19124, 215-535-3000 ..... C•1687
† Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 ..... C•1689
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
† The Mushield Co. Inc., Goffstown, NH 03045, 603-666-4433 ..... C•1700
Inter-Technical Group Inc., WIMA Div., Elmsford, NY 10523 914-347-2474
† Magnetic Radiation Labs, Itasca, IL 60143 708-285-0800
§ Thorn EMI Electron Tubes Inc., Fairfield, NJ 07006 201-575-5586

Shields, RF-Also See Gaskets, Shielding, RF-4525

Ad-Vance Magnetics, Inc., Rochester, IN 46975, 219-223-3158 ..... C•1686
† Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675
Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 ..... C•1689
Filtron Co., Inc., Sub. of ARX Inc., Old Bethpage, NY 11804, 516-752-1144 ..... A•1673
Instrument Specialties Co. Headquarters, Delaware Water Gap, PA 18327-0136, 717-424-8510 ..... B•1018, C•1691-1697
† McLean Engineering, Zero Corporation, Princeton Junction, NJ 08550, 609-799-0100 ..... C•1633
§† 3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368 ..... D•2236
Oxley Inc., Branford, CT 06405, 203-488-1033 ..... B•1335
PacTec, LaFrance Corp., Philadelphia, PA 19153, 215-365-8400 ..... C•1071
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1851
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
ADE, Inc., Chicago, IL 60633 312-646-3400
† Air/Flex Inds. Inc., S. El Monte, CA 91733 818-579-7060
† AME Corporation, Towaco, NJ 07082-0195 201-263-1700

American Cyanamid Co., Metal Coated Fibers Dept., Wayne, NJ 07470 .. 201-831-2856
Amuneal Manufacturing Corp., Philadelphia, PA 19124 215-535-3000
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
† Ark Elctrns. Corp., Southampton, PA 18966 215-322-6510
Arrem Plastics, Inc., Addison, IL 60101 708-628-2450
Atlee Inc., North Andover, MA 01845 508-681-1003
Bergquist, Minneapolis, MN 55435 800-347-4572
Ceramaseal, New Lebanon, NY 12125 518-794-7800
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§† CHR, Furon, New Haven, CT 06509 203-777-3631
† Compac, Holbrook, NY 11741 516-585-3400
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
† Dontech, Inc., Doylestown, PA 18901 215-348-5010
§ Egis Corporation, Barrington Hills, IL 60010 708-639-1555
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Evaporated Coatings, Inc., Willow Grove, PA 19090 215-659-3080
§† Hobart Tafa Technologies, Hobart Bros. Co., Concord, NH 03301 603-224-9585
ICC, Inc., Orange, CA 92665 714-998-8310
§† Krystinel Corp., Paterson, NJ 07509 201-345-8900
† Lectro Magnetics, Inc., Los Angeles, CA 90016 ..... 213-870-9383;USA 800-969-9383
† Lindgren RF Enclosures, Inc., Glendale Hgts., IL 60139 708-307-7200
Metuchen Capacitors, Inc., Old Bridge, NJ 08857 908-679-3366
† Micro-Circuits Co., Inc., New Buffalo, MI 49117 616-469-2744
† Optical & Conductive Coatings, Meridian Inds., Inc., Pacheco, CA 94553 415-798-6066
† Orcus, Kansas City, MO 64112 913-897-5128
§ Parker Seal Group, Irvine, CALIFORNIA 92715 714-851-3763
§ Penn Engineering & Manufacturing Corp., Danboro, PA 18916 ..... 215-766-8853; 800-237-4736
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
† Proto Stamping Corp., Redwood City, CA 94063 415-365-0498
Ray Proof, Shielding Systems Corp., Norwalk, CT 06856-5060 800-243-5704
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
Schlegel Corp., Rochester, NY 14692 716-427-7200
Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75003 ..... 214-231-6663; 214-924-3289;1-800-331-6600
§ Spectrum Control, Inc., Erie, PA 16505 814-455-0966
† Spira Manufacturing Corp., North Hollywood, CA 91605 818-764-8222
Staver Co., Inc., Bay Shore, NY 11706 516-666-8000
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
§† Tech-Etch, Inc., Plymouth, MA 02360 508-747-0300
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
† Titchener, E. H., & Co., Binghamton, NY 13902 607-772-1161
§ Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Shields, Transformer-4525

† Ad-Vance Magnetics, Inc., Rochester, IN 46975, 219-223-3158 ..... C•1686
† Amuneal Manufacturing Corp., Philadelphia, PA 19124, 215-535-3000 ... C•1687
† Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 .... C•1689
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
† The Mushield Co. Inc., Goffstown, NH 03045, 603-666-4433 ..... C•1700
Atlee Inc., North Andover, MA 01845 508-681-1003
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
Dymec Inc., Winchester, MA 01890 617-729-7870
Framar Metal Products Co., Inc., Kenilworth, NJ 07033 908-241-0710
† Hudson Tool & Die Co., Newark, NJ 07105 201-589-1800
† Magnetic Radiation Labs, Itasca, IL 60143 708-285-0800
† Micro-Circuits Co., Inc., New Buffalo, MI 49117 616-469-2744
§† Microtran Co. Inc., Valley Stream, NY 11582 516-561-6050
† Proto Stamping Corp., Redwood City, CA 94063 415-365-0498
Staver Co., Inc., Bay Shore, NY 11706 516-666-8000
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400

Shields, Tube-4525

† Ad-Vance Magnetics, Inc., Rochester, IN 46975, 219-223-3158 ..... C•1686
† Amuneal Manufacturing Corp., Philadelphia, PA 19124, 215-535-3000 ... C•1687
† Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 .... C•1689
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
† The Mushield Co. Inc., Goffstown, NH 03045, 603-666-4433 ..... C•1700
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
ADE, Inc., Chicago, IL 60633 312-646-3400
† Air/Flex Inds. Inc., S. El Monte, CA 91733 818-579-7060
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Egis Corporation, Barrington Hills, IL 60010 708-639-1555
Hamamatsu Photonics K.K., Hamamatsu City, Shizuoka Pref, JAPAN 0534-52-2141
§† IERC, Burbank, CA 91502 213-849-2481
† Magnetic Radiation Labs, Itasca, IL 60143 708-285-0800
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
† Proto Stamping Corp., Redwood City, CA 94063 415-365-0498
Staver Co., Inc., Bay Shore, NY 11706 516-666-8000
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

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Shunts, Connector-2100

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ... B•1646-1647, C•1175
Comm Con Connectors Inc., Montrose, CA 91020, 818-957-2018 ..... C•1323
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 ..... C•1406-1407,1760-1763
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1408-1409
§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
Ultronix, Inc., A Company of Vishay, Grand Junction, CO 81502, 303-242-0810 ..... A•1995
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Components Corp., Denville, NJ 07834 201-627-0290
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Excel Specialty Corp., Chicago, IL 60660 312-262-4781
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ NRD Inc., Subsidiary of Mark IV Inds., Inc., Grand Island, NY 14072 716-773-7634
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Tepro of Florida, Clearwater, FL 33575 813-796-1044
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941

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Silica, Fused-2500

† Accumet Engineering, Hudson, MA 01749 508-568-8311
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000

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Simulators, Powerline Disturbance-2900 — *See Vol. D*

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Slides, Cabinet & Chassis-1400

† Cabtron Systems, Inc., Northbrook, IL 60062, 708-498-6090 ..... C•1018
§† General Devices Co., Inc., Indianapolis, IN 46239-9632, 317-897-7000 ... C•1056
§ Hammond Manufacturing Co., Buffalo, NY 14225, 716-894-5710 ..... C•1058
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064-1065,1069

Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216, 718-774-5900 ..... C•1077
§ Precision Fabrication Technologies, Inc., Monon, IN 47959, 1-800-558-7297;219-253-5666 ..... C•1087,1089
§† Premier Metal Prods. Co., Bronx, NY 10451, 212-993-9200 ..... C•1091
† STRONGBOX, Culver City, CA 90231-2726, 213-305-8288 ..... C•1108-1109
TDJ Co., Inc., San Diego, CA 92110, 619-276-5920 ..... C•1110-1111
† Techmar Corp., Los Angeles, CA 90066, 213-827-8897;1-800-TECHMAR ..... C•1113
† Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... C•1138,1140
§† Accuride, Santa Fe Springs, CA 90670 213-903-0373
§† Barnes Engineering, Anaheim, CA 92805 714-533-7530
Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
† Grant Hardware Co., A Mobex Company, West Nyack, NY 10994 914-358-4400
Jonathan Manufacturing Corp., Fullerton, CA 92631 714-526-4651
Lambda Electronics Inc., Melville, NY 11747-3700 516-694-4200
§ NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
Schroff Incorporated, Warwick, RI 02886 401-732-3770
TDK Corporation of America, Electronic Components & Material, Mount Prospect, IL 60056 708-803-6100
Techno-Isel USA Division, Designatronics, New Hyde Park, NY 11040 516-328-3970
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
† Zero Corp., Zero East Div., Monson, MA 01057 413-267-5561

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Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1161
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1285,1287
§ Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ..... C•1484,1804
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493,1496
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... A•1529, C•1500,1504-1505
Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578, 708-438-4000 ..... C•1506-1509
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
Antona Corp., Los Angeles, CA 90024-5603 213-473-8995
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Bivar, Inc., Irvine, CA 92718 714-951-8808
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connector Corp., Chicago, IL 60646 312-539-3108
Data I/O Corp., Redmond, WA 98073-9746 206-881-6444
§† Eagle Electric Mfg. Co. Inc., Long Island City, NY 11101 718-937-8000
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
International Configurations, Inc., Enfield, CT 06082 203-749-6380
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Project Resources Inc., Wareham, MA 02571 508-295-7444
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
Scanbe, Unit of Zero Corporation, El Monte, CA 91731 619-452-9333
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Staffall Inc., Cranston, RI 02910 401-461-5554
Sunrise Electronics, Inc., Glendora, CA 91740 818-914-1926
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Sockets, Array-2100

Aeroflex Laboratories Inc., ARX, Inc., Plainview, NY 11803, 516-694-6700 ..... A•1720
† Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1274,1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1284,1286-1287
ELMA Electronic Inc., Fremont, CA 94538, 415-656-3400 ..... C•1584
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1463,1465
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1504-1505
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§† Rollingstead International, Santa Fe Springs, CA 90670 213-921-3438
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Schurter, Inc., Petaluma, CA 94952 707-778-6311
† Stetco, Inc., Franklin Pk, IL 60131 708-671-4208
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941

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§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1286
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269,508-699-3450 ..... C•1550,1551-1555
Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ PCD, Peabody, MA 01960 508-532-8800
Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

Sockets, Capacitor-2100

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1274,1276,1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1285,1287
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Project Resources Inc., Wareham, MA 02571 508-295-7444
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900

Sockets, Chip Carrier, Surface Mount-2100

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1274,1278-1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1285,1287
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703, 508-222-2202 ..... C•1291
Elastomeric Technologies, Inc., Hatboro, PA 19040, 215-672-0787;215-672-4741 ..... C•1357
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423
Lodestone Pacific, Anaheim, CA 92807, 714-630-1343 ..... A•1210-1211
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
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§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304

§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
§ Components Corp., Denville, NJ 07834 201-627-0290
§ Emulation Technology, Inc., Santa Clara, CA 95051 408-982-0660
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
JAE Electronics Inc., Irvine, CA 92718 714-753-2600
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Mhotronics., Inc., Vernon Hills, IL 60061 708-913-9566
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Project Resources Inc., Wareham, MA 02571 508-295-7444
Sunrise Electronics, Inc., Glendora, CA 91740 818-914-1926
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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Alden Products Co., Brockton, MA 02403, 508-583-0160 ..... C•1162
† Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1326
† Jettron Products Inc., E. Hanover, NJ 07936, 201-887-0571 ..... C•1404-1405
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960

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† Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1326-1327
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§† EBY Company, Philadelphia, PA 19124 215-537-4700
EI & S, Prime Technology Inc., North Branford, CT 06471 203-481-5721
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500

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Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
§† Data Display Products, El Segundo, CA 90245-4630, 213-640-0442;800-421-6815 ..... B•1142-1144
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§ Grayhill Inc., La Grange, IL 60525, 708-354-1040 ..... C•1387
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1445
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Leecraft Mfg., Long Island City, NY 11101 718-392-8800
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Visual Communications Co., Inc., San Diego, CA 92126 619-549-6900
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941

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§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1274,1276,1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1283-1285,1287-1288
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703, 508-222-2202 ..... C•1290
§ Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887 ..... C•1319
Comm Con Connectors Inc., Montrose, CA 91020, 818-957-2018 ..... C•1323
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CW Industries, Southhampton, PA 18966, 215-355-7080 ..... C•1332-1333
Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135, 408-922-9000 ..... C•1382,1385
§ Injectorail Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... C•1400
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1450
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§† 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1511
§ Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Diodes Inc., Chatsworth, CA 91311 ..... 818-882-4920;800-821-1178
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
§† Electronics Research Associates Inc., Winsted, CT 06098 203-379-2731
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
Jaro Components, Inc., Boca Raton, FL 33431 305-771-7000
§ Mallory/North American Capacitor Co., Indianapolis, IN 46241 317-856-3731
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
§ The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Project Resources Inc., Wareham, MA 02571 508-295-7444
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731 619-452-9333
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
Sunrise Electronics, Inc., Glendora, CA 91740 818-914-1926
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§† Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§† Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797
Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

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Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1277
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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§† **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752** ..... **C•1175**
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... **C•1274,1276,1279**
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841** ..... **A•1722, C•1281,1284-1285,1287**
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703, 508-222-2202 ..... **C•1291**
§ **Circuit Assembly Corp., Irvine, CA 92718-2703, 714-855-7887** ..... **C•1319**
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... **C•1350**
§ **Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388** ..... **C•1147**
JAE Electronics Inc., Irvine, CA 92718, 714-753-2600 ..... **C•1400**
§ **Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840** ..... **C•1408-1409**
Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... **C•1423**
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... **C•1450**
§ **McKenzie Technology, Fremont, CA 94538, 415-651-2700** ..... **C•1467**
§ **3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info.** ..... **C•1464-1465**
§ **Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000** ..... **C•1473**
§ **MOLEX, Inc., Lisle, IL 60532, 708-969-4550** ..... **C•1474**
§ **Philips ECG, North American Philips Co., Williamsport, PA 17701, 717-323-4691** ..... **A•2119**
§ **Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450** ..... **C•1150,1551-1555**
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... **C•1563**
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
§ Alpha Dist. Corp., Richfield, OH 44286 ..... 216-659-7100; 1-800-628-0841
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-9800
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
Calex Mfg. Co., Inc., Pleasant Hill, CA 94523 510-932-3911
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
§ Emulation Technology, Inc., Santa Clara, CA 95051 408-982-0660
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
International Microelectronics, Arlington, TX 76003 817-561-2244
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Mhotronics., Inc., Vernon Hills, IL 60061 708-913-9566
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
§ NTE Electronics, Inc., Bloomfield, NJ 07003 201-748-5089
§ PCD, Peabody, MA 01960 508-532-8800
§† Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Project Resources Inc., Wareham, MA 02571 508-295-7444
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
§† Scanbe, Unit of Zero Corporation, El Monte, CA 91731 619-452-9333
§ SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
Staffall Inc., Cranston, RI 02910 401-461-5554
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Vector Electronics Co.,, Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
§ West Electronic Sales Team, Westminster, CA 92683 .... 714-898-0120;213-495-5569
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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§ **Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722** ..... **A•1629, C•1500,1502-1505,1814**
Preh Electronic Industries, Inc., Lake Zurich, IL 60047-2578, 708-438-4000 ..... **C•1509**
§ **Schurter, Inc., Petaluma, CA 94952, 707-778-6311** ..... **C•1516-1517**
Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... **C•1538**
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
International Configurations, Inc., Enfield, CT 06082 203-749-6380
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
Precicontact, Inc., Langhorne, PA 19047 215-757-1202

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§ **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752** ..... **C•1175**
† **Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388** ..... **C•1274,1278**
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841** ..... **C•1281**
Genisco Electronics Corporation, San Diego, CA 92173, 619-661-5100 .. **B•1153**
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§ **JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051** ..... **C•1406-1407,1760-1763**
§ **Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110** ..... **C•1423,1765**
§ **3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info.** ..... **C•1465**
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
† Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
§ Emulation Technology, Inc., Santa Clara, CA 95051 408-982-0660
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Sunrise Electronics, Inc., Glendora, CA 91740 818-914-1926
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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§ **AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752** ..... **C•1175**
§ **Aries Electronics, Frenchtown, NJ 08825, 908-996-6841** ..... **C•1281,1283, 1285-1286**
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703, 508-222-2202 ..... **C•1290**
§ **Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958** ..... **C•1396**
§ **McKenzie Technology, Fremont, CA 94538, 415-651-2700** ..... **C•1467**
§ **3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info.** ..... **C•1465**
Teka Interconnection Systems, Providence, RI 02907, 401-785-4110 .... **C•1548**
Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... **C•1150,1551-1555**
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... **C•1563**
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
JAE Electronics Inc., Irvine, CA 92718 714-753-2600
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Mhotronics., Inc., Vernon Hills, IL 60061 708-913-9566
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Wells Electronics, Inc., South Bend, IN 46613 219-287-5941

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§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1274,1277,1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1284-1285,1288
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703, 508-222-2202 ..... C•1291
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§ Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
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§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§ Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
JAE Electronics Inc., Irvine, CA 92718 714-753-2600
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Mhotronics, Inc., Vernon Hills, IL 60061 708-913-9566
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
§ The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Project Resources Inc., Wareham, MA 02571 508-295-7444
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Sunrise Electronics, Inc., Glendora, CA 91740 818-914-1926
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
§ West Electronic Sales Team, Westminster, CA 92683 ..... 714-898-0120;213-495-5569
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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Corcom, Inc., Libertyville, IL 60048, 708-680-7400 ..... A•1610, C•1331
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1355
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1366
§ Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1386
§ Lamb Industries, Inc., Portland, OR 97225, 503-297-8878;800-824-9374 .. B•1728
LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366) ..... C•1427
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1450
Marway Prods. Inc., Santa Ana, CA 92703, 714-973-1800 ..... D•2212
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
Multi-Contact USA, Santa Rosa, CA 95401, 707-575-7575 ..... C•1475-1477
Panel Components Corp., Santa Rosa, CA 95406, 707-523-0600 ..... C•1488-1489,1491
§ Power Dynamics Inc., West Orange, NJ 07052, 201-736-5722 ..... C•1500, 1502-1503
RDI Elctrns., Inc., New Rochelle, NY 10801, 914-632-7274 ..... C•1511
§ Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... A•1638, C•1516-1517
Speciality Electronics, Inc., Landrum, SC 29356, 803-457-3824 .... C•1526-1531
Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630, 312-792-2700 ..... C•1538-1540
§ Thermalloy, Inc., Dallas, TX 75381-0839, 214-243-4321 ..... C•1667
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
† Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
§† Brooks Power Systems, Bensalem, PA 19020 ..... 215-244-0264;1-800-523-1551
Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Connectronics Corp., Toledo, OH 43607 419-537-0020
§† Eagle Electric Mfg. Co. Inc., Long Island City, NY 11101 718-937-8000
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Integrity Technology Corp., Santa Clara, CA 95050 408-262-8640
International Configurations, Inc., Enfield, CT 06082 203-749-6380
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
Perma Power Elctrns., Chicago, IL 60648 312-763-0763
§† The Wiremold Company, W. Hartford, CT 06110 203-233-6251

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§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1287-1288
Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065 805-522-7958
§ McKenzie Technology, Fremont, CA 94538 415-651-2700

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§ Allied Controls Incorporated, Waterbury, CT 06705-3827, 203-757-4200 ..... B•1402-1403
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§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ... A•1722, C•1281,1288
Bosch, Robert, Corp., Broadview, IL 60153, 708-865-5200 ..... B•1429
§ C.P. Clare Corp., Chicago, IL 60645, 312-262-7700 ..... B•1430
† Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1326-1327
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§ IDEC Corporation, Sunnyvale, CA 94089-2211, 408-747-0550 ..... B•1502-1503
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1588-1589
§† Leach Corporation, Buena Pk., CA 90622-5032, 714-739-0770 ..... B•1528
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§ Alarm Controls Corporation, Deer Park, NY 11729 516-586-4220
§ American Zettler, Aliso Viejo, CA 92656 714-831-5000
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
§ Aromat Corp., Matsushita Electrical Works Ltd., New Providence, NJ 07974 908-464-3550
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
Cardinal Control Co., Kensington, CT 06037 203-828-6379
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Computer Components, Inc., Pelham, NY 10803 914-738-1611
§ Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Custom Connector, Cleveland, OH 44114 216-241-1679
† DAN-L inc., E. Northport, NY 11731 516-757-8000
§ Diversified Electronics, Inc., Evansville, IN 47706-1140 812-426-2806
§ Eagle Signal Controls:A Mark IV Inds. Co., Austin, TX 78753 512-837-8300
§† EBY Company, Philadelphia, PA 19124 215-537-4700
§ Electromatic Controls Corp., Hoffman Estates, IL 60195-2010 708-882-5757
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ Inmark Corp., Norwalk, CT 06854 203-866-8474
International Microelectronics, Arlington, TX 76003 817-561-2244
§ ITT Components, ITT Corporation, Irvine, CA 92718 714-727-3001
§ Line Electric Products, Hartford, CT 06141 ..... 203-659-3573;1-800-331-1137
§ Magnecraft Electric Co., Northbrook, IL 60062-5376 708-564-8800
§† Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
§† PCD, Peabody, MA 01960 508-532-8800
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
Souriau, Inc., Valencia, CA 91355 805-257-4830
§ Square D Co., Palatine, IL 60067 708-397-2600
§† Struthers-Dunn, Inc. and Hi-G Co., Inc., Pitman, NJ 08071-0901 609-589-7500
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
§ Time Mark Corp., Tulsa, OK 74116 918-438-1220
§ Viking Electronics, Inc., Chatsworth, CA 91311 818-341-4330
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877

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§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
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3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004

Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
EDA Inc., Div. of Connector, La Habra, CA 90631 213-697-7151
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ LEOCO (U.S.A.) Corp., Fremont, CA 94538 415-651-0752
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
Mhotronics, Inc., Vernon Hills, IL 60061 708-913-9566
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
§ Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Amdon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1274,1275,1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... A•1722, C•1281,1285-1286
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1408-1409
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
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U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
† Alpha Products, Inc., Westlake Village, CA 91362 818-889-9304
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Circuit Assembly Corp., Irvine, CA 92718-2703 714-855-7887
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8647
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Samtec, Inc., New Albany, IN 47150 812-944-6733
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd. San Jose, CA 95112 408-452-0797

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AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† Amdon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1274,1275,1279
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ... A•1722, C•1281,1284
§ Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1394,1397
§ Kycon Cable & Connector, Inc., San Jose, CA 95125, 408-295-1110 ..... C•1423,1765
Ledestone Pacific, Anaheim, CA 92807, 714-630-1240 ..... A•1210-1211
§ McKenzie Technology, Fremont, CA 94538, 415-651-2700 ..... C•1467
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
§† Speciality Electronics, Inc., Lenoirum, NC 28655, 303-457-3624 .... C•1626-1631
§ Teka Interconnection Systems, Providence, RI 02907, 401-780-4110 ..... C•1547-1548
§ Visual Communications Co., Inc., San Diego, CA 92126, 619-549-6900 ..... B•1208-1209
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
Aromat Corp., Matsushita Electrical Works Ltd., New Providence, NJ 07974 908-464-3550
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Emulation Technology, Inc., Santa Clara, CA 95051 408-982-0660
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
International Configurations, Inc., Enfield, CT 06082 203-749-6380
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
§ Power Dynamics Inc., West Orange, NJ 07052 201-736-5722
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
Samtec, Inc., New Albany, IN 47150 812-944-6733
Sunrise Electronics, Inc., Glendora, CA 91740 818-914-1926
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ... A•1722, C•1281,1286
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
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§ Emulation Technology, Inc., Santa Clara, CA 95051, 408-982-0660 ..... C•1358
§ Richard Hirschmann of America Inc., Riverdale, NJ 07457, 201-835-5002 ..... C•1398
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
† Oxley Inc., Branford, CT 06405, 203-488-1033 ..... B•1025
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1493,1495,1499
§ Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... C•1516
Texas Instruments, Connector System, Attleboro, MA 02703, 508-699-5269;508-699-3450 ..... C•1150,1551-1555
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Augat/Pylon Co., Inc., Attleboro Falls, MA 02763 508-699-9800
Azimuth Electronics, Inc., San Clemente, CA 92672 714-492-6481
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
Global Specialties, Interplex Electronics, Inc., New Haven, CT 06509 203-624-3103
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ Interconnect Devices, Inc., Kansas City, KS 66106 913-342-5544
Itronic-Fuchs Corp., Buford, GA 30518 404-945-3844
† Jeltron Products Inc., E. Hanover, NJ 07936 201-887-0571
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
PCD, Peabody, MA 01960 508-532-8800
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
Sunrise Electronics, Inc., Glendora, CA 91740 818-914-1926
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
§ "World" Test Systems, Inc., Waynesboro, VA 22980 703-949-6753
Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1595
† Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1326-1327
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Grayhill Inc., La Grange, IL 60525, 708-354-1040 ..... C•1387
§ 3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1465
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§ Philips ECG, North American Philips Co., Williamsport, PA 17701, 717-323-4691 ..... A•2119
† Amdon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Delbert Blinn Co., Pomona, CA 91769 714-629-3900
§† EBY Company, Philadelphia, PA 19124 215-537-4700
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
§ NTE Electronics, Inc., Bloomfield, NJ 07003 201-748-5089
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145
§ Wells Electronics, Inc., South Bend, IN 46613 219-287-5941
Yamaichi Electronics, Inc., Yamaichi Electronics Co., Ltd., San Jose, CA 95112 408-452-0797

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† **Connector Corp., Chicago, IL 60646, 312-539-3108** ..... C•1326-1327
§ **Pomona Electronics, Pomona, CA 91766, 714-623-3463** ..... C•1499
Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
Alden Products Co., Brockton, MA 02403 508-583-0160
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† EBY Company, Philadelphia, PA 19124 215-537-4700
EI & S, Prime Technology Inc., North Branford, CT 06471 203-481-5721
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
† Jettron Products Inc., E. Hanover, NJ 07936 201-887-0571
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
Master Electronic Controls, Los Angeles, CA 90025 213-452-1336
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Staffall Inc., Cranston, RI 02910 401-461-5554
§ Thorn EMI Electron Tubes Inc., Fairfield, NJ 07006 201-575-5586

Sockets (MIL)-2440 — *See Vol. B*

Software, Applications-2050 — *See Vol. D*

Software, CAD-2050 — *See Vol. D*

Software, Communications-2050 — *See Vol. D*

Software, Compilers/Languages-2050 — *See Vol. D*

Software, Computer Performance Measurement-2050 — *See Vol. D*

Software, Data Base Management-2050 — *See Vol. D*

Software, Data Base Management Dictionaries-2050 — *See Vol. D*

Software, Data Base Query Language-2050 — *See Vol. D*

Software, Data Communications Control-2050 — *See Vol. D*

Software, DC Motor Control-2050 — *See Vol. D*

Software, Disk/Tape File Utilities-2050 — *See Vol. D*

Software, Emulation/Simulation-2050 — *See Vol. D*

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Software, Image Processing-2050 — *See Vol. D*

Software, Information Storage & Retrieval-2050 — *See Vol. D*

Software, Job Scheduling/Accounting-2050 — *See Vol. D*

Software, Label Printing-2050 — *See Vol. D*

Software, Librarians-2050 — *See Vol. D*

Software, Motion Control-2050 — *See Vol. D*

Software, Neural Networks-2050 — *See Vol. D*

Software, Operating Systems-2050 — *See Vol. D*

Software, Operating Systems Enhancement-2050 — *See Vol. D*

Software, Programming/Systems Development Aids-2050 — *See Vol. D*

Software, Program Translators-2050 — *See Vol. D*

Software, Project Management-2050 — *See Vol. D*

Software, Quality Control-2050 — *See Vol. D*

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Software, Security-2050 — *See Vol. D*

Software, Sort/Merge-2050 — *See Vol. D*

Software, Spoolers-2050 — *See Vol. D*

Software, Utilities-2050 — *See Vol. D*

Solar Cells — See Cells, Photovoltaic (Vol. B)

Solder (All Types)-4600

§† **Kester Solder Div., Litton Sys., Inc., Des Plaines, IL 60018, 708-297-1600** ..... C•1701
§† Alpha Metals, Jersey City, NJ 07304 201-434-6778
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
§ Contact East, N. Andover, MA 01845 508-682-2000
Edsyn, Inc., Van Nuys, CA 91406 ..... 818-989-2324;213-873-5115
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro-Science Labs., Inc., King of Prussia, PA 19406-1533 215-272-8000
† EMCA-REMEX Products, National Starch & Chem. Co., Montgomeryville, PA 18936 215-855-1000
† Fusion Inc., Willoughby, OH 44094 216-946-3300
§† Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Multicore Solders, Richardson, TX 75081 214-238-1214
† N.E.S., Inc., W. Springfield, MA 01090 413-734-6491
Orientation Inc., Hudson, MA 01749 508-568-0509
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
Transene, Rowley, MA 01969 508-948-2501
§† WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136

Solder Lugs — See Terminals, Lug (All Types) (Vol. C)

Solder Pots & Baths-4600

Kester Solder Div., Litton Sys., Inc., Des Plaines, IL 60018, 708-297-1600 ..... C•1701
Air-Vac Engrg., Milford, CT 06460 203-874-2541
§ Atlantic Magnetics, Inc., Pompano Beach, FL 33069 305-979-7920
† Caig Labs., Escondido, CA 92029-1431 619-743-7143
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
§ Contact, Inc., Hudson, NH 03051 603-883-7708
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Electrovert USA Corp., Arlington, TX 76018 817-468-5171
EPM Corporation, Baltimore, MD 21221 301-686-7800
§† ESICO/TRITON, Triton Industries Inc., Deep River, CT 06417 203-526-5361
Φ# Exselect Engineering Ltd., Concord, Ont., CANADA LK42G2 416-738-4077
§ Hexacon Electric Co., Roselle Park, NJ 07204 908-245-6200
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Multicore Solders, Richardson, TX 75081 214-238-1214
Necoa, Inc., Nittoku Engineering Group, Baltimore, MD 21237 301-574-4960
OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§† Plato Products, Inc., Glendora, CA 91740 818-967-3821
§ Portasol, Oglesby and Botler Ltd., Charlotte, NC 28226 704-543-6239
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
† Trent, Inc., Philadelphia, PA 19127 215-482-5000
† Unit Design, Orange, CA 92665 714-282-8100

Soldering, Wave, Control/Monitoring-4600

Assembly Specialists, Chelmsford, MA 01824 508-250-5900
Biomation Instruments, Almonte K0A1A0 613-256-2821
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Electronic Controls Design, Milwaukie, OR 97222 503-659-6100
Electrovert USA Corp., Arlington, TX 76018 817-468-5171
Φ# Exselect Engineering Ltd., Concord, Ont., CANADA LK42G2 416-738-4077
Hexacon Electric Co., Roselle Park, NJ 07204 908-245-6200
Techrand Corp. of America, Muskegon, MI 49444 616-798-2930
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984

Soldering Accessories-4600

Kester Solder Div., Litton Sys., Inc., Des Plaines, IL 60018, 708-297-1600 ..... C•1701
† Air-Vac Engrg., Milford, CT 06460 203-874-2541
§† Antex Division, Marblehead, MA 01945 617-631-7100
§† Automated Prod. Equip. Corp., Medford, NY 11763 516-654-1197
§† Beau Tech, Portland, ME 04101 207-775-6139
§ Caig Labs., Escondido, CA 92029-1431 619-743-7143
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-3322;800-645-5244
§ Contact, Inc., Hudson, NH 03051 603-883-7708
† Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§† Edsyn, Inc., Van Nuys, CA 91406 ..... 818-989-2324;213-873-5115
Electrovert USA Corp., Arlington, TX 76018 817-468-5171
† ELVO:Division of Zumbach Electronics Corporation, Mt. Kisco, NY 10549-1407 914-241-1008
§ ESICO/TRITON, Triton Industries Inc., Deep River, CT 06417 203-526-5361
Φ# Exselect Engineering Ltd., Concord, Ont., CANADA LK42G2 416-738-4077
Fusion Inc., Willoughby, OH 44094 216-946-3300
§† Gardiner Solder Co., Div. of Gardiner Metal Co., Chicago, IL 60632 312-847-0100
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Gordon Brush Mfg. Co., Inc., Los Angeles, CA 90021-1786 213-627-6889
§ Hexacon Electric Co., Roselle Park, NJ 07204 908-245-6200
Hughes Aircraft Co., Industrial Products Division, Carlsbad, CA 92009 619-931-3000
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ McKenzie Technology, Fremont, CA 94538 415-651-2700
§ Metcal, Inc., Menlo Park, CA 94025 415-325-3291
† Miller, L.C., Co., Monterey Pk., CA 91754 213-268-3611
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Multicore Solders, Richardson, TX 75081 214-238-1214
§† Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945 617-631-7100
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§ Pace Inc., Laurel, MD 20723-1990 301-490-9860
§ PanaVise Products, Inc., Sparks, NV 89431 702-353-2900
§ Plato Products, Inc., Glendora, CA 91740 818-967-3821
§ Portasol, Oglesby and Botler Ltd., Charlotte, NC 28226 704-543-6239
§ Roean Industries, Inc., Pacoima, CA 91331 818-767-7047

§ Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-3662
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
§† TEGAM, Inc., Madison, OH 44057 800-666-1010
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7019
§ Ungar, Div. Eldon Inds., Inc., Buena Park, CA 90621 714-994-2510
† Unit Design, Orange, CA 92665 714-282-8100
† Wall Lenk Corporation, Kinston, NC 28502-3049 919-527-4186
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

Soldering Equipment, Hot Gas-4100 — *See Vol. D*

Soldering Equipment, Induction Heating-4100 — *See Vol. D*

Soldering Equipment, Infrared-4100 — *See Vol. D*

Soldering Equipment, Printed Circuit-4100 — *See Vol. D*

Soldering Equipment, Resistance-4100 — *See Vol. D*

Soldering Systems, Temperature Controlled-4100 — *See Vol. D*

Soldering Equipment, Ultrasonic-4100 — *See Vol. D*

Soldering Equipment, Vapor Phase-4100 — *See Vol. D*

Soldering Guns, Irons & Desoldering Tools-4600

† Air-Vac Engrg., Milford, CT 06460 203-874-2541
§† Analytic Technology Corp., Redmond, WA 98052 ..... 206-883-2445;800-628-2808
† Antex Division, Marblehead, MA 01945 617-631-7100
Automated Production Concepts, Wayne, NJ 07470 201-831-8300
§† Automated Prod. Equip. Corp., Medford, NY 11763 516-654-1197
§† Chemtronics Inc., Hauppauge, NY 11788 ..... 516-582-0322;800-645-5044
§ Contact, Inc., Hudson, NH 03051 603-883-7706
† Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§† Edsyn, Inc., Van Nuys, CA 91406 ..... 818-989-2324;213-873-5115
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† ELVO:Division of Zumbach Electronics Corporation, Mt. Kisco, NY 10549-1407 914-241-1006
§ ESICO/TRITON, Triton Industries Inc., Deep River, CT 06417 203-526-5361
Φ# Exselect Engineering Ltd., Concord, Ont, CANADA LK4S2 416-738-4077
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Heath Co., St. Joseph, MI 49085 616-982-3200
§ Hexacon Electric Co., Roselle Park, NJ 07204 908-245-6200
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716 516-563-3388
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Jensen Tools, Inc., Xcia, Inc., Phoenix, AZ 85044 602-968-6241
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Master Appliance Corp., Racine, WI 53403 414-639-7791
§† Metcal, Inc., Menlo Park, CA 94025 415-325-3291
§ MG Electronics, Hauppauge, NY 11788 516-582-3400
† Newman, M. M., Corp., Hot-Tube Div., Marblehead, MA 01945 617-631-7100
§ Nu-Concept Systems, Colmar, PA 18915 215-822-8400
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§ Pace Inc., Laurel, MD 20723-1393 301-490-9860
§ Paladin Corp., Newbury Park, CA 91320 805-499-0313
§ Philmore Manufacturing, Rockford, IL 61125-1388 815-229-7773
§† Plato Products, Inc., Glendora, CA 91740 818-937-3821
§ Portasol, Oglesby and Butler Ltd., Charlotte, NC 28228 704-543-8239
§ Rosan Industries, Inc., Paramus, CA 91301 818-757-3047
§† Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-3662
§† Solder Removal, Covina, CA 91722 818-967-3681
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4560
† Tech Spray, Inc., Amarillo, TX 79107 806-372-8523
§† TEGAM, Inc., Madison, OH 44057 800-666-1010
§ Ungar, Div. Eldon Inds., Inc., Buena Park, CA 90621 714-994-2510
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9838
§† Wall Lenk Corporation, Kinston, NC 28502-3049 919-527-4186
§ Brian R. White Co., Inc., Ukiah, CA 95482 707-462-9795
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

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Solenoids, Rotary-4550 — *See Vol. B*

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Sonar Systems-2440 — *See Vol. E*

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Sound Absorbing Materials-2500

§ E-A-R Specialty Composites, Cabot Safety Corp., Indianapolis, IN 46268 317-872-1111
Soundcoat Co., Inc., Deer Park, NY 11729-5701 516-242-2200
§ Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Sound Level Indicators — See Meters, Audio Level (Vol. D)

Sound Recording Equip. — See Microphones (Vol. D), Recorders (Vol. D), etc.

Source & Detector Assemblies (SDAs)-3700 — *See Vol. B*

Spacers-2500

§ Arlas Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281
§† Siver, Inc., Irvine, CA 92718, 714-951-5808 ..... C•1015
§ Concord Electronics Corporation, New York, NY 10012, T-212-777-6571 ..... C•1325,1595
Keyco Molded Products, Inc., Kenilworth, NJ 07033, 908-245-0033;800-526-4182 ..... C•1758
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 ..... C•1596
Scanbe, Unit of Zero Corporation, El Monte, CA 91731, 818-452-5333 ..... C•1098
§ Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... C•1516
† Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6300;1-800-325-8979
Alborex Corporation, New Bedford, MA 02745 508-995-1725
All-States, Inc., Chicago, IL 60640 312-728-0525
† Anatom Electronic Hardware, New Haven, CT 06515 203-397-3311
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
The Auburn Manufacturing Company, Middletown, CT 06457 203-346-6677
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Boker's, Inc., Minneapolis, MN 55406-1937 612-729-9365
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Cornell Manufacturing, An Elgin Co., Orangeburg, NY 10962 914-365-0400
† Cut Craft, Inc., Ft. Worth, TX 76102 817-332-6151
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Delbert Diller Co., Pomona, CA 91768 714-629-3900
§† Dynalow, Inc., Hanover, NJ 07936 201-887-9270
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
Garner Glass Co., Claremont, CA 91711 714-624-5071
Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† General Manufacturing, Glendale, CA 91201 818-243-7069
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9300
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
† Jan Hardware Mfg. Co., Melville, NY 11747 718-361-0800
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-2500
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§ Penn Engineering & Manufacturing Corp., Danboro, PA 18916 ..... 215-766-8853; 800-237-4736
§† PIC Design, Flemington Technologies, Inc., Middlebury, CT 06762 203-758-8272
§ Precision Electronic Hardware, Inc., Waterbury, CT 06705 203-754-0779
§ Precision Metal Products Co., Peabody, MA 01961-6026 508-535-3500
† Products Engrg. Corp., Azusa, CA 91702 818-969-9879
§ Reef Electronic Hardware, Seymour, CT 06483 203-888-2133
§ Richco Plastic Co., Chicago, IL 60660 312-539-4060
§ H H Smith, NPT Inc., Meadville, PA 16335 814-724-1440
§ Standard Insert Co., Penn Engrg. & Mfg. Corp., Horsham, PA 19044 215-956-0350
† Sterling Instruments, New Hyde Pk, NY 11040 516-328-3300
§ Tech. Spray, Inc., Amarillo, TX 79105 806-372-8523
§ Teknational Inds., Inc., Rochester, NY 14620-1103 ..... 716-25[illegible]291
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-0381
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-9659; 800-426-8652
Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Spaghetti — See Tubing, Spaghetti (Vol. C)

Spark Gaps-4300 — *See Vol. B*

Speakers, Explosion & Flame Proof-1300 — *See Vol. D*

Speakers, Horn-1300 — *See Vol. D*

Speakers, Intercom-1300 — *See Vol. D*

Speakers, Midrange-1300 — *See Vol. D*

Speakers, Musical Instrument-1300 — *See Vol. D*

Speakers, Paging — See Speakers, Intercom (Vol. D)

Speakers, Pillow-1300 — *See Vol. D*

Speakers, Public Address-1300 — *See Vol. D*

Speakers, Replacement (Incl. Aircraft, Automotive & TV)-1300 — *See Vol. D*

Speakers, Submergence Proof-1300 — *See Vol. D*

Speakers, Subminiature-Also See Bells, Buzzers, Gongs, Sirens & Aural Warning Devices-1300 — *See Vol. D*

Speakers, Tweeter-1300 — *See Vol. D*

Speakers, Weatherproof-1300 — *See Vol. D*

Speakers, Woofer-1300 — *See Vol. D*

Speakers (MIL)-2440 — *See Vol. B*

Speaker Systems-1300 — *See Vol. D*

Spectrometers-2900 — *See Vol. D*

Speech Compression & Synthesis Equipment-2325 — *See Vol. D*

Speed Drives, Motor — See Controls, Motor Speed (Vol. D)

Spiral Wrap — See Tubing, Spiral Wrap (Vol. C)

Splicers, Coaxial Cable-5400

Autosplice, Inc., San Diego, CA 92121 619-535-0077
§† Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
Canard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
§† Thomas Electronic Products Co., San Clemente, CA 92672 714-492-4677

Splicers, Fiber Optic-2475 — *See Vol. D*

Splicers, Wire (Incl. Butt & Cap Types)-5400

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
Chomerics Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Core-Flex Corporation, West Babylon, NY 11704 516-249-6150
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Deutsch Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§ Idico Industries, Sycamore, IL 60178 815-895-5181
Jerrard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Nicomatic America, Inc., Pottstown, PA 19464 215-323-7120
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
† Sealectro Corp., A Subsidiary of Methode Electronics, Inc., Mahwah, NJ 07430 201-529-3550
§† Sealtron Corp., C. & S. Inc., Cranston, RI 02910 401-461-8220
§† Sonobond Ultrasonics Inc., Inductotherm Industries, West Chester, PA 19382 ..... 215-696-4710;800-323-1269
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Splicers, Wire, Waterproof-5400

Chomerics of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
† Core-Flex Corporation, West Babylon, NY 11704 516-249-6150

Splices-2100

§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§ AMP Network Systems,Network Cable Sys. Div., Bensalem, PA 07962 ..... 1-800-344-0223, Ext. 1027
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Chomerics of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
† Core-Flex Corporation, West Babylon, NY 11704 516-249-6150
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ GSI Corp., Timonium, MD 21093 410-252-1768
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Pomona Electronics, Pomona, CA 91768 714-623-3463

Splices, Fiberoptic-2475 — *See Vol. D*

Splicing Equipment, Fiber Optic-2400

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ AMP Network Systems,Network Cable Sys. Div., Bensalem, PA 07962 ..... 1-800-344-0223, Ext. 1027
Custom Sci. Instrs., Cedar Knolls, NJ 07927 201-538-8500
§ Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
§ EXFO E.O. Engineering, Quebec City, Quebec, CANADA G1N 3Y2 418-683-0211
† Foundation Instruments Inc., Nepean, ON, CANADA K2E 7J6 613-226-4000
§† General Cable Co., Fiber Optics Div., S. Plainfield, NJ 07080 201-769-3200
† INTRACO, Acton, MA 01720 508-264-4485
† Interspec, Inc., Purdy Group, Burlingame, CA 94010 415-347-7727
3M Private Network Products, 3M, Austin, TX 78769-2963 ..... 512-984-1800; 800-745-7459
† Power Technology, Inc., Little Rock, AR 72219-1117 501-568-1995
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677

Splicing Equipment, Magnetic Tape-1300 — *See Vol. D*

Splitters/Combiners, Power — See Dividers, Power (Vol. A)

Spoolers, Printer Buffers-2325 — *See Vol. D*

Spoolers, Punched Tape — See Readers, Punched Tape (Vol. D)

Springs (All Types)-2500

Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§† Associated Spring, Barnes Grp., Bristol, CT 06010 203-583-1331
Autoswage Products, Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
† Graphite Metallizing Corp., Yonkers, NY 10702 914-968-8400
Instrument Specialties Co. Headquarters, Delaware Water Gap, PA 18327-0136 717-424-8510
† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
† Products Engrg. Corp., Azusa, CA 91702 818-969-5879
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
SinoTECH, Technology Communications Group, Inc., West Linn, OR 97068 503-638-1000

Stabilizers, Current — See Current Sources (Vol. D), Regulators, Current (Vol. D)

Stabilizers, Line Impedance-4050 — *See Vol. D*

Stabilizers, Voltage — See Regulators & Stabilizers, Voltage (Vol. D), Transformers, Voltage Regulating (Vol. A), Voltage Sources (Vol. D)

Stabilizers, Voltage/Current, Automatic — See Power Supplies, Constant Current (Vol. D)

Stalos (Stabilized Local Oscillators) — See Oscillators, Microwave (Vol. A)

Stampings, Deep Drawn Metal-2500

Autosplice, Inc., San Diego, CA 92121 619-535-0077
Buckeye Stamping Co., Columbus, OH 43207 614-445-8453
Insulation Components Associates, Inc., Downey, CA 90241 213-861-7268
National Manufacturing Co., Inc., Chatham, NJ 07928 201-635-8846

Stampings, Precious Metal — See Preforms, Precious Metal (Vol. C)

Standards, Atomic Beam-2900 — *See Vol. D*

Standards, Capacitance-2900 — *See Vol. D*

Standards, Current-2900 — *See Vol. D*

Standards, Delay Line-2350 — *See Vol. A*

Standards, Frequency-2900 — *See Vol. D*

Standards, Inductance-2900 — *See Vol. D*

Standards, Magnetic Field-2500 — *See Vol. D*

Standards, Noise-2900 — *See Vol. D*

Standards, Phase-2900 — *See Vol. D*

Standards, Phase Angle-2900 — *See Vol. D*

Standards, Resistance-2900 — *See Vol. D*

Standards, Temperature-2900 — *See Vol. D*

Standards, Time-2900 — *See Vol. D*

Standards, Voltage-2900 — *See Vol. D*

Standards, Voltage Ratio-2900 — *See Vol. D*

Standoffs — See Bushings, Glass, Plastic, Metal, etc. (Vol. C)

Standoffs, PCB-2500

Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1276,1278
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325,1595
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1589-1590
Makk-O Industries, Yonkers, NY 10703, 914-375-0160; 914-375-0161 ..... C•1596
Simco, Miami, FL 33177, 305-233-9900;800-780-9090 ..... C•1103-1105
Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
All-States, Inc., Chicago, IL 60640 312-728-0525
† Amalom Electronic Hardware, New Haven, CT 06515 203-397-3311
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2986
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§ Johnson, E. F., Co., Minneapolis, MN 55459-8089 612-943-5500
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§† Penn Engineering & Manufacturing Corp., Danboro, PA 18916 ..... 215-766-8853; 800-237-4736
§ Precision Electronic Hardware, Inc., Waterbury, CT 06705 203-754-0779
§ Richco Plastic Co., Chicago, IL 60660 312-539-4060
§† Standard Insert Co., Penn Engrg. & Mfg. Corp., Horsham, PA 19044 215-956-0350
§ Teknational Inds., Inc., Rochester, NY 14620-1100 716-232-1291

Stands, Instruments-1400

§ Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
D. L. Custom, Markham, Ont, CANADA L3R 2M5, 416-475-0275 ..... C•1026
† Equipto Electronics Corp., Aurora, IL 60506, 708-897-4691 ..... C•1045
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064-1065,1069
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ Hodge Manufacturing Co., Inc., Springfield, MA 01107 413-781-6800
Mobile-Tronics Co., Inc., San Clemente, CA 92674 714-361-4305
Omega Engineering, Stamford, CT 06907 800-826-6342
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
† Zero Enclosures, Zero Corp., Burbank, CA 91503 ..... 818-846-4191;818-841-1825

Stands, Instrument, Tilting-1400

Buckeye Stamping Co., Columbus, OH 43207, 614-445-8433 ..... C•1017
Equipto Electronics Corp., Aurora, IL 60506, 708-897-4691 ..... C•1049
Zero Enclosures, Zero Corp., Burbank, CA 91503, 818-846-4191;818-841-1825 ..... C•1133,1138,1140
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§ Hodge Manufacturing Co., Inc., Springfield, MA 01107 413-781-6800
Mobile-Tronics Co., Inc., San Clemente, CA 92674 714-361-4305
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900

Stands, Printer/Terminal-1400

D. L. Custom, Markham, Ont, CANADA L3R 2M5, 416-475-0275 ..... C•1026
† Equipto Electronics Corp., Aurora, IL 60506, 708-897-4691 ..... C•1045
† Optima Electronic Packaging Systems, Tucker, GA 30084-5088, 404-496-4000 ..... C•1064-1065,1069
§† Bud Industries, Inc., Willoughby, OH 44094-0431 216-946-3200
§ Ergotron, Inc., Eagan, MN 55122 612-452-8135
General Devices Co., Inc., Indianapolis, IN 46239-9632 317-897-7000
Hewlett-Packard Co., Cupertino, CA 95014 800-752-0900
Mobile-Tronics Co., Inc., San Clemente, CA 92674 714-361-4305
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
Tektronix, Inc., Beaverton, OR 97077 800-835-9433
† Terminal Data Corp., Rockville, MD 20855 301-921-8282
§† U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984

Starters, Motor, Solid State-3500 — *See Vol. B*

Static Eliminating Materials, Devices, & Equipment-4525

Eagle Magnetic Company, Inc., Indianapolis, IN 46224, 317-297-1030 .... C•1689
Electra-Tec, Impert Industries, Inc., Otsego, MI 49078, 800-225-3532;616-694-2058 ..... C•1033
Instrument Specialties Co. Headquarters, Delaware Water Gap, PA 18327-0136, 717-424-8510 ..... C•1691,1694,1696-1697
Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1699
§† **3M Electrical Specialities Division, Austin, TX 78726-9000, 800-328-1368 ..... D•2236-2237**
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
§† **NRD Inc., Subsidiary of Mark IV Inds., Inc., Grand Island, NY 14072, 716-773-7634 ..... D•2238**
† Acheson Colloids, Div. of Acheson Industries, Inc., Port Huron, MI 48061-1747 313-984-5581
§† ACL Inc., Elk Grove, IL 60007 ..... 708-981-9212;1-800-782-8420
§† ADE, Inc., Chicago, IL 60633 312-646-3400
§ Amherst International Corp., Manchester, NH 03101 ... 603-644-3555;1-800-547-5600
Baxter-Industrial Division, Valencia, CA 91355 805-253-7466
† Chapman Corp., Portland, ME 04104 207-773-4726
† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888 617-935-4850
§ CHR, Furon, New Haven, CT 06509 203-777-3631
§ Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877
§ Clean Room Prods., Ronkonkoma, NY 11779-6528 516-588-7000
† Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Cut Craft, Inc., Ft. Worth, TX 76102 817-332-6151
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Electrostatic Consulting Assocs., Groton, MA 01450 508-448-5583
§† Fancort Industries, Inc., W. Caldwell, NJ 07006 201-575-0610
† Gordon, L., Packaging, Baltimore, MD 21230 301-539-6537
§ Herbert Prods. Inc., Westbury, NY 11590-0384 516-334-6500
† ICI Advanced Materials, Exton, PA 19341 215-363-4500
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Merix Chemical Co., Chicago, IL 60649 312-221-8242
§ Nu-Concept Systems, Colmar, PA 18915 215-822-8400
§† Plato Products, Inc., Glendora, CA 91740 818-967-3821
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
§ S & H Inds., Hatfield, PA 19440 215-822-7211
Schlegel Corp., Rochester, NY 14692 716-427-7200
§ Semtronics Corp., Peachtree City, GA 30269 404-487-6681
§† Simco Co., Hatfield, PA 19440 215-822-2171
§ Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
§ Spectrascan, Inc., Colorado Springs, CO 80907 719-599-9254
† Stanley-Vidmar, Stanley Works, Allentown, PA 18103 215-797-6600
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Amarillo, TX 79105 806-372-8523
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§ Ungar, Div. Eldon Inds., Inc., Buena Park, CA 90621 714-994-2510
§† Wescorp Antistatic Products, Mountain View, CA 94041 415-969-7717

Stators, Motor & Generator — See Motor & Generator Armatures,Rotors, Stators (Vol. B)

STD Bus — See Board Computers & Subassemblies (Vol. D)

Steppers, Indexing, Motor-3500 — *See Vol. B*

Steppers, Indexing, Switch-5100 — *See Vol. B*

Stiffeners, PCB, Glass Epoxy-1700

Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1688
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140

Storage Equipment, Cartridge/Cassette-1400

Fujitsu America, Inc., Computer Products Group, San Jose, CA 95134, 408-432-1300 ..... D•1091
Phi Technologies, Inc., Oklahoma City, OK 73105, 405-521-9000 ... D•1048-1049
POLYCASE PRODS., ECP Corp., Cleveland, OH 44103, 216-391-0444 ... C•1078
§ Algo, Inc., ODENTON, MD 21113 301-672-1544
§† Analog & Digital Peripherals, Inc.(ADPI), Troy, OH 45373 513-339-2241
Computer Devices, Nutting Lake, MA 01865 508-663-4980
§ Consolink, Longmont, CO 80501 303-651-2642
§ Digi-Data Corp., Jessup, MD 20794 301-498-0200
# Equipment Remarketing Company, Boston Financial & Equity Corporation, Boston, MA 02215 617-267-8600
§ Equipto, Aurora, IL 60506 ..... 708-859-1000;800-323-0801
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000

Storage Equipment, Disk-1400

§ Fujitsu America, Inc., Computer Products Group, San Jose, CA 95134, 408-432-1300 ..... D•1092-1095
§† Clearpoint Research Corp., Hopkinton, MA 01748 508-435-2000
Computer Maintenance Corp., East Rutherford, NJ 07073 201-896-0707
Equipment Remarketing Company, Boston Financial & Equity Corporation, Boston, MA 02215 617-267-8600
Quantum Scientific Inc., Toronto, ONT M4J4Y1 ..... 416-239-3363;800-268-6000
§ RACET Computes, Ltd., Brea, CA 92621 714-579-1725
† Recognition Concepts,Inc., Incline Village, NV 89450 702-831-0473
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Storage Equipment, Flexible Disk-1400

§† Analog & Digital Peripherals, Inc.(ADPI), Troy, OH 45373 513-339-2241
# Equipment Remarketing Company, Boston Financial & Equity Corporation, Boston, MA 02215 617-267-8600
§ Fujitsu America, Inc., Computer Products Group, San Jose, CA 95134 ... 408-432-1300

Storage Equipment, Magnetic Card-1400

Equipment Remarketing Company, Boston Financial & Equity Corporation, Boston, MA 02215 617-267-8600
§ Equipto, Aurora, IL 60506 ..... 708-859-1000;800-323-0801
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Xico, Inc., Chatsworth, CA 91311 818-709-4403

Storage Equipment, Multifunctional-1400

Fujitsu America, Inc., Computer Products Group, San Jose, CA 95134, 408-432-1300 ..... D•1091
Equipment Remarketing Company, Boston Financial & Equity Corporation, Boston, MA 02215 617-267-8600
§† Lyon Metal Products, Inc., Aurora, IL 60507 708-892-8941
Royonic Inc., Valencia, CA 91355 805-257-0303
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603
† Stanley-Vidmar, Stanley Works, Allentown, PA 18103 215-797-6600

Storage Equipment, Printout-1400

Fujitsu America, Inc., Computer Products Group, San Jose, CA 95134, 408-432-1300 ..... D•1091
§† Stackbin Corp., Lincoln, RI 02865 ..... 401-333-1600;800-333-1603

Storage Equipment, Reel-to-Reel Tape-1400

§ Digi-Data Corp., Jessup, MD 20794 301-498-0200
§ Equipto, Aurora, IL 60506 ..... 708-859-1000;800-323-0801
§ Fujitsu America, Inc., Computer Products Group, San Jose, CA 95134 ... 408-432-1300
RACET Computes, Ltd., Brea, CA 92621 714-579-1725

Storage Racks, Circuit Board-1400

§† Fancort Industries, Inc., W. Caldwell, NJ 07006 201-575-0610
§† Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
Ritz Electronics/Relco, New Dundee, Ont., CANADA NOB 2EO 519-696-2616
U.S. Power Converting Company/Relco, Leonard V. Snow & Assocs., Torrance, CA 90503 213-316-9984
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

Strain Reliefs, Cable & Wire-2500

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Bopla Enclosures, Frederick, MD 21701, 301-696-9300 ..... C•1016
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033, 908-245-0033;800-526-4182 ..... C•1756
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540

Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
Compac, Holbrook, NY 11741 516-585-3400
†# Component Mfg. Svc., Inc., W. Bridgewater, MA 02379 508-580-0111
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Elco Corp., Electronic Connector Div., Huntingdon, PA 16652 814-643-0700
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Excel Specialty Corp., Chicago, IL 60660 312-262-4781
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Harwil, Santa Monica, CA 90404 213-829-2310
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Markel Corp., Norristown, PA 19404 215-272-8960
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
† Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945 617-631-7100
§ Olflex Wire & Cable, Inc., Fairfield, NJ 07004 201-575-1101
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Panel Components Corp., Santa Rosa, CA 95406 707-523-0600
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
# REDCO, Carson City, NV 89706 702-882-3100
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
Techdyne, Inc., Lance Wire & Cable Div., Hamden, CT 06514 203-288-5571
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Strip-Line Components, Microwave-3450 — ***See Vol. A***

Strips, Ground-1900 — ***See Vol. D***

Strips, Marker & Fanning-6000

Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1166
§† Datak Corp., Sparks, NV 89431, 702-359-7474 ..... C•1583
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800-1801
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
AMP, Harrisburg, PA 17105 ..... 717-564-0100;800-522-6752
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Electronic Counters & Controls, Inc., LFE Corp., Libertyville, IL 60048 ..... 708-362-8910; 800-422-3224
§ Grafoplast S.P.A., Wiremarkers, Genova, ITALY 16154 ..... + 10. 621687
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
§ Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Stroboscopes — See Lamps, Stroboscopic Source (Vol. B)

Substrates, Ceramic-2500

DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
† Electro-Films, Inc., Warwick, RI 02886, 401-738-9150 ..... A•1748, C•1680-1681
† Hybridyne, Inc., Tucson, AZ 85745, 602-629-0001 ..... A•1729
Mini-Systems, Inc., Thick/Thin Film Division, North Attleboro, MA 02761, 508-695-0203 ..... A•1955
§ Murata Erie North America, Inc., Smyrna, GA 30080, 404-436-1300 ..... A•1736
§ NTK Technical Ceramics, NGK Spark Plugs (USA), Mt. Prospect, IL 60056, 708-824-1133 ..... A•1699
† Accumet Engineering, Hudson, MA 01749 508-568-8311
Allen Bradley Co., Electronic Components Div., A Rockwell International Co., El Paso, TX 79936 ..... 915-592-4888;800-592-4888
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
AVX Corporation, Myrtle Bch., SC 29577 803-448-9411
§† California Micro Devices, Inc., Milpitas, CA 95035 408-263-3214
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
† Compex Corp., Medford, NJ 08055 609-596-9388
Coors Ceramics Co., Electronic Products Group, Golden, CO 80401 303-277-4592
§ Corning Glass Works, Materials Business, Corning, NY 14831 607-974-7149
Dielectric Labs., Cazenovia, NY 13035 315-655-8710
EPH Engineering Associates, Inc., Orem, UT 84058 801-226-1383
† Film Microelectronics Inc., Peabody, MA 01960 508-532-9913
Frequency Electronics, Inc., Mitchel Field, NY 11553 516-794-4500
Honeywell Inc., Aerospace & Defense Grp., Minneapolis, MN 55408 612-870-5186
† Hybrid Designs, Inc., Costa Mesa, CA 92626 714-557-9933
† Hycomp, Inc., Marlborough, MA 01752 508-485-6300
§ KCK America Inc., Mitsubishi Materials Corporation, Schaumburg, IL 60173-4516 708-884-8688
§† Kyocera Northwest, Electronic Components Group, Vancouver, WA 98661 206-696-2840
† Marconi Circuit Technology Corp., Farmingdale, NY 11735 516-293-8636
† Microplex, Inc., Anaheim, CA 92806 714-634-1535
Mini-Systems, Inc., Sunbelt Microelectronic Division, Deltona, FL 32725 407-574-0208
† Modular Devices, Shirley, NY 11967 516-345-3100
† Ohmite Manufacturing Co., Skokie, IL 60076 708-675-2600
† Quartzite Processing, Inc., Malden, MA 02148 617-322-3611
Submarine Signal Division, Raytheon Company, Portsmouth, RI 02871 .. 401-847-8000
§ TDK Corporation of America, Electronic Components & Material, Mount Prospect, IL 60056 708-803-6100
† Teledyne Microelectronics, Los Angeles, CA 90066 ..... 213-822-8229;213-870-9831
Tokin America, Inc., San Jose, CA 95134 408-432-8020
TOYOCOM USA INC., Arlington Heights, IL 60005 ... 708-593-8780/1-800-TOYOCOM
† United Supertek, Inc., San Jose, CA 95131-1101 408-922-0730

Substrates, Flexible-2500

DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
NTK Technical Ceramics, NGK Spark Plugs (USA), Mt. Prospect, IL 60056, 708-824-1133 ..... A•1699
International Resistive Company, Boone, NC 28607 704-264-8861
K&L Microwave, Inc., Salisbury, MD 21801 301-749-2424
TOYOCOM USA INC., Arlington Heights, IL 60005 ... 708-593-8780/1-800-TOYOCOM

Substrates, Glass-2500

† Accumet Engineering, Hudson, MA 01749 508-568-8311
§† Atlantic Optical Moulding, Webster, MA 01570 508-943-1746
§† California Micro Devices, Inc., Milpitas, CA 95035 408-263-3214
Corning Glass Works, Materials Business, Corning, NY 14831 607-974-7149
§† Ercona, Patchogue, NY 11772 516-758-0700
Frequency Electronics, Inc., Mitchel Field, NY 11553 516-794-4500
† Hycomp, Inc., Marlborough, MA 01752 508-485-6300
KLC/Karl Lambrecht Corp., Chicago, IL 60618 312-472-5442
† Melles Griot, Inc., Irvine, CA 92714 714-261-5600
Oxley Inc., Branford, CT 06405 203-488-1033
Schott Glass Technologies, Inc., Duryea, PA 18642 717-457-7485

Substrates, Metallic-2500

Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1672
International Sensor Systems, Inc., Aurora, NE 68818, 402-694-6111 ..... A•1730-1731
NTK Technical Ceramics, NGK Spark Plugs (USA), Mt. Prospect, IL 60056, 708-824-1133 ..... A•1699
Accumet Engineering, Hudson, MA 01749 508-568-8311
† Alpha Industries, Inc., Woburn, MA 01801 617-935-5150
§† California Micro Devices, Inc., Milpitas, CA 95035 408-263-3214
Deringer Mfg. Co., Mundelein, IL 60060 708-566-4100
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† Hycomp, Inc., Marlborough, MA 01752 508-485-6300
International Resistive Company, Boone, NC 28607 704-264-8861
Lincoln Laser Co., Phoenix, AZ 85004 602-257-0407
† Ohmite Manufacturing Co., Skokie, IL 60076 708-675-2600
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800

Substrates, Sapphire-2500

† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
§† California Micro Devices, Inc., Milpitas, CA 95035 408-263-3214
† Saphikon, Inc., Milford, NH 03055 603-673-5831
Swiss Jewel Company, Philadelphia, PA 19106 ..... 215-925-2867;800-922-0118
† Union Carbide Chemicals & Plastics Company Inc., Industrial Chemicals Div., Crystal, San Diego, CA 92123 619-279-4500

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Switch Hardware-2500

§ Carlingswitch, Inc., Plainville, CT 06062-1156, 203-793-9281 ..... B•1659
CRL Components, Inc., Roxboro Group, Fort Dodge, IA 50501, 515-573-1300 ..... B•1669-1672
§ Electro-Mech Components, Inc., South El Monte, CA 91733-3689, 818-442-7180 ..... B•1687
MORS/ASC, Wakefield, MA 01880-4444, 617-246-1007 ..... B•1745
†# Veetronix, Inc., Lexington, NE 68850, 308-324-4600 ..... B•1791
Adams Rite Products, Inc., Glendale, CA 91204 818-241-5121
Arcolectric Corp., Canoga Park, CA 91304 818-700-1933
§† Arrow Hart Components, Cooper Industries, Charlottesville, VA 22906-9050 804-974-5100
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
§ Augat Alcoswitch, Augat Inc., N. Andover, MA 01845 508-685-4371
C & K Components, Inc., Newton, MA 02158-1082 617-964-6400
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ DataLux Corp., Winchester, VA 22601 703-662-1500
EAO Switch Corp., Milford, CT 06460 203-877-4577
§† Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., Milwaukee, WI 53216 414-449-7487
† Electrospace Systems, Inc., Richardson, TX 75083-1359 214-470-2137
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† FISHERCAST, Fisher Gauge Limited, Peterborough, Ontario, CANADA K9J 6Y9 705-748-9522
§ Gaynor Electric Co., Thomaston, CT 06787-0316 203-283-4388
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Grayhill Inc., La Grange, IL 60525 708-354-1040
ITT Schadow, Eden Prairie, MN 55344 612-934-4400
§ ITW Switches, Illinois Tool Works, Chicago, IL 60634 312-282-4040
Janco Corp., Burbank, CA 91508 818-846-1800
Judco Mfg. Inc., Harbor City, CA 90710 213-534-0959
§ MEC A/S, Ballerup, DENMARK DK-2750 011-4542973366
§ Micro Switch, A Honeywell Div., Freeport, IL 61032 815-235-6600
§† OakGrigsby Inc., Sugar Grove, IL 60554 708-556-4200
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Radio Switch Corp., Marlboro, NJ 07746 908-462-6100
Relay Service Co., Chicago, IL 60651 312-252-2700
Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Switchcraft, Inc., A Raytheon Company, Chicago, IL 60630 312-792-2700

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§† AME Corporation, Towaco, NJ 07082-0195, 201-263-1700 ..... B•1644
§† George Risk Industries, Inc., Kimball, NE 69145, 308-235-4645 ..... B•1809
† Otto Controls, Otto Engineering, Carpentersville, IL 60110, 708-428-7171 ..... B•1762-1763
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§ Arrow Hart Components, Cooper Industries, Charlottesville, VA 22906-9050 804-974-5100
Augat Inc., Attleboro, MA 02703 617-222-2202
§ Augat Alcoswitch, Augat Inc., N. Andover, MA 01845 508-685-4371
§ Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., Milwaukee, WI 53216 414-449-7487
Micro Switch, A Honeywell Div., Freeport, IL 61032 815-235-6600
† Secma, Inc., Secme, Irvine, CA 92714 714-261-0610
§ Spemco Switches, St. Clair Shores, MI 48080 800-482-2828
§† Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500

Swivel Units, Data Entry Terminals-1400

§ Ergotron, Inc., Eagan, MN 55122 612-452-8135
Par Metal Products, Inc., Par Industrial Complex, Brooklyn, NY 11216 ... 718-774-5900

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Tapes, Electrical Insulation-3100

Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670-1673
Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
† Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§† CHR, Furon, New Haven, CT 06509 203-777-3631
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Cogebi, Inc., Dover, NH 03820 603-749-6896
§ Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§† Fibertek Inc., Franklin, TN 37065 615-794-1400
§ Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§† Ideal Tape Co., American Biltrite Inc., Lowell, MA 01851 508-458-6833
† Liberty Polyglas, Inc., West Mifflin, PA 15122 412-466-8611
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
§† Moxness Products, Inc., Versa Technologies, Racine, WI 53405 ..... 414-554-5050; 800-558-5706
† Mutual Industries, Inc., Philadelphia, PA 19120 215-927-6000
† Press-On Products, Addison, IL 60101 708-628-2255
Rogers Corporation, Circuit Materials Div., Chandler, AZ 85244 602-963-4584
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

Tapes, Films & Foils, Pressure Sensitive-2500

§† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
† Cut Craft, Inc., Ft. Worth, TX 76102, 817-332-6151 ..... C•1675,1688
§ Injectorall Electronics (Woman Owned), Bohemia, NY 11716, 516-563-3388 ..... C•1147
Ad-Vance Magnetics, Inc., Rochester, IN 46975 219-223-3158
The Auburn Manufacturing Company, Middletown, CT 06457 203-346-6677
§ Bishop Graphics, Inc., Agoura, CA 91304 818-991-2600
§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
§† CHR, Furon, New Haven, CT 06509 203-777-3631
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Egis Corporation, Barrington Hills, IL 60010 708-639-1555
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
§ Gasket Dynamics, Inc., Mt. Holly, NJ 08060 ..... 609-261-8100;800-541-2500; 215-922-6046
GM Nameplate, Inc., Seattle, WA 98119 206-284-2200
§ Ideal Tape Co., American Biltrite Inc., Lowell, MA 01851 508-458-6833
Markem Corp., Keene, NH 03431 603-352-1130
§ 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
† Press-On Products, Addison, IL 60101 708-628-2255
† SAS Industries Inc., Manorville, NY 11949 ..... 516-727-1441;1-800-544-5238
§ Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
§ Tapecon, Inc., Rochester, NY 14612 716-621-8400
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
§ Tegal Scientific, Inc., Concord, CA 94524 415-827-1054
† Topflight, York, PA 17404 ..... 717-843-9901;800-233-9386
§ Zippertubing Co., Los Angeles, CA 90061 213-321-3901

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Tapes, Plastic Coated for Cable-2500

Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§ Recoton Corp., Long Island City, NY 11101 718-392-6442
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552

Technical Books-4200

Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... B•1760,1854-1855,1946, C•1799, D•1013,1101,1142,1191,1307,1369
† Analog Devices, Inc., Norwood, MA 02062-9106 617-329-4700
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Beta Review, Inc., Millwood, VA 22646 703-837-1436
§ Bishop Graphics, Inc., Agoura, CA 91304 818-991-2600
Coast Book Distributors, Anaheim, CA 92817 714-281-0805
† D.A.T.A. Business Publishing, Information Handling Services, Englewood, CO 80155-6510 303-799-0381
§ E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
§ Heath Co., St. Joseph, MI 49085 616-982-3200
§ International Rectifier Corp., El Segundo, CA 90245 213-772-2000
Powerex, Westinghouse, GE, Mitsubishi, Youngwood, PA 15697 412-925-7272
§† TAB/McGraw-Hill, McGraw-Hill Inc., Blue Ridge Summit, PA 17294-0850 717-794-2191

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Temperature Sensors — See Transducers, Temperature (Vol. B)

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† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 .. C•1159
§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006,1165,1167, 1169-1170
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... C•1386
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1588-1589
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1442
§ WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§† WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alberox Corporation, New Bedford, MA 02745 508-995-1725
§ Allen- Bradley Co., Div. of Industrial Control Grp., Milwaukee, WI 53201 414-382-2000
§ Alpha Dist. Corp., Richfield, OH 44286 ..... 216-659-7100; 1-800-628-0841
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122

Arcolectric Corp., Canoga Park, CA 91304 818-700-1933
Ark Les Corporation, Watertown, MA 02172 617-924-2330
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
† Caton Connector Corp., Kingston, MA 02364 617-585-4315
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Custom Connector, Cleveland, OH 44114 216-241-1679
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
Dowty Interconnect, Dowty Electronic Components LTD, High Wycombe, Bucks, ENGLAND HP10 9UT 0-628-810810
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
† FIC Corp., Rockville, MD 20852 ..... 301-881-8124;800-638-6594
Fuses Unlimited, D.E.I., Van Nuys, CA 91406 818-786-8111
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§ IDEC Corporation, Sunnyvale, CA 94089-2211 408-747-0550
Integrity Technology Corp., Santa Clara, CA 95050 408-262-8640
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
§ Marathon Special Prods., Marathon Electric, Bowling Green, OH 43402 419-352-8441
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Multi-Amp Corp., TBG, Dallas, TX 75237 214-333-3201
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
Omega Engineering, Stamford, CT 06907 800-826-6342
Panel Components Corp., Santa Rosa, CA 95406 707-523-0600
§ Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§ PCD, Peabody, MA 01960 508-532-8800
§ Relay Specialties, Oakland, NJ 07436 201-337-1000
§ Reliance Comm/Tec, Reliance Electric, Cleveland, OH 44117 800-245-4501
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
Selco Products Co., SEL Sales, Inc., Buena Park, CA 90621 714-521-8673
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
§ Square D Co., Palatine, IL 60067 708-397-2600
Square D. Company, Control Products, Knightdale, NC 27545 919-266-3671
Staffall Inc., Cranston, RI 02910 401-461-5554
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Trimm Inc., Newton Instr. Co., Libertyville, IL 60048 708-362-3700
§ USD Products , Div. of Bussmann, Chicago, IL 60656 708-867-4600
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Wago Corp., Brown Deer, WI 53223 414-354-5511
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
Wieland Inc., New Rochelle, NY 10801 914-633-0222

Terminal Blocks, DIN Rail Mounting-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006,1164,1168-1169
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1445
§ WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1578
§ Allen- Bradley Co., Div. of Industrial Control Grp, Milwaukee, WI 53201 414-382-2000
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Square D. Company, Control Products, Knightdale, NC 27545 919-266-3671
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ West Electronic Sales Team, Westminster, CA 92683 .... 714-898-0120;213-495-5569
Wieland Inc., New Rochelle, NY 10801 914-633-0222

Terminal Blocks, Panel Mounting-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1168-1170
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247, 603-524-5101 ..... C•1292-1294
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§ WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
§ LMI Connectors Inc., Champlain, NY 12919 518-298-5360
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
PCD, Peabody, MA 01960 508-532-8800
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Square D. Company, Control Products, Knightdale, NC 27545 919-266-3671
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
Wieland Inc., New Rochelle, NY 10801 914-633-0222

Terminal Blocks, PC Board Mounting-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1164-1167,1169
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1279
§ Bivar, Inc., Irvine, CA 92718, 714-951-8808 ..... C•1015
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1442,1445
Lodestone Pacific, Anaheim, CA 92807, 714-630-1343 ..... A•1210-1211
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§ WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1580-1581
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Custom Connector, Cleveland, OH 44114 216-241-1679
Dixson, Inc., Grand Junction, CO 81503 303-244-1241
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
Fuses Unlimited, D.E.I., Van Nuys, CA 91406 818-786-8111
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
Milross Controls, Inc., Southampton, PA 18966 215-355-0200
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ PCD, Peabody, MA 01960 508-532-8800
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Wieland Inc., New Rochelle, NY 10801 914-633-0222

Terminal Boards-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1169-1170
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1283
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1588-1589
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1445
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523-1525,1821
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Airflyte Elctrns. Co., Bayonne, NJ 07002 201-436-2230
Ark Les Corporation, Watertown, MA 02172 617-924-2330
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
Beau Products Div., Vernitron Corp., Laconia, NH 03247 603-524-5101
Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connector Corp., Chicago, IL 60646 312-539-3108
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
§ E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
† FIC Corp., Rockville, MD 20852 ..... 301-881-8124;800-638-6594
International Microelectronics, Arlington, TX 76003 817-561-2244
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
KMC Systems, Inc., Midland Pk., NJ 07432 201-447-0007
† K-Systems of Texas, Inc., El Paso, TX 79936 915-598-9769
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332

† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Reliance Comm/Tec, Reliance Electric, Cleveland, OH 44117 800-245-4501
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
Staffall Inc., Cranston, RI 02910 401-461-5554
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877

Terminal Boards, Blocks, Strips (MIL)-2440 — *See Vol. B*

Terminal Equipment, Digital-2000 — *See Vol. D*

Terminal Strips (Incl. Barrier Types)-2100

Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1164,1167,1170-1171
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1283
§ Beau Products Div., Vernitron Corp., Laconia, NH 03247, 603-524-5101 ..... C•1292-1294
§ Buchanan, Amerace Corporation, Livingston, NJ 07039, 201-992-8400 ..... C•1307-1309
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
§† Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1589
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1442,1445
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1821
§ WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§ Amerace Corporation, Hackettstown, NJ 07840 201-852-1122
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
§ Ark Les Corporation, Watertown, MA 02172 617-924-2330
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
Augat Inc., Attleboro, MA 02703 617-222-2202
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
Bussmann:Cooper Industries, St. Louis, MO 63178 314-394-2877
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Custom Connector, Cleveland, OH 44114 216-241-1679
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
Eldre Corporation, Rochester, NY 14623 716-427-7280
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, inc., Irving, TX 75038 214-550-9025
† FIC Corp., Rockville, MD 20852 ..... 301-881-8124;800-638-6594
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
International Microelectronics, Arlington, TX 76003 817-561-2244
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
§† Meco Industries, Mechanical Engraving Co., Inc., Bronx, NY 10470 212-324-4455
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Northern Technologies Corp., Markham, Ont., CAN L3R 8N4 ..... 416-475-9320; 1-800-456-1875
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§ PCD, Peabody, MA 01960 508-532-8800
§ Reliance Comm/Tec, Reliance Electric, Cleveland, OH 44117 800-245-4501
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
Samtec, Inc., New Albany, IN 47150 812-944-6733
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§† Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
§ Wago Corp., Brown Deer, WI 53223 414-354-5511
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Terminals, Communications-2000 — *See Vol. D*

Terminals, Credit Authorization-2000 — *See Vol. D*

Terminals, Crimp-2100

§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1390-1392
ISL Products Int'l, Ltd., Syosset, NY 11791-6093, 516-937-3475 .... C•1399,1759
§ JH America, Inc., JI-HAW Group, Torrance, CA 90501, 213-328-0051 .... C•1407
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Grafoplast S.P.A., Wiremarkers, Genova, ITALY 16154 ..... + 10. 621687
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Pioneer Components, Brooklyn, NY 11234 718-444-3880
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
§ Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Terminals, Data Display (Incl. Alphanumeric & Graphic)-2000 — *See Vol. D*

Terminals, Data Entry, Multimedia-2000 — *See Vol. D*

Terminals, Disconnecting-2100

Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1164,1167-1168
Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1390-1391
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1442,1445
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1578,1581
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
Connectronics Corp., Toledo, OH 43607 419-537-0020
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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Terminals, Double Level-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1164,1166
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1580
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300

Terminals, Feedthru-2500

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1165
§† Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Elcom Systems, Inc., Boca Raton, FL 33487, 407-994-1774 ..... A•1747
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 ..... C•1388-1389,1392
Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1588
§ Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1578,1580
† Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
† Alberox Corporation, New Bedford, MA 02745 508-995-1725
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
† Compac, Holbrook, NY 11741 516-585-3400
† CTS Corporation, Microelectronics business unit, New Hope, MN 55428 612-533-3533
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§† General Manufacturing, Glendale, CA 91201 818-243-2069
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
§ Johnson, E. F., Co., Minneapolis, MN 55459-0089 612-943-5500
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
† Oxley Inc., Branford, CT 06405 203-488-1033
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
† Sterling Instruments, New Hyde Pk, NY 11040 516-328-3300

§† Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145
§† Whitso, Schiller Pk, IL 60176 708-678-5200
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Terminals, Ferrule, Cable-End-2100

Jan Hardware Mfg. Co., Melville, NY 11747, 718-361-0800 ..... C•1588
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Alberox Corporation, New Bedford, MA 02745 508-995-1725
§ Altech Corp., Somerville, NJ 08876 908-707-8484
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Grafoplast S.P.A., Wiremarkers, Genova, ITALY 16154 ..... + 10. 621687
Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877

Terminals, Financial-2000 — *See Vol. D*

Terminals, Fused-2100

WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568 -1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568 -1577
Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1578
§ Altech Corp., Somerville, NJ 08876 908-707-8484
B.R.T.B. Inc., Markham, Ont., CANADA L6G 1A7 416-475-8903
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300

Terminals, Ground-2100

§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1595
Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 ..... C•1392
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1578
§ Altech Corp., Somerville, NJ 08876 908-707-8484
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
Staffall Inc., Cranston, RI 02910 401-461-5554
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136

Terminals, Intelligent/Programmable, Batch-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Interactive-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Multiprogramming-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Multiuser-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Real Time-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Transaction Processing-2000 — *See Vol. D*

Terminals, LED/Lamp Indicators-2100

Genisco Electronics Corporation, San Diego, CA 92173, 619-661-5100 .. B•1153
LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1445
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568 -1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568 -1577
Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1578
§ Allen- Bradley Co., Div. of Industrial Control Grp., Milwaukee, WI 53201 414-382-2000
§ Altech Corp., Somerville, NJ 08876 908-707-8484
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300

Terminals, Lug (All Types)-2100

§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§† Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325
Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1388-1389
J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alberox Corporation, New Bedford, MA 02745 508-995-1725
§ Ark Les Corporation, Watertown, MA 02172 617-924-2330
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
§† Electronic Essentials, Woodside, NY 11377 718-898-8300
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† General Manufacturing, Glendale, CA 91201 818-243-2069
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
§† Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
Omega Engineering, Stamford, CT 06907 800-826-6342
† Patton-MacGuyer Inc., Providence, RI 02905 401-941-6000
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Pioneer Components, Brooklyn, NY 11234 718-444-3880
Pomona Electronics, Pomona, CA 91766 714-623-3463
§† Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
Regal Aljoy Wire & Cable, Levittown, NY 11756 516-735-4871
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
Staffall Inc., Cranston, RI 02910 401-461-5554
§ Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
† U.S. Terminals Inc., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§† Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Terminals, Miniature & Subminiature-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1165-1167,1169
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§† Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325
Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1388-1392
Hirose Electric U.S.A., Inc. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), Simi Valley, CA 93065, 805-522-7958 ..... C•1397
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481,1802
† Shogyo International Corp., Great Neck, NY 11021, 516-466-0911 ..... C•1523,1525,1821
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1580
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alberox Corporation, New Bedford, MA 02745 508-995-1725
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
§ Ark Les Corporation, Watertown, MA 02172 617-924-2330
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Burr-Brown Corp., Tucson, AZ 85734 602-746-1111
CBM America Corp., Santa Monica, CA 90404 213-828-8245
Ceramaseal, New Lebanon, NY 12125 518-794-7800
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† General Manufacturing, Glendale, CA 91201 818-243-2069
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§† Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§† Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
SMK Electronics Corporation, U.S.A., Placentia, CA 92670 714-996-0960
Staffall Inc., Cranston, RI 02910 401-461-5554
§† Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§† Whitso, Schiller Pk, IL 60176 708-678-5200
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1006,1164,1166
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Beau Products Div., Vernitron Corp., Laconia, NH 03247, 603-524-5101 ..... C•1292-1294
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324
Connector Corp., Chicago, IL 60646, 312-539-3108 ..... C•1327
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Electro Space Fabricators, Topton, PA 19562-0067, 215-682-7181 ..... C•1034
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 ..... C•1388-1389,1392
Jolo Industries, Inc., Garden Grove, CA 92643, 714-554-6840 ..... C•1409
Lodestone Pacific, Anaheim, CA 92807, 714-630-1343 ..... A•1210-1211
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481-1482,1802
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
§ WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568 -1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568 -1577
§ Weidmuller Inc., Richmond, VA 23236, 804-794-2877 ..... C•1580-1581
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
§ Aries Electronics, Frenchtown, NJ 08825 908-996-6841
† Ark Les Corporation, Watertown, MA 02172 617-924-2330
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
† Caton Connector Corp., Kingston, MA 02364 617-585-4315
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Components Corp., Denville, NJ 07834 201-627-0290
Cosmo Corporation, Cleveland, OH 44109 216-861-5594
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† General Manufacturing, Glendale, CA 91201 818-243-2069
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§† Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300 516-922-6000
Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
† Oxley Inc., Branford, CT 06405 203-488-1033
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§† Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Samtec, Inc., New Albany, IN 47150 812-944-6733
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
Staffall Inc., Cranston, RI 02910 401-461-5554
§† Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Wago Corp., Brown Deer, WI 53223 414-354-5511
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325,1595
§† DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
J.S.T. Corp., Mt. Prospect, IL 60056, 1-800-292-4243 ..... C•1411-1421
§ LMI Connectors Inc., Champlain, NY 12919, 518-298-5360 ..... C•1445
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... C•1468
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568 -1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568 -1577
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alberox Corporation, New Bedford, MA 02745 508-995-1725
§ Altech Corp., Somerville, NJ 08876 908-707-8484
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
§ Ark Les Corporation, Watertown, MA 02172 617-924-2330
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
† Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
§ Bussco Inc., El Segundo, CA 90245 213-322-6580
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Cole Hersee Co., Boston, MA 02127-2467 617-268-2100
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Doran Manufacturing Co., Cincinnati, OH 45225 513-681-5424
§ E & L Instruments, Interplex Electronics, Inc., New Haven, CT 06512 800-368-0880
ELEC-TRON, Inc., Wichita, KS 67216 316-522-3401
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
† Fuses Unlimited, D.E.I., Van Nuys, CA 91406 818-786-8111
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
† Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
International Microelectronics, Arlington, TX 76003 817-561-2244
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Multi-Amp Corp., TBG, Dallas, TX 75237 214-333-3201
§† Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
Omega Engineering, Stamford, CT 06907 800-826-6342
† Patton-MacGuyer Inc., Providence, RI 02905 401-941-6000
§ Pioneer Components, Brooklyn, NY 11234 718-444-3880
Regal Aljoy Wire & Cable, Levittown, NY 11756 516-735-4871
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
Shokai Far East Ltd., Peekskill, NY 10566 914-736-3500
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
§ Square D Co., Palatine, IL 60067 708-397-2600
Staffall Inc., Cranston, RI 02910 401-461-5554
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§† Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
§† Whitso, Schiller Pk, IL 60176 708-678-5200
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Terminals, Standoff-2100

Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1276
§† Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1388-1392
Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
† Reeves-Hoffman Div., Dynamics Corporation of America, Carlisle, PA 17013, 717-243-5929 ..... A•1740-1741
† Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
† Alberox Corporation, New Bedford, MA 02745 508-995-1725
† Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
Ceramaseal, New Lebanon, NY 12125 518-794-7800
Curtis Industries, Milwaukee, WI 53219-0910 414-649-4200
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200

ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
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§† General Manufacturing, Glendale, CA 91201 818-243-2069
† Hermetic Seal Corp., Rosemead, CA 91770 213-283-0411
Jan Hardware Mfg. Co., Melville, NY 11747 718-361-0800
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
† Mark Eyelet Inc., AMP, Inc., Wolcott, CT 06716 203-756-8847
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§ Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§† Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
§ Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
§† Whitso, Schiller Pk., IL 60176 708-678-5200
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Terminals, Threaded-2100

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1165-1166,1168,1170
Beau Products Div., Vernitron Corp., Laconia, NH 03247, 603-524-5101 ..... C•1292-1293
§† Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1388-1389
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... C•1468
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
† Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568 -1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568 -1577
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Alberox Corporation, New Bedford, MA 02745 508-995-1725
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§† General Manufacturing, Glendale, CA 91201 818-243-2069
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§ Positronic Industries, Inc., Springfield, MO 65801 417-866-2322
§† Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
† Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
§† Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
Weidmuller Inc., Richmond, VA 23236 804-794-2877
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324-1325
§ Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1388-1389
§† Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
† Reeves-Hoffman Div., Dynamics Corporation of America, Carlisle, PA 17013, 717-243-5929 ..... A•1740-1741
† U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
† Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
Andon Elctrns. Corp., Lincoln, RI 02865 401-333-0388
† Armel Electronics, N. Bergen, NJ 07047 201-869-4201
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Autoswage Products, Shelton, CT 06484 203-929-1401
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Electrical Industries Corp., Murray Hill, NJ 07974 908-464-3200
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§† General Manufacturing, Glendale, CA 91201 818-243-2069
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§† Precision Metal Products Co., Peabody, MA 01961-6026 508-532-5500
§† Useco Div., Litton Inds, Van Nuys, CA 91409 818-786-6381
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§† Whitso, Schiller Pk., IL 60176 708-678-5200

Terminals, Wirewrap-2100

† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Andon Elctrns. Corp., Lincoln, RI 02865, 401-333-0388 ..... C•1275
§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
§† DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 ..... C•1392
Metuchen Capacitors, Inc., Old Bridge, NJ 08857, 908-679-3366 ..... C•1468
§† Mill-Max Manufacturing Corp., Oyster Bay, NY 11771-0300, 516-922-6000 ..... C•1473
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1802
U.S. Terminals Inc., Cincinnati, OH 45243, 513-561-8145 ..... C•1563
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† Advanced Interconnections Corp., West Warwick, RI 02893 401-823-5200
§ Altech Corp., Somerville, NJ 08876 908-707-8484
§ Aries Electronics, Frenchtown, NJ 08825 908-996-6841
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
† Assembly Specialists, Chelmsford, MA 01824 508-250-5900
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§ Augat/RDI, Carol Stream, IL 60188 708-682-4100
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Autoswage Products, Shelton, CT 06484 203-929-1401
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§ BICC-VERO Electronics, Inc., Hamden, CT 06514 203-288-8001
§ Bussco Inc., El Segundo, CA 90245 213-322-6580
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
† CTS Corporation, Microelectronics business unit., New Hope, MN 55428 612-533-3533
Douglas Electronics, Inc., San Leandro, CA 94577 510-483-8770
Electronic Solutions, A Unit of Zero Corp., San Diego, CA 92121 619-452-9333
† E.M.S., Div. of Sandberg Industries, Tustin, CA 92680 714-669-9473
# Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§ Entrelec Div/GEC Alsthom International, Inc., Irving, TX 75038 214-550-9025
§† Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§† General Manufacturing, Glendale, CA 91201 818-243-2069
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ Imi Connectors Inc., Town of Mount Royal, CANADA H4T 1V5 514-733-8311
Marco Manufacturing Co., Inc., Philadelphia, PA 19145 215-463-2332
§ Methode Electronics, Inc., Chicago, IL 60656 708-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
§ Mupac Corp., Carlo Gavazzi Co., Brockton, MA 02401 508-588-6110
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
§ Precicontact, Inc., Langhorne, PA 19047 215-757-1202
§ Reliance Comm/Tec, Reliance Electric, Cleveland, OH 44117 800-245-4501
§ Reliance Electric Co., Marketing Info Center, Cleveland, OH 44117 800-245-4501
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
§ Samtec, Inc., New Albany, IN 47150 812-944-6733
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
§† Whitso, Schiller Pk., IL 60176 708-678-5200
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

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† Elcom Systems, Inc., Boca Raton, FL 33487, 407-994-1774 ..... A•1747
§† Microwave Filter Inc., East Syracuse, NY 13057-0486, 315-437-3953;800-448-1666 ..... A•1691-1693,1695
† Airtron, Litton Industries, Inc., Morris Plains, NJ 07950 201-539-5500
† Alan Industries Inc., Columbus, IN 47202 812-372-8869
Autosplice, Inc., San Diego, CA 92121 619-535-0077
† Bird Electronic Corp., Cleveland, OH 44139-2794 216-248-1200
Coaxial Dynamics, Cleveland, OH 44135 ..... 1-800-COAXIAL
† Connecticut Microwave Corp., Cheshire,, CT 06410 203-250-9678
† Dielectric Communications, General Signal, Raymond, ME 04071 ..... 207-655-4555; 800-341-9678
† Electro Impulse, Neptune, NJ 07754-0278 908-776-5800
§† EMC Technology Inc, Cherry Hill, NJ 08034 609-429-7800
† Gabriel Electronics, Scarborough, ME 04074 207-883-5161
† JFW Industries, Inc., Indianapolis, IN 46237 317-887-1340
† KDI/Triangle Electronics, Whippany, NJ 07981 201-887-5700
Lectronic Research Labs., Inc., Camden, NJ 08104 609-541-4200

† Loral Microwave Narda, Hauppauge, NY 11788 516-231-1700
† Maury Microwave Corp., Cucamonga, CA 91730 714-987-4715
† Microlab/FXR, Livingston, NJ 07039 201-992-7700
Microwave Development Laboratories, Natick, MA 01760 508-655-0060
Pro Com Technology Inc., Farmingdale, NY 11735 ..... 516-293-4443;800-762-3785
Relm Communications, Inc., Indianapolis, IN 46226 317-545-4281
RLC Electronics, Inc., Mt. Kisco, NY 10549 914-241-1334
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Sage Laboratories, Inc., Natick, MA 01760 508-653-0844
Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§† Systron-Donner Microwave Div., Sylmar, CA 91342 818-362-9900

Terminations, Cable-2100

† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1170
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1325
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Fischer Connectors, Valencia, CA 91355, 805-295-0600;1-800-344-0445 ..... C•1367
L-Com Inc., N. Andover, MA 01845, 508-682-6936 ..... C•1424-1425
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... D•1886
§ Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... C•1496
Trompeter Electronics, Inc., Westlake Village, CA 91362-4047, 818-707-2020 ..... C•1556-1561
§† Virginia Plastics Co., Roanoke, VA 24015-0577, 703-375-0100 ..... C•1564-1565
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§ Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
§† Bird Electronic Corp., Cleveland, OH 44139-2794 216-248-1200
Compac, Holbrook, NY 11741 516-585-3400
Connectronics Corp., Toledo, OH 43607 419-537-0020
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Covid, Inc., Tempe, AZ 85281 602-966-2221
Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639
§† FISHERTECH, Fisher Gauge Limited, Peterborough, Ontario, CANADA K9J 6Y9 705-748-9522
GSI Corp., Timonium, MD 21093 410-252-1768
ISL Products Int'l, Ltd., Syosset, NY 11791-6093 516-937-3475
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§† Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Precision Interconnect, Portland, OR 97224 503-620-9400
Remtek Corporation, Fremont, CA 94538 415-490-3999
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
Φ U.S. Instrument Rentals, Inc., AT&T Capital Corp., D/FW Airport, TX 75261 800-874-7123
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4 514-694-9136
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
Wide Band Engineering Co., Inc., Phoenix, AZ 85036 602-254-1570
§ Wiltron, Morgan Hill, CA 95037-2809 408-778-2000

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† ADC Telecommunications, Inc., Minneapolis, MN 55435, 612-835-6800 ..... C•1157-1159
§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1164,1166,1169
AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568 -1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568 -1577
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Connectronics Corp., Toledo, OH 43607 419-537-0020
Eubanks Engineering, Monrovia, CA 91016 818-357-7011
§† FISHERTECH, Fisher Gauge Limited, Peterborough, Ontario, CANADA K9J 6Y9 705-748-9522
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
† Patton-MacGuyer Inc., Providence, RI 02905 401-941-6000
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300

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† Oxley Inc., Branford, CT 06405, 203-488-1033 ..... C•1479
§ Schurter, Inc., Petaluma, CA 94952, 707-778-6311 ..... C•1520
§ Components Corp., Denville, NJ 07834 201-627-0290
General Electric Materials Technology, Buena Park, CA 90620 714-761-5684
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440

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Test Systems, Board-2900 — *See Vol. D*

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§† **Astro Tool Corp., Beaverton, OR 97006, 503-642-9853** ..... **C•1702**
† **Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161** ..... **C•1703**
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... **C•1596**
§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... **C•1481**
Bearing Inspection, Santa Fe Springs, CA 90670 213-944-6251
§† Beau Tech, Portland, ME 04101 207-775-6139
CIC Components Inds. Co., Ltd., Hsin Tien City, TAIWAN R.O.C. 886-2-9174302
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
Diversified Case Co., Whitesboro, NY 13492 315-736-3028
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ General Hardware Mfg., New York, NY 10013 212-431-6100
§ Heath Co., St. Joseph, MI 49085 616-982-3200
† Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
3M-Electronic Products Division, Austin, TX 78769-2963
..... 1-800-225-5373 Sls. & Prod. Info.
Micro Mode Prods., El Cajon, CA 92020 619-449-3844
§† Moody Tools, inc., E. Greenwich, RI 02818 401-885-0911
Multi-Amp Corp., TBG, Dallas, TX 75237 214-333-3201
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Pace Inc., Laurel, MD 20723-1990 301-490-9860
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
The Pedro Companies, St. Paul, MN 55101 612-224-9491
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
† Products Engrg. Corp., Azusa, CA 91702 818-969-5879
† Russtech Engineering Company, Inc., Mission Viejo, CA 92691 714-472-0880
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145

Specialized Products Company, Irving, TX 75063 214-550-1923
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677

Tools & Kits, Contact Insertion/Removal-5400

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§† Astro Tool Corp., Beaverton, OR 97006, 503-642-9853 ..... C•1702
† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481-1482
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
CIC Components Inds. Co., Ltd., Hsin Tien City, TAIWAN R.O.C. 886-2-9174302
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
† Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Emulation Technology, Inc., Santa Clara, CA 95051 408-982-0660
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
ICC, Inc., Orange, CA 92665 714-998-8310
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mes Industries Co., Ltd., Taipei 886-2-7363309
§ Nepenthe, Inc., Palo Alto, CA 94303 415-496-6666
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Omega Engineering, Stamford, CT 06907 800-826-6342
Pace Inc., Laurel, MD 20723-1990 301-490-9860
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
† Russtech Engineering Company, Inc., Mission Viejo, CA 92691 714-472-0880
Symtron Corp. Div. Diceon Elctrns., Mountain View, CA 94043 415-965-4500
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376

Tools, Alignment & Tuning-5400

§† Astro Tool Corp., Beaverton, OR 97006, 503-642-9853 ..... C•1702
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
§ Sprague-Goodman Elctrns., Inc., Garden City Pk., NY 11040, 516-746-1385 ..... A•1141
CIC Components Inds. Co., Ltd., Hsin Tien City, TAIWAN R.O.C. 886-2-9174302
§ Contact East, N. Andover, MA 01845 508-682-2000
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
Mes Industries Co., Ltd., Taipei 886-2-7363309
§† Pioneer Components, Brooklyn, NY 11234 718-444-3880
§ PTS Corporation, Bloomington, IN 47401 812-824-9331
§ Spectrol Electronics Corp., Ontario, CA 91761 714-923-3313
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Tools, Cable Tie-5400

† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800
All-States, Inc., Chicago, IL 60640 312-728-0525
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
CIC Components Inds. Co., Ltd., Hsin Tien City, TAIWAN R.O.C. 886-2-9174302
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dennison Mfg. Co., Framingham, MA 01701 508-879-0511
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
† Fuses Unlimited, D.E.I., Van Nuys, CA 91406 818-786-8111
Hanscom, H. F., Co., Inc., Providence, RI 02905 401-941-1455
Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mes Industries Co., Ltd., Taipei 886-2-7363309
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552

Tools, Connector-5400

† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1283
§† Astro Tool Corp., Beaverton, OR 97006, 503-642-9853 ..... C•1702
† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
DDK Electronics, Inc., Markham, Ont., CANADA L3R 9T2, 416-470-1346 ..... C•1337-1345
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1352,1354
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1480-1482
Quality Microwave Interconnects, Inc., Wilmington, MA 01887, 508-988-9090 ..... A•1824-1826
All-States, Inc., Chicago, IL 60640 312-728-0525
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Amphenol Corporation, Corporate Headquarters, Wallingford, CT 06492 203-265-8910
§† Amphenol RF Operations, Amphenol Corporation, Danbury, CT 06810 .. 203-743-9272
§ Assmann Electronics, Inc., Assmann Electronics GMBH, Chandler, AZ 85226 602-940-0004
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ AVA Electronics Corporation, Drexel Hill, PA 19026 215-284-2500
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
Cabletron Systems, Inc., Rochester, NH 03867 603-332-9400
§ Cambridge Products, Bloomfield, CT 06002 ..... 203-243-1761, 800-243-8814
§ Carrot Components Corporation, Camarillo, CA 93012 805-484-0540
§† Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
§† CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
† Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
§ Emulation Technology, Inc., Santa Clara, CA 95051 408-982-0660
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135 408-922-9000
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Harris Corp., Dracon Div., Camarillo, CA 93012 805-987-9511
§ Harting Elektronik, Inc., Hoffman Estates, IL 60195 708-519-7700
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
International Microelectronics, Arlington, TX 76003 817-561-2244
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
Mes Industries Co., Ltd., Taipei 886-2-7363309
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Micro Mode Prods., El Cajon, CA 92020 619-449-3844
§ MOLEX, Inc., Lisle, IL 60532 708-969-4550
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ PanaVise Products, Inc., Sparks, NV 89431 702-353-2900
§ Penstock Engineering Labs., Penstock, Inc., Sunnyvale, CA 94086-4018 ..... 408-730-0300;800-PENSTOCK
Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Robinson Nugent, Inc., New Albany, IN 47150 812-948-0564
† Russtech Engineering Company, Inc., Mission Viejo, CA 92691 714-472-0880
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ Square D Co., Palatine, IL 60067 708-397-2600
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376

Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677

Tools, Crimping & Swaging-5400

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1166
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
§† Astro Tool Corp., Beaverton, OR 97006, 503-642-9853 ..... C•1702
† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019, 800-237-2374 ..... C•1350,1354
Hiram Jones Electronics, No. Hollywood, CA 91605, 213-875-0213 .. C•1389-1391
LZR Electronics, Inc., Gaithersburg, MD 20879, 301-921-4600 ..... C•1456
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
§ MOLEX, Inc., Lisle, IL 60532, 708-969-4550 ..... C•1474
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1480
All-States, Inc., Chicago, IL 60640 312-728-0525
Amatom Electronic Hardware, New Haven, CT 06515 203-397-3311
§ Ark Les Corporation, Watertown, MA 02172 617-924-2330
§ Augat Inc., Attleboro, MA 02703 617-222-2202
Augat, Inc., Interconnection Products Group, Attleboro, MA 02703 508-222-2202
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Bead Electronics, Div. Bead Industries, Inc., Bridgeport, CT 06605-0571 203-334-4124
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
Cabletron Systems, Inc., Rochester, NH 03867 603-332-9400
§ Cambridge Products, Bloomfield, CT 06002 ..... 203-243-1761, 800-243-8814
CIC Components Inds. Co., Ltd., Hsin Tien City, TAIWAN R.O.C. 886-2-9174302
§ Cinch Connector Division, Labinal Components & Systems Inc., Elk Grove Village, IL 60007 312-981-6000
CINCH Cylindrical Division, Labinal Comps. & Systems, Inc., Minneapolis, MN 55428 612-537-1010
§ Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877
§ Compar, D.G.W. Electronics Corporation, Markham, Ontario, CANADA L3R 4Z4 416-475-8500
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
† Contact East, N. Andover, MA 01845 508-682-2000
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
§ Fujitsu Component of America, Inc., Subsidiary of Fujitsu Microelectronics, Inc., San Jose, CA 95135 408-922-9000
§ General Hardware Mfg., New York, NY 10013 212-431-6100
Hughes Aircraft Co., Connecting Devices Div., Irvine, CA 92714 714-660-5701
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
International Microelectronics, Arlington, TX 76003 817-561-2244
§ ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
§† Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mes Industries Co., Ltd., Taipei 886-2-7363309
§ Methode Electronics, Inc., Interconnect Prods Div, Rolling Meadows, IL 60008 708-392-3500
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ PanaVise Products, Inc., Sparks, NV 89431 702-353-2900
Parker Hannifin Corp., Cleveland, OH 44112-1290 ..... 800-272-7537;800-C-PARKER
Parker Hannifin Corp., Hose Products Division, Wickliffe, OH 44092 216-943-5700
§ Philmore Manufacturing, Rockford, IL 61125-1386 815-229-7773
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Schroff Incorporated, Warwick, RI 02886 401-732-3770
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
† Sjoberg, C., & Son, Inc., Cranston, RI 02910 401-461-8220
§ H H Smith, NT-T Inc., Meadville, PA 16335 814-724-6440
§ Support Systems Intl. Corp., Richmond, CA 94804 415-234-9090
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
† Trompeter Electronics, Inc., Westlake Village, CA 91362-4047 818-707-2020
§ Ungar, Div. Eldon Inds., Inc., Buena Park, CA 90621 714-994-2510
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
† Virgina Panel Corporation, Waynesboro, VA 22980 703-949-8376
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
§ Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Tools, Heat Sealing-5400

† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Harwil, Santa Monica, CA 90404 213-829-2310
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Master Appliance Corp., Racine, WI 53403 414-633-7791
Mes Industries Co., Ltd., Taipei 886-2-7363309
§ Pamran Inc., Racine, WI 53404 414-637-7999
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Tools, Lead Bending & Insertion-5400

§ Aries Electronics, Frenchtown, NJ 08825, 908-996-6841 ..... C•1281,1283
§† Beau Tech, Portland, ME 04101 207-775-6139
§ Contact East, N. Andover, MA 01845 508-682-2000
† ELVO:Division of Zumbach Electronics Corporation, Mt. Kisco, NY 10549-1407 914-241-1008
§ Eraser Co., Syracuse, NY 13221 315-454-3237
§† Fancort Industries, Inc., W. Caldwell, NJ 07006 201-575-0610
§ Harwil, Santa Monica, CA 90404 213-829-2310
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§† Plato Products, Inc., Glendora, CA 91740 818-967-3821
§ Solder Removal, Covina, CA 91722 818-967-3681
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
§ Ungar, Div. Eldon Inds., inc., Buena Park, CA 90621 714-994-2510
Vector Electronics Co., Specialties Division, Anaheim, CA 92807 ..... 714-632-9842; 800-326-9888

Tools, Magnetic Pickup-5400

† Jobmaster Corp., Randallstown, MD 21133-0207, 410-655-1400 ..... A•1285
§ Contact East, N. Andover, MA 01845 508-682-2000
† E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† Moody Tools, Inc., E. Greenwich, RI 02818 401-885-0911
§ Orbit Industries, Countis Industries, Carson City, NV 89706 702-882-6123
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010

Tools, Marking, Numbering, Engraving-5400

§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800
All-States, Inc., Chicago, IL 60640 312-728-0525
† Contact East, N. Andover, MA 01845 508-682-2000
† Control Laser Corp., Orlando, FL 32809 407-438-2500
§ Phoenix Contact Inc., Harrisburg, PA 17111 717-944-1300

Tools, Parts Handling, Vacuum Operated-5400

Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1481
† Air-Vac Engrg., Milford, CT 06460 203-874-2541
§ Contact East, N. Andover, MA 01845 508-682-2000
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Orbit Industries, Countis Industries, Carson City, NV 89706 702-882-6123
Pace Inc., Laurel, MD 20723-1990 301-490-9860
§ PanaVise Products, Inc., Sparks, NV 89431 702-353-2900
§ SC Technology, Inc., Livermore, CA 94550 415-373-9230
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Tools, Relay Servicing-5400

† Contact East, N. Andover, MA 01845 508-682-2000
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Multi-Amp Corp., TBG, Dallas, TX 75237 214-333-3201
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Tools, Resistance Soldering — See Soldering Equip., Resistance (Vol. C)

Tools, Wire Wrapping-5400

† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
§† Advance Wire & Cable, The Advance Group, Belmont, CA 94002 415-592-4550
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
† dataCon, Inc., Interconnect Sub-Systems, Burlington, MA 01803 617-273-5800
DuPont Connector Systems, DuPont Elctrns., Wilmington, DE 19880-0019 800-237-2374
Garry Electronics an LPL Co., Langhorne, PA 19047 215-949-2300
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ Instant Board Circuits Grp., Novato, CA 94949 415-883-1717
International Microelectronics, Arlington, TX 76003 817-561-2244
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
† Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
Omega Engineering, Stamford, CT 06907 800-826-6342
Product Technology, Inc., Irvine, CA 92714 714-474-8998
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ TELTEC, INC., Minneapolis, MN 55425 612-854-9632
§ Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652
§ Wilson, H. F., Engineering Co., Glen Ellyn, IL 60137 708-469-7473

Torches, Soldering, Welding & Accessories-4600

§ Contact East, N. Andover, MA 01845 508-682-2000
§ Cooper Tools, Raleigh, NC 27622 919-781-7200
† Hydro-Gen Products Inc., Fort Collins, CO 80522-1517 800-779-0126
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700

§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ Master Appliance Corp., Racine, WI 53403 414-633-7791
§ Pamran Inc., Racine, WI 53404 414-637-7999
§ Portasol, Oglesby and Botler Ltd., Charlotte, NC 28226 704-543-6239
§ Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§† Wall Lenk Corporation, Kinston, NC 28502-3349 919-527-4186

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Torque Control — See Knobs, Torque, Incremental, Ratio Drive (Vol. C)

Torquers, Gyro — See Motors, Torque (Vol. B)

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Transducers, Force-5500 — *See Vol. B*

Transducers, Frequency — See Transducers, Volt, Watt, Current, etc. (Vol. B)

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Transducers, Position, Rotary-5500 — *See Vol. B*

Transducers, Power — See Transducers, Volt, Watt, Currents, etc. (Vol. B)

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Transducers, Vibration-5500 — *See Vol. B*

Transducers, Volt, Watt, Current VAR, Power Factor, Frequency-5500 — *See Vol. B*

Transformers, Audio-5600 — *See Vol. A*

Transformers, Autotransformer-5600 — *See Vol. A*

Transformers, Bias — See Transformers, Power (Vol. A)

Transformers, Bridging — See Transformers, Matching (Vol. A)

Transformers, Chip-5600 — *See Vol. A*

Transformers, Chopper-5600 — *See Vol. A*

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Transformers, Hybrid-5600 — *See Vol. A*

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Transformers, Instrument-5600 — *See Vol. A*

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Transformers, Inverter-5600 — *See Vol. A*

Transformers, Isolation-5600 — *See Vol. A*

Transformers, Isolation, for LANs-5600 — *See Vol. A*

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Transformers, Linear Variable-Differential — See Transformers, Differential (Vol. A)

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Transformers, Microminiature-5600 — *See Vol. A*

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Transformers, Modem/Coupler-5600 — *See Vol. A*

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Transformers, Switching, Power-5600 — *See Vol. A*
Transformers, Synchro Control-5600 — *See Vol. A*
Transformers, Telephone Coupling-5600 — *See Vol. A*
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Transformers (MIL), Data Bus Coupling-2440 — *See Vol. B*
Transformers (MIL), Interface & Coupling-2440 — *See Vol. B*
Transformers (MIL), Pulse & Variable-2440 — *See Vol. B*
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Transistor, Diode, Thyristor Heat Dissipators — See Heat Sinks, Transistor (Vol. C)
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Transistors, Field Effect, Surface Mount-4800 — *See Vol. A*
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Transistors, Low Noise, GaAs, FETs - Also See Transistors, Microwave-4800 — *See Vol. A*
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Transistors, Switching-4800 — *See Vol. A*
Transistors, Switching, Surface Mount-4800 — *See Vol. A*
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Transmission Line, Data — See Cable, Data Transmission (Vol. C)
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Transmitters, Infrared remote control transmitters for satellite T.V. receivers-1900 — *See Vol. D*
Transmitters, Laser-3700 — *See Vol. B*
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Transmitters, Process Control (Temperature, Pressure, Flow, etc.)-5500 — *See Vol. B*
Transmitters, Radar — See Radar System Components (Vol. A)
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TRIACs-4800 — *See Vol. A*
Triggers, SCR — See Controls, SCR (Vol. D)
Trimmers, Capacitor — See Capacitors, Variable, Padders & Trimmers (Vol. A)
Trimmers, Potentiometer — See Potentiometers, Trimmer (Vol. A)
Trimmers, Surface Mount, Capacitor-1500 — *See Vol. A*
Trimmers, Surface Mount, Potentiometer-4750 — *See Vol. A*

Tube Heat Dissipators-2600
Bergquist, Minneapolis, MN 55435, 800-347-4572 ..... C•1670,1672-1673
† IERC, Burbank, CA 91502 213-849-2481
Noren Products Inc., Menlo Pk., CA 94025 415-322-9500

Tubes, Ballast — See Resistors, Ballast (Vol. A)
Tubes, Cathode Ray, General Purpose-2450 — *See Vol. B*
Tubes, Cathode Ray, Special Purpose-2450 — *See Vol. B*
Tubes, Counting-2200 — *See Vol. D*
Tubes, Flash-3700 — *See Vol. B*
Tubes, Ignitron-2200 — *See Vol. D*
Tubes, Image Converter-2450 — *See Vol. B*
Tubes, Indicator — See Tubes, Readout (Vol. B)

Tubes, Magnetron — See Tubes, Microwave (Vol. A)

Tubes, Microwave-3450 — *See Vol. A*

Tubes, Photomultiplier-3700 — *See Vol. B*

Tubes, Readout (CRT, Cold-Cathode, Vacuum Fluorescent, Incandescent, etc.)-2450 — *See Vol. B*

Tubes, Strobe — See Lamps, Stroboscopic Source (Vol. B)

Tubes, TV Camera Pickup-3700 — *See Vol. B*

Tubes, Transmitting-1900 — *See Vol. D*

Tubes, X-ray-2200 — *See Vol. D*

Tubes (MIL), Indicator & Pickup-2440 — *See Vol. B*

Tubes (MIL), Microwave-2440 — *See Vol. B*

Tubes (MIL), Power & Gas, Planar-2440 — *See Vol. B*

Tubes (MIL), Receiving, & Tube Shields-2440 — *See Vol. B*

Tubing, Ceramic-2500

Alberox Corporation, New Bedford, MA 02745 508-995-1725
Aremco Products, Inc., Ossining, NY 10562 914-762-0685
† The Carborundum Company, Electric Products, Niagara Falls, NY 14302 716-278-2521
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
Coors Ceramics Co., Electronic Products Group, Golden, CO 80401 303-277-4592
Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Omega Engineering, Stamford, CT 06907 800-826-6342
† Quartzite Processing, Inc., Malden, MA 02148 617-322-3611
Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
† Saphikon, Inc., Milford, NH 03055 603-673-5831
Vernitron Corp., Passive Comps. Group, St. Petersburg, FL 33743 813-347-2181

Tubing, Expandable-6000

Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1858
Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300

Tubing, Fiberglass-2500

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1711
Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1745
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1860
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
† Liberty Polyglas, Inc., West Mifflin, PA 15122 412-466-8611
§† Markel Corp., Norristown, PA 19404 215-272-8960
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
Omega Engineering, Stamford, CT 06907 800-826-6342
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140

Tubing, Glass-2500

§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§† Corning Glass Works, Materials Business, Corning, NY 14831 607-974-7149
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Garner Glass Co., Claremont, CA 91711 714-624-5071
GTI/Electronics Div., Hadley, PA 16130 412-253-3161

Tubing, Heat Shrinkable-Also See Caps, Forms & Tapes, Heat Shrinkable-2500

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710-1711
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1724-1725
§† Chomerics, Inc.:W.R. Grace & Co., Woburn, MA 01888, 617-935-4850 ... C•1674
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1745
§ GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1757
§† Markel Corp., Norristown, PA 19404, 215-272-8960 ..... C•1677
§ Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100 ..... C•1798
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1801
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1861-1863
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Antex Division, Marblehead, MA 01945 617-631-7100
§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Clarcor Tubular Products, Clarcor, Rockford, IL 61125 815-962-8867
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§ 3M Electrical Specialities Division, Austin, TX 78726-9000 800-328-1368
§† MSC Automation, Miller Sales Co., Wauconda, IL 60084 .. 708-526-9200; 800-323-5294
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
§† Remtek Corporation, Fremont, CA 94538 415-490-3999
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
Shin-Etsu Polymer America, Inc., Union City, CA 94587 415-475-9000
Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Topflight, York, PA 17404 ..... 717-843-9901; 800-233-9386
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130; 800-535-5552
§† Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174; 800-526-3842
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Tubing, Metal-2500

† Alexandria Extrusion Co., Alexandria, MN 56308 612-736-6537
† ITT Higbie Baylock, Auburn Hills, MI 48321-7016 313-340-3000
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7245
Omega Engineering, Stamford, CT 06907 800-826-6342
Parker Hannifin Corp., Cleveland, OH 44112-1290 ..... 800-272-7537; 800-C-PARKER
§† Rosenberger-Micro Coax, (Formerly Micro-Coax Components, Inc.), Collegeville, PA 19426 215-489-3700
† Wall, A. T., Co., Warwick, RI 02886 401-739-0740

Tubing, Paper-2500

Clarcor Tubular Products, Clarcor, Rockford, IL 61125 815-962-8867
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370

Tubing, Plastic-Also See Tubing, Spaghetti-2500

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710,1712
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1724-1725
§ GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1757
† Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100 ..... C•1798
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1801
† Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1859-1861
Acme Model Engineering Co., Ridgefield, NJ 07657 201-943-7650
§† Antex Division, Marblehead, MA 01945 617-631-7100
† Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§ Bivar, Inc., Irvine, CA 92718 714-951-8808
§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
Clarcor Tubular Products, Clarcor, Rockford, IL 61125 815-962-8867
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Dayco Products, Inc., Dayton, OH 45401-1004 513-226-5926
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
Gasket International Inc., Bloomfield, NJ 07003 201-338-6814
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
† Glenair Inc., Glendale, CA 91201-2497 818-247-6000
† Homalite, Whitco, Inc., Wilmington, DE 19804 302-652-3686
§ ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
ITT Higbie Baylock, Auburn Hills, MI 48321-7016 313-340-3000
§† Markel Corp., Norristown, PA 19404 215-272-8960
Moxness Products, Inc., Versa Technologies, Racine, WI 53405 ..... 414-554-5050; 800-558-5706
§† Norelcom Inds., Farmingdale, NY 11735 516-249-7245
Norgren, Littleton, CO 80120-1663 303-794-2611
Omega Engineering, Stamford, CT 06907 800-826-6342
Parker Hannifin Corp., Instrumentation Connectors Div., Huntsville, AL 35802 205-881-2040
Parker Hannifin Corp. Parflex Division, Ravenna, OH 44266 216-296-2871
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
Special Electric Co., Inc., Milwaukee, WI 53215 414-383-6370
† Stevens Products, Inc., E. Orange, NJ 07019 201-672-2140
† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291
§† Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174; 800-526-3842
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Tubing, Spaghetti-2500

§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886** ..... **C•1724-1725**
§ **GSI Corp., Timonium, MD 21093, 410-252-1768** ..... **C•1757**
† **Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100** ..... **C•1798**
§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... **C•1801**
† **Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561** ..... **C•1813**
† **Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970** .... **C•1858-1859**
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ Applied Plastics Technology, Bristol, RI 02809 401-253-0200
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
† Cadillac Plastic & Chem. Co. Div. of M.A. Hanna, Troy, MI 48083 313-583-1200
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ Norelcom Inds., Farmingdale, NY 11735 516-249-7245
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Shamrock Plastics & Rubber, Inc., Indianapolis, IN 46218 ..... 317-543-3540; 800-382-4635
§† Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174;800-526-3842

Tubing, Spiral Wrap-2500

AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... **C•1175**
§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886** ..... **C•1725**
§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400** .. **C•1751**
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... **C•1776**
† **Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100** ..... **C•1798**
§ **Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300** ..... **C•1801**
§† Antex Division, Marblehead, MA 01945 617-631-7100
§ Applied Plastics Technology, Bristol, RI 02809 401-253-0200
§ Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
Clarcor Tubular Products, Clarcor, Rockford, IL 61125 815-962-8867
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Dayco Products, Inc., Dayton, OH 45401-1004 513-226-5926
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
Precision Paper Tube Co., Wheeling, IL 60090 708-537-4250
§ Richco Plastic Co., Chicago, IL 60680 312-539-4060
Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
§† Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174;800-526-3842

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Tubing, Zipper-2500

Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
§ Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174;800-526-3842
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

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Tuners, Microwave-3450 — *See Vol. A*

Tuning Forks-2300 — *See Vol. A*

Tweezers, Manual & Vacuum-5400

Pomona Electronics, Pomona, CA 91766, 714-623-3463 ..... **C•1499**
† Air-Vac Engrg., Milford, CT 06460 203-874-2541
§† Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877
Contact East, N. Andover, MA 01845 508-682-2000
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ General Hardware Mfg., New York, NY 10013 212-431-6100
§ Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Orbit Industries, Countis Industries, Carson City, NV 89706 702-882-6123
§ Plato Products, Inc., Glendora, CA 91740 818-967-3821
§ Shattuck Industries, Ben Lomond, CA 95005 408-336-5145
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990

Ultrasonic Transceivers, High Resolution, Narrow Beam-5500 — *See Vol. B*

Ultraviolet Inspection Lighting-Also See Microscopes, Ultraviolet-4100 — *See Vol. D*

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Vises-5400

§ Contact East, N. Andover, MA 01845 508-682-2000
§ PanaVise Products, Inc., Sparks, NV 89431 702-353-2900

Visual Micro Inspection Systems-2900 — *See Vol. D*

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Electro Space Fabricators, Topton, PA 19562-0067, 215-682-7181 ..... **C•1036**
§ **National Instruments Corp., Austin, TX 78730-5039, 512-794-0100** ..... **D•1188**
Tracewell Enclosures, Inc., Westerville, OH 43081, 614-846-6175;800-848-4525 ..... **C•1120-1121**
CDS - Colorado Data Sys., Englewood, CO 80110 ..... 303-762-1640;800-CDS-ATE1
Colorado Data Systems, Inc., Englewood, CO 80110 ..... 303-762-1640; 800-TEK-4VXI

VXIbus Modular Test Systems-2900 — *See Vol. D*

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Washers, Lock-2500

§ **Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571** ..... **C•1324**
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... **C•1596**
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
† Morris, J. I., Co., Southbridge, MA 01550 508-764-4394
§† PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300

Washers, Plain-2500

§ **Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571** ..... **C•1324**
§ **LEMO U.S.A., Inc., Santa Rosa, CA 95406, 707-578-8811, 800-444-LEMO (5366)** ..... **C•1427**
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... **C•1596**
† **Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389** ..... **C•1598-1599**
All-States, Inc., Chicago, IL 60640 312-728-0525
§† Berg, W. M., Inc., East Rockaway, NY 11518 516-599-5010
Boker's, Inc., Minneapolis, MN 55406-1937 612-729-9365
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886

† Cut Craft, Inc., Ft. Worth, TX 76102 817-332-6151
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Elite Electronics, Inc., Plano, TX 75074 ..... 214-881-0026;800-553-4376
ELMA Electronic Inc., Fremont, CA 94538 415-656-3400
Forma Scientific, Inc., Marietta, OH 45750 614-373-4763
Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
† Morris, J. I., Co., Southbridge, MA 01550 508-764-4394
§ PIC Design, Remington Technologies, Inc., Middlebury, CT 06762 203-758-8272
Seastrom Manufacturing Co., Inc., Glendale, CA 91201 213-245-9121
Sterling Instruments, New Hyde Pk., NY 11040 516-328-3300
Stock Drive Products, Div. of Designatronics, Inc., New Hyde Pk., NY 11040 ..... 516-328-0200;328-3300

Washers, Shoulder-2500

§ Concord Electronics Corporation, New York, NY 10012, 1-212-777-6571 ..... C•1324
Makk-O Industries, Yonkers, NY 10703, 914-376-0160; 914-376-0161 .... C•1596
Unicorp, Orange, NJ 07050, 201-674-1700;800-526-1389 ..... C•1598-1599
Accessories For Electronics, Inc., Baldwin, NY 11510-3593 516-546-1751
Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Kam Components, Inc., Nesconset, NY 11767 516-585-0666
§† Keystone Electronics Corp., Astoria, NY 11105-2017 718-956-8900
§ MSC Automation, Miller Sales Co., Wauconda, IL 60084 .. 708-526-9200;800-323-5294
§† Teknational Inds., Inc., Rochester, NY 14620-1103 716-232-1291

Waveguide-Coax Adapters-3450 — *See Vol. A*

Waveguides-3450 — *See Vol. A*

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Welding Equipment & Accessories (Excl. Equipment for Semiconductor Devices)-5400

Alpha-Core Inc., Bridgeport, CT 06608 203-335-6805
† Coherent General, Inc., Sturbridge, MA 01566 508-347-2681
Dukane Corp., Communications Sys. Div., St. Charles, IL 60174-9984 ... 708-584-2300
Φ Ewald Instruments Corp., Kent, CT 06757 203-927-3278
GTI/Electronics Div., Hadley, PA 16130 412-253-3161
Hughes Aircraft Co., Industrial Products Division, Carlsbad, CA 92009 ... 619-931-3000
† Hydro-Gen Products Inc., Fort Collins, CO 80522-1517 800-779-0126
§ L & R Mfg. Co., Kearny, NJ 07032 201-991-5330
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
§ Solder Absorbing Technology (SAT), A Spirig Co., Springfield, MA 01108 800-628-8862
§† Sonobond Ultrasonics Inc., Inductotherm Industries, West Chester, PA 19382 ..... 215-696-4710;800-323-1269
Venable Industries, Inc., Torrance, CA 90505 213-539-2522

Welding Machines, Laser-4100 — *See Vol. D*

White Noise Generator Modules — See Generators, White Noise (Vol.), Diodes, Noise

White Printers-4200

§ Teledyne Rotolite, Owen, WI 54460 800-524-0105

Windows, Sapphire-2500

† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
Ceramaseal, New Lebanon, NY 12125 518-794-7800
† Saphikon, Inc., Milford, NH 03055 603-673-5831
Swiss Jewel Company, Philadelphia, PA 19106 ..... 215-925-2867;800-922-0118
† Union Carbide Chemicals & Plastics Company Inc., Industrial Chemicals Div., Crystal, San Diego, CA 92123 619-279-4500

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Wire & Cable Ties-2500

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1712
§ AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1757
§† Heyco Molded Products, Inc., Kenilworth, NJ 07033, 908-245-0033;800-526-4182 ..... C•1758
3M-Electronic Products Division, Austin, TX 78769-2963, 1-800-225-5373 Sls. & Prod. Info. ..... C•1464
§ Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945, 617-631-7100 ..... C•1798
§† Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800-1801
† Accurate Electronics Corp., Elyria, OH 44036 ..... 216-366-6330;1-800-325-8979
§† All-States, Inc., Chicago, IL 60640 312-728-0525
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., Fort Smith, AR 72903-7045 501-452-3987
Antex Division, Marblehead, MA 01945 617-631-7100
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Band-It - Idex, Inc., Denver, CO 80216 303-320-4555
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Burndy Corporation, An FCI Company, Norwalk, CT 06852 203-838-4444
Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
§† Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† DEK, Inc., St. Charles, IL 60174 708-377-2575
§† Dennison Mfg. Co., Framingham, MA 01701 508-879-0511
§ Dynacast Inc., Yorktown Heights, NY 10598 914-962-6300
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
§ Electronic Resources Inc., Sunnyvale, CA 94089 408-745-1420
§ Fastex, Illinois Tool Works, Des Plaines, IL 60016 312-299-2222
† Fuses Unlimited, D.E.I., Van Nuys, CA 91406 818-786-8111
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
Hanscom, H. F., Co., Inc., Providence, RI 02905 401-941-1455
§† ICO-RALLY Corporation, Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
† Independent Cable, Inc., Hudson, MA 01749 508-562-9913
International Microelectronics, Arlington, TX 76003 817-561-2244
ITW Fastex Distributor Business, Wood Dale, IL 60191-1150 708-350-8200
§ Lyn-Tron, Inc., Burbank, CA 91505 ..... 213-849-6211;800-423-2734
† Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
† NMC Fastening Systems, Nylon Molding Corp., Monrovia, CA 91016 818-357-0901
§ NTE Electronics, Inc., Bloomfield, NJ 07003 201-748-5089
§† Pass & Seymour/Legrand, Pass & Seymour/Inc., Syracuse, NY 13221 315-468-6211
§† Pioneer Components, Brooklyn, NY 11234 718-444-3880
§† Richco Plastic Co., Chicago, IL 60680 312-539-4060
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
§ West Electronic Sales Team, Westminster, CA 92683 .... 714-898-0120;213-495-5569
Whitso, Schiller Pk., IL 60176 708-678-5200
Wieland Inc., New Rochelle, NY 10801 914-633-0222
§† Zeus Indl. Prods. Inc., Orangeburg, SC 29116 ..... 803-531-2174;800-526-3842

Wire, Airframe-2440 — *See Vol. B*

Wire, Antenna (All Types)-6000

MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§† Carolina Steel & Wire, Lexington, SC 29073-0829 803-359-5501
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ EPD Electronics, Inc., Gardena, CA 90247 213-515-4996
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
International Microelectronics, Arlington, TX 76003 817-561-2244
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Mouser Electronics, Mansfield, TX 76063 800-346-6873
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121

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§ Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ AT&T Microelectronics, Allentown, PA 18103 ..... 1-800-372-2447;In Can.: 1-800-553-2448
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873 908-247-7333
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
Leonische of America, Chicopee, MA 01022 413-593-6618

§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§† Phelps Dodge Magnet Wire, Ft. Wayne, IN 46801 ..... 219-458-4444;800-255-CLIC (2542)
† Philadelphia Insulated Wire Co. Inc, Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
§ Piher International Corp., Mt. Prospect, IL 60056 ..... 708-390-6680;800-323-6693
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
Richards, Arklay S., Co., Inc., Newton Highlands, MA 02161-1796 617-527-4385
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
§ Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§ Symbicon Assoc. Inc., Amherst, NH 03031 603-673-8898
† Wilkinson, Westlake Village, CA 91359 ..... 818-889-0050;800-822-4653

Wire, Bare, Nickel-6000

§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
§ Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873 908-247-7333
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Piher International Corp., Mt. Prospect, IL 60056 ..... 708-390-6680;800-323-6693
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
† Wilkinson, Westlake Village, CA 91359 ..... 818-889-0050;800-822-4653

Wire, Bare, Nickel-Chrome-6000

§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
§ Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Carpenter Technology Corp., Reading, PA 19612 215-371-2000
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Materials Research Corporation, Orangeburg, NY 10962 914-359-4200
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Omega Engineering, Stamford, CT 06907 800-826-6342
§† Reade Advanced Materials, Riverside, RI 02915-0039 401-433-7000
Richards, Arklay S., Co., Inc., Newton Highlands, MA 02161-1796 617-527-4385
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
§ Symbicon Assoc. Inc., Amherst, NH 03031 603-673-8898

Wire, Bonding-6000

MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
Alpha-Core Inc., Bridgeport, CT 06608 203-335-6805
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
§ Symbicon Assoc. Inc., Amherst, NH 03031 603-673-8898
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

Wire, Braid (Excluding Shielding)-6000

§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1723
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1851
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000, 800-323-0198
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† GSI Corp., Timonium, MD 21093 410-252-1768
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Pyrocom Co., Seattle, WA 98133 206-365-3535
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Wire, Braid (Shielding) — See Braid, Cable (Vol. C)

Wire, Ceramic Insulated-6000

Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... C•1799
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Ceramawire, Cranford, NJ 07016 908-276-1170
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
† DELTA M Corporation, Oak Ridge, TN 37830 615-483-1569
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
Richards, Arklay S., Co., Inc., Newton Highlands, MA 02161-1796 617-527-4385
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§ Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800

Wire, Clad (All Types)-6000

§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1717
§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772-1773,1775
Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... C•1799
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
† Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873 908-247-7333
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Mouser Electronics, Mansfield, TX 76063 800-346-6873
Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
Texas Instruments, Connector System, Attleboro, MA 02703 ..... 508-699-5269; 508-699-3450
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800

Wire Cutting & Stripping — See Services, Wire Cutting & Stripping (Vol. D)

Wire, Enamel Insulated — See Wire, Hookup (All Types) (Vol. C)

Wire, Fiberglass Insulated — See Wire, Glass Insulated (Vol. C)

Wire, Flame Retardant-6000

§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020-1021, C•1764
§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1793, 213-225-5611 ..... C•1776
† Phoenix Wire, Inc., S. Nero, VT 05486, 802-372-4561 ..... C•1813
Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1825-1833
Adirondack Wire & Cable, ACS Industries Inc., Woonsocket, RI 02895 1-401-769-1600
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 401-728-0700
Astro Cable Co., Inc., Carol Cable Co. Inc., Worcester, MA 01615-0086 508-754-3281
§ Bark-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
§† Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§ Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§ Gaviti Wire & Cable, Brookfield, MA 01506 508-867-6476
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Leviton Telcom, Leviton Manufacturing, Bothell, WA 98021-4416 ..... 206-485-4288; 206-486-2222
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
§ Remee Products Corp., Florida, NY 10921 914-651-4431

Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400

Wire, Flat Strip-6000

§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
Engineered Assemblies & Components Corp., Teterboro, NJ 07608 ..... 201-288-4477; 800-447-5639

Wire, Glass Insulated-6000

§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... C•1799
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cable USA, Inc., Naples, FL 33942-3560 813-643-6400
Caristrap International, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
Galileo Electro-Optics Corp., Sturbridge, MA 01566 508-347-9191
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Richards, Arklay S., Co., Inc., Newton Highlands, MA 02161-1796 617-527-4385
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§ Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872

Wire, Gold-2500

MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
† Feller-Neumayer US Corp., AFN Div., Somerset, NJ 08873 908-247-7333
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353

Wire, Guy-6000

§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Carolina Steel & Wire, Lexington, SC 29073-0829 803-359-5501
# Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Lance Industries, Sylmar, CA 91342-3832 818-367-1811
Ren Electronics Corporation, C.C.G., An Insico Co., S. Hadley, MA 01075 413-536-1800

Wire, Heater — See Cable, Heater (Vol. C)

Wire, High Temperature (Over 125°C)-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710
Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1314
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 ..... C•1746,1748
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... C•1799
† Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1830-1833
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
† Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§† Atomergic Chemetals Corp., Farmingdale, NY 11735-1718 516-694-9000
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321
§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§† Cable USA, Inc., Naples, FL 33942-3560 813-643-6400
§† Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
† Carpenter Technology Corp., Reading, PA 19612 215-371-2000
Ceramawire, Cranford, NJ 07016 908-276-1170
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
§† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
§† Gordon Co.:Watlow, Richmond, IL 60071 815-678-2211
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
§ Lutze, Inc., West Caldwell, NJ 07006 ..... 201-227-2371;800-447-2371
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161
† National-Standard Co., Niles, MI 49120 616-683-8100
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
† Plastoid Corporation, Hamburg, NJ 07419 201-827-7141
Radix Wire Co., Cleveland, OH 44132 216-731-9191
§ Remee Products Corp., Florida, NY 10921 914-651-4431
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
§† Wilco Wire & Cable Co., Inc., San Jose, CA 95133 408-926-8880
† Wilkinson, Westlake Village, CA 91359 ..... 818-889-0050;800-822-4653

Wire, High Voltage (1000 Volts & Over)-6000

† Caton Connector Corp., Kingston, MA 02364, 617-585-4315 ..... C•1315
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1747
† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776,1778
† Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
† Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1826-1829
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
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§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Dymec Inc., Winchester, MA 01890 617-729-7870
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
Galileo Electro-Optics Corp., Sturbridge, MA 01566 508-347-9191
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§† Markel Corp., Norristown, PA 19404 215-272-8960
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Radix Wire Co., Cleveland, OH 44132 216-731-9191
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400

Wire, Hookup (All Types)-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... **C•1710,1712**

§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886** ..... **C•1717**

§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400** ..... **C•1746-1747**

General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... **C•1753**

Globtek, Inc., N. Bergen, NJ 07047, 201-861-0246 ..... **C•1754**

§† **Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357** ... **B•1020-1021, C•1764**

§ **Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000** .... **C•1771**

National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... **C•1776-1778**

† **Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561** ..... **C•1813**

Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... **C•1816**

† **Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970** .... **C•1826-1833**

Adirondack Wire & Cable, ACS Industries Inc., Woonsocket, RI 02895 1-401-769-1600

Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345

§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000

§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700

§† American Wire & Electronics, Costa Mesa, CA 92626 714-957-5738

Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281

§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027

§† Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200

BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600

† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321

§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000

§† Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000

§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000

Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121

§† Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141

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§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311

§† Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1

Custom Cable Corp., Westbury, NY 11590 516-334-3600

§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198

§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990

† Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343

Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400

† Electroweave, Inc., Worcester, MA 01604 508-752-8932

§ E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175

§† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476

§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661

† General Wire Products, Inc., Worcester, MA 01604 617-752-8260

† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017

† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880

† Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304

Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700

§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473

§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720

§ Lutze, Inc., West Caldwell, NJ 07006 ..... 201-227-2371;800-447-2371

§† Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075

§† Markel Corp., Norristown, PA 19404 215-272-8960

Molecu-Wire, Farmingdale, NJ 07727 201-938-9473

Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161

§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800

§† Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996

§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700

§ Pomona Electronics, Pomona, CA 91766 714-623-3463

Radix Wire Co., Cleveland, OH 44132 216-731-9191

Regal Aljoy Wire & Cable, Levittown, NY 11756 516-735-4871

§ Remee Products Corp., Florida, NY 10921 914-651-4431

† Rockland Insulated Wire & Cable, Haverstraw, NY 10927 914-429-3103

Rowe Industries, Inc., Toledo, OH 43612 419-729-9761

§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006

† Storm Products Co., Hinsdale, IL 60521 708-323-9121

Telco Intercontinental, Houston, TX 77095 713-855-2218

§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311

§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600

§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300

† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800

† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872

Vector Electronic Co., Inc., Sylmar, CA 91342 ..... 818-365-9661;800-423-5659; 800-426-4652

† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933

§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400

Wire, Irradiated-6000

§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400** .. **C•1746**

§† **Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357** ... **B•1020-1021, C•1764**

† **Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970** ..... **C•1828-1829,1833**

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253

§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000

§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027

BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600

† Brand Dielectrics, Inc., N. Windham, CT 06256 203-423-6321

§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000

Brim Electronics, Fair Lawn, NJ 07410 201-796-2886

Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121

§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830

§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198

Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990

§ Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343

† Electroweave, Inc., Worcester, MA 01604 508-752-8932

§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720

§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000

Molecu-Wire, Farmingdale, NJ 07727 201-938-9473

§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996

Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454

§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006

Storm Products Co., Hinsdale, IL 60521 708-323-9121

§† Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311

† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872

Wire, Lead-in & Ground-6000

§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886** ..... **C•1716,1718**

§ **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400** ..... **C•1746-1747**

General Cable Co., Guardian Prods. Div., Greenwich, CT 06830, 800-243-8020;203-661-0100 ..... **C•1753**

Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... **B•1020, C•1764**

Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... **C•1819**

† **Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970** ..... **C•1826-1833,1851-1852**

§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000

§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700

BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600

§† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000

§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000

Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121

Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141

§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830

§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311

§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1

§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198

† Dilwol Wire & Cable Inc., Burlington, Ont., CANADA L7T 2X5 416-681-2343

Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400

† Electroweave, Inc., Worcester, MA 01604 508-752-8932

§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661

§ Lance Industries, Sylmar, CA 91342-3832 818-367-1811

§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000

§† Markel Corp., Norristown, PA 19404 215-272-8960

Montrose Products Company, Intercole, Auburn, MA 01501 508-791-3161

§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006

§ Teledyne Thermatics, Teledyne Inds., Inc., Elm City, NC 27822 919-236-4311

Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600

† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872

Wire, Litz-6000

§† **MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553** ..... **C•1772**

Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281

§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000

§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886

Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830

§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311

† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400

§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198

Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)

§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006

Wire, Magnet-6000

§† **MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553** ... **C•1772-1775**

† **Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561** ..... **C•1813**

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253

§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886

§ Canada Wire and Cable Limited, Don Mills, Ontario, CANADA M3C 3J4 416-424-5000

Ceramawire, Cranford, NJ 07016 908-276-1170

§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830

§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311

§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1

§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400

§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198

Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400

§† Electromech, Inc., Kearny, NJ 07032 201-997-0950

† Elektrisola Inc., Boscawen N, NH 03303 603-796-2114

† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473

† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454

§† Phelps Dodge Magnet Wire, Ft. Wayne, IN 46801 ..... 219-458-4444;800-255-CLIC (2542)

Texas Instruments, Connector System, Attleboro, MA 02703 ..... 508-699-5269; 508-699-3450

Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800

Wire Markers (All Types)-Also See Strips Marker & Fanning-6000

§ Altech Corp., Somerville, NJ 08876, 908-707-8484 ..... C•1166
† GSI Corp., Timonium, MD 21093, 410-252-1768 ..... C•1757
§ Panduit Corp., Tinley Park, IL 60477-0981, 800-777-3300 ..... C•1800
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† Brady, W. H., Co., Indl. Prods. Div., Milwaukee, WI 53201 1-800-537-8791
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
Caristrap Internatonal, Inc., Chomedey, Lavac, QUEBEC, CANADA H7SIN8 514-667-4700
† Cole-Flex Corporation, West Babylon, NY 11704 516-249-6150
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Datak Corp., Sparks, NV 89431 702-359-7474
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
† Electro Insulation Corp./Remtek Corp., Arlington Hgts., IL 60004 708-632-1020
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† ELVO:Division of Zumbach Electronics Corporation, Mt. Kisco, NY 10549-1407 914-241-1008
Eubanks Engineering, Monrovia, CA 91016 818-357-7011
§† Excel Specialty Corp., Chicago, IL 60660 312-262-4781
Fuses Unlimited, D.E.I., Van Nuys, CA 91406 818-786-8111
§ Grafoplast S.P.A., Wiremarkers, Genova, ITALY 16154 ..... + 10. 621687
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
† Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
§† Markel Corp., Norristown, PA 19404 215-272-8960
§ Newman, M. M., Corp., Heli-Tube Div., Marblehead, MA 01945 617-631-7100
Regal Aljoy Wire & Cable, Levittown, NY 11756 516-735-4871
§† Remtek Corporation, Fremont, CA 94538 415-490-3999
Southwestern Nameplate & Mfg. Co., Inc., Anna, TX 75003 ..... 214-231-6663; 214-924-3289;1-800-331-6600
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
§ Weidmuller Inc., Richmond, VA 23236 804-794-2877
Wieland Inc., New Rochelle, NY 10801 914-633-0222
Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Wire, Multiconductor — See Cable, Multiconductor (Vol. C)

Wire Nuts-2500

Autosplice, Inc., San Diego, CA 92121 619-535-0077
§ Catamount Manufacturing, Orange, MA 01364 1-800-222-5969
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Eagle Electric Mfg. Co. Inc., Long Island City, NY 11101 718-937-8000
§ Heyco Molded Products, Inc., Kenilworth, NJ 07033 ..... 908-245-0033;800-526-4182
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Switches Unlimited, Inc., Woodside, NY 11377 ..... 718-478-5000;800-221-0487
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500

Wire, Plastic Insulated — See Wire, Hookup (All Types) (Vol. C)

Wire, Plated (All Types)-6000

§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772-1773,1775
Rowe Industries, Inc., Toledo, OH 43612, 419-729-9761 ..... C•1819
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Handy & Harman Elctrn. Matls. Corp., N. Attleboro, MA 02760 508-695-1401
Ken-Tron Mfg., Inc., Owensboro, KY 42301 502-684-0431
Leonische of America, Chicopee, MA 01022 413-593-6618
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353

Wire, Radiation Resistant-6000

§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1716-1717
Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
Ceramawire, Cranford, NJ 07016 908-276-1170
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
Judd Wire Inc., San Marcos, CA 92069 619-744-7720
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
† Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400

Wire, Resistance-6000

§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
§ Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
† Carpenter Technology Corp., Reading, PA 19612 215-371-2000
§ Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
The J. M. Ney Company, Bloomfield, CT 06002 203-242-2281
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
§ Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600

Wire, Semiconductor Lead-6000

Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
† Art Wire/Doduco, Cedar Knolls, NJ 07927 201-267-2000
† Carpenter Technology Corp., Reading, PA 19612 215-371-2000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Electronic Components & Matls. Div., GTE Products Corp., Warren, PA 16365 814-723-2000
GTI/Electronics Div., Hadley, PA 16130 412-253-3161
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353

Wire, Shielded-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1712
§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1716-1718
§† Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ... B•1020-1021, C•1764
MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
Adirondack Wire & Cable, ACS Industries Inc., Woonsocket, RI 02895 1-401-769-1600
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
§ AT&T Microelectronics, Allentown, PA 18103 ..... 1-800-372-2447;In Can.: 1-800-553-2448
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§† Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
† Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§† Capcon, Inc., New York, NY 10001 212-243-6275
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
§ Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§† Cooper Industries/Belden Div., Richmond, IN 47375 ..... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
Electrical Insulation Suppliers, Inc., Hillside, IL 60162 708-574-5400
§† Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† W. L. Gore & Assocs., Inc., Phoenix, AZ 85044 602-438-2017
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
Japan Electronic Manufacturers Agency, Inc., Wilmette, IL 60091 708-251-3600
§ JSC Wire & Cable, Wayne, NJ 07474 ..... 201-694-6200;1-800-572-9473
§† Judd Wire Inc., San Marcos, CA 92069 619-744-7720

§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Pacific Electricord, Gardena, CA 90247 213-532-6600
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
Permaluster, Inc., Burbank, CA 91504 ..... 213-849-4543;213-849-6454
† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Precision Interconnect, Portland, OR 97224 503-620-9400
Radix Wire Co., Cleveland, OH 44132 216-731-9191
† Rockland Insulated Wire & Cable, Haverstraw, NY 10927 914-429-3103
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§ Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Storm Products Co., Hinsdale, IL 60521 708-323-9121
§ Tappan Wire & Cable, Tappan, NY 10983 914-359-9300
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
§† Wilco Wire & Cable Co., Inc., San Jose, CA 95133 408-926-8880

Wire Shielding-Also See Braid, Cable-4525

§† Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1723
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1747
† Magnetic Shield Corporation, Perfection Mica Co., Bensenville, IL 60106, 708-766-7800 ..... C•1698
Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 ..... C•1851
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
Cable Systems, Inc., Everett, MA 02149 617-389-7080
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
† Conductive System, Inc., Amsterdam, NY 12010 518-843-5740
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Egis Corporation, Barrington Hills, IL 60010 708-639-1555
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
Flexible Technologies, Arlon, E. Providence, RI 02914 401-434-2340
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† GSI Corp., Timonium, MD 21093 410-252-1768
† Manger Electric Company, Inc., Stamford, CT 06902 203-348-7761
§ Markel Corp., Norristown, PA 19404 215-272-8960
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Pan International (USA), Inc., Rancho Cucamonga, CA 91730 714-945-1365
† Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§ Storm Products Co., Hinsdale, IL 60521 708-323-9121
† Sunbank Electronics, Paso Robles, CA 93446 805-238-2840
† Tecknit (Eastern Facility), Cranford, NJ 07016 908-272-5500
Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
Texas Instruments, Connector System, Attleboro, MA 02703 ..... 508-699-5269; 508-699-3450
Texas Instrs., Matls. & Controls Grp., Attleboro, MA 02703 508-699-3800
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Elec. Wire & Cable, W. Warwick, RI 02893 .. 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
† Zippertubing Co., Los Angeles, CA 90061 213-321-3901

Wire, Stainless Steel-6000

MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
† Carpenter Technology Corp., Reading, PA 19612 215-371-2000
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
† National-Standard Co., Niles, MI 49120 616-683-8100
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

Wire, Strain Gauge-6000

§† MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
Omega Engineering, Stamford, CT 06907 800-826-6342
† Semiconductor Packaging Materials Co., Mamaroneck, NY 10543 914-698-5353
Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC

Wire Connectors-2100

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1710
§† AMP, Harrisburg, PA 17105, 717-564-0100;800-522-6752 ..... C•1175
Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771
WECO Electrical Connectors, Inc., Mooers, NY 12958, 518-298-4810 C•1568-1577
§ WECO Electrical Connectors, Inc., Kirkland, Quebec, CANADA H9H 3L4, 514-694-9136 ..... C•1568-1577
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
Autosplice, Inc., San Diego, CA 92121 619-535-0077
Clifford of Vermont, Inc., Bethel, VT 05032 ..... 802-234-9921;800-451-4381
§ Concord Electronics Corporation, New York, NY 10012 1-212-777-6571
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
Hypertronics Corp., Hudson, MA 01749 ..... 508-568-0451;800-225-9228
† Milross Controls, Inc., Southampton, PA 18966 215-355-0200
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
§ Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
Zierick Manufacturing Corp., Mt. Kisco, NY 10549 ..... 914-666-2911;800-882-8020

Wire Strippers, Automatic-4100 — *See Vol. D*

Wire Strippers, Chemical — See Chemicals, Wire Stripping (Vol. C)

Wire Strippers, Manual-5400

† Daniels Manufacturing Corp., Orlando, FL 32824, 407-855-6161 ..... C•1703
§ Altech Corp., Somerville, NJ 08876 908-707-8484
§ AT&T Network Systems,Network Cable Sys. Div., Morristown, NJ 07962 ..... 1-800-344-0223, Ext. 1027
§ Burndy Corporation, An FCI Company, Norwalk,, CT 06852 203-838-4444
§† Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877
§ Contact East, N. Andover, MA 01845 508-682-2000
§ Control Cable, Inc., Baltimore, MD 21207 301-298-4411
§† Cooper Tools, Raleigh, NC 27622 919-781-7200
§ Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
§ Eraser Co., Syracuse, NY 13221 315-454-3237
†Φ Ewald Instruments Corp., Kent, CT 06757 203-927-3278
§ GC-Thorsen, Rockford, IL 61105-1209 815-968-9661
§ General Hardware Mfg., New York, NY 10013 212-431-6100
§ GreenLee Textron Inc.;Subsidiary of Textron Inc., Rockford, IL 61109 ... 815-397-7070
GTE SUPPLY, GTE SUPPLY, DFW Airport, TX 75261 800-433-4837
§† Ideal Industries, Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§† M/A-COM Omni Spectra, Inc., Waltham, MA 02254-9101 617-890-4750
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, Austin, TX 78769-2963 ..... 1-800-225-5373 Sls. & Prod. Info.
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
§ OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
Omega Engineering, Stamford, CT 06907 800-826-6342
§ Paladin Corp., Newbury Park, CA 91320 805-499-0318
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
Pasternack Enterprises, Irvine, CA 92713 714-261-1920
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Ansonia, Solderless Connector Div., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† Trans American Transformer, E. Setauket, NY 11733 516-928-0762
§ The Triangle Tool Group, Inc., Orangeburg, SC 29115 803-534-7010
§ Vaco Products, Chicago, IL 44139-3395 708-677-9500
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677

Wire Strippers, Thermal-5400

§ Clauss Cutlery Co., Alco Industries, Fremont, OH 43420 .. 419-332-7344;800-225-2877
† Coherent General, Inc., Sturbridge, MA 01566 508-347-2681
§† Contact, Inc., Hudson, NH 03051 603-883-7708
§ Contact East, N. Andover, MA 01845 508-682-2000
§† Eraser Co., Syracuse, NY 13221 315-454-3237
Hydro-Gen Products Inc., Fort Collins, CO 80522-1517 800-779-0126
§ Ideal Industries, Sycamore, IL 60178 815-895-5181
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
Omega Engineering, Stamford, CT 06907 800-826-6342
Pace Inc., Laurel, MD 20723-1990 301-490-9860
§ Techni-Tool, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Kinetics, Div. of Teledyne, Inc., Solana Beach, CA 92075 619-755-1181
† Trans American Transformer, E. Setauket, NY 11733 516-928-0762
§† Western Electronic Products Co., San Clemente, CA 92672 714-492-4677

Wire, Test Lead-6000

ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598, 914-962-2253 ..... C•1712

§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1718**
§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1748**
E.M.S., Div. of Sandberg Industries, Tustin, CA 92680, 714-669-9473 .... C•1682
Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§ Carol Cable Co. Inc., Pawtucket, RI 02862 401-728-7000
§ Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooner Wire Co., Chatsworth, CA 91311 818-882-8311
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§ Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
E-Z Hook, Tektest Inc., Arcadia, CA 91006 818-446-6175
§ Gavitt Wire & Cable, Brookfield, MA 01506 508-867-6476
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
Minnesota Wire & Cable, St. Paul, MN 55108-2721 ..... 612-642-1800 ; 1-800-258-6922(MWCC)
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873
† Mueller Elec. Co., Cleveland, OH 44114 216-771-5225
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§ Pomona Electronics, Pomona, CA 91766 714-623-3463
Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
§ Rye Industries, Inc., Fuquay-Varina, NC 27526 919-557-0511
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
Weico Wire & Cable, Inc., Edgewood, NY 11717 516-254-2970

Wire, TFE Insulated-6000

§† **Brim Electronics, Fair Lawn, NJ 07410, 201-796-2886 ..... C•1716-1717**
§† **Daburn Electronics & Cable Corp., Northvale, NJ 07647, 201-768-5400 .. C•1747**
National Wire & Cable Corp., Los Angeles, CA 90031-1780, 213-225-5611 ..... C•1776
Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... C•1799
† **Phoenix Wire, Inc., S. Hero, VT 05486, 802-372-4561 ..... C•1813**
† **Weico Wire & Cable, Inc., Edgewood, NY 11717, 516-254-2970 .... C•1831-1832**
ABL Electronics Supply, Inc., Yorktown Hgts., NY 10598 914-962-2253
§† Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§ American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
Champlain Cable Corp., Huber & Suhner(USA)Corp., Colchester, VT 05446 802-655-2121
Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, Franklin Park, IL 60131-1412 708-455-8830
§ Cooper Industries/Belden Div., Richmond, IN 47375 .... 317-983-5200;800-BELDEN-1
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable, Inc., Wheeling, IL 60090 ..... 708-459-1000; 800-323-0198
§ Delta Wire & Cable Co., North Chicago, IL 60064 708-473-4990
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
† Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
§ Manhattan Electric Cable Corporation, Rye, NY 10580 914-967-8000
§† Markel Corp., Norristown, PA 19404 215-272-8960
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
§ Olympic Wire & Cable, Fairfield, NJ 07006 201-227-7996
§† Philadelphia Insulated Wire Co. Inc., Moorestown, NJ 08057 ..... 800-257-8357; 609-235-6700
Precision Interconnect, Portland, OR 97224 503-620-9400
§ Pyrocom Co., Seattle, WA 98133 206-365-3535
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
Storm Products Co., Hinsdale, IL 60521 708-323-9121
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
§ Thomas & Betts Corporation, Electronics Div., Greenville, SC 29616-2401 803-676-2900
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
† Victor Wire & Cable Corp., Los Angeles, CA 90016 213-870-9933
§† Virginia Plastics Co., Roanoke, VA 24015-0577 703-375-0100
§† Whitmor Wire & Cable, Valencia, CA 91355 805-257-2400
§† Wilco Wire & Cable Co., Inc., San Jose, CA 95133 408-926-8880

Wire, Thermocouple-6000

Judd Wire Inc., Turners Falls, MA 01376, 413-863-4357 ..... B•1020, C•1764
§ **Manhattan Electric Cable Corporation, Rye, NY 10580, 914-967-8000 .... C•1771**
MWS Wire Industries, Westlake Village, CA 91362, 818-991-8553 ..... C•1772
Omega Engineering, Stamford, CT 06907, 800-826-6342 ..... C•1799
Rodale Technical Sales Inc., Islip, NY 11751, 516-277-5454 ..... C•1816
Aerospace Wire & Cable Inc., College Point, NY 11356 718-358-2345
§ Alpha Wire Corp., Elizabeth, NJ 07207-0711 908-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., Pawtucket, RI 02862 ... 401-726-0700
Astro Cable Co., Inc., Carol Cable Co., Inc., Worcester, MA 01615-0086 .. 508-754-3281
Barber-Colman Co., Indl. Instrs. Div., Rockford, IL 61125-7040 815-877-0241
§ Berk-Tek Inc., New Holland, PA 17557-9722 717-354-6200
§† BIW Cable Systems, Inc., N. Dighton, MA 02764 508-822-6600
§ Brand-Rex, BICC, Willimantic, CT 06226-1128 203-456-8000
§ Brim Electronics, Fair Lawn, NJ 07410 201-796-2886
§ Cable USA, Inc., Naples, FL 33942-3560 813-643-6400
† Carpenter Technology Corp., Reading, PA 19612 215-371-2000
§ Chester Cable Corp., Sub. Alcatel NA Cable Sys. Inc., Chester, NY 10918 914-469-2141
Conax Buffalo Corporation, Buffalo, NY 14225 716-684-4500
§ Continental Wire & Cable, York, PA 17405 717-792-2644
§ Custom Cable Corp., Westbury, NY 11590 516-334-3600
§† Daburn Electronics & Cable Corp., Northvale, NJ 07647 201-768-5400
† DELTA M Corporation, Oak Ridge, TN 37830 615-483-1569
§ EDL, Inc., Danville, VA 24540 ..... 804-799-0807;1-800-DIAL EDL
† Electroweave, Inc., Worcester, MA 01604 508-752-8932
† General Wire Products, Inc., Worcester, MA 01604 617-752-8260
§ GIC Thermodynamics, Royal Oak, MI 48073 313-280-1648
§† Gordon Co.:Watlow, Richmond, IL 60071 815-678-2211
† W.L. Gore & Assocs., Newark, DE 19714 302-738-4880
§ Harbour Ind. (Canada) Ltd., Farnham, Quebec, CANADA J2N 2X3 514-293-5304
Incotherm Limited, Hereford HR4 9SL ..... (44) 432 355880
ITT Cannon, Santa Ana, CA 92705-5684 714-557-4700
Leeds & Northrup, General Signal, North Wales, PA 19454 215-699-2000
§ Love Controls Corp., Wheeling, IL 60090 708-541-3232
Lynn Electronics, Feasterville, PA 19047 ..... 215-677-6700;800-523-6075
§† Markel Corp., Norristown, PA 19404 215-272-8960
† Molecu-Wire, Farmingdale, NJ 07727 201-938-9473
§ Pyrocom Co., Seattle, WA 98133 206-365-3535
Radix Wire Co., Cleveland, OH 44132 216-731-9191
Richards, Arklay S., Co., Inc., Newton Highlands, MA 02161-1796 617-527-4385
Rowe Industries, Inc., Toledo, OH 43612 419-729-9761
† Santa Fe Textiles, Barcel Wire & Cable, Irvine, CA 92714-5885 714-251-1960
§ Science/Electronics, Dayton, OH 45401-0986 513-859-5555
§ S. F. Products Corporation, Chester, NJ 07930 201-271-4009
§† Specialty Cable Corporation, Wallingford, CT 06492 ..... 800-456-SPEC
§† Standard Wire & Cable Co., Rancho Dominguez, CA 90220 ..... 213-609-1811; 800-326-0006
§† Tensolite Company, Subsidiary of Carlisle Corp., St. Augustine, FL 32092 904-829-5600
§† Thermax Wire Corp., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, Saddle Brook, NJ 07662 201-843-5800
† Thermometrics, Inc., Edison, NJ 08817-4695 908-287-2870
† United Wire & Cable Corp., Worcester, MA 01604 508-757-3872
§ West Instrument, A Mark IV Company, Des Plaines, IL 60018-1919 708-390-7711

Wire (MIL)-2440 — *See Vol. B*

Wire Twisters, Automatic-5400

A/Z-Tech, Inc. R&D Lab, Indiana Institute of Technlg., Fort Wayne, IN 46803 219-422-5561
§ Eraser Co., Syracuse, NY 13221 315-454-3237
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
Rutherford Research, Rutherford, NJ 07070 201-933-2091

Wire Twisters, Manual-5400

A/Z-Tech, Inc. R&D Lab, Indiana Institute of Technlg., Fort Wayne, IN 46803 219-422-5561
§ Contact East, N. Andover, MA 01845 508-682-2000
Eraser Co., Syracuse, NY 13221 315-454-3237
§ Jensen Tools, Inc., Axia, Inc., Phoenix, AZ 85044 602-968-6241
Jonard Industries Corp., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., Huntingdon Valley, PA 19006 215-355-7200
§ Mouser Electronics, Mansfield, TX 76063 800-346-6873

Wire Ways-6000

§ Nichifu America, Inc., Pottstown, PA 19464 215-323-7120
OK Industries, Inc., Yonkers, NY 10701 914-969-6800
§ Panduit Corp., Tinley Park, IL 60477-0981 800-777-3300
§ Square D Co., Palatine, IL 60067 708-397-2600
† Transtechnology Electronics, Transtechnology Corporation, Peoria, IL 61615-1584 309-693-3300
§† Tyton Corp., Milwaukee, WI 53223 ..... 414-355-1130;800-535-5552

Wirewrapping Services — See Services, Wirewrapping (Vol. D)

Wiring Panels & Boards, Computer — See Boards, Programming (Vol. C)

Work Room, Shielded-1400

† Lindgren RF Enclosures, Inc., Glendale Hgts., IL 60139 708-307-7200

Work Stations, Computer-2000 — *See Vol. D*

Work Stations, Laminar Flow-4100 — *See Vol. D*

Work Stations, 3-D Video Microscope-4100 — *See Vol. D*

Work Stations/Decks, Data Entry-1400

D. L. Custom, Markham, Ont, CANADA L3R 2M5, 416-475-0275 ..... C•1026

Wrenches-5400

§ Contact East, N. Andover, MA 01845 508-682-2000

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92 Manufacturers and Sales Offices Directory

Each manufacturer is listed alphabetically with complete address and telephone number of main offices. The names of those with data pages in this edition of EEM are shown in **boldface**

Many manufacturers also show FAX, TWX and Telex numbers, FSC (Federal Supply Code), other pertinent company data, their sales and/or local distributor offices and phones. The page numbers of their data pages in this edition are shown in all volumes.

AAK CORPORATION

FAX: 508-373-8881

AAK CORP, 747 River St., Haverhill, MA 01832, Tel: 508-373-3769, 800-886-2225, TELEX: 04 26 3109-1; FSC No.: 04 26 3109-1; Empl.: 20; *Sls. Mgr.:* Marie Credit ..... **D•1507-1510**

Local Sales Offices & Reps

CA	Los Angeles, Power Partners	213-215-0800
IN	Indianapolis, Loren Green Assocs.	317-293-9827
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
OH	Cleveland, Tiby Co.	216-371-5335
PA	Cheltenham, Stein Instr. Corp.	215-379-1990

AALPHA PRECISION, Pacific Resistor Co., 18300 Oxnard St., Tarzana, CA 91356, Tel: 818-345-7811, FAX: 818-345-1507; FSC No.: 06416; *Sls. Mgr.:* Douglas Trewhitt ..... **A•1837**

Local Sales Offices & Reps

CA	San Jose, Comtech Mktg.	408-294-5448

Local Distributors

CA	San Jose, Comtech Mktg.	408-294-5448

A & D ELEC. INSTRS., 73-07 88th St., Glendale, NY 11385, Tel: 718-275-6516, FAX: 718-275-6516; FSC No.: 01914; Empl.: 7

A & J MANUFACTURING CO., 14131 Franklin Ave., Tustin, CA 92680, Tel: 714-544-9570, FAX: 714-544-4215; FSC No.: 08060; Empl.: 70; *Sls. Mgr.:* Wayne L. Seeley

AAVID ENGINEERING, INC., One Kool Path, P.O. Box 400, Laconia, NH 03247-0400, Tel: 603-528-3400, TWX: 510-298-1127, FAX: 603-528-1478; FSC No.: 30161; Empl.: 450; *Sls. Mgr.:* Charles Nelson; *Dist. Mgr.:* David Mendel ..... **C•1604**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean, Inc.	205-830-1540
AZ	Phoenix, Jarko Assocs. Inc.	602-243-4387
CA	Brea, Masco Elctrns.	714-529-0866
CA	Santa Clara, WestRep	408-988-8833
CO	Broomfield, SummitWest Mktg.	303-460-9600
FL	Apopka, Cartwright & Bean, Inc.	407-889-9100
FL	Deerfield Bch., Cartwright & Bean, Inc.	305-429-3400
GA	Norcross, Cartwright & Bean, Inc.	404-368-0160
IL	Itasca, Beta Technlg. Sls., Inc.	708-250-9586
IN	Carmel, Kahsar Sls. Inc.	317-844-9353
IA	Des Moines, S P S Assocs.	515-225-0607
KS	Olathe, S P S Assocs.	913-764-4460
LA	Covington, Cartwright & Bean, Inc.	504-892-1780
MD	Hunt Valley, Marktron, Inc.	301-628-1111
MD	Rockville, Marktron, Inc.	301-251-8990
MA	Millis, Selmark Assocs., Inc.	508-376-2914
MI	Ann Arbor, Kahsar Sls. Inc.	313-769-0131
MN	Brainerd, Mitchell Johnson	218-829-8180
MS	Jackson, Cartwright & Bean, Inc.	601-981-1170
MO	Earth City, S P S Assocs.	314-291-0520
NE	Panama, S P S Assocs.	913-764-4460
NJ	Berkeley Hgts., Cambridge-Allen & Assocs.	908-464-0203
NJ	Medford, Jack McCoy, Inc.	609-953-0770
NM	Albuquerque, Ron-Tek, Inc.	505-299-4124
NY	Endwell, Reagan/Compar Binghamton	607-754-2171,607-754-8946
NY	Fairport, Reagan/Compar Corp.	716-271-2230
NY	New Hartford, Reagan/Compar Syracuse/Utica	315-732-3775,315-735-9831
NC	Charlotte, Cartwright & Bean, Inc.	704-536-0303
NC	Raleigh, Cartwright & Bean, Inc.	919-876-4130
OH	Cincinnati, Kahsar Sls. Inc.	513-922-3133
OH	Columbus, Kahsar Sls. Inc.	614-252-4009
OH	Mentor, Kahsar Sls. Inc.	216-946-7659
OR	Portland, S P S Elctrns.	503-297-6919
PA	Exton, Jack McCoy, Inc.	215-363-0350
TN	Knoxville, Cartwright & Bean, Inc.	615-693-7450
TN	Memphis, Cartwright & Bean, Inc.	901-362-8345
TX	Austin, Mil-Rep Assocs., Inc.	512-346-6331
TX	Houston, Mil-Rep Assocs., Inc.	713-444-2557
TX	Richardson, Mil-Rep Assocs., Inc.	214-644-6731
UT	Salt Lake City, Butterworth Mktg.	801-969-5566
WA	Snohomish, S P S Elctrns.	206-794-0154
WI	Milwaukee, Beta Technlg. Sls., Inc.	414-543-6609
PR	Guaynabo, ISLA Caribe Electro Sls.	809-720-4430
Can	Markham, Ont., Avotronics, Ltd.	416-475-2024
Can	Ottawa, Ont., Avotronics, Ltd.	613-233-5527
Can	Pointe Claire, Que., Avotronics, Ltd.	514-697-2135

Local Distributors

AL	Huntsville, Century Fasteners Corp.	205-883-5344
AL	Huntsville, Hammond Elctrns. Inc.	205-830-4764
AZ	Phoenix, Aero-Space Southwest Inc.	602-582-2779
AZ	Tempe, Acacia/Deanco	602-894-2874
AZ	Tempe, D C Elctrns. Supp.	602-438-1234
AR	Ft. Smith, Carlton-Bates Co., Inc.	501-646-8201
AR	Little Rock, Carlton-Bates Co. Inc.	501-562-9100
AR	Pine Bluff, Carlton-Bates Co. Inc.	501-535-1355
AR	Springdale, Carlton-Bates Co. Inc.	501-756-5012
CA	Fountain Valley, Comps. Cen. Inc.	714-979-0433
CA	Fullerton, Pyramid Elctrns.	213-691-0561
CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	Hayward, Allied Elctrns.	415-487-5250
CA	Irvine, Acacia/Deanco	714-660-0834
CA	Mtn. View, Energy Sls. Inc.	415-969-0800
CA	Rancho Cordova, Acacia/Deanco	916-638-1861
CA	San Diego, Acacia/Deanco	619-565-4365
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	San Jose, Allied Elctrns.	408-727-1690
CA	San Jose, Future Elctrns. Inc.	408-435-9100
CA	Santa Clara, Comps. Cen.	408-988-3751
CA	Santa Clara, D C Elctrns. Supp.	408-980-1199
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Acacia/Deanco	408-745-7200
CA	Tustin, Added Value Elctrn.	714-259-8258
CO	Englewood, N E P Elctrns. Inc.	303-799-9898
CO	Lakewood, Acacia/Deanco	303-232-2882
CO	Westminster, Future Elctrns. Inc.	303-650-0123
CT	Danbury, Future Elctrns. Inc.	203-743-9594
CT	Wallingford, Cronin Elctrns., Inc.	800-982-4449
FL	Clearwater, Elctrn. Precepts of FL	813-530-9781
FL	Clearwater, Future Elctrns. Inc.	813-441-4771
FL	Ft. Lauderdale, Allied Elctrns.	305-486-0500
FL	Ft. Lauderdale, Hammond Elctrns. Inc.	305-973-7103
FL	Lake Mary, Elctrn./Fasteners	407-321-4000
FL	Largo, Bell Inds.	813-541-4434
FL	Orlando, Hammond Elctrns. Inc.	407-849-6060
FL	Tampa, Century Fasteners Corp.	813-886-5770
GA	Decatur, Allied Elctrns.	404-377-3555
GA	Norcross, Atlanta Hardware Special	404-449-3000
GA	Norcross, Future Elctrns. Inc.	404-441-7675
GA	Norcross, Hammond Elctrns. Inc.	404-449-1996
IL	Chicago, N E P Elctrns. Inc.	708-625-8400
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Lisle, Comps. Inc.	708-852-7707
IL	Rosemont, Advent Elctrns. Inc.	708-297-6200
IL	Schaumburg, Future Elctrns. Inc.	312-882-1255
IN	Indianapolis, Bell Inds.	317-634-8202
IN	Indianapolis, Bell Inds.;Jit Div.	317-299-5487
IN	Indianapolis, Mar Elctrns. Inc.	317-633-6699
IA	Cedar Rapids, Advent Elctrns. Inc.	319-363-0221
MD	Columbia, Future Elctrns. Inc.	301-995-1222
MD	Jessup, Treeko Sls. Inc.	301-470-3300
MD	Marlow Hgts., Allied Elctrns.	301-423-0161
MA	Bolton, Future Elctrns. Inc.	508-366-2400
MA	Marlborough, Hardware Specialty Co. Inc.	718-481-8622
MA	Needham, Cronin Elctrns., Inc.	617-449-5000
MA	Woburn, Macbearing Co.	617-933-2110
MI	Farmington Hills, Advent Elctrns. Inc.	313-477-1650
MN	Bloomington, Bergquist Co.	612-835-2322
MN	Minneapolis, Aero-Space Computer Supp.	612-884-4725

MN	St. Paul, Chris Elctrns.	612-631-2647
MO	St. Charles, Finnigan Elctrns.	314-946-6201
MO	St. Louis, Ric-Tronics	314-576-9816
NH	Salem, Cronin Elctrns., Inc.	603-898-4440
NJ	Mt. Laurel, Future Elctrns. Inc.	609-778-7600
NJ	Springfield, Route Elctrns.	201-379-7710
NY	Bohemia, Car-Lac Elctrns.	516-567-4200
NY	Buffalo, Summit Distrs. inc.	716-887-2800
NY	Elmhurst, Century Fasteners Corp.	718-446-5000
NY	Holtsville, Tower Fasteners	516-289-8800
NY	Liverpool, Future Elctrns. Inc.	315-451-2371
NY	Mineola, Allied Elctrns.	516-248-2360
NY	Mt. Vernon, Q A R Indl. Elec.	914-699-2224
NY	Rochester, Masline Elctrns. Inc.	716-546-5373
NY	Rochester, Summit Elctrns. Inc.	716-334-8110
NC	Charlotte, Century Fasteners Corp.	704-554-0444
NC	Greensboro, Golden Elctrns.	919-294-4653
NC	Greensboro, Hammond Elctrns. Inc.	919-275-6391
NC	Raleigh, Century Elctrn. Comps.	919-782-2116
NC	Raleigh, Century Fasteners Corp.	919-787-1800
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cincinnati, Schuster Elctrns.	513-489-1400
OH	Twinsburg, Schuster Elctrns.	216-425-8134
OH	Warren, REM Elctrns.	216-373-1300
OK	Tulsa, Carlton-Bates Co. Inc.	918-250-1626
OR	Beaverton, Acacia/Deanco	503-646-3377
OR	Beaverton, Comp. Resources	503-641-8488
OR	Beaverton, Future Elctrns. Inc.	503-626-2977
OR	Beaverton, Murphy Elctrns.	503-642-2001
OR	Portland, Dynn Elctrns.	503-285-0214
PA	Carisle, Cumberland Elctrns.	717-243-8006
PA	Erie, REM Elctrns.	814-453-5626
PA	Harrisburg, Cumberland Elctrns.	717-232-5999
PA	Lancaster, Cumberland Elctrns.	717-393-8304
PA	Lewistown, Cumberland Elctrns.	717-249-9631
PA	Norristown, Century Elctrn. Comp.	215-631-5400
PA	Philadelphia, P E I-Genesis	800-523-0727
PA	Philadelphia, Shap Elctrns.	215-969-3300
PA	York, Cumberland Elctrns.	717-845-8791
SC	Greenville, Hammond Elctrns. Inc.	803-233-4121
SC	W. Columbia, Century Fasteners Corp.	803-791-1800
TN	Memphis, Carlton-Bates Co. Inc.	901-365-3539
TN	Nashville, Carlton-Bates Co. Inc.	615-244-3562
TX	Austin, Wofford Elctrns., Inc.	512-339-1131
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Wofford Elctrns., Inc.	713-847-3583
TX	Texarkana, Carlton-Bates Co. Inc.	214-792-6923
UT	Salt Lake City, Future Elctrns. Inc.	801-972-8489
VA	Richmond, Century Fasteners Corp.	804-262-8671
WA	Bellevue, Future Elctrns. Inc.	206-881-8199
WA	Kent, Pyramid Elctrns.	206-872-5800
WA	Redmond, Comp. Resources	800-547-6523
WA	Redmond, Energy Sls. Inc.	206-883-2342
WA	Redmond, Murphy Elctrns.	206-881-1234
WA	Seattle, Allied Elctrns.	206-547-2827
WI	New Berlin, N E P Elctrns. Inc.	414-785-9100
Can	Calgary, Alberta, Future Elctrns. Inc.	403-259-6408
Can	Downview, Ont., Future Elctrns. Inc.	416-638-4771
Can	Edmonton, Alberta, Future Elctrns. Inc.	403-438-2858
Can	Mississauga, Ont., Rush Elctrns.	416-677-7280
Can	Nepean, Ont., Carsten Elctrns. Ltd.	613-726-9250
Can	Ottawa, Ont., Future Elctrns.	613-820-8313
Can	Pointe Claire, Que., Future Elctrns. Inc.	514-694-7710
Can	Scarborough, Ont., Carsten Elctrns. Ltd.	416-495-9999
Can	St. Laurent, Que., Carsten Elctrns.	514-334-8321
Can	Vancouver, BC, Future Elctrns. Inc.	604-294-1166
Can	Victoria, BC, Queale Elctrns. Ltd.	604-388-6111
Can	Winnipeg, Manitoba, Future Elctrns. Inc.	204-339-0554

FAX: 908-526-6866

ABACUS CONTROLS INC., 89 Readington Rd., Somerville, NJ 08876, Tel: 908-526-6010; FSC No.: 54241; Empl.: 45; *Sls. Mgr.:* P. Milone ..... **D•2149-2151**

Local Sales Offices & Reps

AL	Gurly, Saber Assocs.	800-327-0853
CA	Los Angeles, Power Partners	800-468-5400
CA	San Diego, Power Partners	800-468-5400
CA	Sunnyvale, N-S Westronics	408-745-1102
CT	New London, Elctrn. Sls. of New England	203-443-2646
FL	Apopka, Saber Assocs.	800-432-6288
FL	Melbourne, Saber Assocs.	800-432-6288
FL	Plantation, Saber Assocs.	800-432-6288
FL	Tampa, Saber Assocs.	800-432-6288
GA	Dacula, Saber Assocs.	800-327-0853
MD	Landover, Sel-Tronics	301-341-2700
MA	Wareham, Elctrn. Sls. of New England	508-295-7634
NC	Clayton, Saber Assocs.	800-327-0853
TX	Dallas, True Technlg.	214-691-7870
VA	Hampton, Sel-Tronics	301-341-2700
VA	Herdon, Sel-Tronics	301-341-2700
WA	Bellevue, Al Smith Co.	206-746-6770
WA	Vancouver, Al Smith Co.	206-892-9912

ABALON PRECISION MFG., 1040 Home Street, Bronx, NY 10459, Tel: 212-589-5682, 1-800-888-ABALON, FAX: 212-589-0300; Empl.: 25; *Sls. Mgr.:* Harold Miller

ABB KENT-TAYLOR INC., ASea Brown Boveri, P.O. Box 110, 95 Ames St., Rochester, NY 14692, Tel: 716-235-5000, TELEX: 978412, FAX: 716-235-7131; Empl.: 600; *Dist. Mgr.:* Michael Spoonhower

ABB METRAWATT, 2150 W. 6th Ave. Unit J, Broomfield, CO 80020, Tel: 303-469-5231, 800-821-6327, TELEX: 4970869, FAX: 303-469-4256; Empl.: 20; *Sls. Mgr.:* Erik Pfanku

ABB SEMICONDUCTOR, See IXYS Corporation

abbott

FAX: 213-836-1027

ABBOTT ELECTRONICS, 2727 S. La Cienega Blvd., Los Angeles, CA 90034, Tel: 213-202-8820, TELEX: 69-1398; FSC No.: 6130, 5999, 15755; Empl.: 200; *Sls. Mgr.:* Brooke Hartman ..... **D•1523-1543**

Local Sales Offices & Reps

NJ	Ft. Lee, Abbott Elctrns.	201-461-4411
TX	Richardson, Abbott Elctrns.	214-437-0697
UT	Bountiful, Anderson & Assocs.	801-292-8991
AZ	Scottsdale, Aztech-CPS Assocs.	602-991-6300
Can	Ottawa, Subtec Ltd.	613-738-1470

ABBOTT TECHNOLOGIES, INC, Transformer Division, 8203 Vineland Ave., Sun Valley, CA 91352, Tel: 818-504-0644, 1-800-367-8200, 818-841-3630, TELEX: 75-2972, FAX: 818-768-0395,69-6282; FSC No.: 58910; Empl.: 62; *Sls. Mgr.:* Suresh Soni ..... **A•2134-2149; D•2152-2153**

Local Sales Offices & Reps

CA	Mission Viejo, Abbott Technlgs., Inc.	714-454-1361
CA	Sun Valley, Abbott Technlgs., Inc.	818-504-0644
NJ	Palisades Pk., Abbott Technlgs., Inc.	201-461-4005

ABBOTT TECHNOLOGIES, INC. POWER SUPPLIES DIVISION, 8203 Vineland Ave., Sun Valley, CA 91352, Tel: 818-504-0644,1-800-367-8200,818-841-3630, TELEX: 75-2972, FAX: 818-768-0395; Empl.: 62; *Sls. Mgr.:* Suresh Soni ..... **D•1511-1521, 2152-2153**

Local Sales Offices & Reps

CA	Mission Viejo, Abbott Technlgs., Inc.	714-454-1361
CA	Sun Valley, Abbott Technlgs; Inc.	818-504-0644
NJ	Palisades Pk., Abbott Technlgs., Inc.	201-461-4005

ABBOTT TRANSISTOR LABS, Power Supplies, See Abbott Electronics, Power Supplies

ABL ELECTRONICS SUPPLY, INC., 1736 Front St., Yorktown Hgts., NY 10598, Tel: 914-962-2253, FAX: 914-962-2296; Empl.: 18; *Sls. Mgr.:* George Wiesel ..... **C•1155, 1710-1713**

ABLESTIK LABORATORIES, 20021 Susana Rd., Rancho Dominguez, CA 90221, Tel: 213-764-4600, FAX: 213-764-2545; FSC No.: 21109; Empl.: 150; *Sls. Mgr.:* J. Gausepohl

ABORN ELECTRONICS INC., 2108 D Bering Dr., San Jose, CA 95131, Tel: 408-436-5444, FAX: 408-436-0969; FSC No.: 8Z441; Empl.: K. Bomin; *Sls. Mgr.:* V. Lumba

ABRAMS INSTRUMENT CORP., 2859 W. Jolly Rd., Okemos, MI 48864, Tel: 517-332-6405, FAX: 517-332-8270; FSC No.: 00048; *Sls. Mgr.:* Merlyn Gates

ACC ELECTRONICS COMPANY, Echlin Inc., 1300 W. Oak, Independence, KS 67301, Tel: 316-331-1000, FAX: 316-331-1422; Empl.: 1000; *Sls. Mgr.:* Leon Allen

ACCEL INDUSTRIAL HEAT SINK CORP., 3709 Medford St., Los Angeles, CA 90063, Tel: 213-261-5156, FAX: 213-261-5159; FSC No.: 26701; *Sls. Mgr.:* Ron Ruby

ACCEL TECHNOLOGIES, INC., 6825 Flanders Dr., San Diego, CA 92121, Tel: 619-554-1000, TELEX: 201-582 ATI UR, FAX: 619-554-1019; Empl.: 26; *Sls. Mgr.:* Ray Schnorr

ACCESSORIES FOR ELECTRONICS, INC., 800 Merrick Rd., Baldwin, NY 11510-3593, Tel: 516-546-1751, FAX: 516-867-1922; FSC No.: 54355; Empl.: 27; *Sls. Mgr.:* Bill Harris

ACCU DATA, INC., 1220 Spring Creek Place, Springville, UT 84663-0963, Tel: 801-377-9156, FAX: 801-377-9158; Empl.: 10; *Sls. Mgr.:* Ralph D. Bradley; *Dist. Mgr.:* Ralph D. Bradley

ACCUDYNE CORP., P.O. Box 1429, Janesville, WI 53547, Tel: 608-752-4053, FAX: 608-752-9706; FSC No.: 18356; Empl.: 540; *Sls. Mgr.:* R. E. Mowris; *Dist. Mgr.:* R. E. Mowris

ACCULEX CORPORATION, 440 Myles Standish Blvd., Taunton, MA 02780, Tel: 508-880-3660, TELEX: 503989, FAX: 508-880-0179; *Sls. Mgr.:* Richard A. Mullen

ACCULIN, INC., 214 N. Main St., Suite 204, Natick, MA 01760, Tel: 508-650-1012, FAX: 508-650-1457; Empl.: 3; *Sls. Mgr.:* Barry Hilton

ACCUMET ENGINEERING, 518 Main St., Hudson, MA 01749, Tel: 508-568-8311, FAX: 508-562-4384; *Sls. Mgr.:* C. T. Haering

ACCUPROBE, INC., 1 Harrison Ave, Box 1044, Salem, MA 01970, Tel: 508-745-7878, FAX: 508-745-7922; Empl.: 22; *Sls. Mgr.:* Thomas H. Murphy; *Dist. Mgr.:* T. H. Murphy

ACCURATE ELECTRONICS CORP., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036, Tel: 216-366-6330, 1-800-325-8979, FAX: 216-366-0522; FSC No.: 11375; Empl.: 35; *Sls. Mgr.:* J. F. Seybold

Local Sales Offices & Reps

FL	Niceville, Adams Sls. Co.	904-897-4958
OH	Worthington, Padgett Sls. Co.	614-885-5908

ACCURIDE, 12311 Shoemaker, Santa Fe Springs, CA 90670, Tel: 213-903-0373, TWX: 910-586-1632, FAX: 213-903-0208; *Sls. Mgr.:* Jackie Pinto

ACCUSONIC DIVISION, Ferranti O.R.E. Inc., Box 709, Falmouth, MA 02541, Tel: 508-548-5800, TELEX: 6817399 OREFAL UW, FAX: 508-540-3835; Empl.: 125; *Sls. Mgr.:* Robert Beede

ACCUSONIC SYSTEMS CORP., A DSG Company, 2101 Jericho Turnpike, New Hyde Park, NY 11040, Tel: 516-328-3300, FAX: 516-326-8827; Empl.: 116; *Sls. Mgr.:* Michael D'Agostino

ACCUTECH, Adaptive Instrs. Corp., 15 Bunazzoli Ave., Riverside Indl. Park, Hudson, MA 01749, Tel: 508-568-0500, FAX: 508-568-9085; *Sls. Mgr.:* Cliff Lewis

ACCUTECH BENCHMARK SERVICES, P.O. Box 252, Brick, NJ 08723, Tel: 1-908-206-0026, FAX: 908-206-0280 ..... **D•1024-1026**

ACCUTRONICS/CONNOR-WINFIELD, See Connor-Winfield

acdc electronics
A DIVISION OF ASTEC AMERICA, INC.

ACDC ELECTRONICS, DIV. OF ASTEC AMERICA, See Astec America

ACD-ELCOR PRODUCTS, P.O. Box 244, Bethel, CT 06801, Tel: 203-743-3510; Empl.: 3

ACHESON COLLOIDS, Div. of Acheson Industries, Inc., P.O. Box 611747, Port Huron, MI 48061-1747, Tel: 313-984-5581, FAX: 313-984-1446; Empl.: 200

A.C. INTERFACE INC., 22391 Gilberto, Rancho Santa Margarita, CA 92688, Tel: 714-858-1866, FAX: 714-858-1073; FSC No.: OAP 78; Empl.: 23; *Sls. Mgr.:* Bill Roth; *Dist. Mgr.:* Al Kile

ACL INC., 1960 E. Devon Ave., Elk Grove, IL 60007, Tel: 708-981-9212, 1-800-782-8420, FAX: 708-981-9212; Empl.: 12; *Sls. Mgr.:* Ralph D. Considine; *Dist. Mgr.:* Tony Banks

FAX: 716-968-3948

ACME ELECTRIC CORPORATION, 20 Water Street, Cuba, NY 14727, Tel: 716-968-2400; *Sls. Mgr.:* Dale Guilford; *Dist. Mgr.:* Bill Bengle
..... **D•1544-1547, 2154-2155**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, O'Donnell Assocs. S.W.	602-944-9542
CA	San Jose, O'Donnell Assocs., North	408-432-1940
CO	Littleton, Harthun Assocs.	303-795-5545
FL	Apopka, Cartwright & Bean	407-422-4531
FL	Deerfield Bch., Cartwright & Bean	305-429-3400
GA	Norcross, Cartwright & Bean	404-368-0160
ID	Boise, Jas. J. Backer Co.	208-343-9831
IL	Des Plaines, Electron Mktg.	312-298-2330
IN	Ft. Wayne, Needler Sls. Co., Inc.	219-447-2123
IN	Indianapolis, Luebbe Sls.	317-845-7389
IN	Indianapolis, Needler Sls. Co., Inc.	317-255-8056
KS	Shawnee Mission, Lowell Kangas & Assocs.	913-631-3515
LA	Covington, Cartwright & Bean	504-892-1780
MD	Gaithersburg, Naudain Assocs.	301-258-5040
MA	Framingham, Marathon Sls.	508-875-3566
MI	Farmington Hills, Luebbe Sls.	313-489-8828
MS	Jackson, Cartwright & Bean	601-981-1170
MN	Minneapolis, Boerger & Assocs.	612-560-3435
MO	St. Louis, Lowell Kangas & Assocs.	314-821-4050
NM	Albuquerque, O'Donnell Assocs. S.W.	505-889-4522
NY	Clark Mills, KLM Garner	315-853-6126
CA	Torrance, O'Donnell Assocs. S. W.	213-539-9664
NC	Charlotte, Cartwright & Bean	704-536-0303
NC	Lumberton, Acme Elec. Corp.	919-738-9202
NC	Raleigh, Cartwright & Bean	919-876-4130
OH	Cincinnati, Luebbe Sls.	513-530-0600
OH	Cleveland, Luebbe Sls.	216-333-0425
OH	Cleveland, Marlow Assocs.	216-831-8232
OH	Columbus, Luebbe Sls.	614-431-0474
OH	Dayton, Luebbe Sls.	513-294-0426
OH	Dayton, Marlow Assocs.	513-274-9666
OR	Beaverton, Jas. J. Backer Co.	503-627-0775
PA	Pittsburgh, Luebbe Sls.	412-364-0490
PA	Pittsburgh, Marlow Assocs.	412-343-5050
TN	Knoxville, Cartwright & Bean	615-693-4750
TN	Memphis, Cartwright & Bean	901-362-8345
UT	Salt Lake City, Acme Elec. Corp.	801-539-0227
WA	Seattle, Jas. J. Backer Co.	206-285-1300
WI	Sullivan, Electron Mktg.	414-593-2981

Local Distributors

AL	Birmingham, American Elctrns. Supp.	205-942-4656
AL	Birmingham, Forbes Distrbg.	205-251-3941
AL	Decatur, Forbes Distbg.	205-353-4762
AL	Huntsville, Allied Elctrns.	205-721-3500
AL	Huntsville, Forbes Distbg.	205-837-1579
AL	Huntsville, Future Elctrns.	205-882-3190
AL	Mobile, Allied Elctrns.	205-476-1875
AL	Mobile, Forbes Distbg.	205-479-4535
AL	Mobile, Spectronics	205-344-0450
AL	Montgomery, Forbes Distrbg.	205-263-2083
AZ	Phoenix, Allied Elctrns.	602-437-9080
AZ	Phoenix, Future	602-968-7140
AZ	Tempe, L Comp	602-730-1633
AZ	Tempe, P&A Entprs.	602-894-1519
AR	Little Rock, Carlton Bates	501-562-9100
AR	N. Little Rock, Allied Elctrns.	501-376-0233
CA	Chatsworth, Allied Elctrns.	818-882-6981
CA	Chatsworth, Future Elctrns.	818-722-6240
CA	Fremont, Allied Elctrns.	415-770-0590
CA	Irvine, Allied Elctrns.	714-727-3010
CA	Irvine, Future Elctrns.	714-250-4141
CA	Irvine, ITT Multicomp.	714-727-3001
CA	Los Angeles, Bell Inds.	213-826-6778
CA	Rockland, Allied Elctrns.	916-632-3014
CA	S. San Francisco, Allied Elctrns.	415-952-9599
CA	San Diego, Allied Elctrns.	619-279-2550
CA	San Diego, Future Elctrns.	619-278-5020
CA	San Jose, Capstone	408-453-9804
CA	San Jose, Future Elctrns.	408-434-1122
CA	San Jose, ITT Multicomp.	408-453-1404
CA	San Jose, Rose Elctrns.	408-943-0255
CA	Sunnyvale, Target Elctrns.	408-733-0384
CA	Torrance, Allied Elctrns.	213-373-8828
CA	Tustin, Capstone	714-730-0349
CA	Yorba Linda, Target Elctrns.	714-692-1630
CO	Denver, Consolidated Parts	303-623-5313
CO	Englewood, Allied Elctrns.	303-790-1664
CO	Englewood, NEP Elctrns.	303-799-9898
CO	Westminster, ITT Multicomps.	303-451-8740
CT	Bethel, Future Elctrns.	203-743-9594
CT	Cheshire, Allied Elctrns.	203-272-7730
CT	Wallingford, Sager	203-265-7741
FL	Altamonte Springs, Future Elctrns.	407-767-8414
FL	Casselberry, Allied Elctrns.	407-831-3331
FL	Clearwater, Future Elctrns.	813-578-2770
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Jacksonville, Allied Elctrns.	904-346-0741
FL	Jacksonville, Hammond/EMSCO	904-356-4851
FL	Largo, Allied Elctrns.	813-541-4660
FL	Orlando, EMSCO	407-849-6362
FL	Orlando, Hammond Elctrns.	407-849-6060
FL	Pompano Bch., Allied Elctrns.	305-978-3008
FL	Riviera Bch., K & M Elctrl.	407-842-4911
GA	Doraville, Voltex Batteries	404-448-6021
GA	Norcross, Bell Inds.	404-662-0923
GA	Norcross, Future Elctrns.	404-441-7676
GA	Norcross, Hammond Elctrns.	404-449-1996
IL	Addison, LComp Elctrns.	312-628-1400
IL	Itasca, Capstone	708-250-3000
IL	Libertyville, Allied Elctrns.	708-918-0250
IL	Oak Forest, Allied Elctrns.	708-535-0038
IL	Wood Dale, Allied Elctrns.	708-860-0007
IN	Carmel, Altex Elctrns.	317-848-1323
IN	Ft. Wayne, Bell Inds.	219-742-4346
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Allied Elctrns.	317-875-0448
IN	Indianapolis, Bell Inds.	317-634-8202
IN	Indianapolis, Meunier Elctrns.	317-635-3511
IN	Indianapolis, R S Elctrns.	513-793-2450
ID	Boise, Radar Elec.	208-336-2227
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
IA	W. Des Moines, Allied Elctrns.	515-223-6488
KS	Lenexa, Allied Elctrns.	913-599-6227
KS	Overland Park, Olive Elctrns.	312-297-6200
IL	Schaumberg, Future Elctrns.	312-882-1255
KY	Florence, URI Elctrns.	606-371-4423
KY	Lexington, Radio Elctrn.	606-255-6661
KY	Louisville, Allied Elctrns.	502-452-2293
KY	Louisville, Peerless Elctrns.	502-637-7674
LA	Baton Rouge, Menard Elctrns.	504-355-0323
LA	Metairie, Allied Elctrns.	504-885-1195
LA	New Orleans, Menard Elctrns.	504-734-8445
LA	New Orleans, Radio Parts	504-581-5959
MD	Baltimore, Resco/Baltimore	301-931-8200
MA	Billerica, Allied Elctrns.	508-667-7921
MD	Columbia, Allied Elctrns.	301-381-1560
MD	Columbia, Future Elctrns.	301-290-0600
MD	Columbia, Sager	301-995-6580
MD	Jessup, Treeko Elctrns.	301-470-3300
MD	W. Friendship, Cerberus Sys.	301-489-7198
MA	Hingham, Sager Elctrl.	617-749-6700
MA	Norwood, Allied Elctrns.	617-255-0361
MA	Wilmington, Capstone	508-657-5874
MA	Wilmington, North Star Elctrns.	508-657-5155
MI	Battle Creek, Gt. Lakes Elctrns.	616-963-6282
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Haven, Fitzpatrick Elec.	616-846-5591
MI	Grand Rapids, Allied Elctrns.	616-949-8200
MI	Grand Rapids, Fitzpatrick Elec.	800-968-9880
MI	Grand Rapids, R S Elctrns.	616-241-3483
MI	Holland, Fitzpatrick Elec.	800-968-4625
MI	Lansing, Battery Exchange(Dynalite)	517-694-0411
MI	Livonia, Allied Elctrns.	313-462-0190
MI	Livonia, Future Elctrns.	313-261-5270
MI	Livonia, R S Elctrns.	313-525-1155
MI	Muskegon, Fitzpatrick Elec.	800-968-6621
MI	Traverse City, Fitzpatrick Elec.	800-968-7262
MN	Eden Prairie, Allied Elctrns.	612-829-7554
MN	Eden Prairie, Future Elctrns.	612-944-2200
MN	Minneapolis, Bergquist Co.	612-835-2322
MN	Minneapolis, ISI-Instrmn. Svc.	612-544-8916
MS	Jackson, Ellington Elec.	601-355-0561
MO	Earth City, Allied Elctrns.	314-291-7031
MO	Kansas City, LComp Elctrns.	816-221-2400
MO	Maryland Hgts., LComp Elctrns.	314-291-6200
MO	Maryland Hgts., Olive Elctrns.	314-997-7709
MO	St Louis, ISL Corp.	314-535-5760
MO	St. Louis, Future Elctrns.	314-469-6805
MO	St. Louis, Vansickle Elctrns.	314-621-5000
NE	Omaha, Allied Elctrns.	402-697-0038
NH	Nashua, Allied Elctrns.	603-883-3008
NJ	Edison, Allied Elctrns.	908-572-9600
NJ	Fairfield, Future Elctrns.	201-227-4346
NJ	Green Brook, Apparatus Elec.	201-752-8400
NJ	Lodi, TRC	201-779-8282
NJ	Mt. Laurel, Capstone	609-727-7800
NJ	Oakland, Relay Specialties	201-337-1000
NJ	Parsippany, Allied Elctrns.	201-428-3350
NM	Albuquerque, International Elctrns.	505-291-9951
NJ	Mt. Laurel, Future Elctrns.	609-778-7600
NY	Buffalo, Summit Inds.	716-887-2800
NY	Cen. Islip, Circuit Sls.	516-348-7670
NY	E. Rochester, Rome Elctrns.	716-248-0160
NY	Fairport, Allied Elctrns.	716-425-3850
NY	Hauppauge, Future Elctrns.	516-234-4000
NY	Hauppauge, Sager Elctrl.	516-348-1300
NY	Lagrangeville, Allied Elctrns.	914-452-1470
NY	Liverpool, Future Elctrns.	315-451-2371
NY	Melville, Capstone	516-391-1300
NY	Mineola, Allied Elctrns.	516-248-2360
NY	Mt. Vernon, OAR Elctrns.	914-699-2224
NY	Mt. Vernon, QAR Elctrns.	914-699-2224
NY	Rochester, CAM/RPC Elctrns.	716-427-9999
NY	Rochester, Future Elctrns.	716-272-1120
NY	Rochester, Simcona	716-328-3230
NY	Rochester, Summit Inds.	716-334-8110
NY	Rockville Centre, Group 516 Inc.	516-678-7360
NY	Rome, Rome Elctrns.	315-337-5400
NC	Asheville, Southeastern Elctrns.	704-253-1446
NC	Charlotte, Future Elctrns.	704-529-5500
NC	Charlotte, Southeastern Elctrns.	704-523-1122
NC	Fayetteville, Southeastern Elctrns.	919-483-0371
NC	Greensboro, Hammond/EMSCO	919-275-6391
NC	Greensboro, Southeastern Elctrns.	919-273-8675
NC	Hickory, Southeastern Elctrns.	704-322-9493
NC	Jacksonville, Southeastern Elctrns.	919-353-4171
NC	Kingston, Southeastern Elctrns.	919-523-5113
NC	Lumberton, The Computer Store	919-738-3755
NC	Raleigh, Allied Elctrns.	919-876-5845
NC	Raleigh, Capstone	919-954-0600
NC	Raleigh, Sager Elctrns.	919-850-9550
NC	Raleigh, Southeastern Elctrns.	919-828-2311
NC	Wilmington, Southeastern Elctrns.	919-791-7365
OH	Cincinnati, Allied Elctrns.	513-771-6990
OH	Cincinnati, Hughes-Peters, Inc.	513-351-2000
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Cleveland, Acorn Inds.	216-289-2531
OH	Cleveland, CAM/RPC Elctrns.	216-461-4700
OH	Columbus, Foster Battery (Dynalite)	614-351-1500
OH	Dayton, Bell Inds.	513-435-8660
OH	Dayton, Duellman Elec.	513-461-8000
OH	Maumee, R S Elctrns.	419-893-0721
OH	Millbury, Dynalite Battery	419-837-6837
OH	Solon, Allied Elctrns.	216-248-4200
OH	Warren, REM Elctrns.	216-373-1300
OH	Worthington, Allied Elctrns.	614-785-1270
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Tulsa, Allied Elctrns.	918-664-0844
OK	Tulsa, Altair Co.	918-252-9123
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Future Elctrns.	503-645-9454
OR	Beaverton, Rose Elctrns.	503-629-9288
OR	Portland, Radar Elec.	503-232-3404
PA	Allentown, Yates Battery	215-437-6700
PA	Bristol, Aim Elctrns.	215-785-3500
PA	Camp Hill, Allied Elctrns	717-975-3570
PA	Drexel Hill, Kass Elctrns.	215-449-2300
PA	Erie, REM Elctrns.	814-453-5626
PA	Essington, Tri-Com	215-521-3080
PA	Mars, Sager Elctrns.	412-772-2233
PA	N. Huntingdon, REM Elctrns.	412-864-7423
PA	Pittsburgh, Allied Elctrns.	412-367-4124
PA	Pittsburgh, CAM/RPC Elctrns.	412-782-3770
PA	Reading, Yates Battery	215-670-2515
SC	Charleston, Cameron & Barkley	803-554-9550
SC	Florence, Cameron & Barkley	803-664-0600
SC	Greenville, Allied Elctrns.	803-288-8835
TN	Clarksville, Randolph, Hale & Matthews	615-647-2325
TN	Columbia, Randolph & Williams	615-388-7566
TN	Memphis, Allied Elctrns.	901-367-2895
TN	Nashville, Randolph & Rice	615-255-5601
TN	Tullahoma, Randolph & Vandergaff	615-455-4531
TX	Austin, Allied Elctrns.	512-389-3771
TX	Austin, Altair Co.	512-837-4970
TX	Carrollton, Capstone	214-380-9049
TX	Corpus Christi, Douglas Elctrns.	512-883-5103
TX	Dallas, Allied Elctrns.	214-553-4370
TX	El Paso, Allied Elctrns.	915-779-6294
TX	Ft. Worth, Allied Elctrns. Exp.	817-595-3500
TX	Houston, Altair Co.	713-462-3029
TX	Houston, Future Elctrns.	713-556-8696
TX	Humble, Allied Elctrns.	713-446-8005
TX	Irving, Allied Elctrns.	214-570-5196
TX	Richardson, Altair Co.	214-231-5166
TX	Richardson, Bell Inds.	214-744-2510
TX	Richardson, Future Elctrns.	214-437-2437
UT	Salt Lake City, Allied Elctrns.	801-261-5244
UT	Salt Lake City, Future Elctrns.	801-972-8489
VA	Alexanderia, Allied elctrns.	703-750-0206
VA	Roanoke, Southeastern Elctrns.	703-344-6611
VA	Virginia Bch., Allied Elctrns.	804-363-8662
WA	Bellevue, Syntek	206-488-0394
WA	Redmond, Future Elctrns.	206-881-8199
WA	Richland, Radar Elec.	509-943-8336
WA	Seattle, Allied Elctrns.	206-547-2827
WA	Seattle, Radar Elec.	206-282-2511
WA	Spokane, Radar Elec.	509-747-3053
WI	Mequon, Taylor Elctrns.	414-241-4321
WI	New Berlin, Allied Elctrns.	414-796-1280
WI	Sullivan, The Bergquist Co.	414-593-2020
WI	Waukesha, Future Elctrns.	414-786-1884
WI	Everett, Pringle Elctrns.	206-258-6161
PR	San Juan, Clary Corp.of P.R.	809-760-5845
Can	Calagary, Future Elctrns.	403-250-5550
Can	Downsview, Future Elctrns.	416-638-4771
Can	Edmonton, Future Elctrns.	403-438-2858
Can	Ottawa, Future Elctrns.	613-820-8313
Can	Ottawa, Ont., Wackid Radio	613-728-1821
Can	Pt. Claire, Que., Future Elctrns.	514-694-7710
Can	St. Foy, Future Elctrns.	418-682-8092
Can	Van Couver, Future Elctrns.	604-294-1166
Can	Winnipeg, Future Elctrns.	204-786-7711

Can Winnipeg, Westrock Battery 204-786-6034
Can Yellowknife, Yukon, Northern Comm .. 403-873-3953

ACME MODEL ENGINEERING CO., 654 Bergen Blvd., Ridgefield, NJ 07657, Tel: 201-943-7650; Empl.: 29

ACME TRANSFORMER, Acme Electric Corporation, 4815 West 5th St., Lumberton, NC 28358, Tel: 919-738-1121, FAX: 919-739-0024; *Sls. Mgr.:* Don Chesner

ACME-URDC, INC., 7915 South 1530 West, Box 10, West Jordan, UT 84084, Tel: 801-561-9385, FAX: 801-562-9004; *Sls. Mgr.:* Leland Coleman

ACON, INC., 15c Plymouth Dr., South Easton, MA 02375, Tel: 508-230-8022, FAX: 508-230-2371; Empl.: 10

ACOPIAN TECHNICAL COMPANY, Box 638, Easton, PA 18044, Tel: 215-258-5441, FAX: 215-258-2842; FSC No.: 14749; *Sls. Mgr.:* T. Skopal ..... **D•1549-1578**

Local Sales Offices & Reps
FL Melbourne, Acopian 407-727-1172
MD Jessup, Doss Elctrns. 301-880-3262

ACRODYNE CONTROLS, See Accudyne Corp.

ACROMAG INC., 30765 Wixom Rd, P.O. Box 437, Wixom, MI 48393-7037, Tel: 313-624-1541, FAX: 313-624-9234; Empl.: 100; *Sls. Mgr.:* C. Mitchell

ACROSYSTEMS CORP., 66 Cherry Hill Dr., Beverly, MA 01915, Tel: 508-927-8880; Empl.: 30; *Sls. Mgr.:* Herbert Tobey

ACR SYSTEMS INC., 8561-132nd St., Surrey,B.C., Canada V3W 4N8, Tel: 604-591-1128, FAX: 604-591-2252; Empl.: 5; *Sls. Mgr.:* Rick Schellenberg; *Dist. Mgr.:* Rick Schellenberg

ACTEL CORPORATION, 955 E. Arques Ave., Sunnyvale, CA 94086, Tel: 408-739-1010, FAX: 408-739-1540; Empl.: 86; *Sls. Mgr.:* Bob Duyn

ACTION INSTRUMENTS, 8601 Aero Dr., San Diego, CA 92123, Tel: 619-279-5726, FAX: 619-279-6290; Empl.: 230; *Sls. Mgr.:* Frank Williams, Sls. VP

ACTIVE CONTROL INSTRUMENTATION, P.O. Box 243-Wildwood Circle, Key Largo, FL 33037, Tel: 305-451-1000, FAX: 305-451-3232; FSC No.: 55116; Empl.: 6 ..... **D•1126**

ACTOWN-ELECTROCOIL, INC., 2414 Highview, Spring Grove, IL 60081, Tel: 815-675-6641, FAX: 815-675-2050; Empl.: 200; *Sls. Mgr.:* Les Friedman

AC TRANSFORMER, 89 Madison St., Newark, NJ 07105, Tel: 201-589-8574, FAX: 201-589-3155; FSC No.: 3677; Empl.: 13; *Sls. Mgr.:* George Giangrande, Sls. Consit.

ACUREX CORP./AUTODATA DIV., 555 Clyde Ave., P.O. Box 7042, Mountain View, CA 94039, Tel: 415-967-9100, TELEX: 34-6391, TWX: 910-379-6593, FAX: 415-967-7727; Empl.: 40; *Sls. Mgr.:* David Swartz; *Dist. Mgr.:* David Swartz

ADALET-PLM/DIV. OF SCOTT & FETZER CO., 4801 W. 150th St., Cleveland, OH 44135, Tel: 216-267-9000, TELEX: 98-5349, FAX: 216-267-1681; FSC No.: 73389; Empl.: 177

ADAMS-MAXWELL DIVISION, Coast Magnetics, 1207 North La Brea Ave., Inglewood, CA 90302-1284, Tel: 213-673-3245, TELEX: 686103AMISPACEASA, FAX: 213-673-8828; FSC No.: 22558; Empl.: 60; *Sls. Mgr.:* Allen Adams

ADAMS RITE PRODUCTS, INC., 540 W. Chevy Chase Dr., Glendale, CA 91204, Tel: 818-241-5121, TWX: 910-497-2276, FAX: 818-500-7239; Empl.: 150; *Sls. Mgr.:* Jonas Williams

ADAMS-RUSSELL, INC., DIV. OF M/A COM, INC., 110 Haverhill Rd., Amesbury, MA 01913, Tel: 508-388-5210, TWX: 710-347-6360, FAX: 508-388-9758; FSC No.: 11556; Empl.: 400; *Sls. Mgr.:* H. Adjemian

ADAPTEC, INC., 691 South Milpitas Blvd., Milpitas, CA 95035, Tel: 408-945-8600, TELEX: 910-338-0060, FAX: 408-262-2533; Empl.: 600; *Sls. Mgr.:* Wayne Gartin; *Dist. Mgr.:* Roy Safire

ADAPTIVE NETWORKS, P.O. Box 1020 Kendall Sq., Cambridge, MA 02142, Tel: 617-497-5150; Empl.: 20; *Sls. Mgr.:* Sumin Tchen

ADATEK, INC., 700 Airport Way, Sandpoint, ID 83864, Tel: 208-263-1471, 800-323-3343, TELEX: 62903932, FAX: 208-263-6596; Empl.: 18; *Sls. Mgr.:* Jeff Siebert; *Dist. Mgr.:* Suzy Hook

ADCOUR, INC., 18 Billings St., PO Box 277, Sharon, MA 02067, Tel: 617-784-8123, FAX: 617-784-5563; Empl.: 29; *Sls. Mgr.:* William O'Connell; *Dist. Mgr.:* William O'Connell

ADC TELECOMMUNICATIONS, INC., 4900 W. 78th St., Minneapolis, MN 55435, Tel: 612-835-6800, TELEX: 290321, FAX: 612-893-3292; Empl.: 2200; *Sls. Mgr.:* Mark Lonergan, VP. Sls. ..... **C•1157-1159**

ADDACON GREENSBORO, 3702-C Alliance Dr., Greensboro, NC 27407, Tel: 919-852-6200, FAX: 919-852-6256; *Sls. Mgr.:* Lynn Cummings

A.D. DATA SYSTEMS CORP., Photographic Sciences Corp., 770 Basket Rd, Webster, NY 14580-0748, Tel: 716-265-1600, FAX: 716-265-1689; FSC No.: 23389; Empl.: 12; *Sls. Mgr.:* J. Cessna, J. Butters

Local Sales Offices & Reps
CA Torrance, AMASCO-South 213-781-9494
FL Melbourne, Saber Assocs. 800-327-0853
KS Lenexa, Midtec Assocs. 913-541-0505
MD Landover, Sel-Tronics 301-341-2700
MA Westford, ICS Assocs. 508-692-3545
NM Albuquerque, Trembly Assocs. 505-266-8616
OH Westlake, TMS, Inc. 216-327-3527
PA N. Wales, Scientific Devs. 215-699-7707
TX Richardson, Scientific Devs. (SW) 214-231-8106
WA Seattle, Datacom Assocs. 206-285-2525
EXP Leport Marly, France, Euromeasure, SA ... 395-84863
EXP Warwickshire, England, Measurement LTD 926-35411
Can Scarborough, Ont., Multitest Elctrns. ... 416-609-8396

ADDITIVE CIRCUITS, AMP-AKZO Corp., P.O. Box 700, West La., Aquebogue, NY 11931, Tel: 516-722-4100, FAX: 516-722-4154; Empl.: 500; *Sls. Mgr.:* Lenny Smookler, Nat. Sls. Mgr.

ADE, INC., 1430 E. 130th St., Chicago, IL 60633, Tel: 312-646-3400, FAX: 312-646-3919; FSC No.: 62049; *Sls. Mgr.:* Fred Tenzer

ADIRONDACK WIRE & CABLE, ACS Industries Inc., 160 Hamlet Ave., Woonsocket, RI 02895, Tel: 1-401-769-1600, FAX: 1-401-769-1607; Empl.: 650; *Sls. Mgr.:* Julian Caduto

FAX: 714-634-0802

ADTECH POWER INC., 1620 S. Sunkist St., Anaheim, CA 92806, Tel: 714-634-9211; FSC No.: 56410; Empl.: 55; *Sls. Mgr.:* Royston A. Allman; *Dist. Mgr.:* Royston A. Allman ..... **D•1580-1583**

Local Sales Offices & Reps
CA Campbell, Sedillo Co. 408-374-5220
FL Deerfield Beach, Jack Krutek & Assoc. 305-427-4202
IL Elk Grove Vl, Carlson Elect. Sls. 312-956-8240
MA Natick, Wayland Eng. Sls. 508-655-6080
MI Troy, C.B. Jensen & Assoc. 313-643-0506
NY New York, Morgan Elctrn. Sls. 516-549-5180
OR Beaverton, Quest Mktg. 503-641-7377
TX Dallas, Spectra Sls. Corp. 214-234-3600
WA Bellevue, Quest Mktg. 206-747-9424

Local Distributors
AL Birmingham, Industrial Elec. Supp. 205-956-8504
CA Palo Alto, Zack Elctrns. 415-326-5432
CA San Francisco, Zack Elctrns. 415-626-1444
IL Chicago, Newark Elctrns. 1-312-784-5100
LA Lafayette, Ralph's of Lafayette 318-233-0105
MD Gaithersburg, M S Elctrns. 301-921-0200
MA Woburn, Mac Bearing 617-933-2110
PA Philadelphia, Philadelphia Elctrns. 215-673-0400
TX Ft. Worth, Allied Elctrns. 1-800-433-5700

ADTRON CORPORATION, 128 W. Boxelder Ste. 102, Chandler, AZ 85224, Tel: 602-926-9324, FAX: 602-926-9359; Empl.: 4; *Sls. Mgr.:* Shiela Fitzgerald

ADVACOM, INC., 5620 West Rd., McKean, PA 16426, Tel: 1-800-458-0512, 814-476-7774

ADVANCE, A Unit of Zero Corporation, 6900 Beck Avenue, N. Hollywood, CA 91605, Tel: 818-983-0333; *Sls. Mgr.:* Kevin Quinn

ADVANCE CONVERSION DEVICES CO.UNIT OF TRANSITOR DVCS., INC., 85 Horsehill Rd., Cedar Knolls, NJ 07927, Tel: 201-267-1900, FAX: 201-267-2047; FSC No.: 52298; Empl.: 24; *Sls. Mgr.:* Ron Zeman ..... **D•2156-2159**

Local Sales Offices & Reps
AL Huntsville, Reynolds & Assocs., Inc. ... 205-539-1485
AZ Scottsdale, Dave Menegay & Assocs. 602-994-9519
AR El Dorado, Kemp Instrs. Co., Inc. 501-862-5869
CA Bakersfield, FLW, Inc. 805-398-0720
CA Campbell, SMA 408-370-6900
CA Canoga Park, FLW, Inc. 818-719-0037
CA Carlsbad, FLW, Inc. 619-434-5251
CA Costa Mesa, FLW Inc. 714-751-7513
CA Costa Mesa, FLW, Inc. 714-751-7512
CO Denver, Elcom, Inc. 303-337-2300
CT Watertown, May Technlg. 203-274-3777
FL Ft. Lauderdale, Reynolds & Assocs., Inc. 305-344-4536
FL Melbourne, Reynolds & Assocs., Inc. .. 407-259-7000
FL Tampa, Reynolds & Assocs., Inc. 818-372-8369
GA Duluth, Reynolds & Assocs. 404-476-4992
IL Wheeling, Ed Joyner & Co. 708-520-1200
KS Overland Pk, WEB Assocs., Inc. 913-381-7986
MD Hunt Valley, Elctrn. Resources, Inc. ... 301-584-8157
MA Lexington, E.F. Delfino,Inc. 617-862-1118
MI Ann Arbor, Ashby Assocs., Inc. 313-995-4082
MN St. Louis Pk., Elctrn. Innovation, Inc. ... 612-922-2945
MO Florissant, WEB Assocs./Elctrns. Inc. 314-921-5720
NY Endicott, Advanced Comp. Corp. 607-785-3191
NY Kingston, Advanced Comp. Corp. 914-339-1730
NY N. Syracuse, Advance Comps. 315-699-2671
NY Rochester, Advanced Comps. Corp. 716-544-7017
NY Scottsville, Advanced Comps. Corp. 716-889-1429
NC Raleigh, Reynolds & Assocs., Inc. 919-876-0282
OH Arcanum, Ashby Assocs., Inc. 513-692-8713
OH Cleveland, Ashby Assocs., Inc. 216-461-0826
OK Tulsa, Kemp Instrs.,Inc. 918-663-4501
OR Portland, Topp Engrg. Sls. Corp. 503-244-7265
PA Pittsburgh, Ashby Assocs., Inc. 412-343-5105
PA Southampton, Campbell Assocs. 215-322-6630
PA West Chester, Elctrn. Resources, Inc. 215-431-0198
SC Greenville, Reynolds & Assocs., Inc. .. 803-288-8701
TX Lewisville, J. Hughes Co. ..... 214—221-1536, 214-221-1538
UT Murray, Elcom 801-262-2400,801-262-2472
VA Alexandria, Dyna-Rep Co. 703-354-1222
VA Harrisburg, Elctrn. Resources, Inc. 703-289-5571
VA Norfolk, Elctrn. Resources, Inc. 804-583-4859
WA Bellevue, Topp Engrg. Sls. Corp. 206-747-5400
EXP NY/New York, Roburn Agencies, Inc. 914-968-1016
Can Weston, Ont., Duncan Instrs., Canada Ltd. 416-742-4448

ADVANCED ANALOG, Intech, 2270 Martin Ave., Santa Clara, CA 95050, Tel: 408-988-2702, FAX: 408-988-2702; FSC No.: 52467; Empl.: 200; *Sls. Mgr.:* Michael Sullivan ..... **D•1548**

Local Sales Offices & Reps
AL Huntsville, Sides Assoc. 205-859-9395
AZ Tempe, Thor Engrg. 602-438-8494
CA La Jolla, Thorson 619-292-8525
CA Newport Bch., Leading Concept 714-851-0654
CA Sunnyvale, Pass Assoc. 408-735-9040
CT North Haven, Kitchen & Kutchin 203-239-0212
IL Berkeley, ESA Tech. Mktg. 708-544-0120
IN Indianapolis, CC Electro Sls. 317-921-5000
IA Cedar Rapids, Delltron 319-393-0075
KS Wichita, Miller Aerospace 316-689-8292
MD Randallstown, Beacon North 703-478-2480
MA Burlington, Kitchen & Kutchin 617-229-2660
MI Madison Hgts., Pine Sls. 313-589-0350
MN Eden Prairie, Electro Mark 612-944-5850
MO Hazelwood, Acorn 314-731-2002
MO St. Louis, Acorn 314-421-1751
NY Huntington, Compar 516-423-5660
NY Rochester, Foster & Wager 716-385-7744
OH Cincinnati, Makin 513-871-2424
OH Dayton, Del Steffen 513-293-3145
OR Beaverton, Micro Sls. 503-645-2841
PA Collegeville, HB Sys. 215-489-3256
TX Dallas, MGR 214-238-5246
UT Ogden, Taylor Mktg. 801-546-9570
VA Sterling, Beacon North 703-478-2480
WA Bellevue, Micro Sls. 206-451-0568
Can Quebec, Kaytronics 514-745-5000

ADVANCED CIRCUIT TECHNOLOGY, 118 Northeastern Blvd., Nashua, NH 03062, Tel: 603-880-6000, 800-234-FLEX, TWX: 710-228-8961, FAX: 603-880-1785; FSC No.: 57034; Empl.: 185; *Sls. Mgr.:* David Bouley, Dir. of Sls.

ADVANCED COMPONENTS INDUSTRIES, INC.

FAX: 310-328-0062

ADVANCED COMPONENTS INDS., INC., Spitznagel GmbH, 1308 Sartori Ave., No. 105, Torrance, CA 90501, Tel: 213-328-0060, 310-328-0060; *Sls. Mgr.:* Irma Spreitzer ..... **A•2150-2151; B•1492**

Local Sales Offices & Reps

CT Hopkinton, Berkshire Elctrns. 508-435-9356
IL Schaumburg, Terry McNulty & Assocs. 708-894-2529
MA Hopkinton, Berkshire Elctrns. 508-435-9356

ADVANCED CONNECTOR TECHNOLOGY, 326 Oakwood St., Ventura, CA 93001, Tel: 805-653-5753, FAX: 805-653-0940; Empl.: 5; *Sls. Mgr.:* Karin Kalli

ADVANCED CONTROL SYS., 10 Old Mine Rock Way, Hingham, MA 02043, Tel: 617-740-0223, FAX: 617-740-4227; Empl.: 13; *Sls. Mgr.:* Leopold Bric ..... **D•1127**

ADVANCED CONVERSION TECH., 2001 Fulling Mill Rd. P.O.B. 70, Middletown, PA 17057, Tel: 717-939-2300, FAX: 717-939-7170; FSC No.: 60642; Empl.: 100; *Sls. Mgr.:* L.M. Reis

ADVANCED ELECTRONIC PACKAGING, 21562 Surveyor Circle, Huntington Beach, CA 92646, Tel: 714-969-1150, FAX: 714-536-0936; Empl.: 12; *Sls. Mgr.:* Douglas A. Hill ..... **A•1719**

Local Sales Offices & Reps

Can Mississauga, Ont., Vitel Elctrns. 416-676-9720

ADVANCED FILTER DEVICES, INC., 6241 Yarrow Dr., Ste. D, Carlsbad, CA 92009, Tel: 619-438-2074, FAX: 619-438-5937; FSC No.: 56620; Empl.: 45; *Sls. Mgr.:* Herbert Johnson

ADVANCED HARDWARE ARCHITECTURES, INC., P. O. Box 9669, Moscow, ID 83843, Tel: 208-883-8000, FAX: 208-883-8001; Empl.: 50; *Sls. Mgr.:* Jack Maynard

ADVANCED HARDWARE MANUFACTURING, INC., 925 Horan Drive, Fenton, MO 63026, Tel: 314-343-3850, FAX: 314-343-3937; Empl.: 11

ADVANCED HIGH VOLTAGE CO. INC., P.O. Box 32408, Tucson, AZ 85751, Tel: 818-997-7222, 602-721-2424; *Sls. Mgr.:* John Richardson ..... **D•1579**

ADVANCED INPUT DEVICES, W. 250 A.I.D. Dr., Coeur d'Alene, ID 83814, Tel: 208-765-8000, TWX: 510-776-0584; FSC No.: 95666; Empl.: 300; *Sls. Mgr.:* Jim Bennett ..... **B•1795**

Local Sales Offices & Reps

CO Aurora, Electrodyne 303-695-8903
CT Wallingford, Apex Assocs. 203-269-8401
FL Casselbury, Southern Elctrn. Sls. 407-332-4718
ID Coeur'd Alene, Advanced Input Dvcs. 208-765-8000
IL N. Arlington Hgts., Coombs Assocs. Inc. 312-439-9810
MD Gaithersburg, Carwither Assocs. Inc. .. 301-912-9545
MA Westwood, Apex Assocs. 617-326-5042
MN Minneapolis, Debeck-Hays 612-835-3610
NJ Matawan, Shepard & Assocs. 201-566-0095
NJ Matawau, Shepard 201-566-0095
NY Victor, Net Sls. 716-924-1844
PA Prospect Park, Elf Sls. 215-534-3340
PA Warrendale, Baehr-Greenleaf & Assocs. 412-934-3088
FL Casselberry, S.E.M.I. 305-962-2255
OH Westlake, Baehr-Greenleaf 216-892-1770
UT Salt Lake City, Electrodyne 801-264-8050
WI Milwaukee, Coombs Assocs. Inc. 414-351-6123
Can Hamilton, Ont., Cartwright Southall Assoc., Inc. 416-528-0294

ADVANCED INTERCONNECTIONS CORP., P.O. Box 1019, West Warwick, RI 02893, Tel: 401-823-5200, TWX: 910-240-3454, FAX: 401 823-8723; FSC No.: 05-0394638; *Sls. Mgr.:* Max E. Rice

ADVANCED LINEAR DEVICES, INC., 1180F Miraloma Way, Sunnyvale, CA 94086-4606, Tel: 408-720-8737, FAX: 408-720-8297; Empl.: 10; *Sls. Mgr.:* G. M. O'Neal; *Dist. Mgr.:* G. M. O'Neal

ADVANCED MATERIALS SYSTEMS, See Handy & Harman Electronic Materials Corp.

ADVANCED MICRO SYSTEMS, INC., 31 Flagstone Drive, Hudson, NH 03051-4920, Tel: 603-882-1447, FAX: 603-881-7600; Empl.: 50

ADVANCED POWER PRODUCTS, 1510 Garden St. Ste. 17, Santa Barbara, CA 93101, Tel: 805-965-0042, FAX: 805-684-4400

ADVANCED SYSTEMS CONCEPTS, INC., 2333 N. Lake Ave., Altadena, CA 91001, Tel: 818-791-0983, TELEX: 701 215 ASCI, FAX: 818-791-8347; FSC No.: 6U785; Empl.: 15; *Sls. Mgr.:* Maria Reddix; *Dist. Mgr.:* B. Lee ..... **D•1144**

Local Sales Offices & Reps

IA Des Moines, Beams Co. 515-255-1148
MN Edina, Integrated Peripheral Sys. 612-831-0349
OH Dayton, Ashby Assocs. 513-252-5627
VA Vienna, Advanced Technlg. Assocs. .. 703-556-0500

FAX: 619-727-4436

ADVANCED TECHNOLOGY COMPANY, 2142 F Industrial Ct., Vista, CA 92083, Tel: 619-727-7430; Empl.: 10; *Sls. Mgr.:* Bill Linko ... **B•1235-1237; C•1605-1608**

ADVANCED THERMAL PRODUCTS, INC., P.O. Box 249, St. Marys, PA 15857, Tel: 814-834-1541, FAX: 814-834-1556; Empl.: 15; *Sls. Mgr.:* John M. Sidoni

Local Sales Offices & Reps

GA Atlanta, DHR Mktg. 404-564-0529
MA Andover, Crawford & Assoc. 508-470-2122
NY Syracuse, John R. Costello 315-472-0322
NC Raleigh, DHR Mktg. 919-829-1970
TX Dallas, Eatman Engineering 214-771-1903
WI New Berlin, Thomas Labant 414-425-7157

ADVANCED VIDEO PRODUCTS, P.O. 1450/543 Great Rd., Littleton, MA 01460, Tel: 508-486-0024, FAX: 508-486-8488; Empl.: 65; *Sls. Mgr.:* Christopher Mohen

AD-VANCE MAGNETICS, INC., 625 Monroe St., Rochester, IN 46975, Tel: 219-223-3158, TWX: 810-290-0294, FAX: 219-223-2524; FSC No.: 50788; Empl.: 31; *Sls. Mgr.:* Kay Nixon ..... **C•1686**

Local Sales Offices & Reps

AL Huntsville, Murcota Corp 205-539-8476
CA El Cajon, ATronix Technlg. 619-444-1501
CA Mountain View, Frauman Assoc. 415-964-9464
CA Solvang, ATronix Technlg. 805-686-4366
CO Arvada, Arrowhead 303-423-5556
CA Mission Viejo, ATronix Technlg., Inc. .. 714-858-9009
CT Branford, Abbott-Allison 203-481-0405
FL Miramar, DAN-Tech Sls., Inc. 305-963-6142
IL Wheaton, EMTronics, Inc. 708-665-6222
NJ Flanders, K & R Engrg. Sls. Corp. 201-584-5235, 800-631-9362
NC Winston-Salem, Murcota Corp. 919-722-9445
PA W. Conshohocken, Eastern Comps. ... 215-825-8610
MD Baltimore, Eastern Comps. Sls. Corp. 301-788-7050
TX Dallas, J.M. Spell Co. Inc. 214-620-0040
UT Midvale, Arrowhead 801-561-5688
Can Nepean, Ont., Subtec Ltd. 613-723-7720
WA Bellevue, Caruso & Assocs. 206-455-8811

ADVANCE POWER SUPPLIES, INC., See Farnell Advance Power, Inc.

ADVANCE WIRE & CABLE, The Advance Group, 1661 Industrial Way, Belmont, CA 94002, Tel: 415-592-4550, TELEX: 334475, FAX: 415-593-8859; FSC No.: 57775; Empl.: 158; *Sls. Mgr.:* Ed Mittelbusher; *Dist. Mgr.:* Ed Mittelbusher

Local Sales Offices & Reps

AZ Phoenix, The Advance Grp. 602-437-1334
CA Anaheim, The Advance Grp. 714-870-0300
CA Belmont, The Advance Grp. 415-592-4550
CT Torrington, Phoenix Sls. 203-496-7709
CO Lakewood, CDT 303-989-6563
MI Livonia, JFCO Inc. 513-421-7590
FL Orlando, Gillum Sls. 305-857-2110
FL Tampa, Gillum Sls. 813-531-2248
GA Duluth, DTM Inc. 404-381-5592
IL Deerfield, Flaherty-Haines, Inc. 312-948-7800
MD Ellicott City, Tech. Sls. Inc. 301-461-2400
MN Minneapolis, TecTeam Sls. Inc. 612-854-6616
NY Glen Cove, Dynorep 516-676-1598
OH Cleveland, JFCO Inc. 216-398-6300
OH Vandalia, JFCO Inc. 513-890-8322
SC Greer, Advance Wire & Cable 803-877-9600
TX Richardson, Promark 214-644-0467
WA Redmond, The Advance Grp. 206-867-0416

ADVANTEST (R)
Advantest America, Inc.

FAX: 708-634-2610

ADVANTEST AMERICA, INC., 300 Knightsbridge Parkway, Lincolnshire, IL 60069, Tel: 708-634-2552, FAX: 708-634-2610; Empl.: 233; *Sls. Mgr.:* John Heitman ..... **D•1214-1215**

Instruments

Local Sales Offices & Reps

AL Huntsville, Southern Mktg. Assocs. 205-534-6020
AZ Phoenix, Advantest America, Inc. 602-840-9470
AZ Phoenix, Tech. Mktg. Svc. 602-678-4940
CA Cypress, Ward Davis 213-402-2458
CA Redondo Bch., Ward Davis 213-643-6977
CA Santa Clara, Advantest America, Inc. .. 408-970-9922
CA Santa Clara, Ward Davis 408-245-3700
CA Santa Monica, Advantest America, Inc. 213-392-0088
CA Westlake Village, Advantest America,Inc. 805-496-2523
CO Englewood, Tech. Mktg. Svc. 303-781-8819
CT Wallingford, Pat Jenks Assocs. 203-265-9939
FL Longwood, Southern Mktg. Assocs. ... 407-682-7317
FL Orlando, Advantest America, Inc. 407-859-0722
GA Marietta, Southern Mktg. Assocs. 404-565-0603
IL Arlington, Dytec/Midwest 708-255-3200
IL Lincolnshire, Advantest America, Inc. 708-634-2552
IL Park Ridge, Aegis 708-823-1587
IN Indianapolis, Dytec/Midwest 317-849-9898
KS Lenexa, Dytec/Midwest 913-888-0215
LA Metairie, Data Mktg. Assocs. 504-833-3655
MD Rockville, Creative Mktg. Assocs. 301-880-4161
MA Beverly, Pat Jenks Assocs. 508-921-4600
MA Marlboro, Advantest America, Inc. 508-481-1141
MA Reading, Aegis 617-944-0974
MN Edina, Dytec Instrs. 612-831-7169
MO Maryland Hgts., Dytec/South 314-739-0665
NJ Fort Lee, Advantest America, Inc. 201-886-0300
NJ Teaneck, Scientific Dvcs. 201-837-1004
NM Albuquerque, Tech. Mktg. Svc. 505-884-3444
NC Greensboro, Southern Mktg. Assocs., Inc. 919-479-6034
OH Dayton, WKM Associates, Inc. 513-434-7500
OK Tulsa, Data Mktg. Assocs. 918-494-2711
OR Portland, Advantest America, Inc. 503-255-8985
OR Wilsonville, SYNTEK 503-682-2750
PA Allentown, Advantest America, Inc. 215-264-7680
PA Coopersburg, Aegis 215-965-6840
PA Northampton, AEGIS 215-837-8400
PA Southampton, Eastern Instrmn. of PA 215-355-7700
PA Stroudsburg, AEGIS 717-421-8660
TX Austin, Advantest America, Inc. 512-451-3936
TX Austin, Aegis 512-451-6188
TX Austin, Data Mktg. Assocs. 512-338-4701
TX Farmers Branch, Advantest America, Inc. 214-239-7834
UT Salt Lake City, Tech. Mktg. Svc. 801-596-8803
VT Williston, Advantest America, Inc. 802-879-8974
WA Bellevue, SYNTEK 206-462-7700
Can Mississauga, Ont., Allan Crawford Assocs., Ltd. 416-890-2010
Can N. Vancouver, B.C., Allan Crawford Assocs., Ltd. 604-988-2195
Can Ottawa, Ont., Allan Crawford Assocs., Ltd. 613-596-9300
AL Huntsville, Southern Mktg. Assoc. 205-534-6020
CA Camarillo, Advantest America, Inc. 808-987-6415
CT Wallingford, Pat Jenks 203-265-9939
FL Longwood, Southern Mktg.Assoc. 407-682-7317
GA Marietta, Southern Mktg. Assoc. 404-565-0603
MD Frederick, Advantest America, Inc. 301-662-1696
MA Beverly, Pat Jenks Assocs. 508-921-4600
MI Madison Heights, WKM Assocs. 313-588-2300
NM Albuquerque, Barnhill Assocs. 505-299-7658

NY Canastota, New York Hytek Assocs. .. 315-697-8415
NC Greensboro, Southern Mktg. Assoc. ... 919-854-5588
OH Dayton, WKM Assocs. 513-434-7500
OH Independence, WKM Assocs. 216-524-5930
OR Wilsonville, Syntek 503-682-2750
PA Pittsburgh, WKM Assocs. 412-892-2953
PA Southampton, Eastern Instrs. of PA ... 215-355-7700
TX Dallas, Data Mktg. Assocs. 214-661-0300
TX Houston, Data Mktg. Assocs. 713-954-5023
TX San Antonio, Data Mktg. Assocs. 512-342-3031
VA Sterling, Advantest America, Inc. 703-444-3372
WA Bellevue, Syntek 206-462-7700
WI Hartland, Dytec/Midwest 414-367-4550
Can Calgary,AL, Allan Crawford Assocs. ... 403-295-0822
Can Mississauga, Ont., Allan Crawford Assocs. 416-890-2010
Can N. Vancouver, B.C., Allan Crawford Assocs. 604-988-2195
Can Ottawa, Ont., Allan Crawford Assocs. 613-596-9300
Can St. Laurent, QE, Allan Crawford Assocs. 514-747-7878

ADVANTEST CORPORATION, NS Bldg. 2-4-1, Nishi-Shinjuku, Tokyo 163, Japan, Tel: 03-3342-7500, TELEX: 232-4914 ADVAN; Empl.: 1444; *Sls. Mgr.:* Shinpei Takeshita

ADVANZ TECHNOLOGIES, INC., 455 Industrial Drive, Warwick, RI 02887, Tel: 800-669-9987/401-737-1050, FAX: 401-732-0240; Empl.: 80; *Sls. Mgr.:* Richard J. DeGiacomo, Jr.; *Dist. Mgr.:* Richard J. DeGiacomo, Jr.

ADVOTECH, INC., 670 Mercer Rd., Butler, PA 16001, Tel: 412-283-4497, FAX: 412-283-4713

A E G CORPORATION, 3140 Rte. 22, P.O. Box 3800, Somerville, NJ 08876-1269, Tel: 908-231-8491, FAX: 908-231-8353; Empl.: 200; *Dist. Mgr.:* Graham Wells

A E G CORPORATION, Telefunken Semiconductors Div., 3140 Route 22, Somerville, NJ 08876-1269, Tel: 201-231-8300, FAX: 201-231-8353; *Sls. Mgr.:* John Szafranski

AEG TELEFUNKEN, SEMICONDUCTOR GRP., See AEG Corp.

AEL DEFENSE CORP., 305 Richardson Rd., Lansdale, PA 19446, Tel: 215-822-2929; FSC No.: 93346; Empl.: 1,600; *Sls. Mgr.:* Denis Ritchie

AEMC CORPORATION, 99 Chauncy Street, Boston, MA 02111, Tel: 617-451-0227, 800-343-1391, TELEX: 95-1073, FAX: 617-423-2952; *Sls. Mgr.:* George Wood

AEROCOM, 3090 S.W. 37th Ave., Miami, FL 33133, Tel: 305-448-6503, TELEX: 6812020, FAX: 305-448-6916; FSC No.: 81535; Empl.: 55; *Sls. Mgr.:* Thomas A. Coleman

AERODYNE CONTROLS CORPORATION, 30 Haynes Court, Ronkonkoma, NY 11779, Tel: 516-737-1900, FAX: 516-737-1912; FSC No.: 14923; Empl.: 80; *Sls. Mgr.:* Anthony R. Pipitone

AEROFLEX

FAX: 516-694-6771

AEROFLEX LABORATORIES INC., ARX, Inc., 35 South Service Road, Plainview, NY 11803, Tel: 516-694-6700, TWX: 510-224-6417; FSC No.: 88379; Empl.: 490 ..... **A•1720-1721**

Local Sales Offices & Reps

AL Huntsville, EMA 205-830-4030
AL Huntsville, South Design and Mktg. ... 205-880-3623
AZ Phoenix, JBS Assocs. 602-893-2382
CA Camarillo, RD & D Sls. Engrg. 805-388-8220
CA Long Beach, RD & D Sls. Engrg. 213-988-1116
CA Los Altos Hills, HB Mktg. 415-941-4080
CA Mt. View, Bay Area Sls. 415-969-7959
CA Woodland Hills, Peterson Engrg. Co. .. 818-346-1201
CO Englewood, Delltron Co. 303-741-2122
CO Lakewood, Tech. Mktg. 303-989-3611
CT Southbury, Dynamic Technlgs. 203-262-6220
CT Thomaston, Tygren Co. 203-283-8722
FL Altamonte Sp., EMA 407-339-2604
FL Pinellas Park, P & M Tech Sls. 813-546-4175
FL Tampa, APM Assocs. 813-886-2457
FL Winterpark, Max Tech 407-679-1220
GA Roswell, EMA 404-992-7240
IL Northfield, Feller Assocs., Inc. 312-446-8065
IL West Dundee, American Specialties Prods. 708-428-2100
IA Cedar Rapids, Richardson Assocs. Grp. 319-364-2003
MD Columbia, Autek Assocs. 301-740-5100
MA N. Andover, Russett Assoc. 508-794-4995
MA Needham Hghts., Kanan Assoc. 617-449-7400
MN Minneapolis, International Elctrns., Inc. 612-571-0000
MO St. Louis, Rush & West Assoc., Inc. ... 314-965-3322
NJ Ft. Lee, Nexus Technlg. Sls., Inc. 201-947-0151
NY Buffalo, Vibratech, Inc. 716-895-8000
NY East Syracuse, Fountain, Young & Co. 315-437-7733
NY Great Neck, F & F Metro, Inc. 516-482-4080
NY Oswego, Fountain, Young & Co., Inc. 607-687-3373,FAX:607-687-7511
NC Burlington, EMA 919-227-1832
NC Charlotte, EMA 704-365-0547
NC Raleigh, EMA 919-846-6888
AZ Phoenix, Hartland Sls. Inc. 602-492-0012
PA Horsham, Nexus Technlg. Sls., Inc. ... 215-675-9600
PA Nottingham, Excel Tech 717-529-6059
TX Austin, Tesco Inc. 512-834-8374
TX Dallas, Tesco Inc. 214-553-1200
TX Houston, Tesco, Inc. 713-370-8117
VA Alexandria, Dyna Rep. 703-354-1222
NY Mendon, Tech Mark 716-624-3840
WA Mercer Island, Eagle Entprs., Inc. 206-232-7401
MA N. Andover, Russet Assoc. 508-794-4995
Can Dorval, PQ., Korfund Sampson, Ltd. ... 514-631-3565
Can Laval, Que., Elcom GMB Inc. 514-668-3361
Can St. Eustache, Que., Elcom GMB Inc. ... 514-623-4766

AEROSPACE OPTICS, INC., 3201 Sandy La., Fort Worth, TX 76112, Tel: 817-451-1141, FAX: 817-654-3405; Empl.: 60; *Sls. Mgr.:* Ben L. Fryrear

AEROSPACE WIRE & CABLE INC., 129-09 18 Ave., College Point, NY 11356, Tel: 718-358-2345, FAX: 718-358-2522; Empl.: 15

AEROTECH, INC., 101 Zeta Dr., Pittsburgh, PA 15238, Tel: 412-963-7470, TWX: 710-795-3125, FAX: 412-963-7459; Empl.: 156; *Sls. Mgr.:* K. Wyman; *Dist. Mgr.:* K. Ross

AEROVOX INC., 370 Faunce Corner Rd., North Dartmouth, MA 02747-1217, Tel: 508-995-8000; FSC No.: 4K459; Empl.: 700; *Sls. Mgr.:* Jack Chmura .... **A•1618**

Local Sales Offices & Reps

AL Huntsville, 20th Century Mktg. 205-772-9999
AZ Scottsdale, Interstate Mktg. 602-244-9050
CA Los Gatos, Luscombe Engrg. Co. 408-370-2020
CA Woodland Hills, Interstate Mktg. 818-883-7606
CO Franktown, M.R.C. 303-660-8750
CT North Haven, J.E. Boeing Co. 203-265-7378
DE Greenville, H. Anderson 302-655-2917
FL Orlando, E.P.M. Corp. 407-425-6149
GA Norcross, 20th Century Mktg. 404-446-1999
IL Elk Grove Village, Carlson Elctrn. Sls. 708-956-8240
IN Ft. Wayne, F.J. Campisano Co. 219-486-6443
IN Indianapolis, F.J. Campisano Co. 317-577-0319
IA Cedar Rapids, Carlson Elctrn. Sls. 319-379-1450
MD Baltimore, Burgin-Kreh Assoc., Inc. 301-265-8500
MA Chelmsford, J.E. Boeing Co. 508-256-5800
MA Marion, Raymond F. Swoish Co. 508-748-2536
MI Farmington Hills, Carrier & Gable 313-477-8700
MN Minneapolis, Comstrand 612-788-9234
KS Overland Park, Beneke & McCaul 816-765-2998
NJ Moorestown, TAI Corp. 609-778-5353
NM Albuquerque, Hewitt & Assocs. 505-299-7746
NY Ithaca, B. Dean 607-257-1111
NY Melville, Comtronic Assocs. 516-249-0505
NY Wappingers Falls, Bob Dean 914-297-6406
NC Raleigh, 20th Century Marketing 919-790-9389
OH Cincinnati, F.J. Campisano Co. 513-574-7111
OH Dayton, Schmidt & Assocs. 513-293-6652
OH Mentor, F.J. Campisano Co. 216-975-9300
OK Tulsa, Ammom & Rizos Co. 918-749-6116
PA Coraopolis, F.J. Campisano Co. 412-264-5151
TN Knoxville, 20th Century Mktg., Inc. 615-966-2099
TX Austin, Ammon & Rizos 512-454-5131
TX Houston, Ammon & Rizos Co. 713-781-6240
TX Richardson, Ammon & Rizos 214-644-5591
WI Milwaukee, Carlson Elctrn. Sls. 414-476-2790
EXP Santurce, PR, J.E. Boeing Co. 809-753-9805
CA San Diego, Bestronics, Inc. 619-693-1111

AERTECH INDS., See TRW Microwave

AES CORP., 285 Newbury St., Peabody, MA 01960, Tel: 508-535-7310, TELEX: 387852 AES CORP INTL, FAX: 508-535-7313; Empl.: 25; *Sls. Mgr.:* Brian Rockett

AETNA ENGINEERING, P.O. Box 7749, Van Nuys, CA 91409-7749, Tel: 818-341-9409, FAX: 818-882-5131; Empl.: 6; *Sls. Mgr.:* T. W. Collins

AFE DISPLAYS INC., 3046A Berkmar Dr., Charlottesville, VA 22901, Tel: 804-974-7801, FAX: 804-974-7803; Empl.: 3(USA) 75(UK); *Sls. Mgr.:* Mike Humpherson; *Dist. Mgr.:* Mike Humpherson

AFI/DATATROL, See Datatrol, Div. of Data Card Corp.

AHAMTOR INC., 999 Inc., 27901 Front St., Temecula, CA 92390, Tel: 714-676-4151, FAX: 714-676-3031; *Sls. Mgr.:* John Markley

AIL, DIV. CUTLER-HAMMER, See Eaton Corp. AIL Div.

AIL SYSTEMS, INC., Eaton Corp., Commack Rd., Deer Park, NY 11729, Tel: 516-595-3094, TWX: 510-227-6073; FSC No.: 00752; Empl.: 2400; *Sls. Mgr.:* J.B. Migliaccio

AILTEC DIV. CUTLER-HAMMER, See Eaton Corp., Elctrn. Instrmn. Div.

AIMSCO INC., Cheler Corp., 5707 Airport Way So., Seattle, WA 98108, Tel: 206-762-8014, 800-426-0244, TWX: 910-444-1333, FAX: 206-762-8394; FSC No.: 3D536; Empl.: 30; *Sls. Mgr.:* C. Ernst; *Dist. Mgr.:* Carl Teichman

AIPHONE, 1700 130th Ave. NE, Bellevue, WA 98005, Tel: 206-455-0510, FAX: 206-455-0071; Empl.: 44; *Sls. Mgr.:* John Mosebar

AirBorn

FAX: 214-931-9305

AIRBORN, INC., 4321 AirBorn Dr., Addison, TX 75001-0519, Tel: 214-931-3200; FSC No.: 10400;Multiple; Empl.: 412; *Sls. Mgr.:* W.A. Clark, Sls. Mgr.; *Dist. Mgr.:* Jerry Jameson ..... **C•1160**

Local Sales Offices & Reps

AL Huntsville, South Design & Mktg. 205-880-3623
AZ Tempe, Piper Sls. Co. 602-949-0048
CA Downey, Buffa Co., Inc. 213-923-4618
CA Sunnyvale, Advanced Tech. Sls. 408-746-0800
CT Torrington, Phoenix Sls. Co. 203-496-7709
FL Ft. Lauderdale, Southland Comps. 305-491-6110
IL Des Plaines, ESCO Assoc. 708-298-5310
IA Cedar Rapids, Dytronix 319-377-8275
KS Wichita, Dytronix 316-838-0884
MD Hunt Valley, Eagle Sls. Corp. 301-666-3930
MO Bridgeton, Dytronix 314-291-4777
KS Leawood, Dytronix 913-339-6333
NH Nashua, Solla - Tronics 603-882-7146
NY Glen Cove, Dynorep 516-676-1598
NM Albuquerque, Piper Sls. Co. 505-883-9090
NY Penfield, Upstate Comps. 716-381-6070
NC Raleigh, GWC 919-790-7879
OH Kettering, Electro-Com 513-299-0864
WA Bellevue, Eltech Inc. 206-643-4330
Can Mississauga, Ont., Source Elctrns. Ltd. 416-676-0830
Can Ottawa, Ont., Source Elctrns. Ltd. 613-737-7580

Local Distributors

NY Elmsford, Gemini Elect 914-592-5252
TX Dallas, Hall Mark Elctrns. 214-343-5000
CA Monrovia, Erik-A-Elect 818-574-1020
AZ Scottsdale, Spirit Elctrns. 602-998-1533

Distributor

FAX: 818-988-4746

AIR ELECTRO INC., 7700 Gloria Ave., Van Nuys, CA 91406, Tel: 213-873-6400, 818-988-4400, TELEX: 66-2459, TWX: 910-495-1794 ..... **C•1280**

AIR FILTRATION PRODUCTS, INC., 707 No. Main Ave., Tuscon, AZ 85705, Tel: 602-624-2272, FAX: 602-624-2279; Empl.: 10; *Sls. Mgr.:* Ike Campos

AIR/FLEX INDS. INC., 2422 Merced Ave., S. El Monte, CA 91733, Tel: 818-579-7060, FAX: 1-818-579-7063; FSC No.: 22782; *Sls. Mgr.:* Brett Hoffman

Airflyte ELECTRONICS CO.

FAX: 201-436-6024

AIRFLYTE ELCTRNS. CO., 56 New Hook Rd, P. O. Box 231, Bayonne, NJ 07002, Tel: 201-436-2230; Empl.: 85; *Sls. Mgr.:* John Piret ..... **B•1238-1243**

Local Sales Offices & Reps

CA	Los Altos, Poltronics	415-941-3020
CA	Signal Hill, Thorson Co.	213-595-0361
CT	No. Haven, Kitchen & Kutchin	203-239-0212
FL	Naples, Techtron Sls. Corp.	813-566-3800
IL	Park Ridge, Probe Elctrns.	312-698-2044
MA	Lexington, Kitchen & Kutchin	617-862-8230
NJ	Kinnelon, Avionics Equip.	201-838-8105
NY	Rochester, Milton C. Matthews Co.	716-271-1910
PA	Downingtown, Budd Elctrns. Corp.	215-458-8258
TX	Austin, Electra Reps., Inc.	512-339-1163
TX	Dallas, Electra Reps., Inc.	214-248-3852

AIR MAZE CORP., 25000 Miles Rd., Cleveland, OH 44146, Tel: 216-292-6800, TELEX: 98-5413, FAX: 216-292-6812; Empl.: 300; *Sls. Mgr.:* J.B. Ernster

AIR-O-TRONICS, Trush, Inc., 2747 Rt 20 E, P.O. Box 326, Cazenovia, NY 13035, Tel: 315-655-2387, TWX: 710-541-1530, FAX: 315-655-3862; FSC No.: 16663; Empl.: 15

AIRPAX-CAMBRIDGE DIVISION, A North American Philips Co., Woods Rd., Cambridge, MD 21613, Tel: 301-228-4600, TELEX: 6849138, TWX: 710-865-9655, FAX: 301-228-8910; FSC No.: 81541; Empl.: 1100; *Sls. Mgr.:* Sandy Monaghan ..... **B•1348**

Local Sales Offices & Reps

AL	Huntsville, BCI	205-539-4411
AZ	Tempe, Westrep	602-820-9932
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Airpax	408-980-0410
CO	Littleton, Lange Sls.	303-795-3600
FL	Pompano Bch., Airpax	305-978-9019
GA	Chamblee, BCI	404-455-0405
ID	Boise, Lange Sls., Inc.	208-345-8207
IL	Lake Zurich, Somers-Stanton, Inc.	708-438-2999
IN	Indianapolis, Airpax	317-573-9911
IA	Marion, Rep Assocs.	319-373-0152
MD	Frederick, Airpax	301-243-3133
MA	Northboro, Airpax	508-393-1919
MI	Farmington Hills, Airpax	313-553-6030
MN	Eagan, Airpax	612-683-9007
NY	Rochester, Airpax	716-654-7470
NY	Syosset, Airpax	516-364-1217
OH	Dayton, Baehr, Greenleaf	513-439-0724
OH	Westlake, Baehr, Greenleaf	216-892-1770
OH	Worthington, Baehr, Greenleaf	614-847-0220
OR	Beaverton, Airpax	503-641-6130
PA	Pittsburgh, Russell F. Clark	412-242-9500
TX	Dallas, Airpax	214-851-7433
UT	Salt Lake City, Lange Sls.	801-487-0843
WI	Wauwatosa, Larson Assocs.	414-258-0529

AIRPAX-CHESHIRE DIVISION, A North American Philips Co., Cheshire Indl. Pk., Box E, Cheshire, CT 06410, Tel: 203-271-6000, TWX: 710-455-4048, FAX: 203-271-6100; Empl.: 800; *Sls. Mgr.:* Jerry Gabbard ..... **B•1875; D•1128**

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Tempe, Westrep	602-820-9932
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Airpax	408-980-0410
CO	Littleton, Lange Sls.	303-795-3600
FL	Pompano Bch., Airpax Co.	305-978-9019
GA	Chamblee, B.C.I.	404-455-0405
ID	Boise, Lang Sls., Inc.	208-345-8207
IL	Lake Zurich, Somers-Stanton, Inc.	708-438-2999
IN	Indianapolis, Airpax	317-573-9911
IA	Marion, Rep Assocs.	319-373-0152
MD	Frederick, Airpax	301-243-3133
MA	Northboro, Airpax	508-393-1919
MI	Farmington Hills, Airpax	313-553-6030
MN	Eagan, Airpax	612-683-9007
NY	Rochester, Airpax	716-654-7470
NY	Syosset, Airpax	516-364-1217
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OH	Westlake, Baehr, Greenleaf & Assocs.	216-892-1770
OH	Worthington, Baehr, Greenleaf & Assocs.	614-847-0220
OR	Beaverton, Airpax	503-641-6130
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
TX	Dallas, Airpax	214-851-7433
UT	Salt Lake City, Lange Sls.	801-487-0843
WI	Wauwatosa, Larson Assocs.	414-258-0529

AIRPAX-FREDERICK DIVISION, A North American Philips Co., Husky Park P.O. Box 500, Frederick, MD 21701, Tel: 301-663-5141, FAX: 301-698-0624; Empl.: 600; *Sls. Mgr.:* Dennis Karr, Prod. Mgr.; *Dist. Mgr.:* Mike Zusi, Mktg. Mgr. ..... **B•1832**

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Tempe, Westrep	602-820-9932
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Airpax	408-980-0410
CO	Littleton, Lange Sls.	303-795-3600
FL	Pompano Bch., Airpax	305-978-9019
GA	Chamblee, B.C.I.	404-455-0405
ID	Boise, Lange Sls., Inc.	208-345-8207
IL	Lake Zurich, Somers-Stanton Inc.	708-438-2999
IN	Indianapolis, Airpax	317-573-9911
IA	Marion, Rep Assocs., Inc.	319-373-0152
MD	Frederick, Airpax	301-243-3133
MA	Northboro, Airpax	508-393-1919
MI	Farmington Hills, Airpax	313-553-6030
MN	Eagan, Airpax	612-683-9007
NY	Rochester, Airpax	716-654-7470
NY	Syosset, Airpax	516-364-1217
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OH	Westlake, Baehr, Greenleaf & Assocs.	216-892-1770
OH	Worthington, Baehr, Greenleaf & Assocs.	614-847-0220
OR	Beaverton, Airpax	503-641-6130
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
TX	Dallas, Airpax	214-851-7433
UT	Salt Lake City, Lange Sls.	801-487-0843
WI	Wauwatosa, Larson Assocs.	414-258-0529

AIRPAX-INTERNATIONAL DIVISION, A North American Philips Co., West Johnson Ave., Cheshire, CT 06410, Tel: 203-271-6000, FAX: 203-271-6400; Empl.: 350; *Sls. Mgr.:* Art Catano ..... **B•1875; D•1128**

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Tempe, Westrep	602-820-9932
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westerep	619-566-6580
CA	Santa Clara, Airpax	408-980-0410
CO	Littleton, Lange Sls.	303-795-3600
FL	Pompano Bch., Airpax	305-978-9019
GA	Chamblee, B.C.I.	404-455-0405
ID	Boise, Lang Sls., Inc.	208-345-8207
IL	Lake Zurich, Somers-Stanton, Inc.	708-438-2999
IN	Indianapolis, Airpax	317-573-9911
IA	Marion, Rep Assocs.	319-373-0152
MD	Frederick, Airpax	301-243-3133
MA	Northboro, Airpax	508-393-1919
MI	Farmington Hills, Airpax	313-553-6030
MN	Eagan, Airpax	612-683-9007
NY	Rochester, Airpax	716-654-7470
NY	Syosset, Airpax	516-364-1217
OH	Dayton, Behr, Greenleaf & Assocs.	513-439-0724
OH	Westlake, Behr, Greenleaf & Assocs.	216-892-1770
OH	Worthington, Behr, Greenleaf & Assocs.	614-847-0220
OR	Beaverton, Airpax	503-641-6130
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
TX	Dallas, Airpax	214-851-7433
UT	Salt Lake City, Lange Sls.	801-487-0843
WI	Wauwatosa, Larson Assocs.	414-258-0529

AIRPAX SENSOR DIV., A North American Philips Co., Cheshire Industrial Park, Cheshire, CT 06410, Tel: 203-271-6000, TELEX: 962421, TWX: 710-455-4048, FAX: 203-271-6100; Empl.: 200; *Sls. Mgr.:* Jim Rochford ..... **B•1875; D•1128**

Local Sales Offices & Reps

AL	Birmingham, Dwight W. Prouty Co., Inc.	205-988-8110
AZ	Tempe, Westrep	602-820-9932
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Airpax	408-980-0410
CO	Littleton, Lange Sls., Inc.	303-795-3600
FL	Pompano Bch., Airpax	305-978-9019
GA	Marietta, Control Equip. Co.	404-427-8776
ID	Boise, Lange Sls, Inc.	208-345-8207
IL	Lake Zurich, Somers-Stanton Inc.	708-438-2999
IN	Indianapolis, Airpax	317-573-9911
IA	Cedar Rapids, Rep Assocs.	319-373-0152
LA	Kenner, D & W System Sls.	504-466-1692
MA	Northboro, Airpax	508-393-1919
MI	Farmington Hills, Airpax	313-553-6030
MN	Eagan, Airpax	612-683-9007
MS	Jackson, D & W Sys. Sls.	601-956-9292
NY	Rochester, Airpax	716-654-7470
NY	Syosset, Airpax	516-364-1217
NC	Charlotte, MacGuire & Crawford Inc.	704-366-3454
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OH	Westlake, Baehr, Greenleaf, & Assocs.	216-892-1770
OH	Worthington, Baehr, Greenleaf & Assocs.	614-847-0220
OR	Beaverton, Airpax	503-641-6130
PA	Warrendale, Baehr, Greenleaf & Assocs.	412-934-3088
TX	Dallas, Airpax	214-851-7433
UT	Salt Lake City, Lange Sls.	801-487-0843
VA	Salem, Process Specialities	703-562-0707
WI	Wauwatosa, Larsen Assocs.	414-258-0529

Local Distributors

AL	Birmingham, Dwight D. Prouty	205-988-8110
AL	Mobile, Dwight D. Prouty	205-476-5056
AZ	Mesa, FLW, Inc.	602-641-9157
CA	Costa Mesa, FLW Inc.	714-751-7512
CA	Santa Clara, MANCO	408-496-6611
CT	Milford, Motors & Drivers Inc.	203-877-6509
FL	Ft. Lauderdale, Indl. Instrs.	305-971-0209
FL	Tampa, Wacco Inc.	813-621-6441
GA	Marietta, Control Equip. Co.	404-427-8776
ID	Boise, Radar Elec. Co., Inc.	208-336-2227
IL	Countryside, Chicago Chain & Transmission	708-482-9000
IN	Mishawaka, Power Comps. of Midwest	219-256-6630
IA	Des Moines, Kim Controls	515-274-9194
KY	Louisville, Automatic Controls	502-426-4666
LA	Baton Rouge, D & W Sys. Sls.	504-753-0992
LA	Kenner, D & W. Sys. Sls.	504-466-1692
MA	Hingham, Hingham Bay Corp.	617-740-1900
MI	Detroit, Automatic Controls	315-533-8890
MN	Minneapolis, Kim Controls	612-780-2991
MO	Fenton, Hi-Tech Elec.	314-343-6060
NY	Johnson City, Help Elctrns.	607-729-3528
NY	N. Tonawanda, N.E. Controls of Buffalo	716-691-0081
NY	New Hyde Park, 1/0 Corp.	516-355-0130
NY	Thompson Ridge, Vespo Mktg.	914-361-2800
NC	Charlotte, McGuire & Crawford	704-366-3454
OH	Brunswick, Automatic Controls	216-273-1117
OH	Cleves, ATR Distrs.	513-353-1800
OR	Portland, Radar Elec. Co., Inc.	503-232-3404
PA	Conshohocken, I/O Corp.	215-825-4610
PA	Pittsburgh, Friday Engrg.	412-341-1444
TX	Dallas, Automatic Sys.	214-688-1810
TX	Houston, The Haltom Co.	713-782-5625
VA	Salem, Process Specialties	703-563-0707
WA	Richland, Radar Elec, Co., Inc.	509-943-6790
WA	Seattle, Radar Elec, Co., Inc.	206-282-2511
WA	Spokane, Radar Elec, Co., Inc.	509-747-3053
WI	New Berlin, Electric Sales & Engrg.	414-782-2400

AIRTRON, Litton Industries, Inc., 200 E. Hanover Ave., Morris Plains, NJ 07950, Tel: 201-539-5500, TWX: 710-986-7473, FAX: 201-539-0357; FSC No.: 80006; Empl.: 500; *Sls. Mgr.:* M. R. Grosso, Natl. Sls. Mgr.

AIR-VAC ENGRG., 100 Gulf St, Milford, CT 06460, Tel: 203-874-2541, FAX: 203-783-1383; Empl.: 40

AJAX MAGNETHERMIC CORP., 1745 Overland Ave., N.E., Warren, OH 44482, Tel: 216-372-8511, TELEX: 098-2482, FAX: 216-372-8644; Empl.: 500

A.J.'S POWER SOURCE, 214A Cox Drive, Land-O-Lakes, FL 34639, Tel: 800-933-7725, FAX: 813-996-5037; Empl.: 10; *Sls. Mgr.:* Allen L. Johnson Jr. ..... **D•1584**

Local Sales Offices & Reps

FL	Land-O-Lakes, AJ's Power Source	813-996-2583
GA	Duluth, AJ's Power Source	404-441-7927
NC	Raleigh, Overton Assocs.	919-781-7004
SC	Walhalla, Overton Assocs.	803-638-7101
TN	New Tazewell, Overton Assocs.	615-626-6009

AKG ACOUSTICS, INC., 1525 Aluardo St, San Leandro, CA 94577, Tel: 415-351-3500, FAX: 415-351-0500; Empl.: 100; *Sls. Mgr.:* David Angress

AKRO-MILS, Myers Industries, 1293 S. Main St, Akron, OH 44301, Tel: 216-253-5593, TELEX: 98-6321, FAX: 216-253-9801; Empl.: 200; *Sls. Mgr.:* W. J. Tonachio; *Dist. Mgr.:* D. Martin

ALADDIN ELCTRNS., See AIE Div. of Vernitron

ALAN INDUSTRIES INC., P.O. Box 1203, Columbus, IN 47202, Tel: 812-372-8869, FAX: 812-372-5909; FSC No.: 52750; Empl.: 36; *Sls. Mgr.:* Blayde A. Kennedy

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
AZ	Scottsdale, Arcom Sls., Inc.	602-947-5745
CA	Calabasas, Pamcor, Inc.	818-348-8701
CA	Palo Alto, RF Assocs.	415-494-3331
FL	Apopka, Saber Assocs.	800-432-6288
FL	Melbourne, Saber Assoc.	800-432-6288
FL	Tampa, Saber Assocs.	800-432-6288
GA	Lawrenceville, Saber Assocs.	800-327-0853
IN	Fort Wayne, TX Sls.	219-489-4447
KS	Roeland Park, Abrams & Assocs.	913-432-2303
MD	Kensington, Koebert Assocs.	301-493-8924
MA	Topsfield, Liberty Electro Mktg.	508-887-6655
MO	St. Louis, Abrams & Assocs.	314-569-0447
NY	New Rochelle, Ascor Elctrns.	914-235-8838
NY	Syracuse, T-Squared Elctrns.	315-463-8592
NC	Clayton, Saber Assocs.	800-327-0853
OH	Dayton, Frederic L. Ohmer	513-434-1454
OR	Portland, Caruso & Assocs.	503-246-5439
PA	Glenside, Koebert Assocs.	215-887-2310
TX	Addison, Robert R. Thomas Co.	214-233-8235
WA	Bellevue, Caruso & Assocs.	206-455-8811
WV	Inwood, Koebert Assocs.	304-229-8401
EXP	CT, Stamford, Dage Corp.	203-324-3123
Can	Ottawa, Ont., Giga-Tron	613-225-4090,

ALARM CONTROLS CORPORATION, P.O. Box 280, Deer Park, NY 11729, Tel: 516-586-4220, FAX: 516-586-6500; FSC No.: 55042; Empl.: 50; *Sls. Mgr.:* John Benedetto

ALASCO RUBBER & PLASTICS CORP., 617 Mountain View Ave.67, Belmont, CA 94002, Tel: 415-595-4100, FAX: 415-595-0298; FSC No.: 13862; Empl.: 25

ALBAR, INC., 19013 36th Ave. W., Lynnwood, WA 98036, Tel: 206-771-4006, 800-822-5227, FAX: 206-771-2163; Empl.: 50; *Sls. Mgr.:* David C. Stiffler ..... **A•2152**

Local Sales Offices & Reps

CA	Granada Hills, Crown Elctrns.	818-368-7475
GA	Marietta, B-C Elctrns. Sls.	404-565-2088
PA	Newtown, Indl. Sls. Assocs.	215-860-2076

ALBEROX CORPORATION, New Bedford Ind'l. Pk., New Bedford, MA 02745, Tel: 508-995-1725, FAX: 508-995-6954; Empl.: 180

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(213) 452-1229 1301 Olympic Blvd., Santa Monica, CA 90404 ● **(415) 835-1500** 1026 6th Avenue, Oakland, CA 94606

ALBION INDUSTRIES, 800 N. Clark St., Albion, MI 49224, Tel: 517-629-9441

ALDEC, INC., 3525 Old Conejo Rd., , Newbury Park, CA 91320, Tel: 805-499-6867, TELEX: 239-447, FAX: 805-498-7945; Empl.: 57; *Sls. Mgr.:* Harry Tosado

ALDEN COMPUTER SYSTEMS, One Salem Green, Ste. 420, Salem, MA 01970, Tel: 508-744-1314; *Sls. Mgr.:* Donald O'Brien

ALDEN ELECTRONICS, INC., 40 Washington Street, Westboro, MA 01581, Tel: 508-366-8851, TELEX: 94-8404, FAX: 508-898-2427; Empl.: 125; *Sls. Mgr.:* L. A. Farrington

ALDEN PRODUCTS CO., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, Tel: 508-583-0160, FAX: 508-583-0164; FSC No.: 01009; Empl.: 150; *Sls. Mgr.:* Donald J. Paul ..... **C•1161-1163**

ALDEN SYSTEMS, Alden Products Co., 262 N. Main St., P.O. Box 860, Brockton, MA 02403-0860, Tel: 508-583-0160, TELEX: 287 793 ALDN UR, FAX: 508-583-0164; Empl.: 150; *Sls. Mgr.:* D. Paul

A. L. DESIGN, INC., 1411 Military Rd., Buffalo, NY 14217, Tel: 716-875-6240, FAX: 716-875-2404; Empl.: 25

ALEPH INTERNATIONAL CORP., Nippon Aleph Corp., 1026 Griswold, San Fernando, CA 91340, Tel: 818-365-9856, 800-423-5622, FAX: 818-365-7274; Empl.: 17; *Sls. Mgr.:* Frank Mastrolonardo

A.L.E. SYS., INC., 150 Homer Ave., Ashland, MA 01721, Tel: 508-881-5252, FAX: 617-235-6588; Empl.: 70; *Sls. Mgr.:* John Boyd/Ken Duval; *Dist. Mgr.:* John Boyd/Ken Duval ..... **D•1604**

ALEXANDER BATTERIES, New Product/OEM Divison, P.O. Box 28880, San Diego, CA 92198, Tel: 619-480-4445, TELEX: 371-9855, FAX: 619-480-1351; Empl.: 390; *Sls. Mgr.:* Dave Zeman ..... **D•1430**

Local Sales Offices & Reps

CA	San Diego, Alexander Batteries;New Prod./OEM Div.	619-480-4445-619-480-1351

ALEXANDER MANUFACTURING COMPANY, P.O. Box 1508, Mason City, IA 50401, Tel: 800-247-1821, 515-423-8955, TELEX: 3719855, FAX: 515-423-1644; Empl.: 270; *Sls. Mgr.:* Bill Sapp ..... **D•1430**

ALEXANDRIA EXTRUSION CO., P.O. Box 847 Cty. Rd. 22 North, Alexandria, MN 56308, Tel: 612-763-6537, FAX: 612-763-6530; Empl.: 140; *Sls. Mgr.:* Brian L. Bloedorn

ALFA ELECTRONICS, INC., P. O. Box 8089, Princeton, NJ 08543-8089, Tel: 609-275-0220, FAX: 609-275-9536; Empl.: 9; *Sls. Mgr.:* Jeff Kao

ALGO, INC., 1237 Queen Anne Avenue, ODENTON, MD 21113, Tel: 301-672-1544, TELEX: FAX: (301) 672-1456; Empl.: 12; *Sls. Mgr.:* G. J. O'Mara

ALINABAL, 28 Woodmont Rd., Milford, CT 06460, Tel: 203-877-3241, TWX: 710-462-1178, FAX: 203-877-3241 (ext. 360); Empl.: 255

ALLEGRO MICROSYSTEMS, INC., formerly Sprague Semiconductor Grp., 363 Plantation St., Worcester, MA 01605, Tel: 508-795-1300, FAX: 508-792-9024; FSC No.: 31019,0CVK3,2D532; Empl.: 2000; *Sls. Mgr.:* D. Ax; *Dist. Mgr.:* J. Nardone

ALLEN AVIONICS, INC., 224 E. 2nd St., Mineola, NY 11501, Tel: 516-248-8080, FAX: 516-747-6724; Empl.: 300; *Sls. Mgr.:* Jeffrey Buchman ..... **A•1494, 1653**

Local Sales Offices & Reps

AZ	Phoenix, J. F. Hurlbut Co.	602-952-2079
CA	Arcadia, Van Gott & Assocs.	818-445-9728
CA	Palo Alto, Adtek Assocs.	415-323-5414
CA	San Diego, Van Gott & Assocs.	619-308-0667
CO	Golden, J. F. Hurlbut Co.	303-279-7796
FL	Melbourne, Reynolds & Assocs., Inc.	407-259-7000
IA	Des Moines, The Beams Co.	515-255-1148
KS	Shawnee Mission, The Beams Co.	913-631-0300
MA	Scituate, D&M Tech. Sls.	617-545-9369
MO	St. Louis, The Beams Co.	314-434-8448
NY	Plainview, Eastern Metro Assocs.	516-931-1414
NC	Raleigh, Reynolds Assocs.	407-259-7000
PA	W. Conshohocken, Eastern Comp. Sls. Inc.	215-825-8610
TX	Dallas, Bradenco Corp.	214-352-3554
VA	Alexandria, Vanguard Engrg. Sls.	703-768-1660
WA	Seattle, Evergreen Mktg. Grp.	206-633-3160

ALLEN BRADLEY CO., ELECTRONIC COMPONENTS DIV., A Rockwell International Co., 1414 Allen-Bradley Dr., El Paso, TX 79936, Tel: 915-592-4888, 800-592-4888, TELEX: 749-400, FAX: 915-594-8922; Empl.: 6500; *Sls. Mgr.:* George Hackstadt; *Dist. Mgr.:* George Hackstadt

ALLEN- BRADLEY CO., Div. of Industrial Control Grp., 1201 S. Second St., Milwaukee, WI 53201, Tel: 414-382-2000, TELEX: 26699, TWX: 4311016, FAX: 414-382-4444; Empl.: 1600; *Dist. Mgr.:* Dick Zajork

RGA

FAX: 818-765-2387

ALLEN CO., INC., ROBERT G., 7267 Coldwater Canyon, N. Hollywood, CA 91605, Tel: 818-765-8300, 800-999-3711; Empl.: 35; *Sls. Mgr.:* Bob Keltz ..... **A•1008-1009, 1839-1842**

Local Sales Offices & Reps

CA	Sunnyvale, Robert G. Allen Co., Inc.	408-243-7007
CT	Windsor, Janeco	203-688-4513
IL	Chicago, Rendell Sls.	312-967-1513
NJ	Palisades Park, Janco Technlg. Inc.	201-941-4008
NM	Albuquerque, Nelco Elctrns.	503-293-1399
NC	Kernsville, Wallace Elctrns.	919-996-2742
MN	Oakdale, Complete Sls.	612-731-2923
TX	Irving, Kite Elctrns.	214-986-0321
WA	Redmond, Interstate Elctrns.	206-885-5257
EXP	Dublin, Ireland, Standard Comps. Ltd.	375-25025

Local Distributors

CA	Anaheim, Deco Elctrns.	714-630-8252
CA	Oakland, Brill Elctrns.	405-834-5888
CA	Redwood City, H D B	415-368-1388
CA	San Diego, Deco Elctrns.	619-693-1595
CA	San Diego, Mock III	619-560-0515
CA	San Leandro, Gateway Elctrns.	415-632-4500
CT	Greenwich, Wise Comps.	203-531-4880
CT	Stratford, C-Tronics, Inc.	800-243-9967
ID	Boise, Radar Elec. Co., Inc.	208-336-2227
IL	Itasca, Voyager Elctrns. Corp.	312-773-4900
MA	Wilmington, Heiland Elctrns., Inc.	617-657-4870
MN	Fridley, Voyager Elctrns. Corp.	612-571-7766
NJ	Garfield, B & R Elctrns.	201-470-0700
OR	Portland, Radar Elec. Co., Inc.	503-232-3404
UT	Provo, Central Utah Elctrn. Supp.	801-373-7522
WA	Richland, Radar Elec. Co., Inc.	509-943-8336
WA	Seattle, Radar Elec. Co., Inc.	206-282-2511
WA	Spokane, Radar Elec. Co., Inc.	509-747-3053

ALLEN DATAGRAPH, INC., 2 Industrial Way, Salem, NH 03079, Tel: 603-893-1983, FAX: 603-893-9042; *Sls. Mgr.:* Tom Allen

ALLEN SYSTEMS, 2346 Brandon Rd., Columbus, OH 43221, Tel: 614-488-7122; Empl.: 10

ALLEN TECHNOLOGY, PO Box 575, Sutton, NE 68979, Tel: 402-773-5285

ALLIED CONTROLS INCORPORATED, 562 Captain Neville Dr., Waterbury, CT 06705-3827, Tel: 203-757-4200, FAX: 203-757-4204; FSC No.: 5945; *Sls. Mgr.:* John T. Kryjak, VP Sls. & Mktg. ..... **B•1400-1403**

Local Sales Offices & Reps

AL	Huntsville, Hughes Assocs. Inc.	205-533-9108
CA	Irvine, Component Mktg. Assocs., Inc.	714-727-0688
CA	Tarzana, Component Mktg. Assocs., Inc.	818-708-8058
CT	Clinton, Selmark Assocs., Inc.	203-573-9088
FL	Orlando, Trimark Assocs., Inc.	407-859-5504
GA	Norcross, Hughes Assocs. Inc.	404-662-1587
IL	Skokie, Industrial Reps., Inc.	708-967-8430
IN	Indianapolis, M & L Elctrn. Sls.	317-359-4742
MD	Burtonsville, Chesapeake Technlg. Inc.	301-236-0530
MA	Millis, Selmark Assocs., Inc.	508-376-2914
MN	Bloomington, Indl. Reps., Inc.	612-854-8027
MS	Corinth, Hughes Assocs. Inc.	601-287-2915
NH	Hopkinton, Selmark Assocs., Inc.	603-746-3299
NJ	Englewood, Gray Assocs., Inc.	201-894-0894
NJ	Kenvil, Gray Assocs. Inc.	201-927-6662
NC	Cary, Hughes Assocs. Inc.	919-467-7029
OH	Beachwood, Elctrn. Salesmasters, Inc.	216-831-9555
AZ	Phoenix, BLS Comms.	602-841-6613
PA	Pittsburgh, Process Engrg. Co.	412-561-5050
TN	Knoxville, Hughes Assocs. Inc.	615-558-0283

TX	Austin, Comp. Technlg.	512-250-2450
TX	Dallas, Comp. Technlg.	214-783-8831
TX	El Paso, Alexander Entprs.	915-591-3142
TX	Houston, Component Technlg.	713-961-1262
WI	Brookfield, Industrial Reps., Inc.	414-789-9393
	Local Distributors	
CA	Los Angeles, Master Distrs.	213-452-1229
CA	Santa Ana, El-Com, Inc.	714-432-6633
CA	Santa Ana, Norstan Elctrns. Inc.	213-924-7651
FL	Ft. Lauderdale, Peerless Radio	305-973-4141
IL	Chicago, Newark Elctrns.	312-784-5100
IN	Indianapolis, Bell Inds.	317-875-8200
MA	Newton, Greene-Shaw	617-969-8900
MN	Minneapolis, Control Design	612-721-1628
NJ	Oakland, Relay Specialties	201-337-1000
NY	Buffalo, Summit Distrbg.	716-887-2800
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Plainview, ACI	516-293-6630
NY	Rome, Rome Elctrns.	315-337-5400
OH	Willoughby, Gateway Megatech	216-953-0333
OK	Oklahoma City, Electro Entprs.	405-427-6591
PA	Philadelphia, P. E. I. Genesis	215-673-0400
PA	Philadelphia, Shap Elctrns.	215-969-3300
Can	Pointe Claire, Que., Future Elctrns.	514-694-7710

ALLIED ELCTRNS., SUBSIDIARY OF HALL-MARK, 7410 Pebble, Fort Worth, TX 76118, Tel: 800-433-5700, FAX: 817-595-6470; Empl.: 250; *Sls. Mgr.:* Ed Bridges

ALLIED-SIGNAL AEROSPACE CO., Bendix Communications Div., 1300 E. Joppa Rd., Towson, MD 21204, Tel: 410-583-4000, TWX: 710-232-1823, FAX: 410-337-7485; FSC No.: 06845; Empl.: 1500; *Sls. Mgr.:* Jack L. Shagena

ALLIGATOR TECHNOLOGIES, P.O. Box 9706, Fountain Valley, CA 92708, Tel: 714-850-9984, FAX: 714-850-9987; Empl.: 10; *Sls. Mgr.:* Bertil Wanner; *Dist. Mgr.:* Robert Galter

ALL-STATES, INC., 1801 W. Foster Ave., Chicago, IL 60640, Tel: 312-728-0525, TELEX: 317027, FAX: 312-728-6410; FSC No.: 26863

ALMOND INSTRUMENTS, See EG & G Almond Instruments

ALPHA COMPONENTS, 1106 E. Simpson Rd., Mechanicsburg, PA 17055, Tel: 717-697-8595, FAX: 717-697-8608; FSC No.: 52748; *Sls. Mgr.:* Jerry Buckwalter

ALPHA-CORE INC., 915 Pembroke St., Bridgeport, CT 06608, Tel: 203-335-6805, FAX: 203-384-8120; Empl.: 15; *Sls. Mgr.:* Sandu Pescaru

ALPHA DIST. CORP., 3554 Brecksville Rd., Richfield, OH 44286, Tel: 216-659-7100, 1-800-628-0841, FAX: 216-659-3435

ALPHA INDUSTRIES, INC., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, TELEX: 949436, TWX: 710-393-1236; FSC No.: 17540; Empl.: 1400; *Sls. Mgr.:* David Barker

ALPHA-M CORP., 11518 Reeder Rd S.W., 115, Dallas, TX 75229, Tel: 214-406-0424; Empl.: 8; *Sls. Mgr.:* W. L. Cowley

ALPHA METALS, 600 Rte 440, Jersey City, NJ 07304, Tel: 201-434-6778, FAX: 201-434-7508; Empl.: 350; *Sls. Mgr.:* Dave Zerfoss, VP Assembly Prods.

ALPHA OMEGA COMPUTER SYSTEMS, 33815 Eastgate Circle, Corvallis, OR 97333, Tel: 503-754-1911, FAX: 503-757-7415; Empl.: 5; *Sls. Mgr.:* Gary Oliver; *Dist. Mgr.:* Gary Oliver

ALPHA PRODUCTS, INC., 5740 Corsa Ave. 6104, Westlake Village, CA 91362, Tel: 818-889-9304, TELEX: 65-9210, FAX: 818-706-8986

ALPHA-TECH INC., P.O. Box 209, Riverdale, NJ 07457, Tel: 201-831-1222; Empl.: 8; *Sls. Mgr.:* M. Rice

ALPHA THERMISTOR, INC., 7181 Construction Ct., San Diego, CA 92121, Tel: 619-549-4660, 800-235-5445, FAX: 619-549-4791; Empl.: 30; *Sls. Mgr.:* Dan McGillicuddy

ALPHA WIRE CORP., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207-0711, Tel: 908-925-8000, TELEX: 6853017, TWX: 710-996-5895, FAX: 908-925-7938; Empl.: 376; *Sls. Mgr.:* Linda Smith

ALPS ELECTRIC (USA), INC., 3553 N. First St., San Jose, CA 95134, Tel: 408-432-6000, FAX: 408-432-6035(37); Empl.: 700; *Sls. Mgr.:* Mattie Alesi,

ALTAIR

FAX: 818-701-5508

ALTAIR EXCHANGE CORPORATION, 19201 Parthenia St. No.E, Northridge, CA 91324, Tel: 818-701-6977, 800-824-5620 ..... **B•1034-1036**

ALTECH CORP., 120 Old Camplain Rd., Somerville, NJ 08876, Tel: 908-707-8484, FAX: 908-707-4455; Empl.: 35; *Sls. Mgr.:* Steve Stahovic, V.P.; *Dist. Mgr.:* Mort Gelfand, V.P. ... **B•1349, 1643; C•1006-1007, 1148, 1164-1171**

ALTEK CO., P.O. Box 1128, Torrington, CT 06790, Tel: 203-482-7626, FAX: 203-496-7113; FSC No.: 53939; Empl.: 65; *Sls. Mgr.:* Stephen Altschuler

ALTEK CORPORATION, 12210 Plum Orchard Dr., Silver Springs, MD 20904-7802, Tel: 301-572-2555, TWX: 710-825-0422, FAX: 301-572-2510; FSC No.: 7D336; Empl.: 80; *Sls. Mgr.:* Thomas A. Rainone; *Dist. Mgr.:* Thomas A. Rainone

ALTERNATIVE MANUFACTURING, INC., 8 Summer St., P.O. Box 200, Winthrop, ME 04364-200, Tel: 207-377-9377, FAX: 207-377-9379; Empl.: 20

ALTRON, INC., 6700 Industry Ave., N.W., Anoka, MN 55303, Tel: 612-427-7735, FAX: 612-427-3980; Empl.: 185; *Sls. Mgr.:* Waldo W. Hasse

ALUMINUM FILTER, 1000 Cindy Lane, Carpinteria, CA 93013, Tel: 805-684-7651, TELEX: 6713624, FAX: 805-684-3654; FSC No.: 17504; Empl.: 120; *Sls. Mgr.:* B. L. Baker

ALUSETT U.S.A., INC., 3 Cecilia Lane, Pleasantville, NY 10570, Tel: 914-737-0120, FAX: 914-737-8697; Empl.: 35

AMADOR CORPORATION, Taylors Falls, MN 55084-0270, Tel: 612-631-2487, TELEX: 5106007012, ESYLNK: 62911738, FAX: 612-465-3073; Empl.: 31; *Sls. Mgr.:* Gene A. Panger

AMATOM ELECTRONIC HARDWARE, 446 Blake St., New Haven, CT 06515, Tel: 203-397-3311, TELEX: 963-419, FAX: 203-387-4101; FSC No.: 06540; Empl.: 125; *Sls. Mgr.:* James Marshall

Local Sales Offices & Reps

AL	Huntsville, Advanced Comps. Mktg.	205-881-5493
AZ	Phoenix, Carlberg & Assoc.	602-468-0750
CA	Moor Park, Interconn	805-529-4276
CA	San Diego, Coastal Elctrns.	619-922-5525
CA	Sunnyvale, Logan Sls.	408-732-6020
CO	Highland Ranch, Valcomp	303-791-0330
CT	Bethany, Reps. Corp.	203-393-0024
FL	Longwood, R.O. Whitsell & Assoc.	407-682-6662
IL	Elk Grove Village, Control Sls.	708-595-2110
IN	Ft. Wayne, Outman Sls.	219-489-7699
IA	Marion, M.S.B. Assocs.	319-377-6261
KS	Roeland Pk., M.S.B. Assocs.	913-432-2131
MD	Walkersville, Jadelectronics	301-845-6036
MA	Wellesley, Reps. Corp.	617-237-6476
MI	Dearborn, Pitcher-Poulin	313-582-5450
MN	Edina, Jay Borman Sls.	612-922-5525
MO	St. Charles, M.S.B. Assocs.	314-946-5577
NM	Albuquerque, Carlberg & Assoc.	505-899-2155
NY	New Rochelle, R D I Assocs.	914-632-2828
NY	Syracuse, Lenard Co.	315-479-9191
NC	Raleigh, Tingen Tech. Sls.	919-870-6670
OH	Cleveland, J. Olsen Co.	216-838-0510
OR	Beaverton, Luscombe Eng./NW	503-636-6664
PA	Birchrunville, Jadelectronics Assocs.	215-296-3800
TX	Dallas, Nesbitt	214-696-8700
WA	Bellevue, Luscombe Eng./NW	206-223-1541
WI	Brookville, Control Sls.	414-797-9500
EXP	NY Edgewood, Kaytech Ind.	516-242-6606
Can	Rexdale, Truenorth Technlgs.	416-744-2233

AMBER ELECTRIC DESIGN, 6969 Trans-Canada Hwy., St. Laurent, PQ., Canada H4T 1V8, Tel: 514-333-8748, 800-361-3697, TELEX: 514-333-1388; FSC No.: 38047; Empl.: 40; *Sls. Mgr.:* Wayne Jones

AMBER INDS., INC., 14902 Preston Rd. Ste. 212, Dallas, TX 75379, Tel: 214-490-9801, FAX: 214-980-0329; *Sls. Mgr.:* R. Bacon ..... **B•1351**

Local Sales Offices & Reps

AZ	Scottsdale, ESCO Elctrns.	602-948-4404
CA	Redlands, ESCO Sls.	714-335-1444
CA	San Carlos, Electronic Engrg. Assoc.	415-593-2189
FL	Indian Rocks Beach, PAR Assocs.	813-596-8841
GA	Atlanta, PAR Assocs.	404-391-9117
IL	Park Ridge, G. McL. Cole Co.	312-692-0665
IN	Jasper, E & K Elec., Inc.	812-482-3161
KS	Lenexa, Dytec/South (west)	913-888-0215
KS	Wichita, Dytec/South	316-263-7090
MD	Westminster, Chesapeake Technlgs.	301-875-0004
MA	Reading, May Technlg.	617-942-7135
MI	Southfield, Comtel Instruments	313-358-2505
MN	Crystal, Abtech	612-537-3384
MO	Maryland Hgts., Dytec/South (east)	314-739-0665
NJ	Medford, McCoy Grp.	609-953-0770
NM	Albuquerque, ESCO Elctrns.	505-243-3470
NC	Charlotte, PAR Assocs.	704-535-9858
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instruments	513-426-5310
OR	Portland, SPS Elctrns.	206-323-4140
PA	Exton, McCoy Grp. (east)	215-363-0350
PA	Pittsburgh, Comtel Instrs. (west)	412-922-5720
TX	Dallas, Seaton Corp.	214-980-9860
TX	Houston, Seaton Corp.	713-731-2649
WA	Edmonds, Power Sources Unlimited	206-743-6641
WA	Redmond, SPS Elctrns.	206-323-4140
	Local Distributors	
GA	Atlanta, PAR Assocs.	800-622-9555
IL	Park Ridge, G. McL. Cole Co.	312-692-6040
NC	Charlotte, PAR Assocs.	704-366-6516

AMBIT ASSOCIATES, 2038 San Rafael Ct., Santa Clara, CA 95051-2311, Tel: 408-241-5767, FAX: 408-241-4051

AMBI-TECH INDS., 319 Knickerbocker Ave., Hillsdale, NJ 07642, Tel: 201-666-0504, FAX: 201-666-0597; Empl.: 20; *Sls. Mgr.:* Al Nagler; *Dist. Mgr.:* Al Nagler

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Local Sales Offices & Reps

AL	Huntsville, Kemp Instrs.	205-837-4304
AZ	Phoenix, C. T. Carlberg	602-468-0750
CA	Los Angeles, Knight Co.	213-670-2833
CA	Orange County, Knight Co.	714-833-8250
CA	Rancho, The Knight Co.	619-452-7196
CA	Santa Clara, Interconnect Sls. Grp.	408-980-1166
CO	Englewood, FG Mktg. Co.	303-795-9176
CT	Bethel, Instr. Dynamics	203-743-5045
FL	Tampa, Temco Sls. Inc.	813-855-7566, 800-282-6815
GA	Atlanta, Kemp Instrs.	404-452-8050
IL	Bensenville, R. L. Lang & Assocs.	708-766-3667
IN	Ft. Wayne, Walter W. Bieberich	219-432-2537
IN	New Albany, Walter W. Biebrich, Inc.	812-945-3187
IA	Davenport, Rush & West	319-388-9494
KS	Olathe, Rush & West	913-764-2700
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MN St. Paul, Heyda/Hanks Co. 612-484-8531
MO St. Louis, Rush & West 314-965-3322
NM Albuquerque, C. T. Carlberg Assocs. .. 505-836-1448
NY Endwell, Reagan/Compar Albany 607-754-2171
NY Great Neck, F & F Metro, Inc. 516-482-4080
NY Rochester, Reagan/Compar, Albany .. 716-271-2230
NC Raleigh, L. G. White & Co. 919-872-6049
NC Winston Salem, L. G. White & Co. 919-725-3612
OH Chesterland, Electro Sls. Assocs. 216-729-0190
OH Dayton, Electro Sls. Assocs. 513-426-5551
OK Tulsa, Kemp Engr. 918-663-4501
OR Beaverton, Eclipse Mktg. Grp. 503-642-1661
PA Edgemont, White/Whiddett Co. 215-353-6343
PA Pittsburgh, Electro Sls. Assocs. 412-322-9000
SC Greenville, L. G. White & Co. 803-271-0630
TX Addison, Kemp Engrg. 214-931-7100
TX Austin, Kemp Engrg. 512-263-3322
TX Houston, Kemp Engrg. 713-466-1465
VA Ashland, L. G. White & Co. 804-752-7055
WA Redmond, Eclipse Mktg. Grp. 206-885-6991
WA Spokane, Eclipse Mktg. Grp. 509-922-3972
EXP NJ, Mahwah, Intl. Sls. Div. 201-825-0473

Local Distributors
NY Syracuse, Reagan/Compar, Albany ... 315-432-8232

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AMECON, INC., 1900 S. Chris La., Anaheim, CA 92805, Tel: 714-634-2220, 800-392-2292, TWX: 510-1000-364; *Sls. Mgr.:* Frank Carleone ..... **A•1154, 1156-1158, 2154-2165**

AME CORPORATION, 33 Jacksonville Rd., P.O. Box 195, Towaco, NJ 07082-0195, Tel: 201-263-1700, FAX: 201-263-8199; Empl.: 20; *Sls. Mgr.:* Edward Dimitry ..... **B•1644**

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NJ Wyckoff, Chanco, Inc. 201-891-7866
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Can Scarborough, Ont., Leecraft Inds. 416-439-6320

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AMERICAN AEROSPACE CONTROLS, 570 Smith St., Farmingdale, NY 11735, Tel: 516-694-5100, FAX: 516-694-6739; Empl.: 48; *Sls. Mgr.:* Gregory D'Abramo ..... **B•1876-1877**

AMERICAN ALUMINUM, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092, Tel: 908-233-3500, FAX: 908-233-3241; Empl.: 125; *Sls. Mgr.:* Ronald R. King

AMERICAN ASSEMBLY INC., P.O. Box 515, 7 Industrial Dr., Florida, NY 10921, Tel: 914-651-3433, FAX: 914-651-2055; FSC No.: 74795; Empl.: 5

American Arium

FAX: 714-731-6344

AMERICAN ARIUM, Formerly American Automation & Arium, 14281 Chambers Rd., Tustin, CA 92680-7207, Tel: 714-731-1661; Empl.: 39; *Sls. Mgr.:* Suzanne Apitz ..... **D•1217**

Local Sales Offices & Reps
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AMERICAN COMPUTER HARDWARE CORP., 2205 S. Wright St., Santa Ana, CA 92705, Tel: 714-549-2688, FAX: 714-662-0491; Empl.: 25; *Sls. Mgr.:* Regan Dunne; *Dist. Mgr.:* Regan Dunne

AMERICAN CONTROL PRODUCTS, Div. of Precision Timer Co., Inc., 47 Westbrook Ind'l Pk, Westbrook, CT 06498, Tel: 203-399-6253, FAX: 203-399-5619; Empl.: 35; *Sls. Mgr.:* J. H. Hunicke

AMERICAN CONTROL TECHNOLOGY, INC., 825 Village Quarter Rd., West Dundee, IL 60118-2100, Tel: 708-426-6780, FAX: 708-426-1057; *Sls. Mgr.:* Al Shrock ..... **B•1645**

AMERICAN CYANAMID CO., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470, Tel: 201-831-2856, TELEX: 219-136, TWX: 710-988-3045, FAX: 201-839-8847; *Sls. Mgr.:* Stephen D. Pouliot

AMERICAN ELECTRONIC LABS, SEE AEL, DEFENSE CORP.

AMERICAN ELECTRONICS, 1600 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-3020, TWX: 910-592-1256; FSC No.: 89321; Empl.: 200; *Sls. Mgr.:* Bill Holland

AMERICAN ETCHING & MFG., 13730 Desmond St., Pacoima,, CA 91331-2796, Tel: 818-896-1187, FAX: 818-896-0095; Empl.: 75

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AMERICAN MAGNETICS CORPORATION, Group 4, 740 Watsoncenter Rd., Carson, CA 90745, Tel: 213-775-8651, TWX: 910-345-6258; Empl.: 250; *Sls. Mgr.:* Charlotte Williams ..... **D•1079**

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American Relays, Inc.

FAX: 213-944-0590

AMERICAN RELAYS, INC., 10306 Norwalk Blvd., Santa Fe Springs, CA 90670, Tel: 213-944-0447; FSC No.: 1HY41; Empl.: 45; *Sls. Mgr.:* Richard Lenning ..... **B•1404-1408**

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OH Cleveland, Components, Inc. 216-243-9200
OH Dayton, Components, Inc. 513-436-0255
OR Tigard, Eltech, Inc. 503-684-3458
WA Bellevue, Eltech, Inc. 206-643-0525

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MN Minneapolis, The Bergquist Co. 612-835-2322
NJ East Brunswick, Brothers Elctrns. 201-238-2200

AMERICAN RESEARCH & ENGINEERING, 1500 Executive Dr., Elgin, IL 60123, Tel: 708-888-7245, FAX: 708-888-7094; *Dist. Mgr.:* Nancy Crenshaw

AMERICAN SKYNET ELECTRONIC CO., 1474 Gladding Ct., Milpitas, CA 95035, Tel: 408-945-6355, FAX: 408-945-6357; Empl.: 25

AMERICAN SWITCH CORP., See Mors Components, Inc.

AMERICAN TRANS-COIL CORPORATION, 124-06 101 Ave., P.O.Box 357, Richmond Hill, NY 11419-1410, Tel: 718-441-5207, FAX: 718-441-4930; FSC No.: 18212; Empl.: 45; *Sls. Mgr.:* Walter T. Clancy

AMERICAN TECHNICAL CERAMICS CORPORATION, 1 Norden La., Huntington Sta., NY 11746-2102, Tel: 516-547-5700, TELEX: 825707, FAX: 516-547-5748; FSC No.: 29990;11272-868-73; Empl.: 497; *Sls. Mgr.:* D. Davis, Dir. Sls. & Mktg.

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AMERICAN ULTRAVIOLET, 562 Central Avenue, Murray Hill, NJ 07974, Tel: 908-665-2211, TELEX: 13-9266, FAX: 908-665-9523; Empl.: 26; *Sls. Mgr.:* J. E. Moore; *Dist. Mgr.:* M. C. Stines

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FAX: 714-831-8548

AMERICAN ZETTLER, 75 Columbia, Aliso Viejo, CA 92656, Tel: 714-831-5000, TELEX: 67-8472; Empl.: 200; *Sls. Mgr.:* Fred Harmon ..... **A•2167; B•1410-1413**

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CA	Newbury Park, Interconn	805-499-4024
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CA	San Jose, Arnold Tech. Sls., Inc.	408-954-0400
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CT	Madison, Focus Elctrn. Sls., Inc.	203-245-4314
IA	Cedar Rapids, J.R. Sls. Engrg. Inc.	319-393-2232
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FL	Melbourne, Synergistic Technlgs., Inc.	407-242-9661
FL	Odessa, Synergistic Technlgs., Inc.	813-920-5814
GA	Norcross, Benchmark Tech. Sls.	404-446-1711
IL	Arlington Hgts., KMA Sls. Co.	708-398-5300
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Overland Pk., AME Sls.	913-262-3971
MD	Gaithersburg, Naudain Assocs. So. Inc.	301-258-5040
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NJ	Rahway, R. E. Breuer Co., Inc.	201-388-5045
NM	Albuquerque, Thorson Desert States, Inc.	505-293-8555
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OH	Solon, Makin & Assocs.	216-248-7370
OR	Beaverton, Thorson Co. N.W.	503-644-5900
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UT	Midvale, Luscombe Engrg. Co.	801-565-9885
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WI	Milwaukee, KMA Sls. Co.	414-259-1771
Can	Burlington, Ont., Alternate Source Comps. Ltd.	416-335-6385

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CA	San Diego, Cypress Elctrns.	619-535-0011
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Santa Clara, Cypress Elctrns.	408-980-2500
CA	Santa Monica, Master Distrs.	213-452-1229
CO	Englewood, Cypress Elctrns.	303-792-5829
CO	Lakewood, Acacia Elctrns.	303-232-2882
CT	E. Haven, J V Elctrns.	203-469-2321
CT	Wallingford, The Greene-Shaw Co.	203-265-3333
FL	Orlando, Time Elctrns.	407-841-6565
IL	Lisle, Comps., Inc.	708-852-7707
IN	Carmel, Altex Elctrns.	317-848-1323
MD	Jessup, Treeko Sls., Inc.	301-470-3300
MD	Savage, Pyttronic Inds.	301-953-9650
MA	Peabody, Time Elctrns./New Eng.	508-532-6200
MN	Eden Prairie, Cypress Elctrns.	612-934-2104
MN	New Brighton, Chris Elctrns. Distrs.	612-631-2647
MO	St. Louis, Time Elctrns.	314-391-6444
NJ	Oakland, Relay Spec.	201-337-1000
NJ	W. Berlin, General Comps., Inc.	609-768-6767
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NY	Farmingdale, Pride Elctrns.	516-293-4020
NC	Raleigh, Resco/Raleigh	919-781-5700
OH	Columbus, Time Elctrns.	614-761-1138
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PA	Montgomeryville, Pyttronics Inds.	215-643-2850
TX	Irving, Cypress Elctrns.	214-255-0065
TX	Richardson, RSC Elctrns.	214-644-3444
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WI	Milwaukee, Progressive Image	414-321-4722

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AMETEK, INC., Mansfield & Green Div., 8600 Sunset Dr., Largo, FL 34643, Tel: 813-536-7831, FAX: 813-539-6882; Empl.: 120; *Sls. Mgr.:* Gary Queensberry

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PROCESS & ANALYTICAL INSTRUMENTS DIV., Ametek, Inc., 150 Freeport Road, Pittsburgh, PA 15238, Tel: 412-828-9040, TELEX: 6714789, FAX: 412-826-0399; Empl.: 110; *Sls. Mgr.:* Jerry Barth

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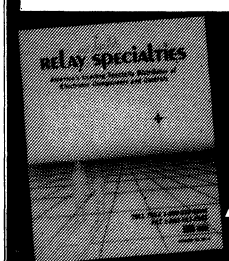
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MD	Columbia, PSA	215-245-0513
MA	Hudson, Compak, Inc.	617-568-0331
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MN Plymouth, Marshall 612-559-2211
MN St. Paul, Gopher Elctrns. Co., Inc. 612-483-3322
MO Bridgetown, Marshall Inds. 314-291-4650
MO Chesterfield, Hamilton Avnet Elctrns. 314-537-4265
MO Maryland Hgts., Chelsea Inds. 314-997-7709
MO St. Charles, Lectronix 314-946-6424
MO St. Louis, Franklin Elctrns. 314-993-5333
MO St. Louis, Time Elctrns. 314-391-6444
NH Manchester, Cronin Elctrns. 603-624-0105
NY Buffalo, Summit Distrs. 716-887-2800
NJ Camden, G.R.S. Elctrns., Inc. 609-964-8560
NJ Cherry Hill, Hamilton/Avnet 609-424-0100
NJ Fairfield, Hamilton Avnet Elctrns. 201-575-3490
NJ Fairfield, Marshall Elctrns. 201-882-0320
NJ Kenilworth, Federated Purchaser 201-272-0505
NJ Marlton, Time Elctrns. 609-596-6700
NJ Moorestown, Marlac Elctrns. 609-234-4200
NJ Mt. Laurel, Marshall Inds. 609-234-9100
NJ Old Bridge, BTC, Inc. 201-679-9300
NJ Pinebrook, Lex Elctrns. 201-227-7880
NJ Pinebrook, Time Elctrns. 201-882-4611
NM Albuquerque, Bell Inds. 505-292-2700
NM Albuquerque, Hamilton Avnet Elctrns. 505-345-0633
NY Bohemia, March Elctrns., Inc. 516-563-6000
NY East Syracuse, Time Elctrns. 315-432-0355
NY Elmsford, Ancar Elctrns. Supp., Inc. 914-592-7100
NY Farmingdale, Pride Elctrns., Inc. 516-293-4020
NY Hauppage, Marshall Inds. 516-273-2424
NY Hauppauge, Hamilton/Avnet 516-434-7420
NY Hauppauge, Lex Elctrns. 516-231-2500
NY Hauppauge, Time Elctrns. 516-273-0100
NY Hempstead, Davis Elctrns. Corp. 516-483-9200
NY Holbrook, Delmar Elctrns. 516-472-2400
NY Johnson City, Help Elctrns. 607-729-3528
NY Johnson City, Marshall 607-798-1611
NY Lynbrook, Peerless Elctrns. 516-593-2121
NY Rochester, Hamilton/Avnet 716-475-9130
NY Rochester, Marshall Inds. 301-235-7620
NY Rochester, Masline Elctrns., Inc. 716-546-5373
NY Rome, Rome Elctrns., Inc. 315-337-5400
NY Syracuse, Hamilton Avnet Elctrns. 315-434-2438
NC Cary, Powell Elctrns. 919-467-1212
NC Greensboro, Golden Elctrns. 919-294-4653
NC Greensboro, Hammond Elctrns., Inc. 919-275-6391
NC Raleigh, Hamilton Avnet Elctrns. 919-878-0819
NC Raleigh, Marshall 919-878-9882
NC Raleigh, Southeastern Elctrns. 919-828-2311
OH Akron, AESCO Elctrns. 216-762-8818
OH Beechwood, Lex Elctrns. 216-464-2970
OH Cincinnati, Schuster Elctrns., Inc. 513-489-1400
OH Columbus, Elctrn. Mktg. Corp. 614-299-4161
OH Columbus, Hughes-Peters 614-294-5351
OH Columbus, Thompson Elctrns. 614-228-6191
OH Dayton, Bell Inds. 513-434-8231
OH Dayton, Bell Inds. 513-435-8660
OH Dayton, Hamilton/Avnet 513-439-8700
OH Dayton, Lex Elctrns. 513-439-1800
OH Dayton, Marshall 513-898-4480
OH Dayton, Stotts-Friedman 513-298-5555
OH Dublin, Time Elctrns. 614-761-1100
OH Solon, Hamilton/Avnet 216-349-4910
OH Solon, Marshall Inds. 216-248-1788
OH Solon, Repco Elctrns. 216-248-8900
OH Twinsburg, Schuster Elctrns., Inc. 216-425-8134
OH Westerville, Hamilton/Avnet 614-882-7389
OH Worthington, TTI, Inc. 614-848-5770
OK Oklahoma City, Electro Ent. 405-427-6591
OK Tulsa, Carlton-Bates 918-250-1626
OK Tulsa, Hamilton/Avnet 918-252-7297
OK Tulsa, Marshall Inds. 918-622-7151
OR Beaverton, Hamilton/Avnet 503-526-6200

OR Beaverton, Marshall 503-644-5050
OR Portland, Cypress 503-233-8900
OR Portland, Radar Elec. Co., Inc. 503-232-3404
OR Portland, Time Elctrns. 503-684-3780
PA Braddock, Leff Elctrns. 412-351-5000
PA Essington, Tri-Com, Inc. 215-521-3080
PA Horsham, Lex Elctrns. Corp. 215-441-0600
PA Mars, ALMO Elctrns., Inc. 412-776-9090
PA Philadelphia, Almo Elctrns. Corp. 215-698-4000
PA Philadelphia, Powell Elctrns. 215-365-1900
PA Pittsburgh, Hamilton/Avnet 412-281-4150
PA Pittsburgh, Marshall Inds. 412-788-0441
PA Wayne, Peak Elctrns., Corp. 215-293-9000
SC Greenville, Hammond Elctrns., Inc. 803-233-4121
TN Nashville, Carlton-Bates 615-244-3562
TX Austin, Hamilton/Avnet 512-837-8911
TX Austin, Kent Elctrns. Corp. 512-834-1900
TX Austin, Marshall 512-837-1991
TX Austin, Time Elctrns. 512-339-3051
TX Carrollton, Connec/Tek, Inc. 214-245-1266
TX Carrollton, Marshall Inds. 214-233-5200
TX Carrollton, Time Elctrns. 214-241-7441
TX Carrolton, Sterling Elctrns. 713-243-1600
TX Dallas, Hamilton/Avnet 214-404-9906
TX Dallas, Lex Elctrns. 214-247-6300
TX Dallas, Wallace Elctrns., Inc. 214-340-0400
TX El Paso, Ideal Inds. Elctrn. Supp. 915-779-6647
TX El Paso, Marshall Inds. 915-593-0706
TX Ft. Worth, Carlton-Bates 817-831-0395
TX Ft. Worth, TTI Inc. 817-831-8300
TX Harlington, Marshall Inds. 512-542-4589
TX Houston, Kent Elctrns. 713-780-7770
TX Houston, Marshall 713-895-9200
TX Richardson, Kent Elctrns. Corp. 214-669-2600
TX Stafford, Hamilton-Avnet Elctrns. 713-240-7733
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UT Salt Lake City, Kimball Elctrns. 801-328-2075
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VA Richmond, Sterling Elctrns. Corp. 804-226-2190
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WA Bothel, Cypress Elctrns. 206-483-1144
WA Bothell, Marshall Inds. 206-486-5747
WA Redmond, Hamilton Avnet Elctrns. 206-881-6697
WA Redmond, Pyramid Elctrns. Supp., Inc. 206-883-7200
WA Redmond, Time Elctrns. 206-882-1600
WA Seattle, Radar Elec. Co., Inc. 206-282-2511
WA Spokane, Radar Elec. Co., Inc. 509-747-3053
WI Milwaukee, Electronic Expeditors 414-228-8100
WI Milwaukee, Marsh Elctrns., Inc. 414-475-6000
WI Oshkosh, Electronic Inds. 414-235-8930
WI Waukesha, Hamilton/Avnet Elctrns. 414-784-4511
WI Waukesha, Marshall Inds. 414-797-8400
PR Rio Piedras, Hamilton/Avnet 809-731-1110

AMP-AKZO CORPORATION, 322 South Service Rd., Melville, NY 11747, Tel: 516-454-4400, TELEX: 6852163, FAX: 516-454-0317; Empl.: 600

AMPERITE

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AMPERITE CO., INC., 600 Palisade Ave., Union City, NJ 07087, Tel: 201-864-9503; FSC No.: 70563; Empl.: 76 ..... **B•1414**

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AMPEX CORP., 401 Broadway, Redwood City, CA 94063-3199, Tel: 1-800-25AMPEX, TELEX: 348464, FAX: 415-367-2769; Empl.: 6000; *Sls. Mgr.:* Rollin Stanford; *Dist. Mgr.:* John Hennessey

AMPHENOL CORPORATION, Corporate Headquarters, 358 Hall Ave., Wallingford, CT 06492, Tel: 203-265-8910, FAX: 203-265-8793; Empl.: 3200(USA)

AMPHENOL, Bendix Connector Operations, 40-60 Delaware St., Sidney, NY 13838, Tel: 607-563-5011, TELEX: 932456, FAX: 607-563-5157; FSC No.: 77820; Empl.: 2500; *Sls. Mgr.:* Chas. Morse; *Dist. Mgr.:* Lew Lafornara

AMPHENOL CANADA CORPORATION, An LPL Company, 20 Melford Dr., Scarborough, Ontario, Canada M1B 2X6, Tel: 416-291-4401, TELEX: 065-25210, FAX: 416-292-0647; Empl.: 197

AMPHENOL INTERCONNECT PRODUCTS, 20 Valley St., Endicott, NY 13760, Tel: 607-754-4444, FAX: 607-754-4444; FSC No.: 13509; *Sls. Mgr.:* Robert Anderson; *Dist. Mgr.:* Robert Anderson

AMPHENOL RF OPERATIONS, Amphenol Corporation, One Kennedy Avenue, Danbury, CT 06810, Tel: 203-743-9272, FAX: 203-796-2032; FSC No.: 74868; Empl.: 600; *Sls. Mgr.:* J. D. Norwood; *Dist. Mgr.:* H. Blumenschein

AMPHENOL SPECTRA-STRIP/ITD, 720 Sherman Avenue, Hamden, CT 06514, Tel: 203-281-3200, FAX: 203-281-5872; Empl.: 119

AMPLIFIER RESEARCH

FAX: 215-723-5688

AMPLIFIER RESEARCH, 160 School House Rd., Souderton, PA 18964-9990, Tel: 215-723-8181, TWX: 510-661-6094; FSC No.: 30639; Empl.: 75; *Sls. Mgr.:* L. Pokorny ..... **D•1002-1003, 1020-1021**

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AZ Tempe, Mar Tech Assocs. 602-535-4961
CA N. Hollywood, O'Halloran Assoc. 213-877-0173
CA San Jose, O'Halloran Assoc. 408-243-1600
CO Boulder, H. Bass. Assoc. 303-530-7509
CT Yalesville, Larry Plante 203-269-3360
FL Davie, W. A. Brown Instrs., Inc. 305-581-6444
FL Melbourne, W.A. Brown Instrs., Inc. 407-723-0766
FL Orlando, W.A. Brown Instrs., Inc. 407-648-9660
GA Atlanta, W. A. Brown Instrs., Inc. 404-449-7160
IL Park Ridge, Elctrn. Instr. Assocs. 708-298-2290
IN Indianapolis, Elctrn. Instr. Assocs. 317-257-7231
KS Lenexa, Midtec Assocs., Inc. 913-541-0505
LA Lockport, Airep Elctrns. 504-693-3666
MD Severna Park, Round Bay Eng. 301-647-8388
MA Lexington, R. J. Sickles Assoc. 617-862-5100
MN Minnetonka, Elctrn. Instr. Assocs. 612-933-7793
MO St. Louis, Midtec Assocs., Inc. 314-275-8666
NJ Ridgefield Pk., Scientific Dvcs. 201-837-1004
NM Albuquerque, Hewitt & Assocs. 505-299-7746
NY Rochester, Eastern Sys. of NY 716-292-1460
NC Cary, W. A. Brown Instrs., Inc. 919-460-1120
OH Dublin, Micro Sls. 614-792-9117
OK Tulsa, The Hugh J. Daly Co. 918-494-7711
PA Philadelphia, R. Meyers Assoc. 215-224-1663
TX Austin, Airep Elctrns. 512-328-0778
TX Dallas, Airep Elctrns. 214-349-4360
TX Houston, Airep Elctrns. 713-343-9611
UT Bountiful, Herb Bass Assoc. 801-295-7100
WA Seattle, J. J. Assocs., Inc. 206-246-6619
Can Quebec, Tekron Communications 514-335-0152

AMPLIFONIX, INC., 2707 Black Lake Place, Philadelphia, PA 19154, Tel: 215-464-4000, FAX: 215-464-4001; FSC No.: 60979; Empl.: 75; *Sls. Mgr.:* Richard P. Dubois; *Dist. Mgr.:* Richard P. Dubois

AMPROBE INSTRUMENT, Core Industries, Inc, 630 Merrick Rd., Lynbrook, NY 11563, Tel: 516-593-5600, FAX: 516-593-5682; Empl.: 200; *Sls. Mgr.:* Duncan Ladd, VP Sls.; *Dist. Mgr.:* W. Eagle

AMPRO COMPUTERS,INC., 990 Almanor Ave., Sunnyvale, CA 94086, Tel: 408-522-2100, FAX: 408-720-1305; Empl.: 51; *Sls. Mgr.:* Victor Maccharoli/Tim Lavelle/Phyllis Proscia, Sls. Admin.; *Dist. Mgr.:* Paul Getty, VP Sls.

AMPTEK, INC., 6 De Angelo Dr., Bedford, MA 01730, Tel: 617-275-2242, FAX: 617-275-3470; Empl.: 17

AMPTRONIX, INC., P.O. Box 8146, Rowland Heights, CA 91748, Tel: 213-666-1564; *Sls. Mgr.:* Lou Lim; *Dist. Mgr.:* Ching Lim

AMRAD & TRANSCON MFG. CO., Div. of D.J. Assocs., Inc., 8411 South Zero St, Fort Smith, AR 72903-7045, Tel: 501-452-3987, FAX: 501-452-7752; FSC No.: 55943; Empl.: 5; *Sls. Mgr.:* M. P. Beck; *Dist. Mgr.:* M. P. Beck

A M SENSORS, INC., 26 Keewaydin Dr., Unit B, Salem, NH 03079, Tel: 603-898-1543, FAX: 603-898-1638; Empl.: 10; *Sls. Mgr.:* Marc R. Saucier

AMTEK DIGITAL SYSTEMS, INC., See Actek, Inc.

AMUNEAL MANUFACTURING CORP., 4737 Darrah St., Philadelphia, PA 19124, Tel: 215-535-3000, FAX: 215-743-1715; FSC No.: 23740; Empl.: 55; *Sls. Mgr.:* Larry Maltin ..... **C•1687**

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CA La Canada, C.E.M., Inc. 818-790-8358
CA San Diego, C.E.M., Inc. 619-268-8911
CA San Diego, C.E.M., Inc. 619-692-3551
CA Santa Ana, C.E.M., Inc. 714-835-2702
CO Wheatridge, Waugaman Assocs., Inc. 303-423-1020
CT Meriden, MPS Elctrns. 203-235-1414
FL Melbourne, Reynolds & Assocs., Inc. 800-255-1965,407-259-7000
MD Baltimore, Muncy Sls. 301-484-6376
MA Norwood, MPS Elctrns. 617-769-8700
NJ Pennsauken, J.A. Maguire & Co. Inc. .. 609-665-5136
NM Albuquerque, Shefler Kahn Co. 505-296-0749
NY Yonkers, Sonkin Assocs. 914-968-8282
OH Kettering, F.L.Ohmer & Assoc. 513-434-1454
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UT Salt Lake City, Waugaman Assocs. Utah, Inc. 801-261-0802
WA Seattle, Rep-West 206-283-8351

ANACOM, 1335 S. Claudina St., Anaheim, CA 92805-6235, Tel: 714-774-8080, FAX: 714-774-7388; Empl.: 65

ANADEX INC., 1080 Avenida Acaso, Camarillo, CA 93012, Tel: 805-987-9660, TWX: 910-494-2761, FAX: 805-388-0133; Empl.: 15; *Sls. Mgr.:* Ken Mathews

ANADYNE POWER SUPPLY DIVISION, 14005 Stage Road, Santa Fe Springs, CA 90670-5216, Tel: 213-921-9364, FAX: 213-921-8163; Empl.: 100

ANAHEIM AUTOMATION, 910 E. Orangefair La., Anaheim, CA 92801, Tel: 714-992-6990, TELEX: 2978217 MCI, FAX: 714-992-0471; Empl.: 35

ANALOG & DIGITAL PERIPHERALS, INC.(ADPI), P.O. Box 499, Troy, OH 45373, Tel: 513-339-2241, FAX: 513-339-0070; FSC No.: 31-0949-745; Empl.: 28; *Sls. Mgr.:* Jerry Davis; *Dist. Mgr.:* Lyle Ellicott

ANALOG DEVICES, INC., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106, Tel: 617-329-4700, TWX: 710-394-6577, ESYLNK: 62896514, FAX: 617-326-8703; FSC No.: 24355; Empl.: 5200; *Sls. Mgr.:* Joe Reichbach; *Dist. Mgr.:* Ed Renola

ANALOG EQUIPMENT CORPORATION, 5606 PGA Blvd., Palm Bch. Gardens, FL 33418, Tel: 407-622-3715; FSC No.: 67584; *Sls. Mgr.:* V. Ratner

ANALOGIC CORP., 8 Centennial Dr., Peabody, MA 01960, Tel: 508-977-3000, FAX: 508-531-1266; Empl.: 1200; *Sls. Mgr.:* Martyn Culverhouse; *Dist. Mgr.:* Bob Shipione

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CA Huntington Bch., Mil-Com Sls. 714-840-2424
NY Manhassett, Win-Cor Elctrns. 516-627-9474
OK Tulsa, Norcom, Inc. 918-832-7747
TX Austin, Norcom, Inc. 512-451-2757
TX Dallas, Norcom 214-386-4888
TX Houston, Norcom, Inc. 713-778-0392
TX San Antonio, Norcom, Inc. 512-680-4513

ANALOG MODULES INC.

FAX: 407-834-3806

ANALOG MODULES, INC., 126 Baywood Avenue, Longwood, FL 32750, Tel: 407-339-4355; FSC No.: 61651; Empl.: 48; *Sls. Mgr.:* W.C. Hudson, Exec. VP; *Dist. Mgr.:* Mark Roberts ..... **D•1004**

ANALOG SYSTEMS, P.O. Box 17389, Tucson, AZ 85731-7389, Tel: 602-290-1818, FAX: 602-885-1189; Empl.: 9; *Sls. Mgr.:* Sharon Raban; *Dist. Mgr.:* Sharon Raban

ANALYTIC INSTRUMENTS CORPORATION, P.O. Box 542845, Dallas, TX 75354, Tel: 214-357-3882; Empl.: 15; *Sls. Mgr.:* Carl Dreher

ANALYTIC TECHNOLOGY CORP., 15233 N.E. 90th, Redmond, WA 98052, Tel: 206-883-2445, 800-428-2808, FAX: 206-882-2138; Empl.: 10; *Sls. Mgr.:* C. Johan Masreliez

ANAREN MICROWAVE, INC., P.O. Box 178, 6635 Kirkville Rd., E. Syracuse, NY 13057, Tel: 315-432-8930, FAX: 315-432-9121; FSC No.: 31597; Empl.: 424

ANATECH ELECTRONICS, INC., 213 First St., Ho Ho Kus, NJ 07423, Tel: 201-612-0066, FAX: 201-612-0404; Empl.: 10

ANCO ELECTRONICS, INC., 9477 Archibald Avenue, Rancho Cucamonga, CA 91730, Tel: 1-800-545-ANCO, FAX: 714-989-9935 ..... **D•1080**

ANCOT, 115 Constitution Drive, Menlo Park, CA 94025, Tel: 415-322-5322, FAX: 415-322-0455; Empl.: 7; *Sls. Mgr.:* Tom Lau

AND, William J. Purdy Co., 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-347-9916, TELEX: 677-1439, FAX: 415-340-1670; FSC No.: (PURDY UW); Empl.: 32; *Sls. Mgr.:* Clarence Bruce ..... **B•1038-1039, 1137-1139**

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CA Burbank, Darco 818-504-2425
CA Burlingame, William J. Purdy 415-347-7701
CO Englewood, William J. Purdy Assoc. 303-790-2211
FL Orlando, Currie, Peak, Frazier 407-855-0843
IL Addison, Hedge Assocs., Inc. 708-543-0888
IN Indianapolis, John Sukup, Inc. 317-253-5501
MA Framingham, Gallagher Assocs., Inc. .. 508-626-2346
MI E. Detroit, Jack M. Thorpe Co. 313-779-6363
MN Minneapolis, Hei-Lite Sls. 612-550-0506
MO Grandview, Harris-Hanson 816-763-6200
NJ Leonia, Peter E. Schmitt Co., Inc. 201-944-2806
NY Victor, Net Sls., Inc. 716-924-1844
NC Greensboro, Currie, Peak & Frazier, Inc. 919-373-0380
OH Cleveland, Marlow Assocs. 216-831-8232
OR Beaverton, Pacific Mktg. Specialists ... 503-641-9373
TN Smyrna, Currie, Peak & Frazier 615-459-0743
TX Dallas, Elcom Mktg. 214-241-2166
WA Redmond, Pacific Mktg. Specialists ... 206-882-3144

Local Distributors

AL Huntsville, Newark Elctrns. 205-837-9091
AZ Tempe, Newark Elctrns. 602-968-7441
CA Anaheim, A to Z Elctrns. 714-632-1620
CA Fremont, Allied Elctrns. 415-770-0590
CA Los Angeles, Newark Elctrns. 213-664-5252
CA Los Angeles, Trebor Elctrns. 213-641-8304
CA Milpitas, Sierra West Elctrns. 408-945-1050
CA Sacramento, Integrated Elctrns. 916-363-6030
CA San Jose, Rose Elctrn. 408-943-0200
CA Sunnyvale, Penstock 408-730-0300
CA Torrance, Kent Elctrns. 213-320-2700
CO Arvada, Denver Beta Wintronics 303-431-7161
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TX Fort Worth, Allied Elctrns. 817-336-5401
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VA Richmond, Newark Elctrns. 804-282-5671
WA Bellevue, Almac Elctrns. Corp. 206-643-9992
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WA Seattle, Allied Elctrns. 206-547-2827
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Can Rexdale, Ont., Newark Elctrns. 416-675-1130

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ANDERSEN LABORATORIES, 45 Old Iron Ore Rd., Bloomfield, CT 06002, Tel: 203-286-9090, FAX: 203-242-4472; FSC No.: 03947; Empl.: 130; *Sls. Mgr.:* Richard Johnson

a e

FAX: 814-696-0403

ANDERSON ELECTRONICS, P. O. Box 89, Hollidaysburg, PA 16648, Tel: 814-695-4428; Empl.: 60; *Sls. Mgr.:* Mike Martin ..... **A•1304-1305**

Local Sales Offices & Reps

CA La Habra, Cygnus Sls. Engrg. Corp. ... 213-691-2993
CA Sunnyvale, Logan Sls 408-732-6020
GA Lawrenceville, B. T. Funderburk, Inc. .. 404-963-9495
IL South Elgin, R.K. Elctrn. 708-695-8552
KS Roeland Park, Abrams & Assocs. 913-432-2303
MA Woburn, Microwave Comp. Mktg., Inc. 617-273-3106
MI Southfield, R. C. Nordstrom & Co. 313-559-7373
MO St. Louis, Abrams & Assocs. 314-569-0447
NC Raleigh, B. T. Funderburk, Inc. 919-846-2373
OR Beaverton, Harry Levinson Co. 503-690-1312
PA Souderton, Intek, Inc. 215-723-0433
TX Plano, GW Prods. 214-422-1746
WA Seattle, Harry Levinson Co. 206-382-1300
Can Hamilton, Ont., Cartwright South All Assocs. 416-528-0294

ANDERSON POWER PRODUCTS, Div. of High Voltage Engineering, 145 Newton St., Boston, MA 02135, Tel: 617-787-5880, TELEX: 940453, FAX: 617-254-9217

AEC

FAX: 401-333-0287

ANDON ELCTRNS. CORP., 4 Court Dr., Lincoln, RI 02865, Tel: 401-333-0388; FSC No.: OEBT2; Empl.: 55; *Sls. Mgr.:* Irene Small; *Dist. Mgr.:* Irene Small ..... **C•1274-1279**

Local Sales Offices & Reps

AZ Tempe, Elctrn. Dvc. & Sls., Inc. 602-438-1547
CA Milpitas, Inter-Tech Mktg. 408-263-7635
GA Norcross, ELCOM 404-447-8200
IL Rolling Meadows, Eagle Tech. Sls. 708-991-0700
KS Stanley, R. C. Napper & Assoc. 913-897-3719
MN Minneapolis, Electro Serv Co. 612-338-3475
NY Huntington, Applied Tech. Mktg. 516-271-0200
OH Akron, Augnat Assocs. 216-273-1211
OH Dayton, Dirckson & Assoc. Inc. 513-294-3657
PA Montgomeryville, Quick Response 215-362-9225
TX Dallas, SW Mktg. Assoc. 214-341-8631
WA Lynnwood, Blair Hirsh Co. 206-774-8151

Local Distributors

CA Milpitas, J-DOIT 408-956-1301
CA San Jose, Spectra Elctrns. 408-452-1590
CA Santa Clara, Trinity Elctrns. 408-980-9011
TX Houston, Wofford Elctrns. 713-847-3583

ANDOVER, INC., 310 North Earl Avenue, Lafayette, IN 47904, Tel: 317-447-1157, FAX: 317-447-1150; Empl.: 120; *Sls. Mgr.:* Harry O. Minns

ANDREW CORP., 10500 W. 153rd St., Orland Pk., IL 60462, Tel: 800-255-1479, TELEX: 25-3897, FAX: 708-349-5943; *Sls. Mgr.:* Carl Van Hecke

ANDREW/KMW SYSTEMS, 6034 West Courtyard Dr., Austin, TX 78730, Tel: 800-531-5167, 512-338-3082, TELEX: 28-338-3199, FAX: 512-338-3199; Empl.: 135; *Sls. Mgr.:* John McLellan, Dir. of Sls.

ANGO ELECTRONICS CORP., 16 North Third St, Harrison, NJ 07029, Tel: 201-484-1115, FAX: 201-484-0530; *Sls. Mgr.:* Brian K. Yuen ..... **C•1012**

ANGSTROHM POWER RHEOSTATS, A Sub. of Vishay Intertechnology, P.O. Box 1827, Hagerstown, MD 21740, Tel: 301-739-8722, FAX: 301-797-6852; Empl.: 500

ANGSTROHM PRECISION, INC., A Company of Vishay, One Precision Ple. P.O. Box 1827, Hagerstown, MD 21740, Tel: 301-739-8722, FAX: 301-797-6852; Empl.: 500 ..... **A•1844-1845, 2015**

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-883-1712
AZ	Phoenix, Howe & Howe	602-264-7971
CA	Redwood City, James S. Heaton Co.	415-367-9000
CA	San Diego, VEC	619-690-5112
CA	Tustin, VEC	714-544-7024
CO	Loveland, VEC	303-667-7500
CT	Yalesville, Comp. Rep. Assocs.	203-269-1145
FL	Altamonte Springs, Semtronic Assocs.	407-831-8233
FL	Clearwater, VEC	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs.	305-731-2484
GA	Atlanta, JWL Assocs.	404-993-0100
IN	Indianapolis, Scott Elctrns.	317-841-0010
IL	Skokie, IRI-Illinois	312-967-8430
IN	Ft. Wayne, Scott Elctrns.	219-489-5690
KS	Olathe, Technical Sls. Assocs.	913-829-2800
MD	Lutherville, J.A. Doughterty Sls. Co.	301-321-7890
MA	Westwood, Comp. Rep. Assocs.	617-329-3454
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MN	Bloomington, IRI of Minnesota	612-854-8027
MO	St. Louis, Technical Sls. Assocs.	314-521-2044
NJ	Flanders, K & R Engrg. Sls. Co.	201-584-5235
NM	Albuquerque, Nelco Electronix	505-293-1399
NY	Rochester, L-Mar Assocs.	716-381-9100
NC	Charlotte, JWL Assocs.	704-541-5750
NC	Raleigh, JWL Assocs.	919-787-4826
OH	Aurora, EMA, Inc.	216-562-6104
OH	Centerville, EMA, Inc.	513-433-2800
OR	Beaverton, N. R. Schultz Co.	503-643-1644
PA	Horsham, TMI	215-441-4300
PA	Malvern, Vishay Resistive Sys. Grp.	215-644-1300
TX	Dallas, Edward F. Aymond Co.	214-826-7620
TX	Houston, Edward F. Aymond	713-943-3149
WA	Bellevue, N.R. Schultz Co.	206-746-1890
WI	Milwaukee, IRI-Wisconsin	414-789-9393
PR	Caguas, Comp. Rep. Assocs.	809-746-6550
Can	Burnaby, B.C., Kaytronics, Inc.	604-294-2000
Can	Concord, Ont., Kaytronics, Inc.	416-669-2262
Can	Kanata, Ont., Kaytronics, Inc.	613-564-0080
Can	St. Laurent, Que., Kaytronics, Inc.	514-745-5800

Local Distributors

AZ	Tempe, Shelley-Ragon, Inc.	602-894-2058
AZ	Tempe, TTI, Inc.	602-431-1191
CA	Agoura Hills, Zeus Comps.	818-889-3838
CA	Chatsworth, Passive Comps. Inc.	818-700-8838
CA	Chatsworth, Shelley-Ragon, Inc.	818-998-3333
CA	Laguna Hills, Jaco Elctrns.	714-837-8966
CA	Milipitas, TTI, Inc.	408-946-5577
CA	Mission Hill, TTI, Inc.	818-891-8885
CA	San Diego, Shelley-Ragon, Inc.	619-453-7133
CA	San Diego, TTI, Inc.	619-748-2025
CA	San Diego, Zeus Comps.	619-277-9681
CA	San Jose, Jaco Elctrns.	408-432-9290
CA	San Jose, Passive Compnts.	408-441-1441
CA	San Jose, Shelley-Ragon, Inc.	408-432-0600
CA	San Jose, Zeus Comps.	408-629-4789
CA	Santa Ana, TT I, Inc.	714-641-9393
CA	Westlake Village, Jaco Elctrns.	805-495-9998
CA	Yorba Linda, Zeus Comps.	714-921-9000
CO	Denver, TTI, Inc.	303-429-6806
CT	Meriden, Jaco Elctrns.	203-235-1422
CT	Wallingford, TT I, Inc.	203-284-7474
FL	Boca Raton, Jaco Elctrns.	800-776-5226
FL	Orlando, TT I, Inc.	407-859-1000
FL	Oviedo, Zeus Comps.	407-365-3000
FL	Pinellas Park, MMG Elec./L & S	813-545-1700
FL	Tampa, C & D Elctrns.	813-839-5486
FL	Tampa, Shelley-Ragon, Inc.	813-623-6560
GA	Norcross, Jaco Elctrns.	404-449-9508
GA	Norcross, TTI, Inc.	404-662-0911
MA	Chelmsford, Shelley-Ragon, Inc.	508-250-9666
IL	Glendale Heights, Shelley-Ragon, Inc.	708-529-9977
IA	Cedar Rapids, Shelley-Ragon, Inc.	319-373-0525
MD	Baltimore, RESCO/Baltimore	301-931-8200
MD	Beltsville, RESCO/Washington	301-937-9100
MD	Columbia, Jaco Elctrns.	301-995-6620
MD	Columbia, TTI, Inc.	301-995-1331
MD	Columbia, Zeus Comps.	401-997-1118
MA	Springfield, C & D Elrtns.	413-781-1776
MA	Tewksbury, Jaco Elctrns.	508-640-0010
MA	Wakefield, Zeus Comps.	617-246-8200
MA	Wilmington, TT I, Inc.	508-658-4700
MN	Minnetonka, TTI, Inc.	612-933-8555
MN	St. Paul, Shelley-Ragon, Inc.	612-642-2828
MO	Hazlewood, Shelley-Ragon, Inc.	314-895-1515
MO	Independence, Shelley-Ragon, Inc.	816-254-3410
NJ	Mt. Laurel, TTI Inc.	609-234-6400
NY	Farmingdale, Command Elctrns. Corp.	516-293-1212
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Medford, Shelley-Ragon, Inc.	516-447-2000
NY	Port Chester, Zeus Comps.	914-937-7400
NY	Ronkonkoma, Mast Distrs., Inc.	516-471-4422
NY	Ronkonkoma, TTI, Inc.	516-737-2000
NY	Ronkonkoma, Zeus Comps.	516-737-4500
NY	Valley Stream, L & S Elctrns.	516-561-2474
NC	Raleigh, Jaco Elctrns.	919-876-7767
OH	Cincinnati, G & A Sls.	513-385-1105
OH	Dayton, Micro Mil Div.	513-434-8231
OH	Dayton, Zeus Comps.	513-293-6162
OH	Worthington, TTI, Inc.	614-848-5770
TX	Addison, Jaco Elctrns.	214-733-4300
SC	Charleston, L&S	803-720-4242
TX	Ft. Worth, TT I, Inc.	817-831-8300
TX	Ft. Worth, TTI, Inc.	817-595-3100
TX	Houston, Texas Comps.	713-468-3882
TX	Richardson, Zeus Comps.	214-783-7010
WA	Redmond, Shelley-Ragon	206-883-2220
WA	Redmond, TTI, Inc.	206-882-0291
Can	Burnaby, B.C., Kaytronics, Inc.	604-294-2000
Can	Concord, Ont., Kaytronics	416-669-2262
Can	Kanata, Ont., Kaytronics, Inc.	613-564-0080
Can	Quebec, Kaytronics, Inc.	514-745-5800

ANNULUS TECHNICAL INDUSTRIES, INC., P.O. Box 7407, 1296 Osprey Dr., Ancaster, Ontario, CAN L9G 4G4, Tel: 416-648-8100, FAX: 416-648-8102; Empl.: 21; *Sls. Mgr.:* Don MacAdam

ANORAD CORP., 110 Oser Ave., Hauppauge, NY 11788, Tel: 516-231-1995, TWX: 510-227-9894, FAX: 516-435-1612; Empl.: 280; *Sls. Mgr.:* Richard Scherer,VP Sls.

Anritsu

FAX: 201-337-1033

ANRITSU, 15 Thornton Rd., Oakland, NJ 07436, Tel: 201-337-1111, 800-255-7234, TELEX: 64-2141 ANRITSUOKLD; Empl.: 75; *Sls. Mgr.:* Chuck Smith ..... **D•1218-1219**

Local Sales Offices & Reps

CA	San Jose, Anritsu	408-434-6666
FL	Melbourne, Anritsu	305-951-7302
GA	Norcross, Anritsu	404-662-1541
IN	Columbus, Anritsu	812-372-0516
KS	Overland Park, Anritsu	913-451-4438
MD	Gaithersburg, Anritsu	301-590-0300
MA	Nashua, Anritsu	603-888-0230
TX	Dallas, Anritsu	214-991-8864

ANSLEY ELECTRONICS, DIVISION OF THOMAS & BETTS, See T & B/Ansley Corp.

ANSONICS, INC., P.O. Box 910, Halfway, OR 97834, Tel: 503-742-7475, FAX: 503-742-2991; Empl.: 6

ANTEL OPTRONICS INC., 3325B Mainway, Burlington, Ontario, Canada L7M 1A6, Tel: 416-335-5507, TELEX: 061-8514, FAX: 416-335-5141; Empl.: 25; *Sls. Mgr.:* J. D. Brown

ANTENNA RESEARCH ASSOCIATES, 11317 Frederick Ave., Beltsville, MD 20705, Tel: 301-937-8888, TELEX: 374-6620, FAX: 301-937-2796; FSC No.: 23360; Empl.: 30; *Sls. Mgr.:* H.W. Rapalus

ANTENNA SPECIALISTS, The Allen Group, 30500 Bruce Industrial Pkwy., Cleveland, OH 44139, Tel: 216-349-8400, TELEX: 4332133 (AS INTL CLV), FAX: 216-349-8407; Empl.: 1000; *Dist. Mgr.:* Bob Levy, VP Sls.

ANTEX DIVISION, 24 Tioga Way, P.O.Box 615, Marblehead, MA 01945, Tel: 617-631-7100, FAX: 617-631-8887; *Sls. Mgr.:* C. Loutrel; *Dist. Mgr.:* C. Loutrel

ANTEX ELECTRONICS CORP., 16100 S. Figueroa St, Gardena, CA 90248, Tel: 213-532-3092, FAX: 213-532-8509; Empl.: 53; *Sls. Mgr.:* Richard Gross; *Dist. Mgr.:* Richard Gross

ANTONA CORP., 1643 1/2 Westwood Blvd, Los Angeles, CA 90024-5603, Tel: 213-473-8995, FAX: 213-473-7112; *Sls. Mgr.:* Katherine Capanna

ANZAC, M/A-COM, 80 Cambridge St., Burlington, MA 01803, Tel: 617-273-3333, TELEX: 200155, TWX: 710-332-0258; FSC No.: 21912; Empl.: 300; *Sls. Mgr.:* Lee Cooper; *Dist. Mgr.:* Lisa Owens

AOFR, INC., 800 E. Campbell, Suite 108, Richardson, TX 75081, Tel: 214-644-1394, FAX: 214-480-9278; Empl.: 50; *Sls. Mgr.:* Dwain Lawhon

A. P. CIRCUIT, 397 Linden St., Brooklyn, NY 11237, Tel: 718-456-2717, TELEX: 428759, FAX: 718-456-2717 ..... **A•1654**

Local Sales Offices & Reps

MI	Southfield, Comtel Instrs.	313-358-2505
NJ	Matawan, Reps Five	201-495-2315
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instrs.	513-298-7573

A.P.C.S. AMERICA, 3286 Kentland Ct. SE, Grand Rapids, MI 49548, Tel: 616-247-1453; Empl.: 13; *Sls. Mgr.:* Julie A. Corby

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FAX: 602-888-3329

APEX MICROTECHNOLOGY CORP., 5980 N. Shannon Rd., Tucson, AZ 85741, Tel: 602-742-8600, TELEX: 170631; FSC No.: 60024; Empl.: 100; *Sls. Mgr.:* Richard Spielman; *Dist. Mgr.:* Bridget Riceci-Byrne, Intl. Sls. Mgr. ..... **D•1005-1007, 1598**

Local Sales Offices & Reps

AL	Huntsville, Currie, Peak & Frazier, Inc.	205-536-1506
AZ	Tucson, Apex Microtechnology	602-742-8600
CA	Laguna Hills, Conprod	714-361-0765
CA	Los Altos, Kolm Mktg.	415-948-2635
CA	Los Altos, KOLM Mktg.	415-948-2635
CT	Guilford, Data Mark Inc.	203-453-0575
MD	Elicott City, Nelson Elctrns.	301-747-7887
GA	Duluth, Currie, Peak & Frazier, Inc.	404-497-9404
IL	Buffalo, Torkelson Assocs.	312-520-0710
IN	Indianapolis, Torkelson Assocs.	317-244-7867
IA	Cedar Rapids, Torkelson Assocs.	319-373-0200
MD	Ellicot City, Nelson Elctrns.	301-747-7887
MD	Ellicott City, Nelson Elctrns.	301-747-7887
MA	Woburn, Signal Sls. Engrg.	617-938-7872
MN	Minneapolis, Torkelson Assocs.	612-835-2414
NJ	Flanders, K & R Engrg. Sls.	201-584-5235
NC	Greensboro, Currie, Peak & Frazier Inc.	919-373-0380
IN	Fort Wayne, TX Sales	219-489-4447
TX	Dallas, Repmasters	214-247-6236
TX	Sherman, Repmaster	214-247-6236
WI	Waukesha, Torkelson Assocs.	414-784-7736

Local Distributors

AZ	Tuscon, Apex	602-742-8600
FL	Tampa, Currie, Peak & Frazier	813-963-1076
KS	Olathe, Tech Sls. Assoc.	913-829-2800
NY	Southern, K & R Engrg. Sls.	800-631-9362
NY	St. Louis, Tech Sls. Assocs.	314-521-2044
Can	Mississauga, Ont., bbd Elctrns.	416-821-7800

APOLLO DISPLAY TECHNOLOGIES, INC., 182-2 Morris Ave., Holtsville, NY 11742, Tel: 516-654-1143, FAX: 516-654-1496; *Sls. Mgr.:* Richard Eicher ..... **B•1040**

APOLLO MAGNETICS CORP., 2720 W. Beverly Blvd., Los Angeles, CA 90057, Tel: 213-381-2500, TWX: 910-321-4348, FAX: 213-384-4067; Empl.: 420; *Sls. Mgr.:* Charles Williams

APPLIED COMPONENTS, AC Interface, 22391 Gilberto, Rancho Santa Margarita, CA 92688, Tel: 714-858-9488, FAX: 714-589-7267; FSC No.: 5930; Empl.: 5; *Sls. Mgr.:* Curtis Armijo

APPLIED CONTROLS CO., INC., 1275 Bloomfield Ave., Fairfield, NJ 07004, Tel: 201-227-5454, FAX: 201-882-1422; FSC No.: 4A725; Empl.: 20; *Sls. Mgr.:* W. Merel

APPLIED DATA COMMUNICATIONS, 14272 Chambers Rd., Tustin, CA 92680, Tel: 714-731-9000, TELEX: 183823 ADC, FAX: 714-838-7172; Empl.: 50; *Sls. Mgr.:* David M. Besse

APPLIED DATA SYSTEMS, 409A East Preston St., Baltimore, MD 21202, Tel: 800-541-2003, 410-576-0335, FAX: 410-576-0338; Empl.: 6; *Sls. Mgr.:* Edward Shea; *Dist. Mgr.:* Edward Shea

APPLIED ELECTRO TECHNLG., INTL., See STI-Control Components Div.

APPLIED INFORMATION SYSTEMS, INC., 500 Eastowne Dr., Suite 207, Chapel Hill, NC 27514, Tel: 919-942-7801, 800-334-5510, TELEX: 701365, FAX: 919-493-7563; *Sls. Mgr.:* John Wyatt

APPLIED MAGNETICS, 75 Robin Hill Rd., Goleta, CA 93117, Tel: 805-683-5353, FAX: 805-967-8227; FSC No.: 11935; Empl.: 12,000; *Sls. Mgr.:* O. M. Fundingsland

APPLIED MICRO CIRCUITS CORP., 6195 Lusk Blvd., San Diego, CA 92121, Tel: 619-450-9333, TWX: 910-337-1136,, FAX: 619-450-9885-FAX; FSC No.: 367 4112; Empl.: 235; *Sls. Mgr.:* Greg Barnhart

APPLIED MICROSYSTEMS CORP., 5020 148th Ave NE, Redmond, WA 98052, Tel: 206-882-2000, TELEX: 185196, FAX: 206-883-3049; Empl.: 200; *Sls. Mgr.:* Joe Gomula

APPLIED MICROWAVE DIV. EPSCO, See Epsco Microwave

APPLIED PLASTICS TECHNOLOGY, 45 Broadcommon Rd., Bristol, RI 02809, Tel: 401-253-0200; FSC No.: 9330; Empl.: 30; *Sls. Mgr.:* John A. MacIntyre Jr.

APPLIED POWER CONVERSION

FAX: 201-385-0702

APPLIED POWER CONVERSION, Technology Dynamics, Inc., 100 School St., Bergenfield, NJ 07621, Tel: 201-385-0500; Empl.: 70 ..... **D•1588-1593**

Local Sales Offices & Reps

CA	Escondido, Larry Ford	619-743-1557
CO	Boulder, AS Rep Co.	303-442-8018
CT	Cheshire, Scientific Comps.	203-272-2963
FL	Land O'Lakes, A J Power Source	813-996-2583
MO	St. Louis, Abrams & Assocs.	314-569-0447
NH	Salem, Integrated Technlg.	603-898-6333
NM	Albuquerque, IMEC	505-275-0936
NY	Rochester, A.J. Electro Mktg.	716-426-3598
PA	West Chester, TCA Inc.	215-692-6853
TX	Garland, Carey McMahill	214-681-1414
WA	Edmonds, Power Sources	206-743-6641
Can	Rexdale, Ont., QPL Elctrns.	416-674-8858

APPLIED REASONING CORP., 86A Sherman St., Cambridge, MA 02140, Tel: 617-492-0700, TELEX: 6714194, FAX: 617-492-7908; *Sls. Mgr.:* Paul Blumeufeld

APPLIED SOFTWARE TECH., INC., 1908 Cliff Valley Way, N.E., Atlanta, GA 30329, Tel: 404-663-8660; Empl.: 29; *Sls. Mgr.:* Jim A. Moss

APPLIED STATISTICS INC., 3080 Centerville Rd., St. Paul, MN 55117, Tel: 612-481-0202, FAX: 612-481-0410; Empl.: 25

APPROVED PURIFICATION CORP., 1088 R Hope St., Stamford, CT 06907, Tel: 203-357-0141, FAX: 203-356-1697 ..... **B•1878**

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APSCO, INC., 5976 Heisley Road, Mentor, OH 44060, Tel: 216-352-8961, TELEX: 284580, FAX: 216-354-7306; Empl.: 200; *Sls. Mgr.:* Ian Davey-Turner

APS DYNAMICS, INC., 5731 Palmer Way, Ste. A, Carlsbad, CA 92008, Tel: 619-438-4848, TELEX: 4995113 (SHAKE), FAX: 619-438-8845; Empl.: 5

APTEK TECHNOLOGIES, INC., Aptek Microsystems, 700 N. W. 12th Ave., Deerfield Beach, FL 33442, Tel: 305-421-8450, TELEX: 441020, FAX: 305-421-8044; FSC No.: 36741; Empl.: 150; *Sls. Mgr.:* Jerry D. Moore, Dir. Mktg./ Sls.; *Dist. Mgr.:* D.L. Gilley, Sr.

A.P.W. CO., INC., 72 W. Main, Rockaway, NJ 07866, Tel: 201-627-0643, FAX: 201-627-6396; Empl.: 14

apx

FAX: 516-433-1457

APX-ARSTAN PRODUCTS, 264 Duffy Ave., Hicksville, NY 11801, Tel: 516-433-1313; Empl.: 300; *Sls. Mgr.:* David Baum ..... **A•2168-2169; D•1594-1597**

Local Sales Offices & Reps

CA	Santa Clara, Source Tronics	408-988-8801
FL	Dunedin, John White Assoc.	813-733-5319
MA	Framingham, Bob Mirabella	617-877-0884
MA	Wellesley, Brownstone Assoc.	508-877-0884
MN	Golden Valley, Highland	612-546-2123
NM	Albuquerque, Syntech	505-266-7951
NY	Hauppauge, Sticom Sls.	516-366-4221
MO	Independence, Hitec Central	816-796-6684
NC	Raleigh, C-Tech	919-782-8100
TX	Richardson, John Duncan Assoc.	214-437-3967
WA	Redmond, Elctrn. Mktg. Grp.	206-882-0962
WA	Vancouver, Elctrn. Mktg. Grp.	503-684-5935

Local Distributors

NC	Raleigh, Century Elctrns.	919-872-2203
PA	Norristown, Century Elctrns.	215-631-5400

AQUALARM, Marine Safety Systems, Inc., 1151 D. Bay Blvd., Chula Vista, CA 91911, Tel: 619-575-4011, FAX: 619-575-4012; FSC No.: 2V373; Empl.: 8; *Sls. Mgr.:* John L. Hooper

ARCO ELECTRONICS, 9822 Independence Ave., Chatsworth, CA 91311, Tel: 818-882-8707, FAX: 818-882-6513; FSC No.: 84171; Empl.: 10; *Sls. Mgr.:* Randy Ryan ..... **A•1655-1657**

Local Sales Offices & Reps

CA	Chatsworth, Arco	818-882-8707
IN	Granger, Gregory Sls.	219-272-9629
MA	Taunton, Focus Elctrn. Sls.	617-824-3840
MN	St. Paul, Northport Eng.	612-457-8000
NY	Syracuse, PyTronics	315-454-9346
CA	Chatsworth, Arco Elctrns.	818-882-8707

ARCOLECTRIC CORP., 9001 Canoga Ave., Canoga Park, CA 91304, Tel: 818-700-1933, FAX: 818-700-9541; *Sls. Mgr.:* Carrie Donze; *Dist. Mgr.:* Carrie Donze ..... **B•1141, 1648**

Local Distributors

CA	Haywood, Electro Comps.	415-783-5800
FL	Lakeland, Wesgarde	813-644-7564
CA	Los Angeles, Electric Switches	800-252-4640, 800-421-8855
CA	Tustin, Western Switches	213-627-6126
CA	Van Nuys, Wesgarde Comp.	818-786-3724
CT	Hartford, Wesgarde Comp.	203-527-7705
IL	Carol Stream, Wesgarde Comp.	708-653-1460
KS	Overland Park, Wesgarde Comp.	913-262-2718
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MI	Madison Hts., Galco Ind.	313-542-9090
MN	Minneapolis, Scorpio	612-473-8656
MO	St. Louis, Wesgarde Comp.	314-567-7776
NH	Nashua, Wesgarde Comp.	603-880-1971
NJ	Denville, Lashen Elctrns.	201-627-3783,
NJ	Mt. Laurel, Wesgarde Comp.	609-778-8190
OH	Westerville, Wesgarde Comp.	614-885-0319
OR	Eugene, Larsco	503-484-7491
TX	Dallas, Wesgarde Comp.	214-357-1768
TX	Garland, Barcon	214-414-1863

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CA	Burlingame, Meyer, Ross & Fleming	415-348-6800
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GA	Atlanta, Murphy & Cota	404-875-2525
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MA	North Scituate, W.A. Hendrickson	617-545-0652
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MO	Kansas City, Nevco	816-421-1751
NJ	Fort Lee, TMC Sls.	201-944-5665
NY	Syracuse, Lewis & Dunnigan	315-446-5522
OH	Dayton, Shamrock Elctrn	513-258-1227
PA	Wynnewood, Stinson Assocs.	215-896-7378
WA	Lynnwood, Pacnor Mktg.	206-284-8020
EXP	N.Y., New York, Roburn Agencies	212-989-5939

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ARIEL CORPORATION, 433 River Rd., Highland Pk., NJ 08904, Tel: 908-249-2900, FAX: 908-249-2123; *Sls. Mgr.:* Irene Getvay

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FAX: 908-996-3891

ARIES ELECTRONICS, Box 130, Frenchtown, NJ 08825, Tel: 908-996-6841; FSC No.: 51167; Empl.: 160; *Sls. Mgr.:* Frank Folmsbee ..... **A•1722; B•1649; C•1281-1288**

Local Sales Offices & Reps

AL	Madison, Benchmark Tech. Sls.	205-464-0033
AZ	Fountain Hills, Contact Aries Elctrns.	908-996-6841
CA	San Mateo, Larsen Assoc.	415-358-9559
CA	Westlake Vlg., Elkins & Assoc.	818-597-1075
CO	Denver, West Inc.	303-477-8180
FL	Melbourne, The R-Rep Co.	407-242-9800
GA	Norcross, Benchmark Tech. Sls.	404-446-1711
IL	Bloomingdale, Orion Mktg.	708-893-2111
WI	Hartland, Selective Sls.	414-367-1133
IN	Indianapolis, Hi-Tek Sls.	317-887-2564
MD	Glen Burnie, Macrotech Assoc. Ltd.	301-766-1111
MA	Harvard, Enterprise Tech.	508-772-6003
MI	Novi, I.E. Hampton & Assoc.	313-344-8860
MI	St.Joseph, I.E. Hampton & Assoc.	616-938-0862
MN	Minneapolis, Holmgren Assocs.	612-574-9983
MO	Florissant, Delltron Co., Inc.	314-839-0033
MO	Kansas City, Delltron Co.	816-436-6445
NJ	Ho-Ho-Kus, DJ Fisher Co.	201-652-0080
NY	Fairport, TAC Sls., Inc.	716-377-2250
NC	Raleigh, Benchmark Tech. Sls.	919-850-0633
OH	Willoughby Hills, Versatron	216-944-0082
OR	Hillsboro, Doran Sls. Assocs.	503-640-4500
PA	Harrisburg, All-Tech Mktg.	717-540-1204
PA	West Chester, All-Tech Mktg.	215-344-0134
TX	Dallas, REM Comps.	214-234-1069
TX	Houston, REM Comps.	713-589-9721
WA	Redmond, Doran Sls. Assocs.	206-885-1885

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AL	Huntsville, Gateway Megatech	205-830-5955
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AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Phoenix, Dalis	602-275-2626
CA	Canoga Park, Timco Comps.	818-992-5040
CA	Compton, Harper SID	213-979-5090
CA	Fremont, Frys Elctrns.	415-770-3743
CA	Gardena, Cal, Switch & Signal	213-770-2330
CA	Irvine, IEC	714-837-9960
CA	Sacramento, IEC	916-363-6030
CA	San Diego, Harper SID	619-578-2500
CA	San Francisco, Peters De Laet	415-873-9595
CA	San Jose, Harper SID	408-943-9490
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Sunnyvale, Fry's Elect.	408-733-1770
CA	Sunnyvale, Frys Elctrns.	408-733-1770

CA	Torrance, Pyramid/Kent	714-773-0781
CO	Denver, I.E.C.	303-292-6121
CO	Englewood, Component Dist.	303-799-4915
CO	Englewood, Indelco	303-694-9444
CT	Danbury, Pilgrim	203-792-7274
CT	Wallingford, Cronin	203-265-3134
FL	Ft. Lauderdale, KSM	305-971-5900
FL	Melbourne, CDI	407-724-9910
FL	Pompano Bch., Peerless Radio	305-973-4141
GA	Atlanta, Gateway Megatech	404-497-0799
GA	Atlanta, KSM	800-554-9227
ID	Boise, Kimball	208-342-3559
IL	Hoffamn Estates, IEC	708-843-2040
IL	Northbrook, Classic	312-272-9650
CT	Norwalk, Cobra Comps.	203-847-6442
IN	Indianapolis, Gateway Megatech	317-844-3906
IN	Indianapolis, Meunier	317-635-3511
MD	Baltimore, Resco	301-529-0500
MD	Beltsville, Resco Washington	301-937-9100
MD	Columbia, Peerless Radio	301-997-1717
MD	Jessup, Gateway MegaTech	301-792-7527
MA	Middleboro, Glynn Elctrns.	508-947-4262
MA	Needham, Cronin Elctrns.	617-449-5000
MI	Ann Arbor, Gateway Megatech	313-761-2980
MI	Grand Rapids, Calder Elect.	616-698-7400
MI	Southfield, Michigan Lectrols	313-353-1350
MN	Minneapolis, Bergquist Elect.	612-835-2322
MN	New Brighton, Chris	612-631-2647
MO	St. Louis, Beckwith Computer	314-343-6463
NH	Manchester, Cronin	603-624-0105
NH	Manchester, Glynn	603-622-8131
NJ	Lynbrook, NY, Peerless Radio	201-906-1181
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PA	Saegertown, Multi-Phase	814-763-3640
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ARNOLD ENGINEERING COMPANY, Sub. SPS Technologies, 300 West Street, Marengo, IL 60152, Tel: 815-568-2000, FAX: 815-568-2228; Empl.: 650; *Sls. Mgr.:* E. F. Migely, V.P. Mktg./Sls.

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FAX: 805-484-4113

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CA	Los Angeles, Arnold Magnetics Corp.	805-484-4221
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MO	St. Louis, Arnold Magnetics	800-421-8181
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CA	Garden Grove, Elsco	714-891-4621
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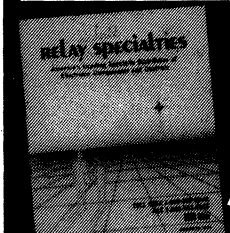
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PA Philadelphia, Sager 215-464-4336
PA Pittsburgh, Sager 412-772-2233
PA Wayne, Peak Elctrns. 215-293-9000
SC Columbia, Dixie Elctrns. 803-779-5332
SC Greenville, Dixie Elctrns. 803-297-1437
TN Gray, Dixie Elctrns. 615-477-2131
TN Oak Ridge, Dixie Elctrns. 615-481-3393
TX Austin, Newark Elctrns. 512-338-0287
TX Austin, Norvell Elctrns. 512-837-5555
TX Austin, Southwest Elctrns. 512-837-8971
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TX Dallas, Computer Comps. Corp. 214-239-0271
TX Dallas, Newark Elctrns. 214-340-3585
TX Dallas, Norvell Elctrns. 214-233-0020
TX Dallas, Southwest Elctrns. 214-234-3050
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TX Houston, Newark Elctrns. 713-782-4800
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Can Mississauga, Ont., Zentronics 416-564-9600
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Can Nepean, Ont., Zentronics 613-226-8840
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Can Scarborough, Ont., Carsten Elctrns. 416-495-7705
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ARRAY MICROSYSTEMS, 1510 Quail Lake Loop, Colorado Springs, CO 80906, Tel: 719-540-3842

ARREM PLASTICS, INC., 502 Vista Ave., Addison, IL 60101, Tel: 708-628-2450, FAX: 708-628-1855; Empl.: 70; *Sls. Mgr.:* Jack Schrieffer

ARROW FASTENER, 271 Mayhill St, Saddlebrook, NJ 07662, Tel: 201-843-6900, FAX: 201-843-3911; Empl.: 600; *Sls. Mgr.:* Robert Hand

ARROW HART COMPONENTS, Cooper Industries, P.O. Box 9050, Charlottesville, VA 22906-9050, Tel: 804-974-5100, FAX: 804-973-2236; Empl.: 1000; *Sls. Mgr.:* Paul Schnackenberg; *Dist. Mgr.:* Paul Schnackenberg

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ARTEL COMMUNICATIONS CORP., 22 Kane Industrial Dr., Hudson, MA 01749, Tel: 508-562-2100, FAX: 508-562-6942; Empl.: 70; *Sls. Mgr.:* Jugtar S. Basi

ARTISAN CONTROLS CORP., P.O. Box 233, 5 Eastmans Rd.,Ste.100, Parsippany, NJ 07054, Tel: 201-428-1770, FAX: 201-428-1426; Empl.: 100

ARTRONIC INSTRUMENT CO., INC., 9 Division St., Sidney, NY 13838, Tel: 607-563-8444; FSC No.: 09446; Empl.: 12

ARTRONICS CORPORATION, 124 Heritage Dr., P.O. Box 5070, Portsmouth, NH 03801, Tel: 603-433-3111, FAX: 603-433-4684; Empl.: 20; *Sls. Mgr.:* Anthony Santomango

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Local Sales Offices & Reps

AL	Huntsville, R. O. Whitesell & Assocs.	205-883-5110
AZ	Phoenix, Compass Mktg. & Sls., Inc.	602-996-0635
AZ	Scottsdale, Compass Mktg. & Sls.	602-585-0202
AZ	Tucson, Compass Mktg. & Sls., Inc.	602-293-1220
CA	Chatsworth, WCV-Raltech, Inc.	818-700-0933
CA	Redwood City, James S. Heaton Co., Inc.	415-367-9000
CO	Wheatridge, Waugaman Assocs.	303-423-1020
GA	Norcross, R. O. Whitesell & Assocs.	404-449-9190
IL	Itasca, Circuit Sls., Inc.	312-773-0200
IN	Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KY	Pewee Valley, R. O. Whitesell & Assocs.	502-241-1441
LA	Hammond, Design Mktg. & Assocs.	504-542-1115
LA	Hammond, Design Mktg. Of LA, Inc.	504-542-1115
MD	Annapolis, EES, Inc.	301-269-4234
MI	Grand Blanc, R. O. Whitesell & Assocs.	313-695-0770
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MO	St. Louis, John G. Macke Co.	314-432-2830
NH	Salem, Sls. Engrg. Co.	603-893-5521
NM	Albuquerque, Compass Mktg. & Sls., Inc.	505-888-0800
NY	Buffalo, Quality Comps.	716-837-5430
NY	Great Neck, F & F Metro	516-482-4080
NY	Manlius, Quality Comps.	315-682-8885
NJ	Marlton, BGR Assocs.	609-983-1020
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R. O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R. O. Whitesell & Assocs.	513-298-9546
OR	Beaverton, Unicomp, Inc.	503-643-1644
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-936-6161
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TN	Nashville, R.O. Whitesell & Assoc.	615-352-4760
TX	Austin, Design Mktg. & Assocs.	512-263-9151
TX	Dallas, Design Mktg. & Assocs.	214-480-8151
TX	Houston, Design Mktg. & Assocs.	713-550-3318
UT	Salt Lake City, Waugaman Assocs.	801-261-0802
VA	Midlothian, EES, Inc.	804-794-8939
WA	Snohomish, Unicomp, Inc.	206-568-0511
WI	Brookfield, Circuit Sls. Inc.	414-784-7773
Can	Richmond Hill, Renmark Elctrns., Ltd.	416-881-8844

Local Distributors

AL	Huntsville, Bell	205-837-1074
AL	Huntsville, Hall-Mark	205-837-8700
AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Phoenix, Hall-Mark	602-437-1200
AZ	Tempe, Bell	602-966-7800
CA	Chatsworth, Passive Technlg.	818-882-2277
CA	Chatsworth, Petell/Passive Comps.	818-341-1745
CA	Garden Grove, Bell	714-895-7801
CA	Gardena, Bell	213-515-1800
CA	Hall-Mark, Canoga Pk.	818-716-7300
CA	Milpitas, Cal Cap	408-262-6000
CA	Milpitas, Projections Unltd.	408-942-1717
CA	Sacramento, Bell	916-969-3100
CA	Sacramento, Hall-Mark	916-722-8600
CA	San Diego, Bell	619-268-1277
CA	San Diego, Hall-Mark	619-268-1201
CA	San Diego, Projections Unltd.	619-453-7900
CA	San Jose, Hall-Mark	408-946-0900
CA	San Jose, Passive Technlg.	408-435-5566
CA	Santa Ana, Petell/Passive Comps.	714-541-5959
CA	Sunnyvale, Bell	408-734-8570
CA	Thousand Oaks, Bell	805-499-6821
CA	Torrance, Hall-Mark	213-217-8400
CA	Tustin, Hall-Mark	714-669-4700
CA	Tustin, Projections Unltd.	714-544-2700
CO	Denver, Hall-Mark	303-790-1662
CO	Wheat Ridge, Bell	303-424-1985
CT	Wallingford, Hall-Mark	203-269-0100
FL	Deerfield Bch., Bell	305-421-1997
FL	Ft. Lauderdale, Hall-Mark	305-971-9280
FL	Largo, Bell	813-541-4434
FL	Orlando, Hall-Mark	305-855-4020
FL	Pompano Bch., Peerless	305-973-4141
FL	St. Petersburg, Hall-Mark	813-530-4543
GA	Atlanta, Hall-Mark	404-447-8000
GA	Norcross, Bell	404-662-0923
IL	Chicago, Hall-Mark	312-860-3800
IL	Chicago, PEI/Genesis	312-232-0394
IL	Elk Grove Vl., Bell	312-640-1910
IL	Urbana, Bell	217-328-1077
IN	Ft. Wayne, Bell	219-423-3422
IN	Indianapolis, Bell	317-875-8200
IN	Indianapolis, Hall-Mark	317-872-8875
IN	South Bend, PEI/Genesis	317-879-0700
IA	Cedar Rapids, Bell	319-395-0730
MD	Baltimore, Hall-Mark	301-988-9800
MD	Baltimore, PEI/Genesis	301-529-2200
MA	Boston, Hall-Mark	617-935-9777
MA	Winchester, Bell	617-729-5800
MI	Ann Arbor, Bell	313-971-9093
MI	Livonia, Hall-Mark	313-462-1205
MN	Edina, Bell Inds.	612-941-1493
MN	Minneapolis, Hall-Mark	612-941-2600
MO	St. Louis, Hall-Mark	314-291-5350
NH	Hudson, Bell	603-882-1133
NJ	Edison, Peerless	201-906-1181
NJ	Fairfield, Hall-Mark	201-575-4415
NM	Albuquerque, Bell	505-292-2700
NY	Farmingdale, Bell	516-752-9303
NY	Lynbrook, Peerless	516-593-2121
NY	Rochester, Hall-Mark	716-244-9290
NY	Ronkonkoma, Hall-Mark	516-737-0600
NC	Charlotte, EMC	704-394-6195
NC	Raleigh, Hall-Mark	919-872-0712
OH	Cleveland, Hall-Mark	216-349-4632
OH	Columbus, EMC	614-299-4161
OH	Columbus, Hall-Mark	614-888-3313
OH	Dayton, Bell	513-435-8660
OH	Dayton, EMC	513-439-4711
OH	Highland Heights, EMC	216-442-3441
OK	Tulsa, Hall-Mark	918-251-1108
OR	Portland, Bell	503-241-4115
PA	Philadelphia, Hall-Mark	215-355-7300
PA	Philadelphia, PEI-Genesis	215-673-0400
TX	Austin, Hall-Mark	512-258-8848
TX	Dallas, Hall-Mark	214-553-4300
TX	Houston, Hall-Mark	713-781-6100
TX	Richardson, Bell	214-690-0466
UT	Salt Lake City, Bell	801-972-6969
UT	Salt Lake City, Hall-Mark	801-972-1008
WA	Bellevue, Bell Inds.	206-747-1515
WA	Redmond, Priebe Elctrns.	206-881-2363
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ASELCO, INC., 429 E. Diamond Ave., Suite E, Gaithersburg, MD 20877, Tel: 301-863-1937, FAX: 301-840-1382; Empl.: 7; *Sls. Mgr.:* Yoon Kim

ASHLAND ELEC. PRODS., INC., 10 Industrial Way,POB 1380, Rochester, NH 03867, Tel: 603-335-1100, FAX: 603-335-1120; FSC No.: 04810; Empl.: 30; *Sls. Mgr.:* T.G. Dolan, Jr.; *Dist. Mgr.:* Roxanne Ramsey

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A.S.I. MICROSYSTEMS, INC., (Formerly Andrich Systems, Inc.), 1531 Smithtown Ave., Bohemia, NY 11716, Tel: 516-589-5656, FAX: 516-589-6094; *Sls. Mgr.:* Robert G. Andrews

FAX: 818-575-0394

ASLAN COMPUTER CORPORATION, 10922 Klingerman Ave., Bldg.4, S. El Monte, CA 91733, Tel: 818-575-5271; Empl.: 20; *Sls. Mgr.:* Chris Witham ..... **D•1585-1587**

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MO	Kansas City, GTS	913-451-6785
TX	Austin, Brovo Sls.	512-836-8323
TX	Dallas, Brovo Sls.	214-934-0067

ASM CORPORATION, 525 Truck Lane, P.O. Box 860, Smithfield, NC 27577, Tel: 919-934-3104, FAX: 919-934-1781; FSC No.: 31336; Empl.: 12; *Sls. Mgr.:* P. A. Medicks

ASPECT ELECTRONICS INC., 725 San Aleso, Sunnyvale, CA 94086, Tel: 408-737-2290, FAX: 408-737-7345; Empl.: 42; *Sls. Mgr.:* Donald Roelands

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ASSOCIATED CIRCUITS INC., 188 Constitution Dr., Menlo Park, CA 94025, Tel: 415-329-0478, FAX: 415-329-1829; Empl.: 34; *Sls. Mgr.:* Karen Caldwell

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ASSOCIATED RESEARCH, INC., 905 Carriage Pk. Ave., Lake Bluff, IL 60044, Tel: 708-295-3312, FAX: 708-295-9165; FSC No.: 04273; Empl.: 58; *Sls. Mgr.:* Joe Guerriero; *Dist. Mgr.:* Joseph Guerriero ... **D•1220-1221**

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ASTEC AMERICA, 401 Jones Rd., Oceanside, CA 92054, Tel: 619-439-4200; Empl.: 600; *Sls. Mgr.:* Ray Burchill; *Dist. Mgr.:* Bev Montgomery ..... **D•1606-1613**

Local Sales Offices & Reps

AL	Huntsville, R.W. Mitscher Co., Inc.	205-882-6050, FAX:205-882-0075
AZ	Phoenix, Odessey I(Arizona)	602-246-8846, FAX:602-870-1340
CA	Cameron Park, Emerging Technlgs.	916-676-4387, FAX:916-676-3030
CA	Milpitas, Emerging Technlgs.	408-263-9366, FAX:408-263-9566
CA	San Diego, SC Cubed	619-458-5808, FAX:619-458-5823
CA	Thousand Oaks, SC Cubed	805-496-7307, FAX:805-495-3601
CA	Tustin, SC Cubed	714-731-9206, FAX:714-731-7801
CO	Englewood, Omega Ltd.	303-762-1921, FAX:303-762-1928
CT	Wallingford, Technlg. Sls. Inc.	203-269-8853, FAX:203-269-2099
FL	Maitland, EIR	407-660-9600,FAX:407-660-9091
GA	Lawrenceville, R.W. Mitscher Co., Inc.	404-923-3239,FAX:404-923-4179
IL	Elk Grove, Tri-Star Grp., Inc.	708-593-0200, FAX:708-364-6507
IN	Indianapolis, CC Electro Sls.	317-921-5000, FAX:317-921-5005
MD	Columbia, Delta III Assocs., Inc.	301-730-4700, FAX:301-730-0790
MA	Needham, Com-Sale, Inc.	617-444-8071, FAX:617-449-8047
MI	Canton, CC Electro Sls.	313-981-9296, FAX:313-981-0188
MI	Grand Rapids, CC Electro Sls.	616-281-8800, FAX:616-281-9139
MN	Edina, Ohms Technlg., Inc.	612-932-2920, FAX:612-932-2918
MO	Blue Springs, Palatine Engrg.	816-229-4007, FAX:816-229-4471
MO	Florissant, Palatine Engrg.	314-839-0800, FAX:314-839-6023
NJ	Hackensack, Coakley, Boyd & Abbett, Inc.	201-440-4114,FAX:201-440-4623
NJ	Moorestown, T.A.I. Corp.	609-778-5353, FAX:609-778-7828
NM	Albuquerque, Odessey I (New Mexico)	505-345-9659,FAX:505-345-7289
NY	E. Rochester, Tri-Tech Elctrns.	716-385-6500, FAX:716-385-7655
NY	Endwell, Tri-Tech Elctrns.	607-754-1094, FAX:607-754-1094
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881, FAX:315-446-3047
NC	Davidson, R.W. Mitscher Co., Inc.	704-896-7434, FAX:704-896-7842
NC	Raleigh, R.W. Mitscher Co., Inc.	919-848-0941, FAX:919-848-9156
OH	Dayton, Lyons Corp.	513-278-0714, FAX:513-278-3609
OH	Richfield, Lyons Corp.	216-659-9224, FAX:216-659-9227
OH	Westerville, Lyons Corp.	614-895-1447
OR	Tigard, Earl & Brown Co.	503-639-2100, FAX:503-684-2001
TN	Johnson City, R.W. Mitscher Co., Inc.	615-929-7258,FAX:615-929-0786
TX	Austin, OM Assocs.	512-794-9971, FAX:512-794-9987
TX	Houston, OM Assocs.	713-789-4426, FAX:713-789-4825
TX	Richardson, Om Assocs.	214-690-6746, FAX:214-690-8721
VA	Midlothian, Delta III Assocs., Inc.	804-379-1816, FAX:804-379-3474
WA	Redmond, Earl & Brown Co.	206-885-5064, FAX:206-885-2262
WI	Brookfield, Tri-Star Grp., Inc.	414-782-2670, FAX:414-782-2187
Can	Brampton,Ont., Cantec Reps.	416-791-5922, FAX:416-791-7940
Can	Ottawa, Ont., Cantec Reps.	613-725-3704, FAX:613-725-0490
Can	St. Eustache, Que., Cantec Reps.	514-874-9204, FAX:514-623-5482

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CA	Santa Clara, Wyle Labs Elctrn. Mktg. Grp.	408-727-2500
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IN	Indianapolis, Custom Svc. Elec.	317-879-9119
MI	Flint, Royalite	313-238-4641
NH	Hudson, Diamond	603-894-4420
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Hauppauge, Sager Elctrns.	516-348-1300
OH	Cincinnati, Hughes Peters	513-351-2000
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Can	Scarborough, Ont., Carsten	416-495-7705

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ASTRO CABLE CO., INC., Carol Cable Co., Inc., Box 15086, Worcester, MA 01615-0086, Tel: 508-754-3281, FAX: 508-755-5189; Empl.: 150; *Sls. Mgr.:* Peter Kunigonis; *Dist. Mgr.:* Mike Koshgarian

ASTRO DYNAMICS, INC., 2 Gill St., Woburn, MA 01801, Tel: 617-935-4944, FAX: 617-935-4982; Empl.: 50; *Sls. Mgr.:* Leo Donahue

ASTRO-GEO-MARINE, INC., 2186 Knoll Dr. B, Ventura, CA 93003, Tel: 805-654-8300, FAX: 805-654-8314; FSC No.: 51473; Empl.: 12

ASTRO INSTRUMENT CORP., 450 Goolsby Blvd., Deerfield, FL 33442-3019, Tel: 305-698-6000, FAX: 305-698-6011; FSC No.: 51761; *Sls. Mgr.:* Peter J. Sinatra, Jr.

ASTRO INTERNATIONAL CORP., 100 Park Ave., League City, TX 77573, Tel: 713-332-2484, FAX: 713-554-6795; Empl.: 50; *Sls. Mgr.:* Curt Nicholls

ASTROMEC, INC., 2950 Arrowhead Dr., Carson City, NV 89706, Tel: 702-883-9226, FAX: 702-883-9228; Empl.: 40; *Sls. Mgr.:* Ken Irvin

Ai

FAX: 401-822-2430

ASTRO-MED, INC., 600 East Greenwich Avenue, W. Warwick, RI 02893, Tel: 401-828-4000, TWX: 710-382-6409; FSC No.: 6625; Empl.: 225; *Sls. Mgr.:* Everett V. Pizzuti; *Dist. Mgr.:* Vincent A. Paolino .... **D•1415-1418**

Local Distributors

Can Toronto, Ont., RCC Elctrns. 416-252-5094

ASTROSYSTEMS, 6 Nevada Dr., Lake Success, NY 11042, Tel: 516-328-1600, TWX: 510-223-0411, FAX: 516-328-1658; Empl.: Mark DeLauro; *Sls. Mgr.:* Howard Lazarus; *Dist. Mgr.:* Roy Hartman, Sls. Mgr.

ASTRO TOOL CORP., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006, Tel: 503-642-9853, FAX: 503-591-7766 ..... **C•1702**

Local Sales Offices & Reps

NJ Nutley, Astro Tool Sls. 201-661-1299

Local Distributors

FL Zephyrhills, Tool-Tronics Hydrospace, Inc. 813-782-7177
PA Philadelphia, Powell Elctrns., Inc. 215-365-1900
TX Ft. Worth, Connector Micro-Tooling Sys. 817-283-4883
WA Auburn, West-Air International, Inc. 206-939-2322
WA Seattle, Radar Elec. Co., Inc. 206-282-2511

ASTRO-VALCOUR INC., Buhrmann-Tetterode, 100 Thomas Road North, Hawthorne, NJ 07507, Tel: 201-423-3000, TELEX: 130545, FAX: 1-201-423-1987; Empl.: 500; *Sls. Mgr.:* Dennis Tillis

A-SYSTEMS INC., 1500 Avon St. Extd., Charlottesville, VA 22901, Tel: 804-295-7200; Empl.: 45; *Sls. Mgr.:* F. M. Artrip

AT&T Microelectronics

FAX: 215-778-4106

AT&T MICROELECTRONICS, 555 Union Blvd., 52AL040420, Allentown, PA 18103, Tel: 1-800-372-2447, In Can.: 1-800-553-2448 .. **A•2170-2173; D•1615-1617**

Local Sales Offices & Reps

AZ Phoenix 602-844-6529
CA Cypress 714-220-6223
CA Sunnyvale 408-522-5555
CO Denver, AT&T Microelectronics 303-290-3708
FL Maitland/Orlando 407-875-4620
GA Norcross 404-446-4700
IL Itasca 708-290-2000
MA Framingham 508-626-2161
MN Bloomington 612-885-4300
NJ Berkeley Hgts. 908-771-2000
NY Poughkeepsie, AT&T Microelectronics 914-485-7744
NC Raleigh 919-881-8023
OR Portland 503-244-3883
PA Allentown, AT&T Microelectronics 215-770-2100
TX Irving 214-869-2040

Local Distributors

AL Huntsville, Schweber 205-895-0480
AZ Phoenix, Schweber 602-997-4874
CA Irvine, Schweber 714-863-0200
CA Sacramento, Schweber 916-929-9732
CA San Diego, Schweber 619-450-0454
CT Danbury, Schweber 203-748-7080
FL Pompano Bch., Schweber 305-977-7511
GA Norcross, Schweber 404-449-9170
IL Elk Grove Vl., Schweber 312-364-3750
IA Cedar Rapids, Schweber 319-373-1417
KS Kansas City, Schweber 913-492-2922
MD Baltiomore, Schweber 301-792-4025
MA Bedsford, Schweber 617-275-5100
MO St. Louis, Schweber 314-739-0526
NH Manchester, Schweber 603-625-2250
NJ Fairfield, Schweber 201-227-7880
NY Rochester, Schweber 716-424-2222
NY Westbury, Schweber 516-334-7474
OH Dayton, Schweber 513-439-1800
OK Tulsa, Schweber 918-622-8000
PA Pittsburgh, Schweber 412-782-1600
TX Houston, Schweber 713-784-3600

AT&T NETWORK SYSTEMS,NETWORK CABLE SYS. DIV., 111 Madison Ave., Morristown, NJ 07962, Tel: 1-800-344-0223, Ext. 1027

ATC POWER SYSTEMS, INC., 472 Amherst Street, Nashua, NH 03063, Tel: 603-882-1366, TELEX: 756779, FAX: 603-882-2994; FSC No.: 61814; Empl.: 40; *Sls. Mgr.:* Andrea Onufer, Off. Mgr.

ATEC, INC., 8219 Kempwood Dr., Houston, TX 77055, Tel: 713-468-7971, FAX: 713-468-6585; FSC No.: 09552; Empl.: 70; *Sls. Mgr.:* R.L. Rainwater

ATHENA CONTROLS, INC., 5145 Campus Dr., Whitemarsh Ind. Campus, Plymouth Meeting, PA 19462, Tel: 215-828-2490, FAX: 215-828-7084; Empl.: 70; *Sls. Mgr.:* David A. Tryon; *Dist. Mgr.:* Douglas Crowell, Prod. Mgr.

ATI (AHAM TOR INC.), 999 Company, P.O. Box 9019, Temecula, CA 92390-0739, Tel: 714-676-4151, FAX: 714-676-3031

ATKINS TECHNICAL INC., 3401 S.W. 40th Blvd., Gainesville, FL 32608, Tel: 904-378-5555, FAX: 904-335-6736; Empl.: 45; *Sls. Mgr.:* Robert M. Atkins; *Dist. Mgr.:* Liddon Dell

ATLANTA SIGNAL PROCESSORS, INC., 770 Spring Street N.W., Atlanta, GA 30308, Tel: 404-892-7265, FAX: 404-892-2512; Empl.: 20; *Sls. Mgr.:* William E. Jouris

ATLANTIC MAGNETICS, INC., 1441 S.W. 30th Ave., Pompano Beach, FL 33069, Tel: 305-979-7920, FAX: 305-977-5128; Empl.: 37; *Sls. Mgr.:* Edward Cammarata; *Dist. Mgr.:* Scott Thompson

ATLANTIC OPTICAL MOULDING, Ellis St., P.O. Box 309, Webster, MA 01570, Tel: 508-943-1746; Empl.: 6

ATLANTIC SCIENTIFIC CORPORATION, 2711 S. Harbor City Blvd., Melbourne, FL 32901, Tel: 1-800-544-4737, FAX: 407-727-0736; Empl.: 50; *Sls. Mgr.:* George Mayle; *Dist. Mgr.:* William Purcell, Mktg. Mgr.

ATLAS ENERGY SYSTEMS, INC., 16872 Milliken Avenue, Irvine, CA 92713, Tel: 714-863-0900, FAX: 714-553-8191; Empl.: 30; *Sls. Mgr.:* Steven Laffond; *Dist. Mgr.:* Gene Weaver

ATLAS ENGINEERING CORP., 10 Cheney St., Dorchester, MA 02121, Tel: 617-445-7100, FAX: 617-445-4942; FSC No.: 07001; Empl.: 75; *Sls. Mgr.:* Norman Scotch

ATLAS/SOUNDOLIER, 1859 Intertech Dr., Fenton, MO 63026, Tel: 314-349-3110, TWX: 910-760-1650, FAX: 314-349-1251; Empl.: 700; *Sls. Mgr.:* Gary Shamel ..... **C•1013**

Local Sales Offices & Reps

AL Huntsville, Saber Assocs., Inc. 800-327-0853
AZ Tempe, Hanna-Hill, Inc. 602-431-1771
CA Laguna Niguel, Aktron Sls. 714-496-5057
CA Sunnyvale, Logan Sls. 408-732-6020
CO Denver, Hanna-Hill, Inc. 303-252-1154
FL Melbourne, Saber Assocs., Inc. 407-724-0920
GA Lawrenceville, Saber Assocs., Inc. 800-327-0853
IL Buffalo Grove, Torkelson Assocs., Inc. 708-520-0710
KY Springfield, O'Daniel & Co. 606-336-9479
MD Ellicott City, Technology Sls., Inc. 301-461-7802
MI Madison Hgts., WKM Assocs., Inc. 313-588-2300
MN Minneapolis, Torkelson Assocs., Inc. .. 612-835-2414
MO Maryland Hgts., Dytec/South, Inc. 314-739-0665
NJ Sparta, Latronics Assocs., Inc. 201-729-5303
NM Albuquerque, Hanna-Hill, Inc. 505-268-0950
NC Clayton, Saber 800-327-0853
OH Dayton, WKM Assocs., Inc. 513-434-7500
OK Stillwater, Acudata Inc. 405-743-1886
OR Beaverton, Northwest Test & Meas. Inc. 503-645-9000
PA Pittsburgh, WKM Assocs., Inc. 412-892-2953
TX Plano, Acudata Inc. 214-424-3567
UT Lake City, Hanna-Hill, Inc. 801-364-0606
WI Waukesha, Torkelson Assocs., Inc. 414-784-7736

Local Distributors

WA Redmond, Northwest Test & Meas. Inc. 206-881-8857

ATLEE

FAX: 508-686-2934

ATLEE INC., 10 Bayfield Dr., North Andover, MA 01845, Tel: 508-681-1003, TELEX: 928252; FSC No.: 99378; Empl.: 40; *Sls. Mgr.:* Tom Fiocco; *Dist. Mgr.:* Tom Fiocco ..... **C•1014, 1679**

Local Sales Offices & Reps

CA Irvine, The Hapco Grp. 714-474-8474
FL Casselberry, T-Squared Mktg. 407-699-9992
MA Sharon, Cummings Assocs. 617-784-5600
PA Paoli, Stitzer Assocs. 215-644-5500
TX Arlington, Rem-Air Corp. 214-234-1069

Local Distributors

CA Anaheim, Bisco Inds. 714-635-0380
CA San Jose, Bisco Inds. 408-946-8980
IL Franklin Pk., Bisco Inds. 312-451-1230
MA Marlboro, Hardware Specialties 617-481-8622
MA N. Andover, Atlee, Direct 508-681-1003
MA Winchester, Rush Inds. 617-729-5800
MA Woburn, Bisco Inds. 617-938-8590
MN Minneapolis, Aerospace Computer 612-884-4725
NJ Paramus, N.Y. Fastener 201-265-8770
NY Bayshore, Merrit Fastener 516-242-1800
NY Long Island City, Hardware Specialty 212-361-9393
NY Plainview, Elctrn. Precepts 516-293-7441
NY Plainview, G & B Fasteners 516-694-0990
NY Rochester, Summitt Elec. 716-334-8110
TX Richardson, Altair Co. 214-231-5166

ATMEL CORPORATION, 2125 O'Nel Drive, San Jose, CA 95131, Tel: 408-441-0311, FAX: 408-436-4200; Empl.: 1026

ATOCHEM NORTH AMERICA, Three Pkwy., Philadelphia, PA 19102, Tel: 215-587-7520, TELEX: 84-5234, FAX: 215-587-7497

ATOMERGIC CHEMETALS CORP., 222 Sherwood Ave., Farmingdale, NY 11735-1718, Tel: 516-694-9000, TELEX: 144612, TWX: 6852289, FAX: 516-694-9177; Empl.: 40; *Sls. Mgr.:* M. Hollander

ATV RESEARCH, INC., 1301 Broadway, Dakota City, NE 68731, Tel: 402-987-3771; *Sls. Mgr.:* Mel Shadbolt

THE AUBURN MANUFACTURING COMPANY, 29 Stack Street/P.O. Box 251, Middletown, CT 06457, Tel: 203-346-6677, FAX: 203-346-1334; Empl.: 45; *Sls. Mgr.:* Gary L. Mittelman, VP

AUDIO PRECISION, INC., PO Box 2209, Beaverton, OR 97075, Tel: 503-627-0832, TELEX: 283957 AUDIO UR, FAX: 503-641-8906; Empl.: 25; *Sls. Mgr.:* Thomas Mintner

AUDIOSEARS, South St., Stamford, NY 12167, Tel: 607-652-7305, 800-533-7863, FAX: 607-652-3653; FSC No.: 97101; Empl.: 120; *Sls. Mgr.:* Fred Rosscoe

AUDIOSONE, INC., 335 Benton St., Stratford, CT 06497, Tel: 203-377-4475, FAX: 203-377-3374; *Sls. Mgr.:* Rudolph Duris

AUDIOTRONICS CORP., 7428 Bellaire Ave., N. Hollywood, CA 91605, Tel: 818-765-2645, TELEX: 69-1241; Empl.: 15; *Sls. Mgr.:* Gordon Anderson

AUDRE, INC., 10915 Technology Place, San Diego, CA 92127, Tel: 619-451-2260, FAX: 619-451-0267; Empl.: 25

AUGAT INC., 33 Perry Ave., Box 779, Attleboro, MA 02703, Tel: 617-222-2202, TWX: 710-391-0644, FAX: 617-226-5257; FSC No.: 91506; Empl.: 2500; *Sls. Mgr.:* Jim Fuchs/Jeff Mahall; *Dist. Mgr.:* William Hall

AUGAT ALCOSWITCH, Augat Inc., 1551 Osgood St., N. Andover, MA 01845, Tel: 508-685-4371, TELEX: 275423, FAX: 508-686-9545; FSC No.: 95146; Empl.: 150; *Sls. Mgr.:* Robyn Goodwin; *Dist. Mgr.:* Jon Siccoe

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AUGAT, INC., Interconnection Products Group, 33 Perry Ave.,P.O. Box 779, Attleboro, MA 02703, Tel: 508-222-2202, TWX: 710-391-0644; *Sls. Mgr.:* Gillis Mellen; *Dist. Mgr.:* Dick Thorpe ..... **C•1290-1291**

Local Sales Offices & Reps

AL	Huntsville, Interep Assoc.	205-881-1096
AL	Daphne, Interep Assoc.	205-621-1036
AL	Huntsville, Alpha Mktg.	205-533-0766
AZ	Phoenix, Augat Sls.	602-224-6104
AZ	Scottsdale, Spectrum Mktg.	602-890-9000
CA	Los Angeles, Wiley Co.	213-666-1611
CA	Montrose, Signal Entprs.	818-957-0640
CA	San Diego, Wiley Co.	619-453-9018
CA	San Jose, Augat Sls.	408-249-8801
CA	SAnta Clara, Interconnect Sls. Grp.	408-980-1166
CO	Denver, Spectrum Mktg.	303-480-9991
CT	Noack, Augat Sls.	203-572-7503
FL	Lantana, Augat Sls.	407-967-6150
FL	Orlando, Augat Sls.	407-352-2020
GA	Norcross, Interep	404-449-8680
HI	Honolulu, Hawaii Elctrns.	808-845-8207
ID	Boise, J.J. Backer Co.	308-378-4680
IL	Downers Grove, Rockford Controls	312-960-2046
IN	Indianapolis, Luebbe Sls.	317-845-7389
IN	Indianapolis, Luebbe Sls. Co.	317-845-7387
IA	Cedar Rapids, Dy-Tronix	319-377-8275
KS	Leawood, Dy-Tronix	913-339-6333
KS	Wichita, Dy-Tronix	316-838-0884
MA	Sharon, Augat Sls.	617-784-7766
MI	Farmington Hills, Luebbe Sls.	313-489-8828
MN	Minneapolis, H.M.R.	612-888-2122
MN	St. Paul, Count/Man Assoc.	612-645-9151
MO	Bridgeton, Dy-Tronix	314-291-4777
NJ	Cherry Hill, Trinkle Sls., Inc.	609-795-4200
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
NY	Yonkers, Sonkin Assoc.	914-968-8282
NY	Yonkers, Sonkin Assocs.	914-968-8282
NC	Charlotte, Quantum Mktg.	704-523-8828
NC	Kernersville, Wallace Elect. Sls.	919-996-2742
NC	Raleigh, Quantum Mktg.	919-846-5728
OH	Cincinnati, Luebbe Sls.	513-530-0600
OH	Dayton, Luebbe Sls.	513-294-0426
NH	Manchester, Augat Sls.	603-647-7276
OH	Westlake, Luebbe Sls.	216-899-0070
OR	Beaverton, J.J. Backer Co.	503-627-0775
PA	Pittsburgh, Luebbe Sls.	412-364-0490
TN	Greenville, Interep Assoc.	615-639-3491
TN	Murfeesboro, Alpha Mktg.	615-896-6102
TN	Oakridge, Alpha Mktg.	615-482-4681
TX	Austin, Augut Sls.	512-272-9060
TX	Dallas, Augat Sls.	214-788-4211
TX	Houston, Augat Sls.	713-781-9343
UT	Salt Lake City, Butterworth Mktg.	801-972-5566
VA	Charlottesville, Trinkle Sls. Inc.	609-795-4200
WA	Seattle, J.J. Backer Co.	206-285-1300
WI	Madison, Rockford Controls	608-223-8750
PR	Rio Piedras, DK Mktg.	809-765-5380
Can	Mississauga, Ont., Augat Elctrns. Inc.	416-677-1500

Local Distributors

CA	Chatsworth, Time Elctrns.	818-998-7200
CA	Gardenia, Calswitch	213-770-2330
CA	San Jose, Capstone	408-453-9804
CA	Sunnyvale, Abacus	408-732-2000
CA	Sunnyvale, Time Elctrns.	408-734-9888
CT	Wallingford, Sager Elec.	203-265-4600
FL	Orlando, Sager Elec.	407-240-3114
FL	Orlando, Time Elctrns.	407-841-6565
IL	Addison, Pioneer	312-495-9680
IL	Bensenville, Hamilton/Avnet Elctrns.	312-860-7700
IL	Itasca, Capstone	708-250-0200
IL	Shaumburg, Time Elctrns.	708-303-3900
MD	Columbia, Sager Elec. Supp.	301-995-6580
MA	Hingham, Sager Elec.	617-749-6700
MA	Lexington, Pioneer	617-861-9200
MA	Peabody, Hamilton/Avnet Elctrns.	508-531-7430
MA	Wilmington, Capstone	508-657-5874
MA	Woburn, Sterling Elctrns.	617-938-6200
NH	Salem, Sager Elec.	603-898-1348
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0100
NY	E. Syracuse, Time Elctrns.	315-432-0555
NY	Hauppauge, Sager Elec.	516-348-1300
NY	Hauppauge, Time Elctrns.	516-273-0100
NC	Raleigh, Sager Elec. Supp.	919-850-9550
PA	Mars, Sager Elec. Supp.	412-772-2233
PA	Philadelphia, Sager Elec. Supp.	215-464-4336
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Austin, Time Elctrns.	512-339-3054
TX	Carrollton, Capstone	214-347-4301

Components

MA	Norwood, Gerber Elect.	617-769-6000
MA	Peabody, Time Elect.	508-532-6200
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Milgray Elect.	516-420-9800
NY	Melville, Capstone Elec.	516-391-1300
OH	Cleveland, Pioneer Technlgs.	216-587-3600
TX	Houston, Sterling Elect.	713-623-6600

Systems

CA	Monrovia, Erik-A Elect	213-574-1020
IN	Indianapolis, Bell Inds./Graham Div.	317-634-8202
IA	Cedar Rapids, Deeco Inc.	319-365-7551
NY	Bohemia, Car-Lac Elect	516-567-4200
TX	El Paso, Ideal Elect	915-779-6647

Test Probes and Fixtures

AZ	Tempe, D.C. Elect Supp.	602-438-1234
CA	Costa Mesa, Hamilton Electro Sls.	714-641-1850
CA	Santa Clara, D.C. Elect. Supp.	408-980-1199
CA	Tustin, DC Elect Supp.	714-259-9066
IL	Addison, Pioneer	312-495-9680
IL	Chicago, Newark Elect	312-784-5100
MA	Waltham, Vector Sls.	617-893-7780
NJ	Union, Meridian Supp. Co.	800-648-8378, 201-687-6220
OR	Beaverton, Comp. Resources	503-641-8488
TX	El Paso, REM Elect. Supp.	915-778-7333
TX	Houston, Arrow Elctrns.	713-530-4700
WA	Redmond, Comp. Resources	206-454-8666

Test Probes and Fixtures

CT	Wallingford, Arrow Elctrns.	203-265-7741
CT	Wallingford, Sterling Elctrns.	203-265-9535
FL	Altamonte Springs, Pioneer/Technlgs.	305-834-9090
FL	Winter Pk., Hamilton/Avnet Elctrns.	305-628-3888
FL	Winter Pk., Milgray/Florida	305-647-5747

AUGAT/PYLON CO., INC., P.O. Box 2510, Attleboro Falls, MA 02763, Tel: 508-699-9800, TELEX: 948095; Empl.: 400; *Sls. Mgr.:* Gillis Mellon

AUGAT/RDI, 525 Randy Rd., Carol Stream, IL 60188, Tel: 708-682-4100, FAX: 708-682-4562; FSC No.: 53337; Empl.: 85; *Sls. Mgr.:* Jim Steranko, Mktg. Mgr.; *Dist. Mgr.:* Jim Steranko, Mktg. Mgr.

FAX: 612-493-1911

AULT, INCORPORATED, 7300 Boone Ave. N, Minneapolis, MN 55428, Tel: 612-493-1900; Empl.: 300; *Sls. Mgr.:* Greg Harris ..... **D•1618-1619**

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
CA	Santa Clara, Magna Sls.	408-727-8753
CT	Wallingford, Marathon Sls., LTD	203-663-2734
FL	Deerfield Bch., Sls. Engrg. Concepts Inc.	305-426-4601
GA	Atlanta, L & D, Inc.	404-395-7079
IL	Itasca, MSI	708-285-1000
IA	Des Moines, Beams Co.	515-255-1148
KS	Shawnee Mission, Beams Co.	913-631-0300
MA	Framingham, Marathon Sls., LTD	508-875-3566
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MN	Minneapolis, Cahill, Schmitz & Cahill	612-646-7217
MO	St. Louis, Beams Co.	314-434-8448
NJ	Fairfield, T.A.M.	201-575-4130
NC	Raleigh, L & D, Inc.	919-876-5301
OH	Beachwood, Elctrn. Salesmasters, Inc.	216-831-9555
OR	Portland, Jas. J. Backer Co.	503-627-0775
PA	Philadelphia, All-Tech Mktg.	717-540-1204
TX	Austin, R. F. Kimball Co.	512-443-5284
TX	Richardson, R. F. Kimball Co.	214-231-3447
WA	Seattle, Jas. J. Backer Co.	206-285-1300
Can	Toronto, Deskin Sls.	416-475-1412

Local Distributors

Can	Markham, Deskin Sls.	416-475-1412
CA	Van Nuys, Natl. Electro Sls. Corp.	800-423-2664
CO	Littleton, Lange Sls.	303-795-3600
MA	Sharon, Adcour	617-784-8123
MO	St. Charles, Finnigan Elctrns.	314-946-6201
OH	Cincinnati, Hughes Peters	513-351-2000
TX	Fort Worth, Allied Elctrns.	800-433-5700
UT	Salt Lake City, Std. Supp. Co.	801-453-3371
WA	Seattle, Radar Elec.	206-282-2511
Can	St. Laurent, Que., Tech-Rep Elctrns., Ltd.	514-331-2860

AURIC CORP., 470 Frelinghuysen Ave., Newark, NJ 07114, Tel: 201-242-4100, FAX: 201-242-5796; Empl.: 60; *Sls. Mgr.:* Michael Aleksinas

AUSTRIA MIKRO SYSTEME INTERNATIONAL, Schloss Premstaetten, Unterpremstaetten, Austria A-8141, Tel: (03136) 36 66-0, TELEX: 312547 AMS A, FAX: (03136) 2501, 3650; Empl.: 550; *Sls. Mgr.:* Mr. Wilfried Beie

AUSTRON, INC., See FTS Austron

AUTEC POWER SYSTEMS, 9301-101 Jordan Ave., Chatsworth, CA 91311, Tel: 818-341-6123, FAX: 818-341-5726; Empl.: 100; *Sls. Mgr.:* Jeanne Hirsch ..... **D•1620-1624**

Local Sales Offices & Reps

CA	Los Alamitos, Power Specialists, Inc.	213-594-9418
Can	Etobicoke, Ont., Canadian Mktg. Technlg.	416-740-4005
Can	Pointe Claire, Que., Canadian Mktg. Technlg.	514-694-6088

AUTOMATED PRODUCTION CONCEPTS, 63 Hillside Terrace, Wayne, NJ 07470, Tel: 201-831-8300, FAX: 201-633-7755; Empl.: 4

AUTOMATED PROD. EQUIP. CORP., 142 Peconic Ave., Medford, NY 11763, Tel: 516-654-1197, TWX: 510-228-2120, FAX: 516-289-4735; FSC No.: 57216; *Sls. Mgr.:* Arthur Ayala

AUTOMATIC COIL CORP., A DSG Company, 3545 N.W. 71st Street, Miami, FL 33147, Tel: 305-696-6660, FAX: 305-696-0626; FSC No.: 03765; Empl.: 245; *Sls. Mgr.:* Roger Millheim .. **A•1159-1163, 1495-1498, 2174**

Local Sales Offices & Reps

AL	Huntsville, Mountain Electro Mktg.	205-881-3937
CA	San Clemente, Com-Star	714-498-8722
CT	Glastonbury, Liberty Electro.	203-657-8023
FL	Spring Hill, Mountain Electro Mktg.	813-996-7653
GA	Norcross, Mountain Electro Mktg.	404-448-5594
IN	Indianapolis, Joe Keith	317-856-3619
KS	Kansas City, Hitec Central	816-796-6684
MA	Topsfield, Liberty Electro.	508-887-6655
MO	Bridgeton, Hitec Central	314-291-5920
MO	Bridgeton, HiTec Central	314-291-5920
NJ	Cherry Hill, Vantage Sls. Co.	609-424-6777
NJ	S.Orange, Kahgan Brody Assoc.	201-763-6038
NY	Hempstead, Kahgan Brody Assoc.	516-538-2300
TX	Plano, Corwin Assoc. Inc.	214-424-8333
NC	Raleigh, Mountain Electro Mktg.	919-878-8606
OK	Brethany, Design Mktg.	405-789-5911
PA	Pittsburgh, Catalyst Sls., Inc.	412-826-3434

AUTOMATIC SWITCH CO., 50-60 Hanover Road, Florham Park, NJ 07932, Tel: 1-201-966-2000, TELEX: 136422, FAX: 1-201-966-2628; Empl.: 1,200; *Sls. Mgr.:* Wayne Bouchard

AUTOMATIC SYSTEMS DEVELOPERS, P.O. Box 3210, Industry St., Poughkeepsie, NY 12603, Tel: 914-473-5530, FAX: 914-454-2538; Empl.: 650; *Sls. Mgr.:* Stanley Bachman

AUTOMATIC TIMING & CONTROLS CO., 201 So. Gulph Rd., King of Prussia, PA 19406, Tel: 215-337-5500, 800-441-8245, TELEX: 84-6437; Empl.: 300; *Sls. Mgr.:* R. L. Swanson ..... **D•1129**

Local Sales Offices & Reps

AZ	Chandler, Automation West	602-940-0884
CA	Gardena, Instrument Lab.	213-327-3282
CA	San Francisco, Instr. Lab	408-434-0160
CO	Englewood, E & M Sls.	303-761-6202
FL	Lakeland, A.A. Elec. Div.	813-665-6941
GA	Norcross, A.A.Electric Div. of AEC	404-449-8670
IL	Downers Grove, Rockford Controls	708-960-2046
KY	Louisville, Air-Hydro Power	502-451-1000
LA	New Orleans, Mid South Sls.	504-641-7480
MD	Baltimore, Jobe & Co.	301-288-0560
MA	Hingham, Hingham Bay Corp.	617-740-1900
MI	Brighton, H. H. Barnum Co.	313-229-2961
MN	Minneapolis, Daniel J. Minor Co.	612-885-0622
MO	Salina, Kriz Davis Co.	913-827-4497
MO	St. Louis, E. Mooney Co.	314-878-9910
NE	Omaha, Lakeland Engrg. Equipt.	402-734-2600
NJ	Newark, ATC	201-278-1121
NM	Albuquerque, E & M Sls.	505-883-8955
NY	Buffalo, Niagara Electric Sls.	716-825-3100
NY	Rochester, Niagara Electric Sls.	716-272-9150
NY	Syracuse, Niagara Elec. Sls.	315-437-1656
NC	Charlotte, Brown & Morrison	704-554-8570
OH	Cincinnati, Anderson-Bolds	513-528-5680
OH	Cleveland, Anderson-Bolds	216-360-9800
OK	Tulsa, Driscoll Auto. Control	918-663-6625
OR	Portland, Coons Western	503-295-0411
PA	King of Prussia, Applied Controls	215-265-3832
PA	Pittsburgh, Gilson Engrg. Sls.	412-369-0100
TX	Houston, GEA of Texas	713-781-3005
UT	Salt Lake City, Control Equip.	801-487-7741
VA	Richmond, Jobe & Co.	804-672-6508
WA	Everett, T&T Instr. Co.	206-742-9833
WI	Cedarburg, Automation Engrg.	414-377-7500

AUTOMATION DISPLAYS INC., 3533 N. White Ave., Eau Claire, WI 54703, Tel: 715-834-9595, FAX: 715-834-9596; Empl.: 21

AUTOMATION ELCTRNS., R.J.A. Inds., Inc., 9640 Topanga Cyn Pl. Bldg. J, Chatsworth, CA 91311, Tel: 818-998-5124, FAX: 818-998-6654; Empl.: 25; *Sls. Mgr.:* Robert J. Aiani

AUTOMATION PRODS., INC., 3030 Max Roy, Houston, TX 77008, Tel: 713-869-0361, TELEX: 775-959, FAX: 713-869-7332

AUTOMATIX INC., 755 Middlesex Turnpike, Billerica, MA 01821, Tel: 506-667-7900, FAX: 508-663-5482; Empl.: 92; *Sls. Mgr.:* Peter Mayek, Dir. of Sls.

AUTOMOTION, INC., 683 Airport Blvd., Ann Arbor, MI 48108, Tel: 313-662-7771, FAX: 313-662-3707; Empl.: 25; *Sls. Mgr.:* David E. Drenning ..... **B•1245**

Local Sales Offices & Reps

CA	Laguna Hills, South Rep	714-951-1084
CT	Seymour, Sturdy Corp.	203-888-1480
FL	Ft. Lauderdale, Motion Controls, Inc.	305-434-5682
MA	Wellesley Hills, Sturdy Corp.	617-235-2330
MN	Little Canada, Assured Sls.	612-482-1309
NH	Derry, Sturdy Corp.	603-434-8440
KS	Shawnee Mission, J.F. Gleeson & Assoc.	913-362-4422
NY	Sidney, Charles Co.	607-563-8064
MO	Florissant, J.F. Gleeson & Assoc.	314-921-8446
OR	Portland, Controltek, Inc.	503-641-0876
PA	Wexford, Intek Sys.	412-935-0440
TX	Richardson, Control Dynamics	214-644-6945
WA	Spokane, Controltek, Inc.	509-922-2971

AUTOROLL MACHINE CORPORATION, 11 River St., Middleton, MA 01949, Tel: 508-777-2160, TELEX: 940250, FAX: 508-777-9453; Empl.: 120

AUTOSPLICE, INC., 10121 Barnes Canyon Rd., San Diego, CA 92121, Tel: 619-535-0077, FAX: 619-535-0130; Empl.: 197; *Sls. Mgr.:* Ken Krone

AUTOSWAGE PRODUCTS, 726 River Rd., Shelton, CT 06484, Tel: 203-929-1401, FAX: 203-929-6187; Empl.: 170; *Sls. Mgr.:* R. D'Autrechy

Local Sales Offices & Reps

AZ	Phoenix, McKee & Assoc., Inc., I.	602-494-1020
CA	Glendale, Haldeman & Frazier	818-957-4554
CO	Arvada, Darrell Higgins & Assoc.	303-421-8601
IN	Greensburg, Comp. Resources	812-663-5608
MD	Upperco, Berwanger & Co.	301-374-5354
MI	Harper Woods, Wm. S. Turner & Co.	313-881-8585
MN	Minnetonka, Crum Co., Inc.	612-938-2573
MO	Maryland Heights, Meiners Sls.	314-739-1114
NY	Pittsford, Production Mktg. Grp.	716-248-5835
PA	Mechanicsburg, Par Assocs., Inc.	717-761-1797
SC	Fort Mills, Eagle Sales, Inc.	803-548-2222
TX	Arlington, Paine & Murray, Inc.	817-461-6331
WA	Bellevue, H.J. Sls. Co.	206-453-1957
Can	Candiac, Que., W. H. Elctrns. Registered	514-632-3685

AUTOTROL CORPORATION, P.O. Box 557, Crystal Lake, IL 60014, Tel: 815-459-3080, TELEX: 72-2417, FAX: 815-459-3227; Empl.: 140; *Sls. Mgr.:* Debora L. DeVries

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AVA ELECTRONICS CORPORATION, P.O. Box 184, 4000 Bridge St., Drexel Hill, PA 19026, Tel: 215-284-2500, TELEX: 3711411, FAX: 215-259-8379; Empl.: 100; *Dist. Mgr.:* Martin Bisk

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Local Sales Offices & Reps

CA	Westlake Vl, Avantek, Inc.	805-373-3870
IL	Palatine, Avantek, Inc.	708-358-8963
MD	Columbia, Avantek, Inc.	301-381-2600

Local Distributors

AZ	Tempe, Sertek, Inc.	800-334-7127
CA	San Diego, Insight Elctrns.	800-677-7716
CA	Sunnyvale, Penstock, Inc.	408-730-0300
CA	Westlake Vl, Sertek, Inc.	800-334-7127
FL	Ft. Lauderdale, Nu Horizons	305-735-2555
FL	Melbourne, Comp. Dists. Inc.	800-558-2351
IL	Palatine, Penstock Midwest	708-934-3700
MD	Beltsville, Applied Specialists, Inc.	301-595-5395
MD	Columbia, Nu Horizons	301-995-6330
MA	Wakefield, Nu Horizons	617-246-4442
NJ	Fairfield, Penstock-East	201-808-1414
NJ	Marlton, Nu Horizons	215-557-6540
NJ	Pinebrook, Nu Horizons	201-882-8300
NY	Amityville, Nu Horizons	516-226-6000
NY	Rochester, Nu Horizons	716-248-5980
NC	Raleigh, Comp. Dists. Inc.	919-859-3391
PA	Ardmore, Penstock East	201-808-1414
TX	Dallas, Insight Elctrns.	800-677-7716
TX	Dallas, Thorson Distbg. Co.	214-233-5744
WA	Bellevue, Penstock, Inc.	206-454-2371
Can	Sertek, Inc.	800-548-0409

AVANTI CIRCUITS, INC., 17650 N. 25th Ave., Phoenix, AZ 85023, Tel: 1-800-234-1556, FAX: 1-602-375-1909; Empl.: 65; *Sls. Mgr.:* Steve Tappan

AVASEM CORPORATION, 1271 Parkmoor Ave., San Jose, CA 95126, Tel: 408-297-1201, FAX: 408-925-9460; Empl.: 55; *Sls. Mgr.:* Richard Konrad

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AVEL-LINDBERG INC., 5 Old Town Park Rd., Unit 47, New Milford, CT 06776, Tel: 203-355-4711, FAX: 203-354-8597; Empl.: 225; *Sls. Mgr.:* Melanie B. Roman ..... **A•2175-2177; D•1625**

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CT	Wallingford, Sager Elctrl. Supp. Co.	203-265-4600
MA	Hingham, Sager Elctrl. Supp. Co.	617-749-6700
MA	Hingham, Sager Electrical Supp. Co.	617-749-6700

AVENS CORP., 256 Lincoln Ave., Brooklyn, NY 11208, Tel: 718-827-5991, 800-452-1966, FAX: 718-235-9805; Empl.: 15; *Sls. Mgr.:* Peter Eng ..... **A•1658-1660**

AVEX ELECTRONICS, 1683 Winchester Rd., P.O. Box 1026, Bensalem, PA 19020, Tel: 215-638-1515, 800-345-1295, FAX: 215-638-9108; FSC No.: 58414; *Sls. Mgr.:* Dona Logan; *Dist. Mgr.:* Michael S. Batley VP/GM ..... **D•1431-1433**

Local Sales Offices & Reps

CO	Denver, Tessco	303-778-1119
IL	Cary, Bob Burns Assoc.	708-516-3322
IN	Carmel, New Era	317-844-4530
NM	Albuquerque, Genl. Mktg.	505-892-3426
PA	Philadelphia, Allpower Tech.	215-289-6025
TX	Rowlett, Campion Sls.	800-877-7623

AVIBANK MANUFACTURING, INC., 210 S. Victory Blvd, P.O. Box 391, Burbank, CA 91503-0391, Tel: 818-843-4330, TWX: 910-498-2215; FSC No.: 84256; Empl.: 485; *Sls. Mgr.:* D. Ladin

FAX: 908-382-4996

AVIONIC INSTRUMENTS, 1414 Randolph Ave., Avenel, NJ 07001, Tel: 201-388-3500, 908-388-3500, TELEX: 844413; Empl.: 160; *Sls. Mgr.:* Bryce Wiedeman; *Dist. Mgr.:* Mike Barnaba ..... **D•2160-2166**

Local Distributors

NJ	Avenel, REA Intl. Ltd.	201-382-7100

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AVTECH ELECTROSYSTEMS LTD., P.O. Box 5120, Stn. F, Ottawa, Ontario, Canada K2C 3H4, Tel: 613-226-5772; Empl.: 8 ..... **D•1222**

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MA	Westford, ICS Assocs, Inc.	508-692-3545
NM	Albuquerque, Tech. Mktg. Specialists	505-884-3444
NY	Ogdensburg, Avtech Electrosystems Ltd.	315-472-5270
Can	Ottawa, Ont., Avtech Electrosystems Ltd.	613-226-5772

AVTEL DIV., UNITRON INC., 10925 Miller Rd., Dallas, TX 75238, Tel: 214-340-8600, TELEX: 882511, FAX: 214-341-2099; FSC No.: 6130; Empl.: 75; *Sls. Mgr.:* Fred Cullum

AVX CORPORATION, Box 867, Myrtle Bch., SC 29577, Tel: 803-448-9411, TWX: 810-661-2252, FAX: 803-626-2442; FSC No.: 9K916; *Sls. Mgr.:* Allan Cole; *Dist. Mgr.:* Robert Burns

AVX FILTERS CORP., 11144 Penrose St., Sun Valley, CA 91352, Tel: 818-767-6770, TWX: 910-498-4998; FSC No.: 59942; Empl.: 210; *Sls. Mgr.:* Terry Cantine, Prod. Mktg. Mgr.

AXEL ELECTRONICS, INC., 134-20 Jamaica Ave., Jamaica, NY 11418, Tel: 718-291-3900, FAX: 718-526-0248; FSC No.: 13058; Empl.: 160; *Sls. Mgr.:* J. Alaimo, VP Sls.

NORMAN N. AXELROD ASSOCS.: ELECTRO-OPTICAL, LASER, & MACHINE VISION DIV., 445 East 86th Street, New York, NY 10028, Tel: 212-228-0900

AXIAL MAGNETICS, Tencal Inc., 450 W. Los Angeles Ave., Simi Valley, CA 93065, Tel: 805-527-0900, FAX: 805-527-4968; *Sls. Mgr.:* K. G. Kroll

AXIS CORPORATION, 4715 Viewridge Ave.,Ste. 110, San Diego, CA 92123, Tel: 619-560-7737, FAX: 619-560-8260; FSC No.: 9S849; Empl.: 21; *Sls. Mgr.:* Mark J. Prager; *Dist. Mgr.:* Jack Robinson

AYDIN CORP., 700 Dresher Rd., Horsham, PA 19044, Tel: 215-657-7510, TELEX: 685-1211, FAX: 215-657-3830; Empl.: 2,000; *Sls. Mgr.:* B. Jack Miller

AYDIN CORPORATION (WEST), 30 Great Oaks Boulevard, San Jose, CA 95119-1371, Tel: 408-629-1100, TWX: 910-373-1238, FAX: 408-224-4625; FSC No.: ZV23-1686808; *Sls. Mgr.:* R. Hartung; *Dist. Mgr.:* D. Rutledge

AYDIN VECTOR DIV., Aydin Corp., Box 328, Newtown, PA 18940-0328, Tel: 215-968-4271, TWX: 510-667-2320, FAX: 215-968-3214; FSC No.: 13923; Empl.: 400

AZCO CORP., 385 Falmouth Ave., Elmwood Park, NJ 07407, Tel: 201-791-1428, FAX: 201-791-8420; Empl.: 11

AZIMUTH ELECTRONICS, INC., 2605 So. El Camino Real, San Clemente, CA 92672, Tel: 714-492-6481, FAX: 714-492-0744; *Sls. Mgr.:* Kenneth C. Johnsen

A/Z-TECH, INC. R&D LAB, Indiana Institute of Technlg., 1600 East Washington Blvd., Fort Wayne, IN 46803, Tel: 219-422-5561, FAX: 219-422-7696; Empl.: 25

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FAX: 602-844-9625

AZTEC INDUSTRIES, INC., 333 S. Nina Drive, Mesa, AZ 85210, Tel: 602-833-3131, 800-729-3132; Empl.: 40; *Sls. Mgr.:* Anthony G. Shumway ..... **B•1799**

Local Sales Offices & Reps

CA	San Jose, Landia Sls. Grp.	408-453-5695 FAX:408-453-569
IL	Glendale Heights, Synergistic Sls., Inc.	708-858-868
KS	Shawnee Mission, Marc E. Nelson Assoc.	913-268-909
NE	Omaha, Label Concepts	402-496-399 FAX:402-496-385
TX	Dallas, Kay Todd Assocs.	214-458-883 FAX:214-458-883
WI	Mukwanago, Synergistic Sls., Inc.	414-363-20

BABCOCK, INC., 1717 West Collins Ave., Orange, C 92667, Tel: 714-633-3700, TWX: 910-595-1517, FAX: 71 538-9740; FSC No.: 56623; Empl.: 270; *Sls. Mgr.:* Bos White; *Dist. Mgr.:* Bosie White ..... **B•10**

Local Distributors

CA	Santa Ana, Norstan Elctrns.	714-667-78

BABCOCK DISPLAY PRODUCTS, INC., Subsidiary of Babcock, Inc., 1051 S. East Anaheim, CA 92805, Tel: 714-491-5100, TELEX: 2496 FAX: 714-490-1368; Empl.: 150; *Sls. Mgr.:* Bi Lundstram ..... **B•1**

BACON INDUSTRIES, 192 Pleasant St., Watertown, MA 02172-2399, Tel: 617-926-2550, TWX: 710-327-6518, FAX: 617-926-2022; FSC No.: 99098; Empl.: 25; *Sls. Mgr.:* R. S. Cass

BAILEY CONTROLS CO., 29801 Euclid Ave., Wickliffe, OH 44092, Tel: 216-585-8500, TELEX: 980621, FAX: 216-944-4160; Empl.: 2300

BAKER CO., INC., Drawer E - Sanford Airport, Sanford, ME 04073, Tel: 1-800-992-2537; Empl.: 150

BAKNOR INDUSTRIES INC., 2209 Dunwin Drive, Mississauga, Ont., Canada L5L 1X1, Tel: 416-828-2400, FAX: 416-828-5500; Empl.: 25; *Sls. Mgr.:* M. E. Sawicki

BALDOR ELECTRIC COMPANY, P.O. Box 2400, Fort Smith, AR 72902, Tel: 501-646-4711, TELEX: 53-7425, FAX: 501-648-5792; Empl.: 2000; *Sls. Mgr.:* Harold Kosten V.P., Sls.

BALLANTINE LABORATORIES, Noise Unlimited Inc., 9 Saddle Rd., Cedar Knolls, NJ 07927, Tel: 201-984-1900, FAX: 201-984-1479; FSC No.: 50423; Empl.: 30; *Sls. Mgr.:* Joe Deery; *Dist. Mgr.:* Joe Deery

BALLARD TECHNOLOGY, 1216 NW 75th Street, Seattle, WA 98117, Tel: 206-782-8704, FAX: 206-782-8174; Empl.: 7; *Sls. Mgr.:* Kevin S. Christian

BALLCO INC., P.O. Box 1078, Snellville, GA 30278-1078, Tel: 404-979-5900, FAX: 404-979-3785; Empl.: 49; *Sls. Mgr.:* W. Kann

BALL CORP., EFRATOM DIVISION, 3 Parker, Irvine, CA 92718-1605, Tel: 714-770-5000, TELEX: 68-5635, FAX: 714-770-2463; Empl.: 225 ..... **A•1307**

Local Sales Offices & Reps

CA	Los Altos, Kolm Mktg. Assoc.	415-948-2635
CO	Parker, Howard Assoc.	303-841-5755
FL	Sarasota, Bass Assocs.	813-922-9538
GA	Atlanta, Beacon Microwave	404-256-9640
IN	Fort Wayne, TX Sls. Indiana	219-489-4447
MA	Natick, Wayland Engrg. Sls.	617-655-6080
NM	Albuquerque, Mayco, Inc.	505-299-4002
NY	Huntington, CDB Entprs.	516-692-5200
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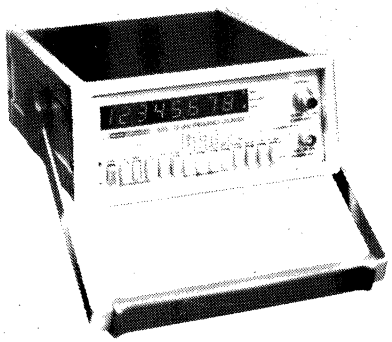

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BAMBECK SYSTEMS INC., 1921 E. Carnegie Ave., Santa Ana, CA 92705, Tel: 714-250-3100, 800 334-3101, FAX: 714-757-1610; Empl.: 25; *Sls. Mgr.:* Robert Bambeck

B & B MOTOR & CONTROL CORP., B & B Long Island City, 1967 State Hwy 27 Ste. 32, Edison, NJ 08817, Tel: 908-819-7070, 908-572-0500, FAX: 908-819-7010; Empl.: 90; *Sls. Mgr.:* Thomas Miceli

BAND-IT - IDEX, INC., 4799 Dahlia Street, Denver, CO 80216, Tel: 303-320-4555, TELEX: 45-0009, FAX: 303-333-6549; *Sls. Mgr.:* Terry L. Joles; *Dist. Mgr.:* Enrique J. Martinez

B & K PRECISION, Maxtec International Corp, 6470 W. Cortland, Chicago, IL 60635, Tel: 312-889-1448, FAX: 312-794-9740; FSC No.: 08098, 18110, 48560, 30678; Empl.: 200; *Sls. Mgr.:* Richard Polak ..... **D•1223-1225, 1407, 1626**

Local Sales Offices & Reps

AR	Mabelville, Erickson Sls., Inc.	501-455-0618
CA	Santa Ana, Mike Roth Sls.	714-647-0606
CO	Denver, The Lindberg Co.	303-758-9033
FL	Altamonte Springs, Dynamic Mktg.	407-788-1878
GA	Tucker, Maitland K. Smith	404-939-3322
IL	Arlington Hgts., Brainard-Nielsen Mktg.	312-437-2700
IN	Huntington, Elctrn. Reps. Inc.	219-356-3513
IN	Indianapolis, Elctrn. Reps. Inc.	317-894-1414
LA	Chalmette, Erickson Sls.	504-271-1976
MD	Edgewood, Electra-Tech	301-676-2254
MA	Woburn, W & D Mktg.	617-935-5610
MI	Farmington Hills, Rathsburg Assoc.	313-489-1500
NJ	Medford, Champion Elctrn. Sls. Co.	609-983-0807
NY	Bellmore, Selectra Sls.	516-221-7865
NY	Fairport, Senn Tec Sls. Corp.	716-425-3954
OH	Cleveland, Marlow Assocs.	216-991-6500
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PA	Pittsburgh, Marlow Assocs.	412-343-5050
TX	Dallas, Erickson Sls.	214-739-5833
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BARBER-COLMAN CO., Indl. Instrs. Div., P.O. Box 7040, 555 Colman Center Dr., Rockford, IL 61125-7040, Tel: 815-877-0241, TELEX: 4330183 BCEC, FAX: 815-877-0299; Empl.: 5000; *Sls. Mgr.:* David Boxall

BARBER COLMAN CO. (A SIEBE CO.), Motor Division, P.O. Box 7040, Rockford, IL 61125-7040, Tel: 815-397-7400, TELEX: 4330183, FAX: 815-398-3885; Empl.: 300; *Sls. Mgr.:* Manny Amato

BARKSDALE CONTROLS DIV., Imo Industries Inc., 3211 Fruitland Ave., P.O. Box 58843, Los Angeles, CA 90058, Tel: 213-589-6181; Empl.: 234; *Sls. Mgr.:* J. Douglas Holland

BARNES ENGINEERING, 1645 So. Claudina Way, Anaheim, CA 92805, Tel: 714-533-7530; FSC No.: 53823, SIC 3400; Empl.: 47; *Sls. Mgr.:* Gordon Mackenzie

BARNES ENGINEERING DIV., EDO Corporation, 88 Long Hill Cross Rds., Shelton, CT 06484, Tel: 203-926-1777, TELEX: 6819115, FAX: 203-926-9285; Empl.: 250; *Sls. Mgr.:* M. L. Marusic ..... **A•1357**

BARR ASSOCIATES, INC., 2 Lyberty Way, Westford, MA 01886, Tel: 508-692-7513, TELEX: 710-347-0657, FAX: 508-692-7443; FSC No.: 65808; Empl.: 81; *Sls. Mgr.:* Jack Bosch; *Dist. Mgr.:* Jack Bosch

BARRINGTON PLASTICS, 3838 Church Road, Mt. Laurel, NJ 08054, Tel: 609-235-5151, FAX: 609-778-9032; Empl.: 120; *Sls. Mgr.:* Gary Brown

BARSOM INC., See IR Scientific

BARTLETT INSTRUMENT CO., 14th & Ave. 'M', P.O. Box 445, Ft. Madison, IA 52627, Tel: 319-372-8366; Empl.: 10; *Sls. Mgr.:* David P. Bartlett

BAS BLEU INDL. CO., LTD., Rm. 815, No.110, Han-Kow ST., Sec.1, Taipei, Taiwan 10008, Tel: (02)331-6519, TELEX: 23015 HJIC, FAX: 886-2-381-6812; Empl.: 20; *Sls. Mgr.:* Athena W.R. Lo, VP

BASCOM-TURNER INSTRUMENTS, 111 Downey St., Norwood, MA 02062, Tel: 617-769-9660, TELEX: 92-2413, FAX: 617-551-0283; Empl.: 35; *Sls. Mgr.:* D. Weise

BASIC ELECTRONICS, INC., 11762 Western Ave. "Q", Stanton, CA 90680, Tel: 714-530-2400; Empl.: 50; *Sls. Mgr.:* Tom Jones; *Dist. Mgr.:* Tom Jones

BASIC MEASURING INSTRUMENTS, 335 Lakeside Dr., Foster City, CA 94404, Tel: 415-570-5355, TWX: 910-374-3059, FAX: 415-574-2176; Empl.: 90; *Sls. Mgr.:* John DiGiralimo

BASICON, INC., 14273 NW Science Park Drive, Portland, OR 97229, Tel: 503-626-1012, FAX: 503-643-4686

BASIC SYSTEMS, See J. L. Moon & Co.

Basler Electric
Electronic Product Group

FAX: 618-654-2351

BASLER ELEC., Electronic Product Group, Rte. 143, Highland, IL 62249, Tel: 618-654-2341, 800-645-2074, TWX: 510-100-3841; Empl.: 1299; *Dist. Mgr.:* Dennis Faires ..... **D•1627**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech Sls. Engrg. Co.	205-880-0592
AZ	Tempe, Trembly Assoc., Inc.	602-967-2058
CA	Newburg Pk., S. P. A., Inc.	805-499-4510
CA	Newport Beach, S.P.A. Inc.	714-863-1193
CA	Santa Clara, Sourcetronics, Inc.	408-988-8801
CA	Torrance, Printed Circuit Board Specialists	213-320-3022
CO	Wheat Ridge, Trembly Assocs., Inc.	303-421-8900
CT	Woodbury, Power Factor & Assocs.	203-264-9812
FL	Ft. Lauderdale, Sunland Assoc.	305-561-1303
FL	Largo, Sunland Assoc.	813-536-2955
FL	Winter Springs, Sunland Assocs.	407-365-9533
GA	Norcross, Electro Mech Sls. Engrg. Co.	404-447-6478
IL	Chicago, G. Mcl. Cole Co.	708-692-6040
IA	Cedar Rapids, Thomas L. Dowell & Assoc., Inc.	319-364-3880
KS	Overland, Thomas L. Dowell & Assocs., Inc.	913-599-1100
MD	Glen Burnie, Faion Lott Co.	301-744-4611
MA	Braintree, R. F. Duffy Assocs.	617-848-3550
MA	Monson, R. F. Duffy Assocs.	413-267-9884
MA	Whitinsville, Power Factor & Assocs.	508-234-6415
MI	Ypsilanti, Meta Tech Sls. Inc.	313-485-0553
MN	St. Paul, Arkco Sls.	612-777-7454
MN	New Ulm, Arkco Sls.	507-354-7566
MO	St. Louis, Thomas L. Dowell & Assoc., Inc.	314-849-4234
NV	Las Vegas, Trembly Assoc., Inc.	702-739-9770
NJ	Cherry Hill, L. H. Walke Co.	609-424-3766
NJ	Glassboro, L. H. Walke Co.	609-863-0496
NJ	Newton, T & K Sls.	201-579-7654
NJ	Upper Montclaire, T & K Sls.	201-783-3112

NM Albuquerque, Trembly Assoc., Inc. 505-266-8616
NY Smithtown, T & K Sls. 516-724-3456
NY Canandaigua, Mamula Sls. 716-394-5560
NY Memphis, Aero Sls. Co. 315-635-1481
NY Schnectady, MSI Tech Sls. 518-346-7136
NC Raleigh, Electro Mech. Sls. Engrg. Co. 919-790-9300
OH Aurora, Meta Tech. Sls., Inc. 216-562-8772
OH Hillsboro, J. P. Woods & Assocs. 513-393-9582
OH Maineville, J. P. Woods & Assocs. 513-677-8352
PA Exton, Linear Sls. 215-524-8080
PA Pittsburgh, Gormley Elec. Co. 412-795-8010
TX Dallas, Weisler & Assoc., Inc. 214-437-2386
TX Houston, Weisler & Assoc., Inc. 713-467-1847
UT N. Salt Lake City, Trembly Assocs. 801-295-4703
VA Ashland, Glasscock & Assoc. 804-798-2125
WA Chattaroy, Elctrn. Mktg. Grp. 509-238-6307
WA Redmond, Elctrn. Mktg. Grp. 206-882-0962
WA Vancouver, Elctrn. Mktg. Grp. 206-254-4572
PR Rio Piedras, Klamco Elctrns. 809-752-6225

+ PRIMACELL –
High Energy Lithium Battery

FAX: 617-361-1835

BATTERY ENGINEERING, INC., 1636 Hyde Park Ave., Hyde Park, MA 02136, Tel: 617-361-7555; FSC No.: 60289; Empl.: 50; *Sls. Mgr.:* R. Yetman .... **D•1435**

Distributor

BATTERY SPECIALTIES
3530 Cadillac Avenue
Costa Mesa, CA 92626

FAX: 714-755-0889

BATTERY SPECIALITIES, 3530 Cadillac Ave., Costa Mesa, CA 92626, Tel: 714-755-0888, 1-800-352-3706 (Toll free in CA); Empl.: 30; *Sls. Mgr.:* Michael Meurer; *Dist. Mgr.:* Michael Meurer .... **D•1438**
....662, 668, 685, 766, 777, 794

BAXTER-INDUSTRIAL DIVISION, 27200 N. Tourney Rd., Valencia, CA 91355, Tel: 805-253-7466, FAX: 805-253-7466; Empl.: 50; *Sls. Mgr.:* Dick Brown

BAYLEY INSTRUMENT COMPANY, Box 357, Kenwood, CA 95452, Tel: 707-833-6014

BAYSTAT, Bay Packaging & Converting Co., Inc., 3575 Haven Ave., Menlo Park, CA 94025, Tel: 415-364-3205, FAX: 415-363-8079; Empl.: 100; *Sls. Mgr.:* James V. Travis

BAYTRON, See M/A-Com Millimeter Products Inc.

B C SYSTEMS, INC., 200 Terminal Road, Setauket, NY 11790, Tel: 516-751-9370, FAX: 516-751-9378; Empl.: 50; *Sls. Mgr.:* G. Blazek

BEAD ELECTRONICS, Div. Bead Industries, Inc., 110 Mountain Grove St., P.O. Box K, Dept. 100, Bridgeport, CT 06605-0571, Tel: 203-334-4124, FAX: 203-367-9957; Empl.: 175; *Sls. Mgr.:* Keith Lebo

BEA ELECTRO-OPTICS, INC., 640 Pearson, Ste. 200, Des Plaines, IL 60016, Tel: 708-298-1420, FAX: 708-298-1423; *Sls. Mgr.:* George E. Magerl; *Dist. Mgr.:* Vic Halkyn

BEARING INSPECTION, 10041 Shoemaker Ave., Santa Fe Springs, CA 90670, Tel: 213-944-6251, FAX: 213-946-9670; Empl.: 31

BEAU PRODUCTS DIV., Vernitron Corp., Box 10, Laconia, NH 03247, Tel: 603-524-5101, FAX: 603-524-1627; FSC No.: 13150; Empl.: 165; *Sls. Mgr.:* Wayne Eshelman; *Dist. Mgr.:* Larry Murphy .... **C•1292-1294**

Local Sales Offices & Reps
AL Huntsville, Electro-Mech Sls. Engrg. 205-880-0592
AZ Phoenix, Shelfer-Kahn 602-257-9015
CA Anaheim, Westrep 714-527-2822
CA Santa-Clara, Westrep 408-988-8833
CO Englewood, Delltron 303-741-2122
GA Norcross, Electro-Mech Sls. Engrg. 404-447-6478
IL Lisle, W-G Controls 312-963-5954
MD Sykesville, DVS Co. 301-781-4080
MN Minneapolis, PSI 612-944-8545
MO St. Louis, KKB & Co. 314-647-2400
NH Amherst, D.A.Crowley & Assoc. 603-673-7050
OK Tulsa, Comptech Sls. Inc. 918-622-7744
NJ Lawrenceville, DVS Co. 609-896-1112
NJ W. Caldwell, Grimm Siegel & Assoc. 201-575-9300
NY Syracuse, Pi'tronics, Inc. 315-455-7346
NC Raleigh, Electro-Mech Sls. Engrg. 919-790-9300
OH Beechwood, Electronic Salesmasters Inc. 216-831-9555
OR Beaverton, Pacific Mktg. Specialist, ... 503-641-9373
TX Irving, Comtech Sls. Inc. 214-751-1181
WA Redmond, Pacific Mktg. Specialists, ... 206-882-3144

BEAU TECH, 98 Elm Street, Portland, ME 04101, Tel: 207-775-6139, TELEX: 950-027 Attn Beau, FAX: 207-775-7710; Empl.: 6; *Sls. Mgr.:* Jean M. Wong, Credit Mgr.; *Dist. Mgr.:* Barbara Pike

BEAVER LABS, P. O. Box 202, Kingston, MA 02364, Tel: 617-585-5666; Empl.: 5

BEC INC./CERTIFIED CALIBRATION LABS, 945 Horsham Rd., Horsham, PA 19044, Tel: 800-523-3808, FAX: 215-675-0966,800-523-3808; Empl.: 13; *Sls. Mgr.:* Herb Miller

Beckman Industrial
Affiliate of Emerson Electric Co

FAX: 714-447-2400

BECKMAN INDUSTRIAL CORP., Affiliate of Emerson Electric Co., 4141 Palm Street, Fullerton, CA 92635, Tel: 714-447-2300, TELEX: 7607569; Empl.: 1900; *Sls. Mgr.:* Ron Sullivan, Sls. & Mktg. V.P. .... **A•1847, 2016-2017**

Local Sales Offices & Reps
AL Huntsville, Elctrn. Sls., Inc. 205-533-1735
AZ Scottsdale, Thom Luke Sls. 602-941-1901
CA Escondido, Clint Bradley Sls. 619-743-0138
CA Santa Ana, Jones & McGeoy Sls. 714-547-6466
CA Santa Clara, Criterion Sls. 408-988-6300
CO Littleton, Simpson Assocs. 303-794-8381
CT Cheshire, Datatrack Engrg., Inc. 203-271-1311
FL Ft. Lauderdale, QXI, Inc. 305-978-0120
FL St. Petersburgh, QXI, Inc. 813-894-4556
GA Norcross, Elctrn. Sls., Inc. 404-448-6554
IL Elk Grove Village, Carlson Elctrn. Sls. Co. 708-956-8240
IN Indianapolis, Precision Elec. Comp. 317-842-3740
IA Cedar Rapids, Carlson Elctrns. 319-378-1450
KS Overland Park, Electri-Rep, Inc. 913-649-2168
MD Columbia, Robert Elctrn. Sls. 301-995-1900
MA Farmingham, Gallagher Assoc. 508-626-2346
MI Brighton, A.P. Assoc. 313-229-6550
MN Minneapolis, Comstrand, Inc. 612-788-9234
MO St. Louis, Electri-Rep 314-993-4421
NJ Fairfield, Tech. Applications & Mktg., Inc. 201-575-4130
NM Albuquerque, Reptronix, Ltd. 505-292-1718
NY Fairport, LamTec Sls. Corp. 716-377-1210
NY Manlius, LamTec Sls. Corp. 315-682-4780
NC Cary, Electronic Sls., Inc. 919-467-8486
NC Charlotte, Electronic Sls. Inc. 704-543-8705
OH Centerville, Omega Sls., Inc. 513-434-5507
OH Cleveland, Omega Sls., Inc. 216-751-9600
OR Portland, Venture Elctrns., Inc. 503-624-0617
PA Trevose, Omega Sls. 215-947-4135
TX Austin, Norcom, Inc. 512-451-2757
TX Dallas, Norcom, Inc. 214-386-4888
TX Houston, Norcom, Inc. 713-778-0392
UT Midvale, Simpson Assoc. 801-566-3691
WA Bellevue, Venture Elctrns., Inc. 206-454-4594
WI Milwaukee, Carlson Elctrn. Sls. Co. 414-476-2790
Can Bramptom, Ont., Designtronics 416-793-5155
Can Pointe Claire, Que., Designtronics 514-695-3124
Can Richmond, B.C., Blakewood Elctrn. Sys., Inc. 604-273-9910

BECKMAN INDUSTRIAL CORP., An Affiliate of Emerson Elec. Co., 3883 Ruffin Road, San Diego, CA 92123-1898, Tel: 619-495-3200, TELEX: 249031, FAX: 619-268-0172

BECKMAN INSTRS., HELIPOT DIV., See Beckman Instrs., Electro-Prods. Grp.

BEEDE ELECTRICAL INSTRUMENT CO., INC., S. Main St., Penacook, NH 03303, Tel: 603-753-6362, FAX: 603-753-6201; FSC No.: 06555; Empl.: 620; *Sls. Mgr.:* Dan Russell; *Dist. Mgr.:* Brenda Beaudet

BEHLMAN

FAX: 805-642-0790

BEHLMAN ELECTRONICS, INC., 2021 Sperry Ave.,No. 18, Ventura, CA 93003, Tel: 805-642-0660; FSC No.: 53636; *Sls. Mgr.:* Jerry Zechmeister .... **D•2168-2175**

Local Sales Offices & Reps
CA Carson, Tritek Solutions, Inc. 213-515-1590, FAX:213-515-7007
CA San Carlos, WDI ... 415-591-6535,FAX:415-591-9180
FL Melbourne, Reynolds & Assocs. 407-259-7000, FAX:407-242-8031
IL Wheeling, Ed Joyner & Co. 312-520-1200, FAX:312-520-7927
IN Fishers, R & D 317-849-2026
KS Lenexa, Midtec Assocs. 913-541-0505, FAX:913-541-1729
MN Eden Prairie, Professional Mktg. Svcs. Inc. 612-934-5939,FAX:612-934-9433
NH Nashua, Intersell ... 603-880-6500,FAX:603-595-0050
NY Fayettsville, Martin P. Andrews 315-637-5291, FAX:315-637-9734
NY Great Neck, Industron Assocs. 516-487-2620, FAX:516-482-6698
OH Cleveland, Technical Sls. Assocs. 216-461-0826, FAX:216-461-5811
PA Doylestown, Tech. Instr. Sls. 215-345-4110, FAX:215-345-4138
TX Dallas, The Thorsen Co. S.W. 214-233-5744, FAX:214-702-0993
WA Seattle, Datacom Assocs. 206-285-2525, FAX:206-285-0772

BEI

FAX: 619-931-1212

BEI MOTION SYSTEMS COMPANY, Corporate Off., 2111 Palomar Airport Rd., Ste. 250, Carlsbad, CA 92009, Tel: 619-931-1500, TWX: 910-380-5402; Empl.: 20 .... **B•1879-1881**

Local Sales Offices & Reps
CA Garden Grove, BEI Motion Sys. Co. 714-534-5830
CA San Rafael, BEI Motion Sys. Co. 415-492-2840
CO Westminster, BEI Motion Sys. Co. 303-426-1566
FL Clearwater, BEI Motion Sys. Co. 813-791-6043
IL Rockford, BEI Motion Sys. Co. 815-968-9528
MA Needham Hgts., BEI Motion Sys. Co. .. 617-455-1414
MA Norwell, BEI Motion Sys. Co. 617-878-9820
MI Plymouth, BEI Motion Sys. Co. 313-451-0359
NJ Parsippany, BEI Motion Sys. Co. 201-984-5600
OH Cincinnati, BEI Motion Sys. Co. 513-232-4545
OR Beaverton, Thorson Co. NW 503-644-5900
PA Lancaster, BEI Motion Sys. Co. 717-299-6243
TX Cleburne, BEI Motion Sys. Co. 817-556-2211
WA Bellevue, Thorson Co. Northwest 206-455-9180
Can Willowdale, Willer Engrg., Ltd. 416-499-4421

BEI MOTION SYSTEMS COMPANY, Computer Products Div., 1755 B La Costa Meadows Dr., San Marcos, CA 92069, Tel: 619-471-2600, TWX: 910-333-4534, FAX: 619-471-2675; *Sls. Mgr.:* Hank Robinson .... **B•1879**

Refer to BEI Motion Sys. Co., Corporate Off. Carlsbad, CA for sales off. info.

BEI MOTION SYSTEMS COMPANY, Digital Products Div., P.O. Box 3838, Little Rock, AR 72203, Tel: 501-851-4000, TWX: 910-722-7384, FAX: 501-851-5476; *Sls. Mgr.:* Mike Jumper .... **B•1879**

Refer to BEI Motion Sys. Co., Corporate Off., Carlsbad, CA for sales office information.

BEI MOTION SYSTEMS COMPANY, Industrial Encoder Div., 7230 Hollister Ave., Goleta, CA 93117, Tel: 805-968-0782, TELEX: 888069, FAX: 805-968-3154; *Sls. Mgr.:* Glenn Avolio .... **B•1879**

Refer to BEI Motion Sys. Co., Corporate Off., Carlsbad, CA for sales office information.

BEI MOTION SYSTEMS COMPANY, Itek Encoder Div., 178 A Street, Needham Hgts., MA 02194, Tel: 617-455-1414, FAX: 617-455-6514; *Sls. Mgr.:* Marvin Kansky .... **B•1879-1881**

Refer to BEI Motion Systems Co., Corporate Off., Carlsbad, CA for sales office info.

BEI MOTION SYSTEMS COMPANY, Kimco Magnetics Div., 150 Vallecitos de Oro, San Marcos, CA 92069, Tel: 619-744-5671, TWX: 910-322-1168, FAX: 619-744-8815; *Sls. Mgr.:* Mike Lopez ..... **B•1879**

Refer to BEI Motion Systems Co., Corporate Off., Carlsbad, CA for sales office info.

BEI MOTION SYSTEMS COMPANY, Chatsworth Encoder Div., 9223 Deering Avenue, Chatsworth, CA 91311, Tel: 818-341-6161, FAX: 818-882-4553; *Sls. Mgr.:* Ken Rendler ..... **B•1879**

Refer to BEI Motion Sys. Co., Corporate Off.,Carlsbad, CA for sales office information.

BELDEN WIRE AND CABLE COOPER INDS., See Cooper Industries/Belden

bel BEL FUSE INC.

FAX: 201-432-9542

BEL FUSE, 198 Van Vorst St., Jersey City, NJ 07302, Tel: 201-432-0463; Empl.: 225; *Sls. Mgr.:* A. Sutta; *Dist. Mgr.:* Dennis Ackerman ..... **A•1492, 1499-1528, 2178-2181; B•1346, 1352-1355; D•1629-1630**

Local Sales Offices & Reps

CA	Irvine, Groh Assoc.	714-837-9871
FL	Maitland, D.J. Ellis & Assoc.,Inc.	407-645-1101

Fuses

AL	Huntsville, Beacon Elect.	205-881-5031
CA	Irvine, Groh Assocs.	714-837-9871
CA	Redwood City, James S. Heaton Co.	415-367-9000
FL	Maitland, Beacon Elect.	305-647-3498
FL	Boca Raton, Beacon Elec.	305-997-5740
IL	Chicago, LTD	708-773-2900
FL	Clearwater, Beacon Elect.	813-769-2378
FL	Melbourne, Beacon Elect.	305-724-8010
GA	Atlanta, Beacon Elect.	404-256-9640
ID	Boise, N.R. Schultz Co.	208-377-8686
MN	St. Paul, Northport Engrg.	612-457-8000
IN	Indianapolis, Insul. Reps., Inc.	317-251-1994
KS	Leawood, Dy-Tronix	913-339-6333
MD	Randallstown, Beacon North, Inc.	703-478-2480
NH	Amherst, David A. Cowley Assoc.	603-673-7050
NY	Rochester, Tri-Tech Elec.	716-385-6500
NJ	New Brunswick, Winch Sls. Assocs.	201-613-1515
NC	Raleigh, Beacon Elect.	919-787-0330
OH	Cleveland, Arthur Baier Co.	216-461-6161
OR	Beaverton, N.R. Schultz Co.	503-643-1644
PA	Hatboro, AQS	215-674-3562
TN	Knoxville, Insul-Reps., Inc.	615-691-7586
VA	Sterling, Beacon North, Inc.	703-478-2480
WA	Bellevue, N.R. Schultz Co.	206-454-0300
PR	Hato Rey, Max Anderson Co., Inc.	809-751-2026
Can	Scarboro, Ont., Cantronics, Ltd.	416-297-8668

Delay Lines

AL	Hunstville, Beacon Elect.	205-881-5031
AZ	Scottsdale, SMS & Assoc.	602-998-0831
CA	Irvine, Groh Assoc.	714-837-9871
CO	Boulder, Front Range Mktg.	303-443-4780
FL	Longwood, D-Assocs., Inc.	407-830-8976
CA	Redwood City, James S. Heaton Co.	415-367-9000
ID	Boise, N.R. Schultz Co.	208-377-8686
IL	Chicago, LTD	708-773-2900
GA	Atlanta, Beacon Elect.	404-256-9640
KS	Leawood, Dy-Tronix	913-339-6333
MD	Randallstown, Beacon North, Inc.	703-478-2480
MN	S. St. Paul, Northport Engrg.	612-457-8000
IN	Indianapolis, Insul. Reps., Inc.	317-251-1994
NH	Amherst, David A. Cowley Assocs.	603-673-7050
NJ	E. Brunswick, Winch Sls. Assoc.	201-613-1515
MO	St. Louis, Dy-Tronix	314-291-4777
OH	Cleveland, Arthur Baier Co.	216-461-6161
NY	E. Rochester, Tri-Tech Elec.	716-385-6500
OR	Beaverton, N.R. Schultz	503-643-1644
PA	Hatsboro, AQS	215-674-3562
NC	Raleigh, Beacon Elect.	919-787-0330
TX	Austin, Oeler & Menelaides	512-453-0275
TX	Dallas, Oeler & Menelaides	214-361-8876
UT	Midvale, Front Range Mktg.	801-566-2500
VA	Sterling, Beacon North, Inc.	703-478-2480
WA	Bellevue, N.R. Schultz Co.	206-454-0300
TN	Knoxville, Insul. Reps.	615-691-7586
PR	Hato Rey, M. Anderson Co., Inc.	809-751-2020
Can	Scarboro, Ont., Cantronics, Ltd.	416-297-8668

Local Distributors

FL	Boca Raton, D & R	407-977-8751
PA	Bristol, Aim Elctrns.	215-785-3500
Can	Scarborough, Ont., Carsten Elctrns.	416-495-7705
AL	Huntsville, CDI	205-883-7501
CA	Anaheim, Deco	714-630-8252
CA	City of Industry, Ital Elctrns.	818-968-8515
CA	El Segundo, Force Elctrns.	213-772-1324
CA	Hayward, Kea Elctrns.	415-887-2900
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	San Jose, Force Elctrns.	408-943-1324
CA	Santa Clara, Pyramid	408-727-9810
FL	Ft. Lauderdale, CDI	305-971-4950
GA	Norcrosss, CDI	404-441-3320
MD	Columbia, DK Elctrns.	301-995-1950
MO	St. Charles, Finnigan Elctrns.	314-946-6201
MA	Marlboro, Hardware Specialty	617-481-8622
MN	New Brighton, Chris Elctrns.	612-631-2647
NH	Hudson, Bell Inds.	603-882-1133
NY	Bohemia, Key Comps.	516-567-7500
NC	Raleigh, CDI	919-787-7311
OR	Beaverton, Comp. Resources	503-641-8488
PA	Cornwall Hgts., Reliance Merchandising	215-638-8200
PA	Harrisburg, Cumberland Elctrns.	717-232-9715
TX	Dallas, Fuses Inc.	214-341-6407
VA	Falls Church, CDI	703-241-8227
WA	Kent, Pyramid	206-872-5800

BELL, FLOYD, INC., 897 Higgs Ave., Columbus, OH 43212, Tel: 614-294-4000, FAX: 614-291-0823; FSC No.: 56493; *Sls. Mgr.:* Tom Shain ..... **D•1028-1029**

Local Sales Offices & Reps

IL	Mt. Prospect, Robert Adams Sls. Co.	312-297-8733
MD	Columbia, Tyler Griffin Co.	301-995-1215
PA	Paoli, Tyler Griffin Co.	215-647-1550

BELL, F. W., INC., 6120 Hanging Moss Rd., Orlando, FL 32807, Tel: 407-678-6900, TWX: 810-853-3115, FAX: 407-677-5765; FSC No.: 18479; *Sls. Mgr.:* Stephen L. Dakel; *Dist. Mgr.:* Stephen L. Dakel ..... **B•1882; D•1130, 1226-1228**

Local Sales Offices & Reps

AL	Adamsville, Southrep	205-674-3056
AZ	Tempe, Trembly Assoc.	602-967-2058
CA	Arcadia, Jim Robins Assocs.	818-574-0049
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CO	Wheat Ridge, Trembly Assoc.	303-421-8900
FL	Winter Springs, Lighthouse Mktg.	407-366-0073
IL	Palatine, Golbeck Milota Assoc.	708-705-0602
KS	Lenexa, Dytec/South, Inc.	913-888-0215
KS	Wichita, Dytec/South, Inc.	316-263-7090
ME	Bethel, Shain Assoc.	207-836-3200
MD	Hampstead, Technical Instr. Sls.	301-239-4452
MA	Bellmont, Shain Assocs.	617-489-3598
MA	Hingham, Shain Assoc.	617-740-2334
MO	Maryland Hgts., Dytec/South Inc.	314-739-0665
NE	Omaha, Dytec/South, Inc.	402-334-1222
NV	Las Vegas, Trembly Assoc.	702-739-9770
NH	Nashua, Shain Assoc.	603-881-4881
NJ	Ridgewood, Ballou, Inc.	201-444-6990
NM	Albuquerque, Trembly Assoc.	505-266-8616
NC	Raleigh, Eastern Elctrns.	919-876-7591
PA	Lansdale, Technical Instr. Sls.	215-361-7850
PA	Pittsburgh, Technical Instr. Sls.	412-767-5110
TX	Carrollton, Seaton Corp.	214-980-9860
UT	Salt Lake City, Trembly Assoc.	801-295-4703
WA	Bellevue, Scientific Dvcs.-NW	206-747-5169
WI	Madison, Golbeck Milota Assoc.	608-222-7037

Local Distributors

AZ	Phoenix, Jensen Tools & Alloys	602-968-6241
AL	Birmingham, Argo & Co.	205-787-1100
ID	Boise, Radar Elec. Co. Inc.	208-336-2227
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
MA	N. Andover, Contact East	508-682-2000
CA	Pomona, Inspection Technlgs.	714-626-2600
CA	San Marcos, Mitchell Instrs.	619-744-2690
OR	Portland, Radar Elec. Co.	503-232-3404
GA	Atlanta, P & R Instrs.	404-391-9117
IN	Muncie, Wesco	317-284-6335
IL	Mattoon, Electronic Lab & Sls.	217-235-0546
IL	Palatine, Golbeck Milota Assocs.	708-705-0602
MD	Baltimore, Davis Instrmn.	301-358-3900
MA	Hingham, Shain Assocs.	617-740-2334
MI	Livonia, Electro Sls. Assoc.	313-421-7500
NY	Rochester, Transcat	800-828-1470
NY	Whitehouse, Power Electro Supply	718-767-1447
OH	Chesterland, Electro Sls. Assoc.	216-729-0190
OH	Dayton, Electro Sls. Assoc.	513-426-5551
TX	Dallas, Seaton Elctrns.	214-980-9860
PA	Reading, Barbey Elctrns.	215-376-7451
SC	Charleston, Cameron Barkley Co.	803-745-2837
TN	Chattanooga, Edwin Bohr Elctrns.	615-877-8207
PA	Pittsburgh, Electro Sls. Assoc.	412-322-9000
WA	Seattle, Radar Elec. Co.	206-282-2511

BELL INDS., J. W. Miller Div., 306 E. Alondra Blvd. P.O. Box 2859, Gardena, CA 90247-1059, Tel: 213-515-1720, FAX: 213-515-1962; FSC No.: 76493; Empl.: 30 ..... **A•1164-1169**

Local Sales Offices & Reps

AZ	Mesa, Fetty/Schoenduve, Inc.	602-844-8289
CA	Campbell, Shur Sls.	408-374-5577
NC	Raleigh, C-Tech Sls. Co.	919-782-8100
CO	Denver, West, Inc.	303-477-8180
FL	Clearwater, HHP Assocs., Inc.	813-797-4447
FL	Pompano Bch., HHP Assocs., Inc.	305-971-5750
FL	Winter Park, HHP Assocs., Inc.	407-740-0320
IL	Elk Grove Vl, Levy, Grams & Lassers	708-272-8500
IN	Carmel, Current Elctrn. Mktg., Inc.	317-844-1770
MD	Sykesville, DJC Elctrn. Sls., Inc.	301-795-7020
MA	Burlington, Conti-Younger Assocs., Inc.	617-273-1582
MD	Woodbine, DJC Elctrn. Sls.	301-795-7020
MI	E. Detroit, Jack M. Thorpe Co.	313-779-6363
MN	Eden Prairie, Electro Mark, Inc.	612-944-5850
MS	Hattiesburg, Mfgs. Sls. & Mktg. Svcs.	601-264-4755
NJ	Englewood, Epstein & Siebel Assoc.	201-569-7600
NY	Marcellus, J.G. Welch Sales	315-673-1009
NY	Rochester, J.G. Welch Sales	716-244-1100
OH	St. Mary's, Thomas Shelby & Co., Inc.	419-394-3377
OR	Portland, Caruso Assoc. Inc.	503-246-5439
TX	Ft. Worth, Chet Wells & Co.	817-284-0261
WA	Bellevue, Caruso Assoc. Inc.	206-455-8811
EXP	N.Y., Yonkers, Robum Agencies, Inc.	914-968-1016
Can	Calgary, Alberta, Cana Rep Group	403-243-5148
Can	Montreal, Que., Cana-Rep. Grp., Inc.	514-276-4477
Can	Surrey, B.C., Cana Rep Group	604-589-8593
Can	Willowdale, Cana Rep Group	416-250-6683

BELLOFRAM CORPORATION, State Route 2, Box 305, Newell, WV 26050, Tel: 304-387-1200, 800-727-5646, FAX: 304-387-1212; Empl.: 300; *Sls. Mgr.:* David Lewis; *Dist. Mgr.:* David Lewis

BELTING INDUSTRIES CO., INC., 20 Boright Ave., Kenilworth, NJ 07033, Tel: 201-272-8591, TELEX: 229854, FAX: 201-272-3825; Empl.: 125; *Sls. Mgr.:* Gene Hobson

BELMONT INSTRUMENT CORP., Pinehurst Pk., 8 Cook St., Billerica, MA 01821, Tel: 508-663-0212, FAX: 508-663-0214 ..... **D•2176**

BEMCO, 2255 Union Place, Simi Valley, CA 93065, Tel: 805-583-4970, FAX: 805-583-5033; Empl.: 43; *Sls. Mgr.:* Glenn Elliott

BENCHMARQ MICROELECTRONICS, INC., 2611 Westgrove 101, Carrollton, TX 75006, Tel: 214-407-0011, FAX: 214-407-9845; Empl.: 35; *Sls. Mgr.:* John Landau

BENDIX CONNECTOR OPERATIONS, See Amphenol, Bendix Connector Ops.

BENDIX CORP., MOTOR COMPS. DIV., See Facet Entprs.

BENDIX ELECTRIC POWER DIVISION, Allied Signal Aerospace, 118 Hwy. 35, Eatontown, NJ 07724, Tel: 201-542-2000, TELEX: 132-444, FAX: 201-389-7758; FSC No.: 83298;Multiple; Empl.: 1,000; *Sls. Mgr.:* R. Freeman

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BENTLY NEVADA CORP., P.O. Box 157, Minden, NV 89423, Tel: 800-227-5514, 702-782-3611, TELEX: 354437, FAX: 702-782-9253; FSC No.: 1561105

BERG, W. M., INC., 499 Ocean Ave., East Rockaway, NY 11518, Tel: 516-599-5010, TELEX: 9103506176, FAX: 516-599-3274; Empl.: 150; *Sls. Mgr.:* Marie Raitz

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CA	Foster City, Bergquist	415-572-9439
CA	Santa Ana, Bergquist Co.	714-542-3383

FL Clearwater, Tech-Rep 813-530-1619
MI Minneapolis, Bergquist 612-835-2322
MA Brookline, Harman Assocs. 617-232-6687
NY Lynbrook, P. Saftler Assocs. 516-593-7880
NY No. Syracuse, Leonard D. Allen 315-458-7470
OH Cleveland, Staff Co. 216-331-5100
OR Tigard, Elctrn. Comp. Sls. 503-245-2342
TX Lewisville, Bergquist 214-317-1502
WA Mercer Island, Elctrn. Comp. Sls. 206-232-9301

Local Distributors

AL Huntsville, Component Dist., Inc. 205-883-7501
CA Fountain Valley, Components Center 213-582-0667
CA Hawthorne, Electrosonic 213-970-0997
CA Mtn. View, Energy Sls. 415-969-0800
CA San Diego, Southland Fasteners 619-578-6630
CO Aurora, JET Elctrns. 303-364-1000
FL Ft. Lauderdale, Components Dist. Inc. 305-973-6915
GA Norcross, Components Dist. Inc. 404-441-3320
IL Chicago, NEP Elctrns. 312-625-8400
MA Brookline, Harman Sls. 617-232-6687
NC Raleigh, Components Dist. Inc. 919-834-9465
TX Dallas, Components Dist. Inc. 214-694-0373
WA Redwood, Murphy Elctrns. 206-881-1234

BERKELEY NUCLEONICS CORP., 1121 Regatta Sq., Richmond, CA 94804, Tel: 510-234-1100, TELEX: 677-1167, FAX: 510-236-3105; Empl.: 30; *Sls. Mgr.:* E. J. Buchs ..... **D•1229**

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BERKSHIRE TRANSFORMER CORP., Route 341, P.O. Box 129, Kent, CT 06757, Tel: 203-927-3541, FAX: 203-927-4583; FSC No.: 89870; Empl.: 105; *Sls. Mgr.:* Janis R. Donovan

BERK-TEK INC., 132 White Oak Road, New Holland, PA 17557-9722, Tel: 717-354-6200, FAX: 717-354-7944; FSC No.: 19449; Empl.: 350; *Sls. Mgr.:* Brad Hubinek, Jerry Petty, Natl. Sls. Mgrs.; *Dist. Mgr.:* Allan Schoonover, Mktg. Mgr.

BERMAR CORP., P.O. Box 12844, Research Triangle Park, NC 27709, Tel: 919-489-4316; *Sls. Mgr.:* M. Conland

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FAX: 516-935-1766

BERTAN ASSOCS., 121 New South Rd., Hicksville, NY 11801, Tel: 516-433-3110, TWX: 510-221-2144; FSC No.: 6130; Empl.: 140; *Sls. Mgr.:* Jim Donley ... **D•1631-1636**

Local Sales Offices & Reps

AL Huntsville, Currie, Peak, Frazier 205-536-1506
AZ Phoenix, Thor Engrg. 602-437-1463
CA Encino, King-Way Assoc. 818-788-4124
CA Los Altos, Cain-White & Co. 415-948-6533
CO Boulder, H. Bass Assocs. 303-530-7509
CT Farmington, Ray Perron & Co., Inc. 203-673-4825
GA Norcross, Currie, Peak, Frazier 404-449-7662
IL Arlington Hgts., Coombs Assocs. 312-439-9810
KS Lenexa, Midtec Assoc. 913-541-0505
MD Randallstown, Beacon North 703-591-1300
MA Needham, Ray Perron & Co., Inc. 617-449-6162
MI Detroit, Geotronix, Inc. 313-559-2440
MN Minneapolis, Electronic Instrs. 612-374-5628
MO St. Louis, Midtec Assoc. 314-275-8666
NM Albuquerque, Thorson/Desert States Co. 505-293-8555
NY Elmont, Crane & Egert Corp. 516-872-0800
NY Hicksville, Bertan Assocs., Inc. 516-433-3110
NY Liverpool, Northern Tech. Sls. Co. 315-451-1091
OH Cleveland, Geotronix 216-659-6100
PA Audubon, Holmes Assocs. 215-666-0636
TX Dallas, Automated Motion Control 214-340-4192
UT Bountiful, H. Bass Assoc. 801-295-7100
VA Fairfax, Beacon North 703-591-1300
WA Bellevue, Cain-White & Co., Inc. 206-462-2118
WI Milwaukee, Coombs Assocs. 414-351-6123
Can Downsview, Ont., Rayonics Sci., Inc. 416-736-1600

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FAX: 619-727-4436

BERTSCH U.S., 2142F Industrial Ct., Vista, CA 92083, Tel: 619-727-7420; FSC No.: 619-727-4436; Empl.: 25; *Sls. Mgr.:* B. Linko ..... **B•1246-1247**

BEST POWER TECHNOLOGY, INC., P.O. Box 280, Necedah, WI 54646, Tel: 608-565-7200, 800-356-5794, TELEX: 701934, FAX: 608-565-2221; Empl.: 600ò; *Sls. Mgr.:* Donald Soe ..... **D•2177**

Local Sales Offices & Reps

WI Necedah, Best Power Technlg. Inc. ... 800-356-5794

BEST TECHNOLOGY INC., 400 Boren Ave. North, Seattle, WA 98109, Tel: 206-382-1300, FAX: 206-382-0186; Empl.: 8 ..... **B•1833**

Local Sales Offices & Reps

CA Mountain View, Straube Assocs. 415-969-6060
CO Westminster, Straube Assocs. 303-426-0890

BESWICK:COOPER U.K. LTD., Alert Works, Frome, United Kingdom BA11 1PP, Tel: (0373) 64311, TELEX: 449196 G, FAX: (0373) 73175

BETA AUTOMATION, INC., 3541 Old Conejo Rd., Newbury Park, CA 91320, Tel: 805-499-5785, FAX: 805-499-9071; Empl.: 8; *Sls. Mgr.:* James Valentino

BETA REVIEW, INC., PO Box 38, Millwood, VA 22646, Tel: 703-837-1436, FAX: 703-837-3063; Empl.: 2; *Sls. Mgr.:* Norman M. Fine

BT

FAX: 508-842-0748

BETATHERM CORP., 910 Turnpike Rd. (Rte. 9), Shrewsbury, MA 01545, Tel: 508-842-0516; Empl.: 80 ..... **B•1834-1837**

BEY ELECTRIC, INC., 362 Main St., Box 548, Lincoln Park, NJ 07035, Tel: 201-694-5000, FAX: 201-694-7975; *Sls. Mgr.:* Fred DeMauro, Gen. Mgr. ..... **A•2182**

BG ELECTRONICS, EPC Corp., 519 South 5th Avenue, Mt. Vernon, NY 10550-4430, Tel: 914-664-5591, FAX: 914-664-4729; FSC No.: 33791; Empl.: 6; *Sls. Mgr.:* Don Edwards ..... **D•1081**

B-G INSTRUMENTS, INC., P.O. Box 1867, Vashon, WA 98070, Tel: 206-567-5000, FAX: 206-567-5010; *Sls. Mgr.:* John Baum ..... **D•1081**

Local Sales Offices & Reps

WA Spokane, B-G Instrs., Inc. 509-238-4757

B. G. LABORATORIES, INC., 75 Travis Ave., Binghamton, NY 13904, Tel: 607-722-2376, FAX: 607-722-4204; FSC No.: 26522; Empl.: 150

BH Electronics

FAX: 612-894-9380

BH ELECTRONICS, INC., 12219 Wood Lk. Dr., Burnsville, MN 55337, Tel: 612-894-9590; FSC No.: 08450; Empl.: 300; *Sls. Mgr.:* Fred LaMarche ..... **A•1170-1171, 2184-2185**

Local Sales Offices & Reps

AZ Fountain Hills, Halbar Assocs. 602-837-2464
CA San Mateo, Halbar North, Inc. 415-349-4700
CA Van Nuys, Halbar Assocs. 818-906-3941
CO Denver, Electro Comp. Sys. 303-762-9576
NJ Montville, PAF Assocs. 201-335-0680
MA Norwood, Tom Maguire Assocs. 617-551-0500
MI Detroit, I. E. Hampton & Assocs. 313-344-8860
MI St. Joseph, I. E. Hampton & Assocs. ... 616-983-0862
MN Osseo, Gaffney Sls. Co. 612-425-5484
NC Raleigh, Tingen Tech. Sls. 919-870-6670
OH Worthington, R J Mktg. 614-888-7638
NY Smithtown, PAF Assocs. 516-360-0940
PA West Chester, TCA Assocs. 215-692-6853
TX Dallas, Precision Sls. 214-701-9031
WA Redmond, Halbar PNW, Inc. 206-882-0990
WI Theinsville, TFL Assoc. 414-242-6800
Can Toronto, Strategic Elctrns. 416-602-0855

BIBCO, INC., 258 Territorial, Benton Harbor, MI 49022, Tel: 616-925-8445, 800-851-5701, FAX: 616-925-3081; Empl.: 150; *Sls. Mgr.:* Carol McMellen

BICC-VERO ELECTRONICS, INC., 1000 Sherman Ave, Hamden, CT 06514, Tel: 203-288-8001, TWX: 510-227-8890, FAX: 203-287-0062; Empl.: 50; *Sls. Mgr.:* John Bruno

Local Sales Offices & Reps

AL Huntsville, ACM, Inc. 205-881-5493
CA Sunnyvale, Logan Sls. 408-732-6020
CA Walnut, Cook Entprs., Inc. 714-594-0091
CO Littleton, Simpson Assocs. 303-794-8381
FL Coral Springs, CBC Elctrns. 305-755-1111
GA Duluth, A C M, Inc. 404-447-5499
IL Hoffman Estates, Panatek Tech. Sls. .. 708-519-0867
IN Indianapolis, Mohrfield Mktg. 317-546-6969
KS Overland Park, Markline Technologies 913-681-8880
MD Lutherville, J. A. Dougherty Sls. 301-321-7890
MA Plainville, Entprs. Tech. 617-695-4700
MI Brighton, Elctrn. Sources, Inc. 313-227-3598
MN Chanhassen, Jen-Ray Sys. 612-934-8607
NY Centerport, Big Apple Reps. 516-261-3012
NM Albuquerque, BSE, Inc. 505-293-2582
NY Rochester, Apex Assocs. 716-254-6050
NC Greensboro, Magaro Assocs. 919-294-4783
OH Cleveland, KT/Depco 216-442-6200
OH Columbus, KT/Depco 614-262-9159
OR Beaverton, Luscombe 503-636-6664
PA Holicong, John Bell Assocs. 215-794-7075
PA Pittsburgh, KT/Depco 412-367-1011
TX Houston, Microlog 713-956-0837
TX Richardson, Microlog 214-644-2945
WI Madison, Panatek Tech. Sls. 608-831-3103

BICRON ELECTRONICS, 50 Barlow Street, Canaan, CT 06018, Tel: 203-824-5125, FAX: 203-824-1137; FSC No.: 10617; Empl.: 120; *Sls. Mgr.:* Frank Pierzga ..... **A•2186-2187; B•1615, 1883**

Local Sales Offices & Reps

AL Madison, Southern Elec. Rep. 205-461-8925
CA San Clemente, ATA Assocs. 714-498-7180
CO Denver, Omega, Ltd. 303-762-1921
MN Minneapolis, PSI 612-944-8545
NY Pittsford, W.A. Franklin Sls. 716-248-8251
NC Jamestown, Homersmith, Inc. 919-883-3999
PA Media, Homersmith Co. 215-543-2434
PA Pittsburgh, S.K.A. Co. 203-582-5897
UT Salt Lake City, Omega, Ltd. 303-762-1921
VA Arlington, Homersmith 215-543-2434
VA Salem, Homersmith, Inc. 703-387-1600
WI Milwaukee, KMA Sls. Co. 414-259-1771

BIDDLE INSTRUMENTS, 510 Township Line Rd., Blue Bell, PA 19422, Tel: 215-646-9200, TELEX: 685 1045 JGBCO, FAX: 215-643-2670; Empl.: 285

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BISHOP GRAPHICS, INC., 5210 Lewis Rd., Agoura, CA 91304, Tel: 818-991-2600, TELEX: 66-2400 BISHOP WKVG, FAX: 818-889-3744; Empl.: 140; *Sls. Mgr.:* Robert Reiss

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Local Sales Offices & Reps

AZ	Phoenix, Jarko Assocs.	602-243-4387
AZ	Tempe, Jarko Assocs.	602-243-4387
CA	San Diego, Cook Entprs.	619-753-7272
CA	Solana Beach, Cook Entprs.	619-753-7272
CO	Englewood, Delltron Co.	303-741-2122
FL	Indian Harbour Bch., Post Mktg.	407-777-0994
FL	Indian Harbour Beach, Symco, Inc.	407-777-0994
GA	Norcross, Twentieth Century Mktg.	404-446-1999
IL	Downers Grove, Richmar Elec. Corp.	708-968-0118
IN	Indianapolis, Richmar Elec. Corp.	317-577-9950
IA	Iowa City, Richmar Elctrns.	319-354-8894
MN	Minneapolis, Holmgren Assocs.	612-574-9983
MA	Norwood, The MacInnis Co.	617-762-8090
NC	Raleigh, 20th Century Mktg. Inc.	919-790-9383
OH	Cleveland, Marlow Assocs.	216-831-8232
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WI	Butler, Richmar Elec. Corp.	414-781-1730
Can	Markham, Ont., Avotronics, LTD.	416-475-2024
NY	Victor, Net Sls.	716-924-1844

Local Distributors

AL	Huntsville, Century Fasteners	205-883-5344
AZ	Phoenix, Aero-Space SW.	602-582-2779
AZ	Phoenix, EKO Sales	602-437-4646
AZ	Tucson, PSN Distbn., Inc.	602-623-9800
AR	Little Rock, Carlton Bates Co.	501-562-9100
CA	Chatsworth, Jacon Fasteners	818-700-2901
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Fremont, Alatec	415-657-7701
CA	Fremont, Vic/Tal Sls.	415-651-6420
CA	Manhattan Beach, Prime Electro Prods.	213-379-3642
CA	Milpitas, MS Inserts	408-946-6565
CA	Mission Hills, Coast Air Inc.	818-898-2288
CA	Mission Viejo, Opto Plus, Inc.	714-380-8654
CA	Monrovia, Erik-A-Elctrn. Distb.	818-574-1020
CA	North Hollywood, Elctrn. Hardware Ltd.	818-982-6100
CA	Oxnard, R. C. Dudek	805-988-4882
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	San Diego, Western Fasteners	619-292-5115
CA	Santa Ana, BDS Elctrns.	714-662-1050
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Santa Fe Springs, F T R Fasteners	714-957-0202, 213-946-6464
CA	Sunnyvale, R. C. Dudek	408-734-3830
CA	Torrance, MS Inserts	213-539-1530
CO	Littleton, Indelco	303-795-3431
CO	Wheatridge, Colorado Elctrn. Hdwr.	303-431-4334
CT	Milford, Plastic & Metal Comps. Co.	203-877-2723
CT	Wallingford, Midstate Elctrns.	203-265-9900
FL	Apopka, Tropic Fasteners	407-880-4777
FL	Delray Beach, Fastbolt Corp.	407-272-3100
FL	Largo, Elctrn. Precepts of FL.	813-544-3636
FL	Winter Park, Servtronics	407-677-8191
GA	Norcross, Atlanta Hardware Specialty	404-449-3000
GA	Peachtree City, Engineered Comps.	404-487-7600
IL	Chicago, EMF	312-889-8323
IL	Downers Grove, S.W. Anderson Co.	708-964-2600
IL	Elmhurst, Miltex Sls.	708-941-7100
IL	Lisle, Comps. Inc.	312-852-7707
IN	Carmel, Altex Elctrns.	317-848-1323
IN	Indianapolis, MAR Elctrns.	317-633-6699
MD	Beltsville, Petricko Sls.	301-937-4960
MD	Gaithersburg, Capital Fasteners	301-948-9310
MA	Ashland, Quality Comps.	508-881-6504
MA	Billerica, MS Inserts	508-670-5600
MA	Marlborough, Hardware Spec. Co.	508-481-8622
MA	Waltham, Electronic Fasteners	617-890-7780
MA	Winchester, Webb Distbn.	617-729-5800
MI	Livonia, Tri-West Prods.	313-422-7900
MN	Bloomington, Aero-Space Computor Supp.	612-884-4725
MN	Eden Prairie, S. W. Anderson Co.	612-934-2700
MN	Hibbing, Minn-Tech Elctrns.	218-267-5228
MN	New Brighton, Chris Elctrns.	612-631-2647
MO	St. Louis, Electro-Mechco Co.	314-993-4083
NH	Amherst, Main Source Elctrns.	603-883-6996
NJ	So. Hackensack, Fastbolt Corp.	201-440-9100
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Summit Dists.	716-887-2800
NY	Elmhurst, Century Fasteners	718-446-5000
NY	Holtsville, Tower Fastener Co.	516-289-8800
NY	Long Island City, Hardware Specialty Co.	718-361-9393
NY	Mt. Vernon, All American	914-699-2224
NY	Rochester, Masline Elctrns.	716-546-5373
NC	Raleigh, Century Elctrn. Comps.	919-782-2116
NC	Raleigh, Century Fasteners	919-787-1800
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Columbus, Hughes-Peters	614-294-5351
OH	Englewood, ADS	513-836-8636
OH	Solon, Repco	216-248-8900
OR	Beaverton, Component Resources	503-641-8488
OR	Beaverton, Murphy Elctrns.	503-642-2001
PA	Huntingdon Valley, Plastic & Metal Prods.	215-322-2000
PA	Norristown, Century Elctrns.	215-631-5400
SC	West Columbia, Century Fasteners	803-791-1800
TN	Nashville, Tebco Prods.	615-255-1234
TX	Dallas, Global Fasteners	214-340-6068
TX	Houston, Rainbow Fasteners Co.	713-957-0500
TX	Richardson, RSC Elctrns.	214-644-3444
WA	Redmond, Murphy Elctrns.	206-881-1234
WA	Seattle, Component Resources	206-454-8666
WA	Seattle, Radar Elec. Co. Inc.	206-282-2511
EXP	CA/Bakersfield, Gray-Weatherhead Equip.	805-397-4281
Can	Mississauga, Ont., Gould Fasteners	416-677-8253
Can	Ontario, Rush Elctrns. Ltd.	416-677-7280
Can	Richmond Hill, Ont., Irwin Indl.	416-889-9100
Can	Scarborough, Ont., Carsten Elctrns.	416-495-9999
Can	St. Laurent, Quebec, Carsten Elctrns.	514-334-8321
Can	Surry, British Columbia, Memco	604-590-1553

BIW CABLE SYSTEMS, INC., 22 Joseph E. Warner Blvd., N. Dighton, MA 02764, Tel: 508-822-6600, TELEX: 94-0604, FAX: 508-822-1944; Empl.: 230; *Sls. Mgr.:* S. Adams

BKL, 421 Feheley Dr., King of Prussia, PA 19406, Tel: 215-277-2910, FAX: 215-277-2956; Empl.: 34

BLACKHAWK NETWORKS CORP., 14 N. Parker Dr., P.O. Box 919, Janesville, WI 53545, Tel: 608-752-8701, FAX: 608-752-8701; FSC No.: 12724; Empl.: 10; *Sls. Mgr.:* D. Adee

BLACKHOLE TECHNOLOGY, 225 East St., Winchester, MA 01890, Tel: 617-721-7690, FAX: 617-721-7260; Empl.: 5; *Sls. Mgr.:* John W. McDonough, Jr.

BLATEK, INC.

FAX: 814-231-2087

BLATEK, INC., 2820 E. College Ave., Ste. F, State College, PA 16801, Tel: 814-231-2085, 814-231-2086; Empl.: 20 ..... **B•1885**

BLH ELECTRONICS, INC., 75 Shawmut Road, Canton, MA 02021-9111, Tel: 617-821-2000, TELEX: 172116, FAX: 617-828-1451; FSC No.: 03089; Empl.: 170; *Sls. Mgr.:* Kristin Scharf

BLILEY ELECTRIC CO., 2545 W. Grandview Blvd., Erie, PA 16506, Tel: 814-838-3571, FAX: 814-833-2712; FSC No.: 71034;3098; Empl.: 135 ..... **A•1308-1317**

Local Sales Offices & Reps

AL	Huntsville, R.W. Mitscher Co., Inc.	205-464-0745
AZ	Tempe, Cain Technology Inc.	602-966-4322
CA	Orange, Cain Technology, Inc.	714-997-7311
CA	Santa Clara, Synelect Mktg. Co.	408-244-9900
CA	Van Nuys, Cain Technology, Inc.	818-904-9392
CT	Plainfield, R. W. Mitscher Co., Inc.	203-564-1691
FL	Tequesta, R.W. Mitscher Co., Inc.	407-575-4485
GA	Lawrenceville, R. W. Mitscher Co., Inc.	404-923-3239
IL	Chicago, Tech. Sales, Inc.	312-237-7210
MD	Laurel, R. W. Mitscher Co., Inc.	301-498-6090
MA	Needham, Sturgeon Tech. Sls.	617-444-6603
NJ	Collingswood, R. W. Mitscher Co., Inc.	609-858-6440
NM	Albuquerque, C. T. Carlberg & Assocs., Inc.	505-899-2155
NY	Binghamton, R. W. Mitscher Co., Inc.	607-724-6561
NY	Clarence, R. W. Mitscher Co., Inc.	716-759-2350
NY	Hauppauge, Aurora-Schmitt Assocs.	516-434-1313
NY	Pittsford, R. W. Mitscher Co., Inc.	716-586-4012
NY	Rochester, R. W. Mitscher Co., Inc.	716-227-0839
NC	Davidson, R.W. Mitscher Co., Inc.	704-896-7434
NC	Raleigh, R. W. Mitscher Co., Inc.	919-848-0941
OH	Alpha, Poliquin & Co., Inc.	513-426-8055
OR	Portland, Temper Tech. Mktg.	503-292-8201
TN	Johnson City, R. W. Mitscher Co., Inc.	615-929-7258
TX	Dallas, Electra Reps, Inc.	214-248-3852
VA	Richmond, R. W. Mitscher Co., Inc.	804-320-7350
EXP	CT, Stamford, Dage Corp.	203-324-3123

BLUE M, A UNIT OF GENERAL SIGNAL, 2218 W. 138th St., Blue Island, IL 60406, Tel: 708-385-9000, FAX: 708-331-2515; Empl.: 300; *Sls. Mgr.:* Gary Carlin

BMW, INC./ATLAS TACK CORP., 17 Willow St., Lynn, MA 01903, Tel: 617-593-0200, FAX: 617-592-0964; Empl.: 25; *Sls. Mgr.:* William J. Valles; *Dist. Mgr.:* Richard Pelletier

BODINE ELECTRIC COMPANY

FAX: 312-478-3232

BODINE ELECTRIC COMPANY, 2500 W. Bradley Pl., Chicago, IL 60618, Tel: 312-478-3515, TELEX: 25-3646; Empl.: 800; *Sls. Mgr.:* R. J. Stuchly; *Dist. Mgr.:* R. J. Stuchly ..... **B•1248**

Local Sales Offices & Reps

CA Saratoga, E. W. Duemmlein 408-253-1201
CA Yorba Linda, Bodine Elec. Co. 714-974-8650
KS Shawnee Mission, J. F. Gleeson & Assocs. 913-362-4422
MD Denton, Motion Specialists South, Inc. 301-479-1164,65
MA Woburn, J. A. Cascino 617-938-1446,
MI Southfield, Bodine Elec. Co. 313-350-3610
MN Mound, John F. Rynkar 612-472-4252
NY Commack, Motion Specialists North, Inc. 516-366-0383
NY E. Syracuse, Application Specialists, Inc. 315-437-2814
NY Rochester, Application Specialists, Inc. 716-586-6226
OH Hudson, J. A. Basten 216-656-4226
TX Richardson, Control Dynamics 214-644-6945
VA McLean, J. S. Hsia 703-734-1739
EXP IL, Chicago, Export Dept., Bodine Elec. 312-478-3515
Can Vancouver, BC, Madison Indl. Equip. Ltd. 604-872-8155

Local Distributors

AZ Phoenix, Motion Solutions, Inc. 602-437-5255
CA San Diego, Sloan Elec. Co. 619-239-5174
CA Benicia, Republic Supp. Co. of CA 707-746-6960
CA Fremont, Elec. Motor Svc. 415-651-2706
CA Fullerton, South Coast Controls 714-525-0471
CA Santa Fe Springs, Power Transmission Specs. 213-907-7650
CO Denver, Wazee Elec. Co. 303-623-8658
CO Englewood, Motion Solutions, Inc. 303-792-5518
CT Berlin, B & B Motor & Control 203-828-8550
CT Hartford, Machine Drives & Controls .. 203-728-0403
CT Norwalk, Machine Drives & Controls .. 203-846-2007
FL Hialeah, Condo Elec. & Ind. Supp., Inc. 305-691-5400
FL Orlando, Brownell Electro, Inc. 407-843-6770
FL Tampa, Electrical-Mech. Dr., Inc. 813-621-8675
GA Forest Park, Brownell Electro, Inc. 404-362-9009
GA Tucker, Research Designs, Inc. 404-491-0745
IL Chicago, Excel Elec. Svc. Co. 312-421-7220
IL Franklin Pk, Flolo Corp. 708-595-1010
IL Loves Park, Tek-Matic, Inc. 815-282-1775
IN Indianapolis, B & B Motor & Control ... 317-248-0396
KS Kansas City, Kornfeld Thorp Elec. 913-321-7070
PA Bridgeport, Advent Electric Inc. 215-277-6610
MA Medford, Empire Elctrl. Co. 617-395-5000
MA Somerville, Electro Sls. Co., Inc. 617-666-0500
MI Detroit, Howard Elec. Co. 313-923-0430
MI Grand Rapids, MacKay Ind. Sls. 616-241-1671
MI Southfield, Reserve Motion Control Sys. 313-557-0800
MN Minneapolis, Boustead Elec. & Mfg. 612-544-9131
MO St. Louis, State Elec. Co. 314-569-2140
MO St. Louis, Zeller Elec., Inc. 314-638-9641
NE Omaha, Precision Bearing Co. 402-593-7050
NH Manchester, Empire Elctrl. Co. 603-627-6630
NJ Cherry Hill, Jos. T. Fewkes & Co. 609-424-3932
NJ Edison, B & B Motor & Control 201-819-7070
NY Long Island City, B & B Motor & Control 718-784-1313
NY Rochester, B & B Motor & Control 716-424-7040
NY Syracuse, K. J. Elec. Corp. 315-454-5535
NY Victor, Vordex, Inc. 716-924-4360
NC Charlotte, Brownell Electro, Inc. 704-597-1270
NC Charlotte, Piedmont Motor &Control Ltd. 704-523-7121,
OH Dayton, Thal Mor Assoc., Inc. 513-298-9939
OH Middleburg Hgts., Reserve Motion Control Sys. 216-826-0290
OK Oklahoma City, Evans Elec. Mtr. Ctrs., Inc. 405-631-1344
OK Tulsa, Southwest Drives, Inc. 918-665-1455
OR Portland, North Coast Elec. 503-281-8888
PA Altoona, Miller Elec. Svc. & Supp. 814-942-9943
PA Pittsburgh, Braunlich-Roessle 412-471-6995
SC Taylors, B & B Motor & Control 803-268-5702
TN Cookeville, Cookeville Elec. Motor, Inc. 615-526-5461
TN Memphis, Brownell Electro, Inc. 901-795-8487
TX Dallas, Motion Ind. 214-351-2211
TX Dallas, Purvis Bearing Svc. 214-358-5588
TX Houston, B & B Motor & Control 713-444-9260
TX Houston, Research Des., Inc. 713-995-8591
VA Richmond, Ind. Supp. Corp. 804-355-8041
WA Redmond, Cascade Controls Corp. 206-881-8843
WA Seattle, Indl. Elec. Mtr. & Mach., Inc. ... 206-329-3900
WI Milwaukee, Trester Svc. Elec. 414-264-8170
WI New Berlin, Elec. Sls. & Engrg. 414-782-2400
Can Don-Mills, R.G. Shelley LTD. 416-447-6471
Can Edmonton, Alberta, Soper's Supp. Ltd. 403-423-4066
Can Scarborough, Ont., Toronto Elec. Co. .. 416-755-7716
Can St. Laurent, Seltron, Inc. 514-341-3685
Can Vancouver, B.C., Armature Elec. 604-879-6141

BOGEN COMMUNICATIONS, INC. MPD PRODS., See Memory Protection Devices, Inc.

BOGEN COMMUNICATIONS, INC., Sound Prods., 50 Spring St., P.O. Box 575, Ramsey, NJ 07446, Tel: 201-934-8500, FAX: 201-934-9832; *Sls. Mgr.:* David A. Chambers; *Dist. Mgr.:* Christopher Wildfoerster

BOKER'S, INC., 3104 Snelling Ave., Minneapolis, MN 55406-1937, Tel: 612-729-9365, FAX: 612-729-8910; FSC No.: 85446; Empl.: 110; *Sls. Mgr.:* Andy Tscholl

BOMAR CRYSTAL COMPANY, 201 Blackford Ave., Middlesex, NJ 08846, Tel: 908-356-7787, 800-526-3935, FAX: 1-908-356-7362; Empl.: 40; *Sls. Mgr.:* Beth Shapiro, OEM Sls. Mgr. ..... **A•1318-1320**

Local Distributors

TX Ft. Worth, Allied Elctrns. 1-800-433-5700

BOMCO, See MuShield Co.

BOMEM INC., 450 Ave. St-Jean Baptiste, Quebec, Canada G2E-5S5, Tel: 418-877-2944, 1-800-888-FTIR, TELEX: 051-31543, FAX: 418-877-2834; Empl.: 120; *Sls. Mgr.:* Henry Buijs

BONAR-KARD-O-LITE, See BKL (formerly Bonar-Kard-O-Lite)

BOONTON ELECTRONICS CORP., 791 Route 10, Randolph, NJ 07869, Tel: 201-584-1077, TWX: 710-986-8215 BOONTRONICS, FAX: 201-584-3037; FSC No.: 04901; Empl.: 180; *Sls. Mgr.:* R. Morrell

BOPLA ENCLOSURES, 7330 Executive Way, Frederick, MD 21701, Tel: 301-696-9300, FAX: 301-696-9494; FSC No.: 4Y520; Empl.: 35 ..... **C•1016**

Local Sales Offices & Reps

CA Irvine, Comp. Mktg. Assocs. 714-951-5950
FL Tampa, FL Comp. Sls. 813-960-7044
IL Chicago, Paddock Mktg./Sls. 312-452-7852
MA Needham, T.E.S.C.O. 617-444-7925
PA Lancaster, Indl. Comps. Inc. 215-889-0650
WA Federal Way, K. R. Jensen Sls. 206-874-2772

Local Distributors

OR Portland, Radar Elctrns. 503-232-3404
PA Harrisburg, Cumberland Elctrns. 717-232-5999
PA Lancaster, Peak Elctrns. 215-293-9000
WA Seattle, Radar Elec. 206-282-2511

BORG-WARNER THERMOELECTRICS, BORG-WARNER CORP., See TECA, ThermoElectric Cooling America Corp.

BOSCH

FAX: 708-865-5203

BOSCH, ROBERT, CORP., 2800 S. 25th Ave., Broadview, IL 60153, Tel: 708-865-5200; *Sls. Mgr.:* Dieter Bloecks; *Dist. Mgr.:* Dave Robson ..... **B•1429**

Local Sales Offices & Reps

AL Huntsville, Hughes Assocs. 205-533-9108
CA Los Gatos, Luscombe Engrg. 408-370-2020
CA Montrose, Luscombe Engrg. 818-249-9000
CO Longmont, Piper Sls. 303-443-5337
IL Woodridge, Trend-Tronics, Inc. 708-972-1166
MA Burlington, Conti-Younger Assocs. 617-273-1582
MN Minneapolis, H.M.R., Inc. 612-888-2122
MO St. Louis, Rush & West Assocs. 314-965-3322
OH Richfield, Geotronix Inc. 216-659-6100
PA Norristown, Brandon Assocs. 215-278-0500
TX The Colony, Juliana Co. 214-625-1075
WA Mercer Island, Electronic Comp. Sls. .. 206-232-9301

Local Distributors

AL Huntsville, World Distrs. 205-539-0441
CA Carson, Accele Elctrns. 213-637-3533
CA Cerritos, David Levy Co. 800-421-3536
CA N. Hollywood, Mobile Sound 213-668-1699
CA Santa Monica, Distr. Specialities 213-452-3445
FL Naranja, L.E.S. Distrs. 305-248-6701
GA Norcross, Whitehead Elctrn. 404-923-6667
IL Lemont, Trend-Tronics, Inc. 708-972-1166
IL N. Chicago, Sound Quest/Delta 708-473-1200
MA Burlington, Conti-Younger Assoc. 617-273-1582
MI Livonia, Delta Supp. Co. 313-525-5858
MN Minneapolis, Control Design Supp. 612-721-1628
MO St. Louis, Wes Garde Comp. 314-567-7776
NY Elmsford, Kin-Tronics, Inc. 914-968-7736
PA Norristown, Brandon Assocs. 215-278-0500
TX The Colony, The Juliana Co. 214-625-1075

BOSCHERT, INC., Computer Products/Boschert, 3797 Spinnaker Ct., Fremont, CA 94538, Tel: 415-657-6700, FAX: 415-683-6400

Refer to Computer Products, Inc., Fremont, CA, for sales offices, Reps. and Distributors.

BOSCHERT, INC., See Computer Products, Inc.

BOURNS®

FAX: 714-781-5273

BOURNS, INC., Electronic Components Sls., 1200 Columbia Ave., Riverside, CA 92507-2114, Tel: 714-781-5500, 800-782-2070, 801-750-7200; Empl.: 5000; *Sls. Mgr.:* Dennis Lause; *Dist. Mgr.:* Patricia Moorman ..... **A•1848-1849, 2012, 2018-2029**

Local Sales Offices & Reps

AL Huntsville, CSR Elctrns. 205-533-2444
AZ Scottsdale, Summit Sls. 602-998-4850
CA Agoura, QuadRep. Southern 818-597-0222
CA Auburn, QuadRep Inc. 916-269-2701
CA Irvine, QuadRep. Southern 714-727-4222
CA San Diego, QuadRep. Southern 619-560-8330
CA San Jose, QuadRep, Inc. 408-432-3300
CO Parker, Parker Webster 303-841-4888
CT Wallingford, John E. Boeing Co., Inc. .. 203-265-1318
FL Casselberry, Dyne-A-Mark 407-831-2822
FL Ft. Lauderdale, Dyne-A-Mark 305-771-6501
GA Atlanta, CSR Elctrns. 404-396-3720
ID Meridian, Intermountain Technlg. 208-888-6071
IL Elk Grove Village, Oasis Sls. Corp. 708-640-1850
IN Carmel, Technlg. Mktg. Corp. 317-844-8462
IN Ft. Wayne, Technlg. Mktg. Corp. 219-432-5553
IN Kokomo, Technlg. Mktg. Corp. 317-459-5152
IA Cedar Rapids, REP Assocs. Corp. 319-373-0152
KY Louisville, Technlg. Mktg. Corp. 502-893-1377
MD Baltimore, Micro-Comp. 301-644-5700
MA Chelmsford, John E. Boeing Co. 508-256-5800
MI Farmington Hills, Rathburg Assocs. ... 313-489-1500
MN Edina, Mel Foster 612-941-9790
MO Bridgeton, Centech 314-291-4230
MO Raytown, Centech 816-358-8100
NH Hooksett, John E. Boeing Co., Inc. 508-256-5800
NJ Moorestown, Thomas Assocs. 609-778-7828
NM Albuquerque, Summit Sls. 505-345-5003
NY Hicksville, J-Square Mktg. 516-935-3200
NY Ithaca, Bob Dean 607-257-1111
NY Wappingers Falls, Bob Dean, Inc. 914-297-6406
NC Charlotte, CSR Elctrns. 704-847-7878
NC Raleigh, CSR Elctrns. 919-878-9200
OH Centerville, Bear Mktg., Inc. 513-436-2061
OH Richfield, Bear Mktg. 216-659-3131
OK Tulsa, Ammon & Rizos 918-749-6116
OR Beaverton, J. J. Backer 503-627-0775
TN Knoxville, CSR Elctrns. 615-689-7911
PA Allison Park, Bear Mktg., Inc. 216-659-3131
TX Austin, Ammon & Rizos 512-454-5131
TX Houston, Ammon & Rizos 713-781-6240
TX Richardson, Ammon & Rizos 214-644-5591
UT Murray, Parker Webster 801-266-9939
WA Seattle, J. J. Backer 206-285-1300
WI Brookfield, Oasis Sls. Corp. 414-782-6660
Can Burnaby, B.C., Davetek Mktg. Inc. 604-430-3680
Can Dorval, Quebec, John G. Weiss Co. ... 514-685-6644

Local Distributors

AL Huntsville, Allied Elctrns. 205-721-3500
AL Huntsville, Hall-Mark Elctrns. 205-837-8700
AL Huntsville, Hamilton/Avnet Elctrns. ... 205-837-7210
AL Huntsville, Hammond Elctrns. 205-830-4764
AL Huntsville, Marshall Ind. 205-881-9235
AZ Chandler, Hamilton/Avnet 602-961-6400
AZ Phoenix, Allied Elctrns. 602-437-9080
AZ Phoenix, Hall-Mark Elctrns. 602-437-1200
AZ Phoenix, Marshall Inds. 602-496-0290
AZ Scottsdale, Spirit Elctrn. 602-998-1533
AZ Tempe, Bell Inds. 602-966-7800
AZ Tempe, TTI, Inc. 602-431-1191
CA Irvine, Hall-Mark Elctrns. 714-727-6000
CA Los Angeles, Bell Inds. 213-826-6778
CA Agoura Hills, Bell Inds. 818-706-2608
CA Anaheim, Compumech 714-826-0866
CA Calabasas, Schweber Elctrns. 818-880-9686
CA Chatsworth, Allied Electronics 818-882-6981
CA Chatsworth, Hall-Mark Elctrns. 818-773-4500
CA Chatsworth, Marshall Ind. 818-407-4100

CA Compton, Harper S.I.D. 213-979-5090
CA Costa Mesa, Hamilton/Avnet Elctrns. 714-641-4100
CA Culver City, Hamilton/Avnet 213-558-2071
CA Cypress, Bell Inds. 714-895-7801
CA Del Mar, Compumech 619-792-7800
CA Elmonte, Marshall Ind. 818-307-6186
CA Elmonte, Marshall Industries 818-350-3341
CA Elmonte, Marshall Industries 818-307-6000
CA Fremont, Allied Elctrns. 415-770-0590
CA Gardena, Hamilton/Avnet 213-217-6700
CA Irvine, Allied Elctrns. 714-727-3010
CA Irvine, Hall-Mark Electrns. 714-727-6000
CA Irvine, Marshall Ind. 714-458-5301
CA Milpitas, Compumech 408-945-9100
CA Milpitas, Marshall Ind. 408-942-4600
CA Milpitas, TTI, Inc. 408-946-5577
CA Mission Hills, TTI, Inc. 818-891-8885
CA Oakland, Brill Elctrns. 415-834-5888
CA Rancho Cordova, Marshall Ind. 916-635-9700
CA Riverside, Elctrn. Supp. Corp. 714-683-7300
CA Rocklin, Allied Electrns. 916-632-3104
CA Rocklin, Bell Inds. 916-652-0414
CA Rocklin, Hall-Mark Elctrns. 916-624-9781
CA Sacramento, Hamilton/Avnet 916-925-2216
CA San Diego, Allied Elctrns. 619-279-2550
CA San Diego, Bell Inds. 619-268-1277
CA San Diego, Elctrn. Supp. 619-693-8222
CA San Diego, Hall-Mark Elctrns. 619-268-1201
CA San Diego, Hamilton/Avnet 619-571-7500
CA San Diego, Harper S.I.D. 619-578-2500
CA San Diego, Marshall Ind. 619-578-9600
CA San Diego, TTI, Inc. 619-748-2025
CA San Jose, Electronic Supply 408-297-3726
CA San Jose, Hall-Mark Elctrns. 408-432-4000
CA San Jose, Harper S.I.D. 408-943-9490
CA Santa Ana, Teknopak 714-558-8840
CA Santa Ana, TTI, Inc. 714-641-9393
CA Santa Fe Springs, Bell/JIT Inds. 213-921-3611
CA Sunnyvale, Bell Inds. 408-734-8570
CA Sunnyvale, Hamilton/Avnet 408-743-3355
CA Torrance, Allied Elctrns. 213-373-8828
CO Denver, Newark Elctrns. 303-757-3351
CO Denver, TTI, Inc. 303-429-6806
CO Englewood, Allied Elctrns. 303-790-1664
CO Englewood, Hall-Mark Elctrns. 303-790-1662
CO Englewood, Hamilton/Avnet 303-799-7800
CO Thornton, Marshall Ind. 303-451-8383
CO Wheat Ridge, Bell Inds. 303-424-1985
CT Cheshire, Allied Elctrns. 203-272-7730
CT Cheshire, Hall-Mark Elctrns. 203-271-2844
CT Danbury, Hamilton/Avnet 203-797-2800
CT Norwalk, Pioneer Std. 203-853-1515
CT Wallingford, Marshall Ind. 203-265-3822
CT Wallingford, Midan Elctrns. 203-265-2077
CT Wallingford, TTI, Inc. 203-284-7474
FL Altamonte Springs, Marshall Ind. 407-767-8585
FL Casselberry, Allied Elctrns. 407-831-3331
FL Casselberry, Hall-Mark Elctrns. 407-830-5855
FL Ft. Lauderdale, Hamilton/Avnet 305-971-2900
FL Ft. Lauderdale, Hammond Elctrns. 305-973-7103
FL Ft. Lauderdale, Marshall Ind. 305-977-4880
FL Largo, Allied Elctrns. 813-541-4660
FL Largo, Hall-Mark Elctrns. 813-541-7440
FL Melbourne, Rome Elctrns. 407-242-8151
FL Orlando, Hammond Elctrns. 407-849-6060
FL Orlando, TTI, Inc. 407-859-1000
FL Pompano Beach, Allied Elctrns. 305-978-3008
FL Pompano Beach, Hall-Mark Elctrns. 305-971-9280
FL St. Petersburg, Hamilton/Avnet 813-573-3930
FL St. Petersburg, Marshall Ind. 813-573-1399
FL Winter Park, Hamilton/Avnet 407-628-3888
GA Norcross, Marshall Ind. 404-923-5750

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IL Long Grove, Robert Adams Sls. 708-634-3384, FAX:708-634-3385
KS Lenexa, Midtec Assoc. 913-541-0505, FAX:913-541-1729
MD Columbia, Tyler Griffin Co. 301-995-1215, FAX:301-995-0344
MA Belmont, Elctrn. Comps. & Svc. 617-484-8680, FAX:617-484-8693
MI Beachwood, Elctrn. Sls. Masters, Inc. 216-831-9555,FAX:216-831-8647
MN Minneapolis, A. J. Warner Co. 612-823-8272
MO St. Louis, Midtec Assocs., Inc. 314-275-8666, FAX:314-275-8859
NJ Ocean, P. Saftler Assocs. 908-922-3014, FAX:908-922-8198
NM Albuquerque, Moss Mktg. 505-292-7505, FAX:602-249-4767
NY Fulton, P. Saftler Assocs. 315-592-7184, FAX:315-592-4152
NY Lynbrook, P. Saftler Assoc. 516-593-7880, FAX:516-593-7637
NC Charlotte, PAR Assocs., Inc. 704-535-9858, FAX:704-535-5347
OH Columbus, McFadden Sls. 614-761-3177, FAX:614-761-2487
OK Tulsa, Advance Tech. Sls. 918-664-0482, FAX:918-664-5467
OR Hillsboro, Doran Sls. Assocs., Inc. 503-640-4500, FAX:503-640-4555
PA Paoli, T. Griffin Co. 215-647-1550, FAX:215-640-4652
TX Austin, Advance Tech. Sls. 512-467-9209, FAX:512-467-9405
TX Dallas, Advance Tech. Sls. 214-340-1300, FAX:214-340-5598
TX Houston, Advance Tech. Sls. 713-440-3888, FAX:713-440-4437
UT Salt Lake City, Moss Mktg. 801-363-5875, FAX:801-328-8236
WA Redmond, Doran Sls. Assocs., Inc. 206-885-1885, FAX:206-869-1887

Local Distributors

AZ Phoenix, Dalis Elctrns. 602-275-2626, FAX:602-275-0578
CA Los Angeles, Elect. Switches 213-664-1141
CO Littleton, Display Plus 303-730-7333, FAX:303-795-8298
GA Marietta, Peach State Instrs. 404-971-5050
ID Boise, Radar Elec. 208-336-2227, FAX:208-336-2322
MA Waltham, Linear Elctrns. 617-894-7300
MI Ann Arbor, Wedemeyer Elctrns. 313-665-8611
NJ Dover, Electrospec 201-361-6300, FAX:201-361-7868
NM Albuquerque, Bestech 505-298-0034, FAX:505-296-3422
NY Hauppauge, Broadline Elctrn. Dist. 516-231-4100
NC Charlotte, Lakeland Engrg. & Equip. 704-597-0044, FAX:704-597-7957
OR Portland, Radar Elec. 503-232-3404, FAX:503-235-0428
TX El Paso, Ideal Indl. Elctrn. 915-779-6647
WA Richland, Radar Elec. 509-943-8336, FAX:509-943-6790
WA Seattle, Radar Elec. 206-282-2511, FAX:206-282-1598
WA Spokane, Radar Elec. 509-747-3053

BUD INDUSTRIES, INC., 4605 E. 355th St., Willoughby, OH 44094-0431, Tel: 216-946-3200, FAX: 216-951-4015; FSC No.: 71218; Empl.: 200; *Sls. Mgr.:* Bill DeRoche; *Dist. Mgr.:* B. K. Haas

BUEHLER PRODUCTS, INC., P. O. Box 33400, Raleigh, NC 27636, Tel: 919-469-8522, TWX: 510-924-2474; Empl.: 400; *Sls. Mgr.:* D. Frank Slightom

BUGGIE H. H., See Caton Connector Corp.

BULBTRONICS, INC., 45 Banfi Plaza, Farmingdale, NY 11735, Tel: 516-249-2272, 1-800-654-8542, FAX: 516-249-6066; FSC No.: 6240; Empl.: 55; *Sls. Mgr.:* Linda Darmstad; *Dist. Mgr.:* Elayne Gray

BULOVA WATCH CO., See Frequency Control Prods., Inc., American Time Prods. Div.

BUMPER SPECIALTIES, INC., 14 King St., P.O. Box 45, Mt. Holly, NJ 08060, Tel: 609-261-8100, 800-541-2500, FAX: 609-261-7300; *Sls. Mgr.:* Ed Rosenthal

BUNTING MAGNETICS CO., 500 So. Spencer Rd., Newton, KS 67114, Tel: 316-284-2020, 800-835-2526, FAX: 316-283-4975; Empl.: 120; *Sls. Mgr.:* Robert J. Bunting

BURBANK SHEET METAL WORKS INC., 156 W. Verdugo Ave., Burbank, CA 91502, Tel: 818-846-0316, FAX: 818-846-0359; Empl.: 12

Burgess SAIA, INC.

FAX: 708-215-9606

BURGESS-SAIA, INC., 1335 Barclay Blvd., Buffalo Grove, IL 60089, Tel: 708-215-9600; FSC No.: 6U850; *Sls. Mgr.:* Robin Dick; *Dist. Mgr.:* Robin Dick ..... **B•1249, 1652-1653**

Local Sales Offices & Reps

CA Milpitas, Maxim Elctrn. Sls. 408-946-6001
CA Mountain View, Westech Sls. 415-961-1422
CA Tustin, Sierra Pacific Engrg. 714-731-3411
CO Littleton, Harthun Assoc. 303-795-5545
CO Louisville, MJM Mktg.Inc. 303-666-9177
FL Ft. Lauderdale, Synergistic Technlgs. 305-791-8255
FL Melbourne, Synergistic Technlgs. 407-242-9661
FL Odessa, Synergistic Technlgs. 813-920-5814
FL Orlando, Motion Prods. Inc. 407-381-8480
FL Palm Harbor, Synergistic Technlgs. ... 813-785-7238
FL Pompano,Bch., Motion Prods. Inc. 305-783-9003
GA Atlanta, Murphy and Cota 404-875-2525
IL Des Plaines, Lincoln Hodges Inc. 708-297-3810
IL Schaumburg, Tech-Tron Sls., Inc. 708-843-7530
IN Indianapolis, Wilson Tech. Sls. 317-872-2513
KS Overland Pk., Singer Indl. Sls. 913-897-2008
KS Overland Pk., Singer Indl. Sls. 913-381-3684
KS Shawnee Mission, Mertens Co. 913-432-9323
MD Glenarm, Hodgins Assocs. 301-592-7047
MA Braintree, R.F. Duffy Assocs. 617-848-3550
MA Monson, R.F. Duffy Assoc. Inc. 413-267-9884
MI Grand Haven, Hiltronics 616-847-1010
MI Royal Oak, Elctrl. Sys. Co. 313-542-1747
MI Royal Oak, Hilltronics 313-435-0920
MI Warren, AEC/APG 313-751-4646
MN St. Paul, Kencotronics 612-645-7717
MN St. Paul, Vikeland Sls. Inc. 612-645-4647
MO St. Louis, Mertens Co. 314-993-6600
NH Manchester, Peak Sls. 603-485-7325
NH Sandown, Peak Sls. 603-887-2404
NJ Palisades Park, A. P. Technical Sls. ... 201-461-8875
NJ Sussex, Carbone Assocs. 201-875-1882
NY Rochester, Application Specialists 716-586-6226
NC Burlington, Murphy & Cota 919-584-6450
OH Cincinnati, Anderson-Bolds, Inc. 513-528-5680
OH Cleveland, Anderson-Bolds, Inc. 216-360-9800
OH Worthington, Anderson-Bolds Inc. 614-885-3933
OR Hillsboro, Doran Sls. Assocs. 503-640-4500
PA Philadelphia, Kenneth B. Erdman, Co. 215-233-0172
PA Wayne, Hodgins Assocs. 215-688-9056
TX Denton, Motion Reps Inc. 817-382-4159
WA Redmond, Doran Sls. Assocs. 206-885-1885
WI Janesville, Antek Mktg. Corp. 608-754-4214
Can Scarborough, Ont., Burgess Switch Co. 416-299-0852

Local Distributors

AL Muscle Shoals, Jones Elctrns., Inc. 205-383-1241
CA Anaheim, Control Design Supp. 714-821-1516
CA Fresno, Control Elec. 209-268-4411
CA Long Beach, Elctrl. Power & Controls 213-498-6699
CA Redwood City, HdB Elec. 415-368-1388
FL Boca Raton, Zelcon Inc. 407-451-1600
FL Miami, B & R Elctrns. Supp. Inc. 305-255-4510
FL W. Palm Bch., Atlantic Elec. Inc. 407-686-8553
IL Chicago, Leeds Electro Comp. 312-625-3800
IL Harvey, George Elctrns. 708-331-1983
MA Fall River, Broadway Elec. Sls. 508-673-3339
MA Holyoke, Falcetti & Clark Elec. 413-532-9402
MA Medford, Empire Elec. 617-395-5000
NJ Rockaway, NASCO 201-625-7777
MI Grand Rapids, S & F Elctrns. Supp. ... 616-459-0216
MI St. Clair Shores, Spemco 313-771-2700
MN Minneapolis, Elctrn. Center Inc. 612-378-2442
NE Lincoln, Scott Elec. Supp. 402-466-8221
NH Manchester, Cohen Machinery Co. Inc. 603-624-4324
NJ Oakland, Relay Specialties 201-337-1000
NJ South Hackensack, NASSOR 201-641-3737
NY Bronx, Equiptex Ind. Prod. 212-324-1190
NY Roosevelt, Automated Equip. Co. 516-538-7417

NY Woodside, Switches Unlimited 718-478-5000
NC Durham, Triangle Elec. Motor 919-596-1333
NC Gastonia, JMT Elctrns. & Control 704-867-4401
OH Cincinnati, Richards Elec. Supp. 513-242-8800
PA Bristol, Aim Elctrns. 215-785-3500
PA Harrisburg, Cumberland Elctrns. 717-232-5999
PA Lansdale, County Elec. 215-368-1960
RI Providence, J & H Elec. Co., Inc. 401-421-7840
SC Greenville, Sawyer Elctrns. Corp. 803-235-0438
TX San Antonio, Sherman Elec. Supp. Inc. 512-224-1004
VA Charlottsville, Virginia Elect. Comp. ... 804-296-4184
WI Milwaukee, Midwestern Elec. Co. 414-463-1500
WI Racine, Badger Elect. Parts 414-637-1256

BURLEIGH INSTRUMENTS, Burleigh Pk., Fishers, NY 14453, Tel: 716-924-9355, TELEX: 978379, FAX: 716-924-9072; Empl.: 65; *Sls. Mgr.:* Timothy Van Slambrouck; *Dist. Mgr.:* Timothy Van Slambrouck

BURLING INSTRUMENTS, INC., P.O. Box 298, Chatham, NJ 07928-0298, Tel: 201-635-9481, FAX: 201-635-9530; Empl.: 23; *Sls. Mgr.:* Roger Nation

BURNDY CORPORATION, An FCI Company, Richards Ave., Norwalk, CT 06852, Tel: 203-838-4444, FAX: 203-852-6228/6227; Empl.: 3500; *Sls. Mgr.:* Frank Zanattaro

BURR-BROWN CORP., P.O. Box 11400, Tucson, AZ 85734, Tel: 602-746-1111, TELEX: 66-6491, TWX: 910-1111, FAX: 609-741-3895; Empl.: 1500; *Sls. Mgr.:* M. Dickey/B. McGrath/J. Stoupa ..... **D•1637-1639**

Local Sales Offices & Reps
AL Huntsville, Rep Inc. 205-881-9270
CA Los Angeles, Burr-Brown Corp. 818-991-8544, 805-496-7581
CA San Jose, Burr-Brown Corp. 408-559-8600
CA Santa Ana, Burr-Brown Corp. 714-835-0712
CO Denver, Burr-Brown Corp. 303-452-3545
GA Atlanta, Rep Inc. 404-938-4358
IL Arlington Hgts., Burr-Brown Corp. 708-437-2877
IA Cedar Rapids, Rep Assoc. Corp. 319-373-0152
KS Kansas City, BC Elctrn Sls., Inc. 913-342-1211
MD Hunt Valley, Marktron Inc. 301-628-1111
MD Rockville, Marktron Inc. 301-251-8990
MA N. Billerica, Burr-Brown Corp. 508-670-9800
MI Farmington, Burr-Brown Corp. 313-474-6533
MN Bloomington, Electronic Sls. Agency .. 612-884-8291
MO Bridgeton, BC Elctrn Sls., Inc. 314-739-6683
NM Albuquerque, Morrison & Fern, Inc. 505-271-8433
NY Endicott, Advanced Comps. Corp. 607-785-3191
NY Rochester, Advanced Comp. Corp. 716-544-7017
NY Scottsville, Advanced Comps. Corp. 716-889-1429
NY Syracuse, Advanced Comps. Corp. 315-699-2671
NY Syracuse, Expert Inds. 315-455-2469
NY Yonkers, Burr-Brown Corp. 914-964-5252
NC Winston-Salem, Murcota Corp. 919-722-9445
OH Aurora, Meta Tech. Sls. Inc. 216-562-8772
OH Cincinnati, Burr-Brown Corp. 513-891-4711
OH Cleveland, K-T/Depco Mktg. 216-442-6200
PA Pittsburgh, K-T/Depco Mktg. 412-367-1011
PA Spring House, QED Elctrns. 215-643-9200
TN Jefferson City, Rep Inc. 615-475-4105
TX Dallas, Burr-Brown Corp. 214-783-4555
TX Houston, Acudata Inc. 713-580-2451
TX Houston, Burr-Brown Corp. 713-988-6546
TX Plano, Acudata Inc. 214-424-3567
UT Salt Lake City, Aspen Sls., Inc. 801-467-2401
WA Kent, Burr-Brown Corp. 206-859-9220

BURR-BROWN/INTELLIGENT INSTRUMENTATION, See Intelligent Instrumentation/Burr-Brown

BURTON ELECTRICAL ENGINEERING, Wyle Laboratories, 111 Maryland Street, El Segundo, CA 90245, Tel: 213-322-0615, TELEX: 858485, TWX: 910-348-6699, FAX: 213-322-4520; FSC No.: 81861; Empl.: 55; *Sls. Mgr.:* Bill Owen

BUSSCO INC., 119 Standard St., El Segundo, CA 90245, Tel: 213-322-6580, TWX: 910-348-6295, FAX: 213-322-8130; FSC No.: 29593; Empl.: 55

BUSSMANN:COOPER INDUSTRIES, P.O. Box 14460, St. Louis, MO 63178, Tel: 314-394-2877, TELEX: 44 841; FSC No.: ;Multiple; Empl.: 3000; *Sls. Mgr.:* John Monter; *Dist. Mgr.:* John Monter

BYTE CRAFT LIMITED, 421 King St. N., Waterloo, Ont., CAN N2J 4E4, Tel: 519-888-6911, FAX: 519-746-6751; Empl.: 5; *Sls. Mgr.:* Judi Banks

BYTEK CORP., Instrument Systems Div., 543 NW 77th St., Boca Raton, FL 33487-1323, Tel: 407-994-3520, TELEX: 4998369 BYTEK, FAX: 407-994-3615; Empl.: 45; *Sls. Mgr.:* Madeline Selwitz

BYTEX CORP., 120 Turnpike Rd., Southborough, MA 01772, Tel: 508-480-0840, TELEX: 951151; Empl.: 250; *Sls. Mgr.:* Stephen Giambra, VP, Sls.

CABLEFORM INC., Zion Cross Roads, Troy, VA 22974, Tel: 804-589-8224, TELEX: 822434, FAX: 804-589-3803; *Sls. Mgr.:* Richard L. Shannon ... **A•1850-1851; D•1640**

Local Sales Offices & Reps
VA Troy, Cableform, Inc. 804-589-8224
EXP Troy, VA, Cableform, Inc. 804-589-8224

CABLESCAN, INC., Subsidiary of Eubanks Engrg. Co., 145 E. Emerson Ave., Orange, CA 92665, Tel: 714-998-1961, TELEX: 291693, FAX: 714-921-2493; *Sls. Mgr.:* Richard Heintz

CABLESTAR, INCORPORATED, 310 S. Franklin St., Glasgow, KY 42141, Tel: 800-338-8223, FAX: 502-651-2973; Empl.: 25; *Sls. Mgr.:* Larry Hollon

CABLE SYSTEMS, INC., 210 Broadway, Everett, MA 02149, Tel: 617-389-7080, FAX: 617-389-4758; FSC No.: 33426; Empl.: 70; *Sls. Mgr.:* James R. Collmer

CABLETEST

FAX: 416-475-2609

CABLETEST INTERNATIONAL INC., 951 Denison St. E., Unit 21, Markham, Ont., Canada L3G 3W9, Tel: 416-475-2607; Empl.: 50 ..... **D•1230-1233**

Local Sales Offices & Reps
NJ Toms River, Heyco Stamped Prods. .. 908-280-1800

CABLETEST PRODUCTS CO., P.O. Box 494, Malden, MA 02148, Tel: 617-665-2932; Empl.: 28; *Sls. Mgr.:* H. E. Holley; *Dist. Mgr.:* H. E. Holley

CABLETRON SYSTEMS, INC., 35 Industrial Way, Rochester, NH 03867, Tel: 603-332-9400, FAX: 603-332-4616; Empl.: 1500; *Sls. Mgr.:* Jack Branowski

CABLE USA, INC., 2584 So. Horseshoe Dr., Naples, FL 33942-3560, Tel: 813-643-6400, FAX: 813-643-4230; FSC No.: 67050; Empl.: 55; *Sls. Mgr.:* Joe Giordano

CABLEX, INC., 96 Inverness Dr. E., Ste. J, Englewood, CO 80112, Tel: 303-792-5760, FAX: 303-792-3006; Empl.: 50; *Sls. Mgr.:* Ken Harms; *Dist. Mgr.:* Reed C. Mulder

CABOT BERYLCO, DIV. OF CABOT CORP., See NGK Berylco, Div. of NGK Metals Corp.

CABTRON SYSTEMS INC.

FAX: 708-272-1095

CABTRON SYSTEMS, INC., 200 N. Anets Dr., Northbrook, IL 60062, Tel: 708-498-6090; Empl.: 45; *Sls. Mgr.:* Mike Gober ..... **C•1018**

Local Sales Offices & Reps
AZ Tempe, Sierra Tech. Grp. 602-894-2335
CA Hayward, Larsen Assocs. 415-358-9559
CA Orange, XBX Sls., Inc. 714-998-8200
CA San Diego, XBX Sls., Inc. 619-586-1577
CO Englewood, Sierra Tech. Grp. 303-790-1700
CT Watertown, May Tech 203-274-3777
FL Orlando, D.A.I. 407-299-7754
GA Lilburn, Phillip Matthews Corp. 404-381-1662
IN Indianapolis, Liberty Sls. 317-888-8396
KS Wichita, Buckman & Assocs. 316-267-2052
MD Silver Spring, Ansell Engrg. 301-949-1655
MA Reading, May Tech. 617-942-7135
MI Livonia, Lowell-Wendt 313-464-2722
MN St. Paul, Countryman Assocs. 612-645-9151
MO St. Charles, Buckman & Assocs. 314-947-4727
NJ Kenvil, Components for Elctrns. 201-927-6662
NM Organ, Sierra Tech. Grp. 505-382-5542
NC Kings, Phillip Matthews Corp. 919-983-9790,
OH Dayton, Geotronix 513-854-5939
OH Richfield, Geotronix 216-659-6100
OR Portland, McLaren, Inc. 503-297-2248
PA Allison Pk., Geotronix 412-487-1770
PA Blue Bell, Comp. for Elctrns. 215-825-3939
TX Dallas, Dunbar Assocs. 214-239-7151
UT Holladay, Sierra Tech. Grp. 801-272-3733
WA Kirkland, McLaren 206-827-9400

CAC MICROCIRCUITS INC., Bel Fuse, 2 Southgate Dr., Mt. Carmel, IL 62863, Tel: 618-263-4343, FAX: 618-263-4295; Empl.: 148; *Sls. Mgr.:* Warren Mitch ..... **A•1723**

Local Sales Offices & Reps
AL Huntsville, Interep 205-881-1096
AZ Scottsdale, Arcom Sls. 602-947-5745
CA Redwood City, James S. Heaton Co. .. 415-367-9000
CA Valencia, C & N and Assoc. 805-254-5844
CO Boulder, Front Range Mktg. 303-443-4780
FL Longwood, D-Assocs. 407-830-8976
GA Norcross, Interep 404-449-8680
IL Itasca, LTD Technlgs. 708-773-2900
IN Indianapolis, Insul-Reps, Inc. 317-251-1994
IA Cedar Rapids, Dy-Tronix 319-377-8275
KS Wichita, Dy-Tronix Inc. 316-838-0884
MN S. St. Paul, Northport Engrg. 612-457-8000
MO Raytown, Dy-Tronix 913-229-6333
MO St. Louis, Dy-Tronix 314-291-4777
NH Amherst, D. A. Crowley & Assocs., Inc. 603-673-7050
NJ Ft. Lee, Neptune 201-461-2789
NY Plainview, Neptune 516-349-1600
NC Raleigh, Beacon Elctrns. 919-787-0330
OH Cleveland, Arthur H. Baier, Inc. 216-461-6161
OR Beaverton, N.R. Schultz Co. 503-643-1644
PA Hatboro, AQS Electro 215-674-3562
TN Knoxville, Insul-Reps 615-691-7586
TX Austin, Oeler & Menelaides, Inc. 512-453-0275
UT Salt Lake City, Front Range Mktg. 801-566-2500
VA Charlottesville, DVS 804-973-0303
WA Bellevue, N.R. Schultz Co. 206-746-1890
WI Milwaukee, LTD Technlgs. 414-774-1000

CADDELL-BURNS MFG., 258 E. 2nd St., Mineola, NY 11501-3508, Tel: 516-746-2310, FAX: 516-742-2416; Empl.: 30 ..... **A•1172-1186**

CADDELL COIL CORP., P.O. Box 1235, South St., Middletown Springs, VT 05757, Tel: 802-235-2019; Empl.: 6; *Sls. Mgr.:* James Caddell

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Local Sales Offices & Reps

OH	Cleveland, Arthur H. Baier Co.	216-461-6161
OH	Dayton, Arthur H. Baier Co.	513-276-4128
OR	Beaverton, Elctrn. Sources	503-627-0838
WA	Bellevue, Elctrn. Sources	206-451-3500

Local Distributors

TX	Houston, Lenert Co.	713-225-1465

CAD ENGRG. & ASSEMBLY INC., 8663 Tyler Blvd, Mentor, OH 44060, Tel: 216-255-7744, FAX: 216-255-5900; Empl.: 28

CADILLAC PLASTIC & CHEM. CO. DIV. OF M.A. HANNA, 143 Indusco Ct., Troy, MI 48083, Tel: 313-583-1200, TWX: 810-232-1886, FAX: 313-583-4715; Empl.: 1000

CAD UTILITY CO., 21115 Devonshire St., Ste.318, Chatsworth, CA 91311, Tel: 805-527-8630, FAX: 805-526-5093; Empl.: 6; *Sls. Mgr.:* Stan Chambers

CAIG LABS., 1175-0 Industrial Ave., Escondido, CA 92029-1431, Tel: 619-743-7143, FAX: 619-743-2460; Empl.: 15; *Sls. Mgr.:* Laurie Skultety; *Dist. Mgr.:* Laurie Skultety

CALABRO INDS., INC., See UNITRACK Div., Calabro Inds., Inc.

CAL-AV, INC., 515B Westchester Drive, Campbell, CA 95008, Tel: 408-371-0666, FAX: 408-371-0672; Empl.: 8

CALAY SYSTEMS, INC., 16842 Von Karman Ave., No. 100, Irvine, CA 92714, Tel: 714-863-1700, TELEX: 6711321, FAX: 714-863-0310; Empl.: 70

CAL CRYSTAL LAB., INC., 1142 N. Gilbert, Anaheim, CA 92801, Tel: 714-991-1580, 800-333-9825, FAX: 714-491-9825; Empl.: 30; *Sls. Mgr.:* Audrey Gevers

CALEX MFG. CO., INC., 3355 Vincent Rd., Pleasant Hill, CA 94523, Tel: 510-932-3911, TELEX: 269888, FAX: 510-932-6017; FSC No.: 29988; Empl.: 75; *Sls. Mgr.:* Steve Mathias ..... **D•1008, 1641-1648**

Local Sales Offices & Reps

CA	Long Bch., Saber Entprs., Inc.	213-595-5646
CA	Mtn. View, Saber Entprs., Inc.	415-968-0427
CA	San Diego, Saber Entprs., Inc.	619-271-1523
CO	Parker, Davis Assocs.	303-841-8648
CT	Tolland, R.G. Assocs.	203-875-4201
GA	Marietta, Testech Entprs., Inc.	404-971-2298
IL	Carpentersville, Precision Meas. Prods. Inc.	708-426-4446
MA	Hanover, R.G. Assocs.	617-293-5233
MA	Lowell, R.G. Assocs.	508-458-9802
NJ	Cherry Hill, Analectro Tech. Rep., Inc.	609-795-6676
NC	Richfield, Geotronix	216-659-6100
OH	Trotwood, Geotronix	513-854-5939
OR	Portland, Topp Engrg.	503-244-7265
PA	Allison Pk., Geotronix	412-487-1770
MI	Sterling Hgts., Geotronix	313-254-0520
TX	Houston, Chauvin Engrg. Co.	713-668-4770
TX	Richardson, Chauvin Engrg. Co.	214-220-1234
VA	Burke, Analectro Tech. Rep., Inc.	703-922-4317
WA	Bellevue, Topp Engrg. Sls. Co.	206-747-5400
WA	Greenacres, Topp Engrg. Sls.	509-928-4177

Local Distributors

OH	Richfield, Alpha Distr.	216-659-7100

CALIBRON INSTRUMENTS, Burton-Rogers Co., 220 Grove St., Waltham, MA 02154, Tel: 617-894-6440, FAX: 617-893-8393; Empl.: 14; *Dist. Mgr.:* W. Burton

CALIFORNIA AUTOMATION INC., 11815 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-452-1341

CALIFORNIA AVIONICS LABS., See Cal-Av, Inc.

CALIFORNIA DC, 2150 Anchor Ct., Newbury Park, CA 91320, Tel: 805-499-3621, FAX: 805-498-8381; Empl.: 100; *Sls. Mgr.:* C. Paton; *Dist. Mgr.:* C. Paton

CALIFORNIA EASTERN LABS. INC., 4590 Patrick Henry Dr., Santa Clara, CA 95056-0964, Tel: 408-988-3500, TELEX: 346393, TWX: 171197; Empl.: 118

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FAX: 619-279-8139

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AZ	Tempe, Sci. Dvcs.-West	602-730-9774
CA	Huntington Beach, Sci. Dvcs. West	714-840-3501
CA	San Jose, Scientific Dvcs.	408-554-0455
CO	Broomfield, Sci. Dvcs.-West	303-469-5145
CT	Mt. Carmel, Sci. Dvcs.-NE	203-248-9361
FL	Orlando, Scientific Dvcs.-SE	407-841-8180
IL	Arlington Hts., Berndt Assoc.	708-632-0900
IN	Carmel, Berndt Assoc.	317-844-0114
KS	Overland Park, Ramsey Assocs.	913-541-1007
LA	Metairie, Data Mktg. Assocs.	504-833-3655
MD	Hunt Valley, Electronic Resources, Inc.	301-584-7547
MA	Waltham, Sci. Dvcs.-NE	617-890-5816
MN	Minneapolis, Berndt Assoc.	612-546-2021
MO	St. Louis, Ramsey Assocs.	314-532-9386
NJ	Ridgefield Park, Sci. Dvcs. East, Inc.	201-440-3430
NM	Albuquerque, Sci. Dvcs.-West	505-883-3668
NY	Rochester, TAE-Rep, Inc.	716-586-8710
NY	Whitney Pt., TAE-Rep, Inc.	607-692-3705
NC	Raleigh, Sci. Dvcs.-SE	919-859-0868
OH	Cincinnati, Dietrich & Assoc.	513-984-8924
OH	Independence, Dietrich & Assoc.	216-642-7965
OK	Tulsa, Data Mktg. Assocs.	918-494-2711
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CALIFORNIA MICROWAVE, 990 Almanor Ave., Sunnyvale, CA 94086, Tel: 408-732-4000, TELEX: 35 2016, TWX: 910-339-9231, FAX: 408-732-4244; Empl.: 1020

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FAX: 818-287-7350

CALMARK CORP., 4915 Walnut Grove Ave., San Gabriel, CA 91776, Tel: 818-287-0451; FSC No.: 52094; Empl.: 90; *Sls. Mgr.:* Peter Jeanseau; *Dist. Mgr.:* Peter Jeanseau ..... **C•1019**

Local Sales Offices & Reps

AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Oceanside, Noo Rep. Tech. Sls.	619-941-0558
CA	San Gabriel, Calmark Corp.	818-287-0451
CA	Santa Clara, Calmark Corp.	408-988-1260
FL	Winter Springs, Sunland Assocs.	407-365-9533
IL	Downers Grove, Golten Assoc.	708-512-0093
IA	Cedar Rapids, Stan Clothier Co.	319-393-1576
KS	Olathe, Stan Clothier Co.	913-829-0013
MD	Cockeysville, Dalbrook Corp.	301-666-2212
MI	Farmington Hills, W.R.Hummon	313-474-0661
MN	St. Paul, Innovate Sls.	612-225-9772
MO	St. Charles, Stan Clothier Co.	314-928-8078
NJ	Fort Lee, Neptune Elect.	201-461-2789
NY	E. Syracuse, Fountain, Young & Co.	315-437-7733
NY	Plainview, Neptune Elect.	516-349-1600
NC	Matthews, Arthur, Harris & Assocs.	704-845-1085
OH	Miamisburg, Electronics Comps., Inc.	513-866-3340
OH	Rocky River, Electronic Comps., Inc.	216-331-5330
OR	Beaverton, Unicomp, Inc.	503-643-1645
PA	Colmar, Dalbrook Corp.	215-997-2770
TX	Richardson, Zonk Assocs.	214-238-7651
TX	Stafford, Zonk & Assocs.	713-561-7777
WA	Snohomish, Unicomp, Inc.	206-568-0511
EXP	Ireland/Cappoquin, Calmark Ireland, Ltd.	353-58-54205
EXP	San Gabriel, CA, Calmark Corp.	818-287-0451
PR	Santruce, SISCO	809-726-3137
Can	Islington, Ont., Pipe-Thompson Ltd.	416-236-2355

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CO	Denver, Solder Tec.	303-623-5000
IL	Elk Grove, Martec Assocs.	708-956-8090
MD	Beltsville, Petricko, Inc.	301-937-4960
MA	Haverhill, Cord	617-374-0100
MN	Minneapolis, Aero-Space Computer Supp.	612-884-4725
NJ	Corbin City, Index	609-628-4040
NM	Albuquerque, Betatron	505-821-1122
NY	Elmsford, Multimetrics Co.	914-347-3667
NY	Endwell, Pryme-Line Distrs.	607-748-5200
OH	Miamisburg, E.C.I. Distrs.	513-866-3340
TX	El Paso, International Elex.	915-598-3406
TX	Richardson, Zec Sls.	214-669-0895
Can	Mississauga, Ont., Rush Elex. Ltd.	416-677-7280

CALMOS SEMICONDUCTOR, INC., 20 Edgewater Street, Kanata, Ontario, Canada K2L 1V8, Tel: 613-836-1014, 800-267-7231, TELEX: 053-4501, FAX: 613-831-1742; Empl.: 52; *Sls. Mgr.:* Vince Venebs; *Dist. Mgr.:* Carol Norton

CAL-R, INC., See Sfernice, Inc.

CAL-SCOPE, Exceltron Inc., 473-707 Macara Ave., Sunnyvale, CA 94086, Tel: 408-730-4573, 1-800-828-3547, FAX: 408-730-9537; Empl.: 4; *Sls. Mgr.:* Michi A. Kawaguchi

CAL-TEK ENGINEERING, 36 Riverside Drive, Kingston, MA 02364, Tel: 617-585-5666; Empl.: 5

CAMBRIDGE AEROFLO, INC., 900 Mt. Laurel Circle, Shirley, MA 01464, Tel: 508-45-2346, TELEX: 948503, FAX: 508-425-2338; Empl.: 25

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CAMBRIDGE INSTRUMENTS, INC., Optical Systems Division, P.O. Box 123, Buffalo, NY 14240, Tel: 716-891-3000, TELEX: 91-285 REICHERT BUF UW; Empl.: 650; *Sls. Mgr.:* Ronald Armstrong, VP Sls. & Mktg.

CAMBRIDGE PRODUCTS, 244 Woodland Ave., Bloomfield, CT 06002, Tel: 203-243-1761, 800-243-8814, FAX: 203-242-7006; Empl.: 32; *Sls. Mgr.:* Bill Pitcher; *Dist. Mgr.:* Bill Pitcher

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CA	Los Altos, Ewing-Foley	415-941-4525
CA	Montrose, Luscombe Eng.	818-249-9000
CA	San Diego, Luscombe Eng.	619-292-4323
CO	Boulder, Front Range Mktg.	303-443-4780
FL	Boca Raton, Beacon Elctrns.	407-997-5740
FL	Longwood, Beacon Elctrns.	407-332-1940
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Elk Grove Vlg., Control Sls.	708-595-2110
IN	Carmel, Technlg. Mktg. Corp.	317-844-8462
IN	Ft. Wayne, Technlg. Mktg. Corp.	219-432-5553
MO	Raytown, Cen Tech, Inc.	816-358-8100
KY	Louisville, Bromberg & Assoc.	502-456-1498
KY	Louisville, Technlg. Mktg. Corp.	502-893-1377
MD	Randallstown, Beacon North, Inc.	703-478-2480
MI	Farmington Hills, Rathsburg Assoc.	313-489-1500
MN	Minnetonka, Gibb Elctrns.	612-935-4600
MO	Bridgeton, Cen Tech, Inc.	314-291-4230
MO	Kansas City, Hill & Co.	816-361-1669
MO	St. Louis, Hill & Co.	314-842-6868
NM	Albuquerque, Reptronix	505-292-1718
NY	Port Washington, Ashtec, Inc.	516-767-0336
NY	Victor, Net Sls.	716-924-1844
NC	Raleigh, Beacon Elctrns.	919-787-0330
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OH	Beachwood, Thompson & Assocs.	216-831-6277
OH	Dayton, Thompson & Assocs.	513-435-7733
OR	Tigard, LD Elctrns.	503-684-8221
PA	Santurce, Beacon Elctrns.	809-728-5040
PA	Wayne, Quality Comps.	215-687-3553
TX	Austin, R. F. Kimball Co., Inc.	512-443-5284
TX	Richardson, R. F. Kimball Co.	214-231-3447
UT	Salt Lake City, Aspen Sls., Inc.	801-467-2401
VA	Sterling, Beacon North	703-478-2480
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883
WI	Brookfield, Control Sls.	414-797-9500
Can	Markham, Ont., Avotronics, Ltd.	416-475-2024
Can	Pointe Clare, QUE, Avotronics, Ltd.	514-697-2135

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CANDELA LASER CORPORATION, 530 Boston Post Rd., Wayland, MA 01778, Tel: 508-358-7637, TELEX: 216475, FAX: 508-358-5602; Empl.: 171; *Sls. Mgr.:* Philip Crowby

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FAX: 516-354-1114

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Local Sales Offices & Reps

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CANYON ELCTRNS., 2001 W. North Lane, Phoenix, AZ 85021, Tel: 602-944-4421, FAX: 602-943-0739; *Sls. Mgr.:* George J. Mitlak ..... **B•1043**

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CAPCON, INC., 147 West 25th Street, New York, NY 10001, Tel: 212-243-6275, FAX: 212-645-0185; *Sls. Mgr.:* Ed Reeves; *Dist. Mgr.:* B. Cameron

CAPINTEC INSTRUMENTS, 6 Arrow Rd., Ramsey, NJ 07446, Tel: 201-825-9500, TELEX: 642375, FAX: 201-825-1336; FSC No.: 6666;6685; Empl.: 150; *Sls. Mgr.:* Eric Weis; *Dist. Mgr.:* Robert Kanzler

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CAPITOL SWITCH INC., Box 609, Bethel, CT 06801, Tel: 203-744-3300; FSC No.: 01548; Empl.: 30 ..... **B•1656**

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CA	San Diego, Tauber & Assoc.	619-274-7247
GA	Marietta, B-C Elctrn. Sls. Inc.	404-565-2088
IL	Barrington, Richard Fisk Mktg., Inc.	312-381-0653
NY	Marcellus, Mullahy Sls., Inc.	315-685-6280
OH	Dayton, Lessis Assoc.	513-294-1551
PA	Southampton, Campbell Assoc.	215-322-6630

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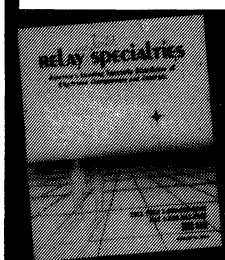

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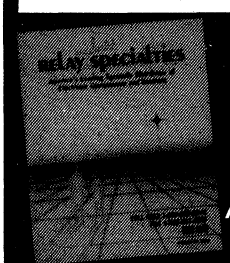

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MA	Hopkinton, Berkshire Elctrns.	508-435-9356
MI	Lathrup Village, R. C. Nordstrom & Co.	313-559-7373
MN	Crystal, Technical Comp.	612-536-9512
MO	Clayton, Mertens Co.	314-993-6600
NH	Nashua, Berkshire Elctrns.	603-888-1668
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NJ	Eatontown, Pacent Engrg.	908-389-1409
NY	Great Neck, Pacent Engrg.	516-482-4678
NY	Rochester, VDE Elctrns.	716-473-5015
NC	Siler City, Crossroads Elctrns. Assoc.	919-742-2372
OH	Columbus, Gerry Bryant	614-870-7338
OR	Hillsboro, Temco Northwest	503-645-2030
SC	W. Columbia, Crossroads Elctrns.	803-791-8898
TX	Dallas, Control Comps.	214-458-8877
UT	Salt Lake City, Quorum 3 Sls. Grp.	801-943-9227
WA	Bothell, Temco Northwest	206-481-6150
WI	Mequon, Wm. Bolles Assocs.	414-241-3320
Can	Markham, Ont., Deskin Sls.	416-475-1412

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CT	Hartford, Wes-Garde Comps.	203-527-7705
CT	Wallingford, Sager Elec. Supp.	203-265-4600
FL	Lakeland, Wes-Garde Comps.	813-644-7564
IL	Carol Stream, Wes-Garde Comps.	708-653-1460
IL	Wheeling, Hawk Elctrns.	708-459-4030
IN	Indianapolis, D-M Assoc.	317-842-4424
IN	Indianapolis, Mar Elctrns., Inc.	317-633-6699
IA	Davenport, Industrial Eng. Equip.	319-323-9721
KS	Wichita, RSC Elctrns.	316-267-5213
MD	Columbia, Sager Elec. Supp.	301-995-6580
MD	Jessup, Treeko Sls., Inc.	1-800-638-0582
MA	Hingham, Sager Elec. Supp.	617-749-6700
MI	St. Clair Shores, Spemco	313-771-2700
MN	Minneapolis, Bergquist Co.	612-835-2322
MN	Minneapolis, Stark Elctrns.	612-332-1325
IL	Lincolnshire, Grainger	708-913-8333
MO	St. Louis, Wes-Garde Comp.	314-567-7776
NH	Nashua, Wes-Garde Comp.	603-880-1971
NH	Salem, Sager Elec. Supp.	603-898-1348
NJ	Oakland, Relay Specialties	201-337-1000
NY	Hauppauge, Sager Elec. Supp.	516-348-1300
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
NY	Woodside, Switches Unltd.	718-478-5000
NC	Raleigh, Sager Elec. Supp.	919-850-9550
OH	Cincinnati, Schuster	513-489-1400
OH	Cleveland, Repco Elctrns.	216-248-8900
OH	Westerville, Wes-Garde Comps.	614-885-0319
OK	Oklahoma City, RSC Elctrns.	405-631-7729
OR	Beaverton, Component Resources	503-641-8488
OR	Beaverton, Cypress Elctrns.	503-641-2233
OR	Portland, Johnstone Supp.	503-231-4833
PA	Mars, Sager Elec. Supp.	412-772-2233
PA	McKean, Advacom, Inc.	814-476-7774
PA	Philadelphia, Sager Elec.	215-464-4336
SC	Columbia, Dixie Elctrns.	803-779-5332
IL	Chicago, Newark Elctrns.	800-367-3573
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Dallas, Wes-Garde Comps.	214-357-1768
TX	Ft. Worth, Allied Elctrns., Inc.	817-336-5401
WA	Bothell, Cypress Elctrns.	206-483-1144
WA	Kent, Component Resources	206-454-8666
WA	Seattle, Radar Elec.	206-282-2511
WI	Cedarburg, A.A. Elec.	414-377-8000
WI	Waukesha, Hawk Elctrns.	414-547-4457

CARLON, A Div. of Lamson & Sessions, 25701 Science Park Drive, Cleveland, OH 44122, Tel: 216-831-4000, TELEX: 98-5300 BCWD, FAX: 216-831-3208; Empl.: 120

CAROL CABLE CO. INC., 249 Roosevelt Ave., Pawtucket, RI 02862, Tel: 401-728-7000, TELEX: 927-750, FAX: 401-724-3446; FSC No.: 53909; Empl.: 3000; *Sls. Mgr.:* Tim Danby

CAROLINA STEEL & WIRE, P.O. Box 829, Lexington, SC 29073-0829, Tel: 803-359-5501, TELEX: 573355, FAX: 803-359-1201; FSC No.: 72954; Empl.: 125

CAROL METAL PRODUCTS, 3949 Grove Ave., Gurnee, IL 60031, Tel: 708-244-3230, FAX: 708-662-5292; Empl.: 23; *Sls. Mgr.:* Terry Pullega

CARPENTER TECHNOLOGY CORP., P.O. Box 14662, Reading, PA 19612, Tel: 215-371-2000, TELEX: 836-432; Empl.: 3,600; *Sls. Mgr.:* W. M. Mc Cue

CARROLL TOUCH, INC., P.O. Box 1309, Round Rock, TX 78680, Tel: 512-244-3500, FAX: 512-244-7040; Empl.: 75; *Sls. Mgr.:* Jim Welchly

CARROT COMPONENTS CORPORATION, 4620 Calle Quetzal, Camarillo, CA 93012, Tel: 805-484-0540, FAX: 805-484-7458; Empl.: 14; *Sls. Mgr.:* Kenneth E. Rhines; *Dist. Mgr.:* Kenneth E. Rhines

Local Sales Offices & Reps

AZ	Scottsdale, SMS & Assocs.	602-998-0831
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CA	Los Altos, Nickerson-Gray	415-941-5777
CO	Englewood, Sage Assoc.	303-790-1177
FL	Altamonte Springs, DHR Mktg.	407-331-1199
IL	Bensenville, Horizon Tech. Sls.	312-860-7900
IN	Indianapolis, Current Elex. Mktg.	317-257-1851
MD	Gaithersburg, Carwithen Assocs., Inc.	301-921-9545
MI	Northville, Shamrock Sls.	313-344-2586
MN	Minneapolis, Microelectronic Sls.	612-829-0948

MO Manchester, Lima & Assocs. 314-256-4727
KS Prairie Village, Lima & Assocs. 913-642-7471
NJ New Brunswick, Synergy Sls. 201-828-5090
NY Dryden, Sturges Elctrn. Inc. 607-844-8604
NC Raleigh, DHR Mktg. 919-829-1970
OH Dayton, Shamrock Elex. Sls. 513-258-1727
OR Beaverton, N.R. Schultz Co. 503-643-1644
PA Prospect Pk., Elf Sls. 215-534-3340
MA Manomet, RJR Assocs. 508-858-3980
TX Dallas, Hamilton Elctrns. 214-987-3326
WA Bellevue, N. R. Schultz Co. 206-454-0300, 206-455-1601
Can Montreal, Que., Shelley Newman 514-486-6984

CARSON MANUFACTURING CO., INC., 5451 N. Rural St., P. O. Box 20464, Indianapolis, IN 46220, Tel: 317-257-3191, FAX: 317-254-2667; Empl.: 85

CARTER MANUFACTURING CORPORATION, 237 Sugar Road, Bolton, MA 01740, Tel: 508-779-5501, FAX: 508-779-6166; FSC No.: 03929; Empl.: 30; *Sls. Mgr.:* Leo T. Nichols, VP Sls.

CARTER MOTOR, 400 Stagecoach Trail, Warren, IL 61087-0647, Tel: 815-745-2100, FAX: 815-745-2135; *Sls. Mgr.:* John W. Smith III

CASEMAKER, Stebco Industries, Inc., 1020 West 40th Street, Chicago, IL 60609, Tel: 312-254-1221, TWX: 910-221-2470, FAX: 312-254-4030; FSC No.: 36-2405334; Empl.: 25

CASSO-SOLAR, P.O. Box 163, U.S. Route 202, Pomona, NY 10970, Tel: 914-354-2500, TELEX: 475-4099, FAX: 914-362-1856; Empl.: 50; *Sls. Mgr.:* T. Corl

CASTALL INC., Weymouth Ind. Pk, E. Weymouth, MA 02189, Tel: 617-337-6075, FAX: 617-337-2820; FSC No.: 04-2459700; Empl.: 32; *Sls. Mgr.:* Charles Howland; *Dist. Mgr.:* Joseph Mc Donough

CATALYST RESEARCH, Mine Safety Appliances Co., Inc., 3706 Crondall La., Owings Mills, MD 21117, Tel: 301-356-2400, TELEX: 87768, FAX: 301-581-0346; FSC No.: 00681; Empl.: 275; *Sls. Mgr.:* Mark Dilliplaine; *Dist. Mgr.:* Edward S. Hatch, Jr.

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CATEL TELECOMMUNICATIONS, 4050 Technology Pl., Fremont, CA 94537, Tel: 415-659-8988, FAX: 415-651-8437; Empl.: 150; *Sls. Mgr.:* James F. Caldwell

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FAX: 617-585-2973

CATON CONNECTOR CORP., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, Tel: 617-585-4315; FSC No.: 52196; Empl.: 28; *Sls. Mgr.:* D. Galambos ..... **C•1311-1315**

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CA LaHabra, Cygnus Sls. Engrg. 213-691-2993
GA Atlanta, Electro Tech. Prods. 404-262-1522
MA Tewksbury, Sequal Assocs. 617-851-4010
NM Albuquerque, Westfahl & Assocs. 505-881-0995
NY Plainview, Neptune Elctrns. 516-349-1600
OH Cincinnati, Delta Sales 513-271-5444

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FAX: 213-828-0846

CBM AMERICA CORP., 2020 Santa Monica Blvd. Ste. 410, Santa Monica, CA 90404, Tel: 213-828-8245, TELEX: 182508; Empl.: 20; *Dist. Mgr.:* Robin Pierce ..... **D•1082-1083**

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CA Los Angeles, MFI 213-826-8133
NY Hewlett, Metropolitan Sls. 516-599-7900
TX Dallas, R Squared Elctrns. 214-406-1117
Can Concord, CBC 416-660-1616
Can Toronto, TLS 416-479-1911
Can Toronto, Ont., TLS 416-479-1911

CCD IMAGING, Fairchild Weston Systems, Inc., 1801 McCarthy Blvd., Milpitas, CA 95035, Tel: 408-433-2500; *Sls. Mgr.:* Jim Johnson

C-COR ELCTRNS., 60 Decibel Rd., State College, PA 16801, Tel: 814-238-2461, 800-233-2267, FAX: 814-238-4065; FSC No.: 12775; Empl.: 530; *Sls. Mgr.:* J. Hastings

CCP/TECHNICAL DEVICES, 8529 North Dixie Dr., Dayton, OH 45414, Tel: 513-890-7881, FAX: 513-890-5136; Empl.: 12 ..... **D•1649**

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GA Chamblee, BCI, Inc. 404-455-0405
IL Darien, Rah Assocs. 708-963-5401
MN Plymouth, C & L Elctrns. 612-557-9944
NH Hampton, Primary Source 603-926-8044
NC Raleigh, Spears & Assocs. 919-790-7606
OH Dayton, Tech. Dvcs. 513-890-6811

CDRL DATA, INC., 21642 North 9th Ave., Suite 103, Phoenix, AZ 85027-2823, Tel: 602-582-8844, FAX: 602-582-2199; FSC No.: 56060; Empl.: 25; *Sls. Mgr.:* Roy T. Alberti

CDS - COLORADO DATA SYS., 3301 W. Hampden, Unit C, Englewood, CO 80110, Tel: 303-762-1640, 800-CDS-ATE1, TWX: 910-933-0193, FAX: 303-781-0253; Empl.: 80; *Sls. Mgr.:* Bob Frodge

CEC, 330 W. Taft Ave., Orange, CA 92665, Tel: 714-637-2970, FAX: 714-637-8654; Empl.: 58

CEAG

FAX: 516-582-4922

CEC ELECTRONICS CORP., 1324 Motor Pkwy., Hauppauge, NY 11788, Tel: 516-582-4422; FSC No.: 57973; Empl.: 200; *Sls. Mgr.:* John Carroll ..... **D•1650-1651**

Local Sales Offices & Reps
MD Ellicott City, MD, Tytronics Tech. 301-465-5944
TX Richardson, TX, Jim Gray & Assocs. .. 214-699-9976
VA Fairfax, VA, Tytronics Tech. 703-323-9640
VA Reston,VA, Tytronics Tech. 703-620-4600

CEC INSTRUMENTS, Imo Industries Inc., 955 Overland Ct., San Dimas, CA 91773, Tel: 714-394-4410, TELEX: 200445 RCA; Empl.: 200; *Sls. Mgr.:* Jim Eakins

CELADON CORPORATION, 400 Fifth Ave., Waltham, MA 02154, Tel: 617-290-5775, FAX: 617-890-1340; *Sls. Mgr.:* Ms. Corinne Schneider

CELCO, 70 Constantine Dr., Mahwah, NJ 07430, Tel: 201-327-1123, TWX: 710-988-1018; FSC No.: 05954; Empl.: 25; *Sls. Mgr.:* Art Weirgen, Engrg. Sls. Mgr.

CELESCO TRANSDUCER PRODS., INC., 7800 Deering Ave., Canoga Pk., CA 91304-5005, Tel: 818-884-6860, TELEX: 499-8137; *Sls. Mgr.:* Richard Proud

CELESTION INDUSTRIES, INC., 89 Doug Brown Way, Holliston, MA 01746, Tel: 508-429-6706, TELEX: 948417, FAX: 508-429-2426; *Sls. Mgr.:* Brian Coviello; *Dist. Mgr.:* Steve Chandler

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FAX: 215-363-8719

CELL-CON, INC., 305 Commerce Dr., Exton, PA 19341, Tel: 215-363-8552; Empl.: 14; *Sls. Mgr.:* Gene Kiley Jr. ..... **D•1436**

Local Sales Offices & Reps
CT Essex, Winslow Elec. Co. 203-767-8229
TX Dallas, REM Comps. 214-234-1069

Local Distributors
PA Bensalem, Scott's Emergency Lighting 215-639-1777

CENTECH CORPORATION, 200 W. 88th St., Minneapolis, MN 55420, Tel: 612-881-8245, TWX: 431-0015-L8M, FAX: 612-881-4137

CENTENT CO., 3879 S. Main St., Santa Ana, CA 92707, Tel: 714-979-6491; Empl.: 14; *Sls. Mgr.:* A. Freimanis

CENTRALAB, See Mepco/Centralab

CENTRAL DATA CORP., 1602 Newton Dr., Champaign, IL 61821, Tel: 217-359-8010, FAX: 217-359-6904; Empl.: 60; *Sls. Mgr.:* Avon Morgan; *Dist. Mgr.:* Avon Morgan

CENTRAL SEMICONDUCTOR CORP., 145 Adams Ave., Hauppauge, NY 11788, Tel: 516-435-1110, FAX: 516-435-1824; Empl.: 50

CENTRONIC, INC., THE MORGAN CRUCIBLE COMPANY, SPEC. MATLS. & TECH DIVISION, 1829 B DeHavilland Dr., Dept. E, Newbury Park, CA 91320-1702, Tel: 805-499-5902, FAX: 805-499-7770; FSC No.: 63334; Empl.: 23; *Sls. Mgr.:* George Pankau; *Dist. Mgr.:* Yuval Tamari ..... **B•1322**

Local Sales Offices & Reps
CA Newbury Pk., Centronic, Inc., E-O Comps. Div. 805-499-5902

CENTURION INTERNATIONAL, INC., 3425 N. 44 St., Lincoln, NE 68504, Tel: 402-467-4491, FAX: 402-467-4528; Empl.: 160; *Sls. Mgr.:* Steven C. Bowles; *Dist. Mgr.:* Bob Bonebright

C.E. PRECISION ASSEMBLIES, INC., 101 S. McKemy Ave., Chandler, AZ 85226, Tel: 602-940-0740, FAX: 602-961-4754; FSC No.: 67810; Empl.: 24; *Sls. Mgr.:* Henry Richards

CERAMASEAL, Box 260, New Lebanon, NY 12125, Tel: 518-794-7800, TELEX: 14-5442, FAX: 518-794-8080; FSC No.: 07601; Empl.: 85; *Sls. Mgr.:* Gene D. Sawin

CERAMAWIRE, Box 1084, Cranford, NJ 07016, Tel: 908-276-1170; Empl.: 4; *Sls. Mgr.:* Edward Hamilton

CERAMIC DEVICES INC., 8145 Ronson Rd., San Diego, CA 92111, Tel: 619-560-7575, FAX: 619-560-4906; FSC No.: 66230; Empl.: 40; *Sls. Mgr.:* Linda Parrish

CERAMIC MAGNETICS, INC., 16 Law Dr., Fairfield, NJ 07004, Tel: 201-227-4222, FAX: 201-227-6735; Empl.: 90

CERA-MITE CORP., 1327 Sixth Ave., Grafton, WI 53024, Tel: 414-377-3500, FAX: 414-377-7309; Empl.: 215; *Sls. Mgr.:* Claude Marquardt

CERCAST GROUP HOWMET CORPORATION, 3905 Industrial Blvd., Montreal-North, Que H1H 2Z2, Tel: 514-322-2371, FAX: 514-322-1340; Empl.: 1100; *Sls. Mgr.:* Dieter Rupp

CERMETEK MICROELECTRONICS INC., 1308 Borregas Ave., Sunnyvale, CA 94089, Tel: 408-752-5000, FAX: 408-752-5004; Empl.: 50; *Sls. Mgr.:* Thomas Newton

C.G. INSTRUMENTS CORP., Electromatic Controls Corp., 2495 Pembroke Ave., Hoffman Estates, IL 60195, Tel: 708-882-5757, FAX: 708-882-7234; Empl.: 27; *Sls. Mgr.:* Mike Meurer; *Dist. Mgr.:* Mike Meurer

CGRS MICROTECH, P.O. Box 102L, Langhorne, PA 19047, Tel: 215-757-0284; Empl.: 5; *Sls. Mgr.:* J. Swope; *Dist. Mgr.:* J. Swope

CHACE PRECISION METALS, INC., 1704 Barnes St., Reidsville, NC 27320, Tel: 919-342-2381, FAX: 919-342-4012; Empl.: 190; *Sls. Mgr.:* Pat J. Urban

CHA INDUSTRIES, 4201 Business Center Dr., Fremont, CA 94538, Tel: 415-683-8554, TELEX: 334426, FAX: 415-683-3848; *Sls. Mgr.:* Jack Patten

CHALCO ENGRG. CORP., Chalco Industries, Inc., 15126 S. Broadway, Gardena, CA 90248-1898, Tel: 213-321-0121, 213-323-5525, FAX: 213-323-0405; Empl.: 95; *Sls. Mgr.:* Steven Kierman, Dir. Sls.

Champion Technologies, Inc.

FAX: 708-451-7585

CHAMPION TECHNOLOGIES, INC., 2553 N. Edgington, Franklin Park, IL 60131, Tel: 708-451-1000; Empl.: 175; *Sls. Mgr.:* Greg Dec ..... **A•1321**

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
CA	Campbell, Kottmeier Assocs.	408-371-8700
CA	Irvine, Prism Assocs.	714-252-1208
CA	San Diego, Spinnaker Sls.	619-451-8595
FL	Longwood, Delmac Sls.	407-831-0040
GA	Atlanta, L & D, Inc.	404-395-7079
IL	Itasca, Micro Sls.	708-285-1000
IN	Indianapolis, Schank Elctrn. Mktg.	317-842-6204
AZ	Phoenix, Integrated Sys. & Dvc. Sls.	602-971-8250
MD	Columbia, Third Wave Solutions	301-290-5990
MA	Natick, Wayland Engrg. Sls.	508-655-6080
MI	Farmington Hills, Schank Elctrn. Mktg. Inc.	313-626-2551
MN	Minneapolis, Horizon	612-884-6515
CO	Littleton, Contec Mktg., Inc.	303-973-8490
NY	E. Rochester, W. Kreger Assocs.	716-381-4430
NY	Great Neck, Trionic Assoc.	516-466-2300
NC	Raleigh, Godwin Assocs.	919-878-8000
OH	Solon, J.R. Thornberry Co.	216-248-4995
TX	Austin, Electra Reps.	512-339-1163
TX	Dallas, Electra Reps.	214-248-3852
Can	Brampton, Ont., Cantec Reps. Inc.	416-791-5922
WA	Redmond, Electronic Mktg. Grp.	206-882-0962
WI	Brookfield, Micro Sls.	414-786-1403
IL	Franklin Pk., Champion Technlgs.	708-451-1000

Local Distributors

CA	San Jose, Passive Technlgs.	408-435-5566
IL	Palatine, OHM Elctrns.	708-359-5500
NY	Bayshore, Brookdale Elctrns.	516-242-8033

CHAMPLAIN CABLE CORP., Huber & Suhner(USA)Corp., 12 Hercules Dr., Colchester, VT 05446, Tel: 802-655-2121, FAX: 802-655-2025; FSC No.: 05973; Empl.: 300o; *Sls. Mgr.:* M.Brennan; *Dist. Mgr.:* J. Brooks

CHANDLER PRODUCTS, 1491 Chardon Rd., Cleveland, OH 44117, Tel: 216-481-4400; *Sls. Mgr.:* Nick Andos

CHANNEL INDUSTRIES, 839 Ward Dr., Santa Barbara, CA 93111, Tel: 805-967-0171, TELEX: 658416, FAX: 805-683-3420; Empl.: 75

CHAPMAN CORP., P.O. Box 10700, 125 Presumpscot St., Portland, ME 04104, Tel: 207-773-4726, TELEX: 493 1536 CHAP UI, FAX: 207-775-7369; Empl.: 42; *Sls. Mgr.:* John Goodwin; *Dist. Mgr.:* Peter DeFilipp

CHARLES INDS. LTD., Charles Center, 5600 Apollo Drive, Rolling Meadows, IL 60008, Tel: 708-806-6300, TWX: 910-687-3375, FAX: 708-806-6231; Empl.: 100; *Sls. Mgr.:* Laurie Goro

CHARLES RIVER DATA SYSTEMS, INC., 983 Concord St., Framingham, MA 01701, Tel: 508-626-1000, TELEX: 681-7373, FAX: 508-626-1046; Empl.: 170; *Sls. Mgr.:* David Greer; *Dist. Mgr.:* David Greer

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CHATSWORTH DATA CORPORATION, 20710 Lassen St., Chatsworth, CA 91311, Tel: 818-341-9200; Empl.: 95; *Sls. Mgr.:* Hank Boehm ..... **D•1234**

CHAUVIN ARNOUX, Chauvin Arnoux-France, 15 Faraday Dr., Dover, NH 03820, Tel: 603-749-6434, FAX: 603-742-2346

CHEMICAL ABSTRACTS SERVICE, American Chemical Society, 2540 Olentangy River Road, Columbus, OH 43202-1505, Tel: 614-447-3600, FAX: 614-447-3709; *Sls. Mgr.:* Tom Gornick

CHEMREX INC., ResTech Prods. Div., 6120 E. 58th Ave., Commerce City, CO 80022, Tel: 303-289-5651, FAX: 303-289-5283; *Sls. Mgr.:* Michael P. Manegold

CHEMTRONICS INC., 681 Old Willets Path, Hauppauge, NY 11788, Tel: 516-582-3322, 800-645-5244, TELEX: 968567, FAX: 516-582-3046; FSC No.: 21267; Empl.: 112; *Sls. Mgr.:* Louis Friedman; *Dist. Mgr.:* Scott Friedman

CHENANGO INDUSTRIES, INC., 200 Stage Road, Vestal, NY 13850, Tel: 607-748-1572, TWX: 510-252-0899, FAX: 717-879-4220; *Sls. Mgr.:* Rick Hammond

CHEROKEE INTERNATIONAL, INC., Core Industries, 2841 Dow Avenue, Tustin, CA 92680-7211, Tel: 714-544-6665, TWX: 510-101-0493, FAX: 714-838-4742; Empl.: 350; *Sls. Mgr.:* Dennis Pouliot ..... **D•1653-1657**

Local Sales Offices & Reps

CA	Santa Clara, Cindel, Inc.	408-988-8331
FL	Del Ray Beach, Phelps Assoc.	407-276-7591
GA	Atlanta, Naylor Assoc.	404-373-5036
AZ	Phoenix, Chaparral Elctrns.	602-996-5909
IL	Downers Grove, Richmar Elctrns.	708-968-0118
IL	Prairie Vl., Crosslink Elctrns.	913-649-7100
IN	Indianapolis, Richmar Elctrns. Corp.	317-846-6383
KS	Prairie Village, Crosslink Elctrns.	913-649-7100
MN	Minneapolis, Robt. W. Marshall Co., Inc.	612-929-0457
NH	Amherst, Bennetron	603-880-7008
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NJ	Lawrenceville, DVS Co.	609-896-1112
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NY	Wappinger Falls, Bob Dean, Inc.	914-297-6406
NC	Resch. Triangle Pk., Naylor Assocs., Inc.	919-544-6630
OH	Richfield, Geotronix	216-659-6100
OH	Trotwood, Geotronix, Inc.	216-659-6100
OR	Beaverton, Elctrns. N.W.	503-629-9241
PA	Allison Pk., Geotronix, Inc.	412-487-1770
TX	Dallas, Richmar Elctrns.	214-424-8388
VA	Charlottesville, DVS Co.	804-973-0303
WA	Redmond, Elctrns. N.W.	206-557-0851
Can	Downsview, Ont., Elbit Elctrns.	416-633-5050

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FAX: 708-360-3566

CHERRY ELECTRICAL PRODUCTS, Cherry Corporation, 3600 Sunset Avenue, Waukegan, IL 60087, Tel: 708-662-9200; Empl.: 1,000; *Dist. Mgr.:* George Di Martino ..... **B•1044-1045, 1661-1665, 1802**

Local Sales Offices & Reps

AZ	Phoenix, O'Donnell Assocs. S.W.	602-944-9542
CA	San Diego, O'Donnell Assocs., Inc.	619-578-1645
CA	San Jose, O'Donnell Assocs. N., Inc.	408-432-1940
CA	Torrance, O'Donnell Assocs., Inc.	213-539-9664
CO	Denver, Spectrum Mktg. Assocs., Inc.	303-480-9991
CT	Branford, Coakley, Boyd & Abbett, Inc.	203-481-2218
FL	Orlando, Cahill Assocs.	407-282-5117
FL	Palm City, Cahill Assocs.	407-288-3113
IL	Waukegan, Cherry Elctrl. Prods.	708-662-9200
IN	Ft. Wayne, Menze Sls., Inc.	219-747-5616
IA	Cedar Rapids, Dy-Tronix, Inc.	319-377-8275
KS	Leawood, Dy-Tronix, Inc.	913-339-6333
KS	Wichita, Dy-Tronix, Inc.	316-838-0884
MA	Framingham, Coakley, Boyd & Abbett, Inc.	508-820-0800
MI	Farmington Hills, Cherry Elctrl. Prods., Automotive	313-477-4477
MI	Grand Rapids, Miltimore Sls., Inc.	616-942-9731
MI	Novi, Miltimore Sls., Inc.	313-349-0260
MN	St. Paul, Cahill, Schmitz & Cahill	612-646-7217
MO	Bridgeton, Dy-Tronix, Inc.	314-291-4777
NJ	Pitman, Colrud Corp.	609-589-5866
NJ	W. Caldwell, Grimm, Siegel Assocs., Inc.	201-575-9300
NM	Albuquerque, O'Donnell Assocs., S.W.	505-889-4522
NY	Pittsford, Elcom Sls., Inc.	716-385-1400
NY	Skaneateles, Elcom Sls., Inc.	315-685-8967
NC	Raleigh, CSR Elctrns., Inc.	919-878-9200
OK	Tulsa, Comptech Sls., Inc.	918-622-7744
OR	Beaverton, Westmark Elctrns., Inc.	503-641-8780
TN	Knoxville, CSR Elctrns.	615-689-7911
TX	Austin, Comptech Sls., Inc.	512-343-0300
TX	Houston, Comptech Sls., Inc.	713-492-0005
TX	Irving, Comptech Sls., Inc.	214-751-1181
UT	Ogden, Spectrum Mktg. Assocs., Inc.	801-972-8552
VA	Fairfax, Colrud Corp.	703-904-0240
WA	Bellevue, Westmark Elctrns., Inc.	206-454-1944
Can	Coquitlam, B.C., r.n. Longman Sls., Inc.	604-931-4744
Can	Kirkland, Que., r.n. Longman Sls., Inc.	514-694-3911
Can	Mississauga, Ont., r.n. Longman Sls., Inc.	416-670-8100
Can	Ottawa, Ont., r.n. Longman Sls., Inc.	613-564-0100

Local Distributors

AL	Birmingham, Ack Radio Supp. Co.	205-322-0588
AL	Huntsville, Powell Elctrns.	205-837-5300
CA	Inglewood, Newark Elctrns.	213-671-7377
CA	San Jose, Powell Elctrns.	408-943-9020
AZ	Tempe, L Comp, Inc.	602-730-1633
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Compton, Harper S.I.D.	213-979-5090
CO	Denver, Newark Elctrns.	303-757-8531
CA	Gardena, Cal Switch	213-770-2330
CA	Los Angeles, Elec. Switches	213-660-1310
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Sacramento, Integrated Elec.	916-363-6030
CA	San Diego, Harper S.I.D.	619-578-2500
CA	San Jose, Harper S.I.D.	408-943-9490
CA	Sunnyvale, Target Elctrns.	408-733-0384
CT	Wallingford, Cronin Elctrns.	203-265-3134
CT	Wallingford, Sager Elctrns.	203-265-4600
CO	Arvada, Denver Beta Wintronics	303-431-7161
CO	Denver, Integrated Elec.	303-292-6121
CT	Wallingford, G.R.S. Midan Elec., Inc.	203-265-2077
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Ft. Lauderdale, Powell Elctrns.	305-484-8377
FL	Ft. Lauderdale, Reptron Elctrns.	305-735-1112
FL	Tampa, Reptron Elctrns.	813-855-4656
GA	Atlanta, Ack Radio Supp. Co.	404-351-6340
IL	Champaign, Klaus Radio, Inc.	217-356-1896
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Ft. Wayne, Bell Inds.	219-423-3422
IL	Palatine, OHM Elctrns., Inc.	708-359-5500
IL	Wheeling, Hawk Elctrns.	708-459-4030
IN	Indianapolis, Bell Inds./Graham	317-875-8200
IN	Indianapolis, PEI Genesis Elec.	317-879-0700
IN	South Bend, PEI Genesis Elect.	219-287-2911
IA	Cedar Rapids, Advent Elec., Inc.	319-363-0221
GA	Norcross, Reptron Elctrns.	404-446-1300
MD	Annapolis Jct., Powell Elctrns.	301-953-3435
MD	Savage, Pyttronic Inds., Inc.	301-792-0780
MA	Needham, Cronin Elctrns., Inc.	617-449-5000
MA	Newton, Greene-Shaw Co.	617-969-8900
MI	Livonia, Reptron Elect., Inc.	313-525-2700
MN	Minneapolis, Newark Elctrns.	612-331-6350
MN	Minneapolis, Stark Elctrns.	612-332-1325
MN	Minneapolis, Sterling Elctrns.	612-831-2666
MO	Kansas City, L Comp, Inc.	816-241-0111
MO	Maryland Hgts., L Comp, Inc.	314-291-6200
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NH	Salem, Sager Elctrns.	603-898-1348
NJ	Oakland, Relay Specs.	201-337-1000
NJ	Teterboro, E.A.C. Elec., Inc.	201-288-4477
NM	Albuquerque, Walker Elctrn. Supp.	505-883-2992
NY	Buffalo, Summit Dists.	716-887-2800
MD	Columbia, Sager Elctrns.	301-995-6580
NY	Hauppauge, Sager Elctrns.	516-348-1300
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Rochester, Summit Dists.	716-334-8110
NC	Cary, Powell Elctrns.	919-467-1212
NC	Raleigh, Sager Elctrns.	919-850-9550
NC	Winston-Salem, Kirkman Elect.	919-722-9131
OH	Cincinnati, Hughes-Peters, Inc.	513-351-2000
OH	Columbus, Hughes-Peters, Inc.	614-294-5351
OH	Dayton, Bell Inds.	513-435-8660
OH	Valley View, Newark Elctrns.	216-447-8860
OH	Warren, REM Elctrns. Supp. Co.	216-373-1300
OH	Worthington, Reptron Elctrns.	614-436-6675
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Integrated Elec.	503-641-1690
OR	Portland, Radar Elec.	503-232-3404

OR Portland, Tek-Elec. 503-246-5451
PA Erie, REM Elctrns. Supp. Co. 814-453-5626
PA Montgomeryville, Pyttronics Inds., Inc. 215-643-2850
PA Philadelphia, Powell Elctrns. 215-365-1900
PA Philadelphia, PEI Genesis Elect. 800-523-0727, 800-222-1772
PA Philadelphia, Sager Elctrns. 215-464-4336
TX Garland, Newark Elctrns. 214-487-8144
MA Hingham, Sager Elctrns. 617-749-6700
TX Houston, Newark Elctrns. 713-270-4800
TX Irving, Harper S.I.D. 214-621-0500
TX Irving, Powell Elctrns. 214-550-0547
MI Oak Park, Newark Elctrns. 313-967-0600
TX Stafford, Southwest Elec., Inc. 713-240-4000
UT N. Salt Lake City, Integrated Elctrns. .. 801-298-1869
UT Salt Lake City, Stand. Supp. Co. 801-486-3371
VA Richmond, Sterling Elctrns. 804-226-2190
WA Bellevue, Integrated Elctrns., Inc. 206-455-2727
WA Seattle, Radar Elctrns. 206-282-2511
WI Milwaukee, Marsh Elctrns., Inc. 414-475-6000
WI Waukesha, Hawk Elctrns. 414-547-4457
Can Burnaby, B.C., ITT/Rae Ind. Elect. 604-291-8866
Can Calgary,Alberta, ITT/Rae Ind. Elect. ... 403-273-2780
Can Concord, Ont., ITT/RAE Ind. Elect. 416-736-1144
Can London, Ont., C. M. Peterson Co., Ltd. 519-434-3204
Can Mississauga, Ont., Newark Elctrns. 416-670-7799

CHERRY SEMICONDUCTOR CORP, 2000 S. County Trail, East Greenwich, RI 02818, Tel: 401-885-3600, TELEX: WUI 6817157; FSC No.: WUI 6817157;;;401-885-5786; Empl.: 365

CHESSELL CORP., 1 Pheasant Run, Newtown, PA 18940, Tel: 215-968-0660, FAX: 215-968-0662; Empl.: 82; *Sls. Mgr.:* Richard Veit; *Dist. Mgr.:* R. Veit

CHESTER CABLE CORP., Sub. Alcatel NA Cable Sys. Inc., 15 Oakland Ave., Chester, NY 10918, Tel: 914-469-2141, TWX: 510-249-4813, FAX: 914-469-9935

CHESTERFIELD PRODUCTS, INC., 37 Midland Ave., Elmwood Park, NJ 07407, Tel: 201-797-9655, FAX: 201-797-9504; Empl.: 35; *Sls. Mgr.:* Bob Fiordalisi ..... **A•1661-1663**

Local Sales Offices & Reps
NM Phoenix, CPS Assocs., Inc. 602-246-1097
CA Carlsbad, MTM Intl., Inc. 619-729-6338
IL Chicago, Tech. Sls. 312-237-7210
MD Baltimore, Advanced Tech. Sls. 301-323-3140
MA Framingham, Bengal Assocs. 617-877-2639
MA Randolph, Bengal Assocs. 617-961-4120
NY Syracuse, Rep Tech, Inc. 315-437-2845
TX Richardson, Carl Tinch Sls. Co. 214-231-1322

CHICAGO BLOWER CORP., 1675 Glen Ellyn Rd., Glendale Heights, IL 60139, Tel: 708-858-2600, ESYLNK: 62912209, FAX: 708-858-7172; Empl.: 250; *Sls. Mgr.:* R.W. Wessel

CHICAGO CONDENSER CORP., 2900 West Chicago Ave., Chicago, IL 60622, Tel: 312-227-7070, FAX: 312-227-6646; FSC No.: 5910; *Sls. Mgr.:* Joan Looi ..... **A•1019**

CHICAGO LASER SYSTEMS, INC., 4034 N. Nashville Ave., Chicago, IL 60634, Tel: 312-282-2710, TELEX: 6711269 LASER UW, FAX: 312-282-8455; *Sls. Mgr.:* Bernard Alpiner, V.P.

CHICAGO LOCK CO., 4311 W. Belmont Ave., Chicago, IL 60641, Tel: 312-282-7177, TELEX: ITT 4994023, FAX: 312-282-8199; Empl.: 375; *Sls. Mgr.:* Dale N. Padjen

CHIU TECHNICAL CORP., 252 Indian Head Rd., Kings Park, NY 11754, Tel: 516-544-0606, FAX: 516-544-0809; FSC No.: 38-32, 38-41; Empl.: 25; *Sls. Mgr.:* Frank A. Denny, V.P. Mktg.

FAX: 716-538-6345

CHLORIDE ELECTRO NETWORKS, Chloride Power Electronics, Inc., 1 Technology Place, Caledonia, NY 14423, Tel: 716-538-4421, TWX: 510-254-0422; Empl.: 350; *Sls. Mgr.:* Gary Balfour ..... **A•2189; D•1658, 2182**

Local Sales Offices & Reps
CA Mission Veijo, Jim Anl 714-454-8997
FL Lakeland, Robert Coughlin 813-667-1663
MD Laurel, R.W. Mitscher Co. 301-498-6090
NH Nashua, Bell Ctrls. 603-882-6984
NY Liverpool, Thomas Ealy 315-652-3149

CHLORIDE EL PASO, Chloride Power Elctrns., 10931 Pellicano Drive, El Paso, TX 79935, Tel: 915-592-9985, FAX: 915-595-1664; FSC No.: 08715; Empl.: 1000; *Sls. Mgr.:* Robin Lee

CHOMERICS, INC.:W.R. GRACE & CO., 77 Dragon Ct., Woburn, MA 01888, Tel: 617-935-4850, TWX: 710-393-0173; Empl.: 650; *Sls. Mgr.:* Louis M. Yantosca; *Dist. Mgr.:* Gary L. Wood ..... **C•1674**

Local Sales Offices & Reps
AZ Mesa, Chomerics 602-964-0771
CA Carson, Chomerics 213-518-6921
CO Boulder, Front Range Mktg. 303-443-4780
CT Trumbull, Chomerics 203-452-0253
FL Longwood, Chomerics 407-876-5800
GA Kennesaw, Chomerics 404-928-4243
IL Chicago, Chomerics 708-458-0649
MD Elliott City, Tech. Sls. 301-461-2400
MA Woburn, Chomerics 617-935-4850
MN Eagan, Chomerics 612-681-1615
NH Hudson, Chomerics 603-880-4807
NY Bohemia, Chomerics 516-567-6186
NC Greensboro, Chomerics 919-674-3144
OH Beavercreek, Chomerics 513-427-0002
TX Dallas, Chomerics 214-960-7236
WA Seattle, Chomerics 206-624-3763

Local Distributors
AZ Tucson, Cupps Indl. Supp. 602-294-1922
CA Santa Clara, K.R. Anderson, Co. 408-727-2959
CO Denver, R.S.I. 303-373-1812
CT Bloomfield, E.I.S. 203-243-9440
FL Orlando, E.I.S. 407-855-7100
GA Atlanta, United Seal & Rubber 404-454-9912
IL Hillside, E.I.S. 708-547-5400
MD Baltimore, Sosco Corp. 301-574-7555
MA N. Andover, Mktg. East 508-689-9565
MI Mt. Clemens, E.I.S. 313-791-8510
MN Mounds View, Indl. Gasket 612-785-2266
MO Kansas City, E.I.S. 816-471-5966
NJ Branchburg, Robert McKeown 201-218-9000
NY Lancaster, Sealing Dvcs. 714-684-7600
OH Chargin Falls, Electrolock 216-543-6626
OR Portland, E.I.S. 503-227-3601
PA Essington, Tri-Com, Inc. 215-521-3080
SC Greenville, Electrolock 803-297-9830
TN Memphis, E.I.S. 901-947-4176
TX Dallas, Oriental Gasket 214-956-9100
UT Salt Lake City, E.I.S. 801-483-1226
VA Bluefield, E.I.S. 703-322-5424
WA Tukwilla, E.I.S. 206-241-1010
WI Mequon, Fabrico 414-241-5300
Can Markham, Ont., Matrix Technlg. 416-477-4442

CHR, Furon, 407 East St, P.O. Box 1911, New Haven, CT 06509, Tel: 203-777-3631, TWX: 710-465-0264; Empl.: 116; *Sls. Mgr.:* Joseph T. Ballentine; *Dist. Mgr.:* Joseph T. Ballentine

CHRISTIANA INDUSTRIES CORP., 6500 North Clark, Chicago, IL 60626, Tel: 312-465-6330, FAX: 312-465-6271; Empl.: 250; *Sls. Mgr.:* Mitchell Waters; *Dist. Mgr.:* Mitchell Waters

CHRISTIE ELECTRIC CORP., 18120 S. Broadway, Gardena, CA 90248, Tel: 213-715-1402, TWX: 910-349-6260, FAX: 213-618-8368; FSC No.: 02294; Empl.: 90; *Sls. Mgr.:* Scott Marvel

CHROMALOX INSTRS. & CONTROLS, 1382 Heil-Quaker Blvd., La Vergne, TN 37086-3536, Tel: 615-793-3900, TELEX: 55-5129, FAX: 615-793-3563; Empl.: 110; *Sls. Mgr.:* Mary Hausman ..... **D•1131**

CHROMATICS, 2558 Mountain Ind. Blvd, Tucker, GA 30084, Tel: 404-493-7000, FAX: 404-493-1314; FSC No.: FSCM 59992

CHRONO-LOG CORP., 2 W. Park Rd., Havertown, PA 19083, Tel: 215-853-1130, FAX: 215-853-3972; Empl.: 20; *Sls. Mgr.:* Kathy Jacobs ..... **D•1084**

Local Sales Offices & Reps
AL Huntsville, Dynamic Measurements ... 205-535-6663
Can Scarborough, Canadian Applied Technlg. 416-431-0004

CHURCHILL CORP., 344 Franklin St, Box G, Melrose, MA 02176, Tel: 617-665-4700, FAX: 617-662-5291; FSC No.: 94867; Empl.: 30; *Sls. Mgr.:* W. Schermerhorn

CIC COMPONENTS INDS. CO., LTD., 4FL No. 5 Lane 130, Min-Chung Rd., Hsin Tien City, Taiwan R.O.C., Tel: 886-2-9174302, TELEX: 35261 MEISCO, FAX: 886-2-9124480; Empl.: 30; *Sls. Mgr.:* James Huang

CICOIL CORP., 24960 Ave. Tibbitts, Valencia, CA 91355-3428, Tel: 805-295-1295, FAX: 805-295-0813; Empl.: 75; *Sls. Mgr.:* James Alderson

CIDTEC (CID TECHNOLOGIES INC.), 101 Commerce Blvd., Liverpool, NY 13088, Tel: 315-451-9410, FAX: 315-451-9421

CIMCO WIRE & CABLE, INC., See Specialty Cable Corp.

CINCH CONNECTOR DIVISION, Labinal Components & Systems Inc., 1501 Morse Ave., Elk Grove Village, IL 60007, Tel: 312-981-6000, TWX: 910-222-1796; *Sls. Mgr.:* James L. Hartranft Jr.; *Dist. Mgr.:* Scott Campbell

CINCH CYLINDRICAL DIVISION, Labinal Comps. & Systems, Inc., 8821 Science Center Dr., Minneapolis, MN 55428, Tel: 612-537-1010, FAX: 612-537-9614; *Sls. Mgr.:* Jim Simmons; *Dist. Mgr.:* Scott Campbell

CINCINNATI ELECTROSYSTEMS, 420 Wards Corner Rd., Loveland, OH 45140, Tel: 513-831-6800, TELEX: 312328, FAX: 513-831-4866; Empl.: 110; *Sls. Mgr.:* Brian Doherty

CINCINNATI SUB-ZERO PRODS., 12011 Mosteller Rd., Cincinnati, OH 45241, Tel: 513-772-8810, TELEX: 214390 SUBZERO CIN, FAX: 513-772-9119; Empl.: 117; *Sls. Mgr.:* Harold Zeilman

CIPHER DATA PRODUCTS, INC., an Archive Co., 10101 Old Grove Rd., San Diego, CA 92131, Tel: 619-578-9100, FAX: 619-693-4435; Empl.: 1500; *Sls. Mgr.:* Wes Bankston, VP Sls.

CIPRICO INC., 2955 Xenium Lane, Plymouth, MN 55441, Tel: 612-559-2034, FAX: 612-559-8799; Empl.: 79; *Sls. Mgr.:* Bill Rost

CIRCOM INC., 505 W. Main St., Bensenville, IL 60106, Tel: 708-595-4460, FAX: 708-595-4615; Empl.: 38; *Sls. Mgr.:* R. Alan Rosenberg

CA CIRCUIT ASSEMBLY CORP.

FAX: 714-855-4298

CIRCUIT ASSEMBLY CORP., 18 Thomas St., Irvine, CA 92718-2703, Tel: 714-855-7887, TELEX: 183109UD; FSC No.: 52072; Empl.: 275; *Sls. Mgr.:* Robert R. Brinckman; *Dist. Mgr.:* Robert R. Brinckman ..... **C•1316-1322**

Local Sales Offices & Reps
AL Huntsville, L & D, Inc. 205-837-1469
AZ Scottsdale, BSE, Inc. 602-483-0373
CA San Diego, Varigon-San Diego, Inc. 619-576-0100
CA Santa Clara, Westrep 408-988-8833
CO Englewood, Delltron Co. 303-741-2122
FL Clearwater, Tech-Rep Assoc., Inc. 813-572-9900
FL Ft. Lauderdale, Tech-Rep Assoc., Inc. 305-791-2708
FL Merritt Island, Tech-Rep Assoc., Inc. .. 407-453-3313
FL Winter Sprgs., Tech-Rep Assoc., Inc. .. 407-699-4010
GA Atlanta, L & D, Inc. 404-395-7079

IL Itasca, LTD Technlgs., Inc. 708-773-2900
IL Roscoe, LTD Technlgs., Inc. 815-389-4316
IN Carmel, Frank E. Kahsar Sls. 317-844-9353
MD Rising Sun, LHR Elctrns., Inc. 301-658-4058
MA Randolph, The TMR Grp. 617-961-4486
MI Grand Haven, Frank E. Kahsar Sls. ... 616-846-7590
MI Warren, Frank E. Kahsar Sls. 313-795-3530
MN Osseo, Gaffney Sls., Inc. 612-425-5484
MO Grandview, Harris Hanson Co. 816-763-6200
MO St. Louis, Harris Hanson Co. 314-432-3611
NJ Berkeley Hgts., Cambridge Allen & Assoc. 201-464-0203
NJ Moorestown, LHR Elctrns., Inc. 609-778-1019
NM Albuquerque, SynTech 505-266-7951
NY Forest Hills, Cambridge Allen & Assoc. 718-592-6361
NY Rochester, Apex Assocs., Inc. 716-272-7040
NC Raleigh, L & D, Inc. 919-876-5301
NC Wilmington, L & D, Inc. 919-256-8110
OH Cincinnati, Frank E. Kahsar Sls. 513-922-3133
OH Columbus, Frank E. Kahsar Sls. 614-252-4009
OH Mentor, Frank E. Kahsar Sls. 216-257-1166
OR Portland, General Elctrns. 503-297-8500
PA Sewickley, Frank E. Kahsar Sls. 412-741-4155
PA Wexford, Frank E. Kahsar Sls. 412-935-8561
TN Bristol, L & D, Inc. 615-878-2266
TX Houston, Procomp Sls. Co. 713-681-1591
TX Hurst, Procomp Sls. Co. 817-589-0336
TX Richardson, Procomp Sls. Co. 214-669-1500
UT American Fork, Delltron Co. 801-263-9413
VA Midlothian, LHR Elctrns., Inc. 804-794-6013
VA Richmond, L & D, Inc. 804-257-7717
WA Redmond, General Elctrns. 206-867-0969
WI Milwaukee, LTD Technlgs., Inc. 414-774-1000

Local Distributors

AL Birmingham, Newark Elctrns. 205-942-4044
AL Huntsville, Comp. Resources 205-837-1469
AL Huntsville, Component Distrs. 205-851-7800
AL Huntsville, Newark Elctrns. 205-837-9091
AL Huntsville, Powell Elctrns. 205-539-2731
AZ Phoenix, Arizona Comps. 602-269-5655
AZ Phoenix, Newark Elctrns. 602-244-0133
AZ Phoenix, Tri Tek 602-371-0860
AZ Tempe, Circuit Specialists 602-966-0764
AZ Tucson, Newark Elctrns. 602-628-7891
AR Little Rock, Newark Elctrns. 501-225-8130
CA Chatsworth, Passive Comps. 818-341-1745
CA Costa Mesa, Powell Elctrns. 714-754-1717
CA Foster City, Newark Elctrns. 415-572-8300
CA Irvine, Mann Southwest 714-380-4170
CA Los Angeles, All American 213-320-0240
CA Orange, Newark Elctrns. 714-634-8224
CA San Diego, Southland Comps. Inc. 619-673-3800
CA San Jose, All American 408-943-1200
CA San Jose, Powell Elctrns. 408-943-9020
CA San Jose, Rose Elctrns. 408-263-9700
CA Santa Ana, B D S Elctrns. 714-662-1050
CA Santa Clara, Trinity Elctrns. 408-980-9011
CA Santee, Mouser Elctrns. 619-449-2222
CO Colorado Springs, Newark Elctrns. 719-576-2644
CO Denver, C.S.I.D. 303-292-9594
CO Denver, Comp. Distributors 303-770-6214
CO Denver, Newark Elctrns. 303-757-3351
CO Englewood, Indelco 303-694-9444
CO Englewood, Nep Elctrns. 303-799-9898
CT Bloomfield, Newark Elctrns. 203-243-3985
CT Bridgeport, Park Distrs. 203-366-7200
CT East Hartford, Newark Elctrns. 203-289-1416
CT Wallingford, Midstate Elctrns. 203-265-9900
FL Clearwater, Component Distrs. 813-796-0466
FL Deerfield Beach, Vantage Comps. 305-429-1001
FL Ft. Lauderdale, All American 305-572-7999
FL Ft. Lauderdale, Powell Elctrns. 305-484-8377
FL Jacksonville, Newark Elctrns. 904-399-5041
FL Longwood, Intertec 407-834-7777
FL Maitland, Electronic Equip. 407-539-0888
FL Melbourne, Component Distrs. 407-724-9910
FL Miami, All American 305-621-8282
FL Miami, Electronic Equip. 305-526-6000
FL Plantation, Newark Elctrns. 305-587-2372
FL Pompano Bch., Electronic Equip. 305-960-1200
FL Tampa, Electronic Equip. 813-988-0810
FL West Palm Beach, Atlantic Electronics 407-686-8553
GA Atlanta, Newark Elctrns. 404-951-2363
GA Norcross, Component Distrs. 404-441-3320
GA Norcross, Newark Elctrns. 404-448-1300
HI Aiea, Newark Elctrns. 808-487-8951
ID Boise, Newark Elctrns. 208-342-4311
IL Addison, Belford Elctrns. 708-691-1000
IL Bensenville, Goold Elctrns. 708-860-7171
IL Champaign, Klaus Radio 217-356-1986
IL Elk Grove, Bell Inds. 708-640-1910
IL La Salle, Klaus Radio 815-223-7400
IL Peoria, Klaus Radio 309-691-4840
IL Quincy, Klaus Radio 217-223-7560
IL Schaumberg, Q P S Elctrns. 708-884-6620
IL Schaumburg, Newark Elctrns. 312-843-0700
IL Springfield, Newark Elctrns. 217-787-9972
IL Wood Dale, Nep Elctrns. 708-595-8500
IN Indianapolis, Bell Inds. 317-875-8200
IN Indianapolis, Mar Elctrns. 317-633-6699
IN Indianapolis, Newark Elctrns. 317-872-7070
IN Merrillville, Newark Elctrns. 312-768-5059
IA Cedar Rapids, Newark Elctrns. 319-393-3800
IA Des Moines, Newark Elctrns. 515-278-0670
IA Eldridge, Klaus Radio 319-285-8484
IA Marion, Brenneman & Assoc. 319-377-6394
KS Overland Pk., Newark Elctrns. 913-677-0727
KS Wichita, Newark Elctrns. 316-267-8755
KY Lexington, Newark Elctrns. 606-255-4161
LA Metairie, Newark Elctrns. 504-838-9771
MD Annapolis, Powell Elctrns. 301-953-3435
MD Beltsville, Newark Elctrns. 301-206-3300
MD Columbia, Vantage Comps., Inc. 301-720-5100
MD Gaithersburg, Axis Elctrns., Inc. 301-840-9640
MD Hanover, Newark Elctrns. 301-796-9092
MD Rockville, All American 301-251-1205
MA Boston, All American 617-846-2300
MA Holliston, Goold Elctrns. 508-429-8154
MA Milford, Car Lac Indl. 508-478-7797
MA Norwood, Gerber Elctrns. 617-329-2400
MA W. Springfield, Newark Elctrns. 413-785-5851
MA Westboro, In Stock Prods. 508-870-5750
MA Westborough, Powell Elctrns. 508-366-6100
MA Woburn, Newark Elctrns. 617-932-9040
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NJ Union, Newark Elctrns. 908-851-2290
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NM Albuquerque, Betatron 505-821-1122
NM Albuquerque, Connecting Comps. 505-345-8921
NM Albuquerque, Newark Elctrns. 505-883-6181
NY Bohemia, Car Lac Indl. 516-567-4200
NY Bohemia, Key Comps. 516-567-7500
NY Cheektowaga, Newark Elctrns. 716-862-9700
NY Comack, Car Lac Indl. 516-493-0556
NY Farmingdale, Pride Elctrns. 516-293-4020
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NY Mt. Vernon, All American/QAR 914-699-2224
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NY Smithtown, Vantage Comps. 516-543-2000
NY Syracuse, Newark Elctrns. 315-437-6611
NY Valley Stream, Newark Elctrns. 516-561-8400
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NC Raleigh, Newark Elctrns. 919-781-7677
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TN Memphis, Newark Elctrns. 901-365-8060
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TX Richardson, Off The Shelf 214-238-0808
UT Provo, Omega Elctrns. 801-375-4664
UT Salt Lake City, Newark Elctrns. 801-484-8611
UT Salt Lake City, Standard Supp. Co. 801-486-3371
VT Burlington, Newark Elctrns. 802-860-1856
VA Arlington, Newark Elctrns. 703-522-7552
VA Richmond, Newark Elctrns. 804-282-5671
WA Bellevue, Newark Elctrns. 206-641-9800
WA Spokane, Newark Elctrns. 509-327-1935
WV Dunbar, Newark Elctrns. 304-768-6872
WI Green Bay, Newark Elctrns. 414-494-1660
WI New Berlin, Nep Elctrns. 414-785-9100
WI Wauwatosa, Newark Elctrns. 414-453-9100
Can Dartmouth, NS, Arcom Elctrns. 902-464-1600
Can Laval, PQ, Newark Elctrns. 514-681-6476
Can London, Ont., Newark Elctrns. 519-685-4280
Can Mississauga, Ont., Newark Elctrns. 416-673-5449
Can Nepean, Ont., Carsten Elctrns. 613-725-9250
Can New Westminster, BC, Newark Elctrns. 604-520-5721
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Can St. Laurent, PQ, Carsten Elctrns. 514-334-8321
Can St. Laurent, PQ, Newark Elctrns. 514-738-4488

CIRCUITECH, INC., Division of Heyco, Inc., 542 Industrial Way West, Eatontown, NJ 07724, Tel: 201-542-6550, FAX: 201-542-1612; Empl.: 80; *Sls. Mgr.:* Ron Calvo

CIRCUIT IMAGES, INC., 1600 NW 167th Pl, Ste. 345, Beaverton, OR 97006, Tel: 503-629-2133, FAX: 503-645-9857; Empl.: 5; *Sls. Mgr.:* Tom Stevenson

CIRCUIT SPECIALISTS, INC., 738 S. Perry Lane, Tempe, AZ 85281, Tel: 602-966-0764, FAX: 602-967-2539

CIR-Q-TEL MICROWAVE, INC., 6600 Virginia Manor Rd., Beltsville, MD 20705, Tel: 301-470-2900, FAX: 301-776-3882; FSC No.: 21377; Empl.: 17; *Sls. Mgr.:* Henry D. Nibbe

CIRRIS SYSTEMS CORP.

FAX: 801-973-4609

CIRRIS SYSTEMS CORP., 1991 Parkway, Salt Lake City, UT 84119, Tel: 801-973-4600, 800-441-9910, TELEX: 446786; Empl.: 30; *Sls. Mgr.:* Brent Stringham ..... **D•1235**

CIRRUS LOGIC, INC., 3100 West Warren Ave., Fremont, CA 94538, Tel: 415-623-8300, TELEX: 171918, FAX: 415-226-2180; Empl.: 420; *Sls. Mgr.:* William Caparelli; *Dist. Mgr.:* Frank Reynolds

CITIZEN BUSINESS MACHINES, See CBM America Corporation

CP Clare CORPORATION

FAX: 312-262-7819

C.P. CLARE CORP., 3101 W. Pratt Blvd, Chicago, IL 60645, Tel: 312-262-7700, TELEX: 210075; Empl.: 2400; *Sls. Mgr.:* Thomas Cunneen; *Dist. Mgr.:* William Sowa ..... **B•1396, 1430-1431**

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AL Decatur, El Tech Inc. 205-353-7899
AL Huntsville, El Tech Inc. 205-464-0599
AZ Scottsdale, Summit Sls. 602-998-4850
CA El Toro, C.P. Clare Corp. 714-586-0650
CA Los Angeles, Landa & Assocs. 213-879-0770
CA San Diego, Gary Chilcote Assocs. 619-728-7678
CA San Jose, Ruppert Sls. & Engrg. 408-998-8717
CA Santa Ana, Landa & Assocs. 714-543-7805
CO Broomfield, Western Region Mktg. 303-428-8088
CT Stamford, Fran Bigoa 203-322-0240
FL Altamonte Springs, Sls. Engrg. Concepts 407-682-4800
FL Deerfield Beach, Sls. Engrg. Concepts 305-426-4601

GA	Lilburn, El Tech Inc.	404-564-1236
IL	Itasca, Beta Tech Sls., Inc.	708-250-9586
IN	Indianapolis, Schank Elctrn. Mktg.	317-842-6204
IA	Cedar Rapids, Delltron Co. Inc.	319-393-0075
KY	Fort Wright, El Tech Inc.	606-331-3495
MD	Baltimore, Advanced Tech Sle Inc.	301-323-3140
MA	Tewksbury, Procomp Assoc.	508-858-0100
MI	Farmington Hills, Schank Elctrn. Mktg.	313-626-2551
MN	Eden Prairie, High Technlg. Sls. Assocs.	612-944-7274
MO	Florissant, Delltron Co., Inc.	314-839-0033
MO	Kansas City, Delltron Co., Inc.	816-436-6445
NJ	Fort Lee, Nexus Technlg. Sls.	201-947-0151
NM	Albuquerque, Summit Sls.	505-345-5003
NY	Hicksville, C.P. Clare Corp.	516-933-3645
NY	Rochester, Electra Sls. Corp.	716-427-7860
NY	Syracuse, Electra Sls. Corp.	315-463-1248
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Cleveland, Baehr, Greenleaf & Assoc.	216-892-1770
OH	Dayton, Baehr-Greenleaf & Assocs.	513-439-0724
OH	Worthington, Baehr-Greenleaf & Assocs.	614-847-0220
OR	Portland, Westmark Elctrns. Inc.	503-641-8780
PA	Erdenheim, Omni Sls.	215-233-4600
PA	Warrendale, Baehr-Greenleaf & Assocs.	412-934-3088
TX	Austin, Norcom Inc.	512-451-2757
TX	Dallas, Norcom Inc.	214-386-4888
TX	Houston, Norcon Inc.	713-778-0392
UT	Salt Lake City, Western Region Mktg.	801-268-9768
WI	Milwaukee, Beta Tech Sls., Inc.	414-543-6609
WA	Bellevue, Westmark Elctrns. Inc.	206-454-1944
Can	Dorval, Que., John G. Weiss Co. Ltd.	514-685-6644
Can	Mississauga, Ont., John G. Weiss Co. Ltd.	416-673-0011

CLARCOR TUBULAR PRODUCTS, Clarcor, Box 7007, Rockford, IL 61125, Tel: 815-962-8867, FAX: 815-962-0417; Empl.: 2000; *Sls. Mgr.:* Douglas W. Franklin

CLARKE-HESS COMMUNICATIONS RESEARCH CORP., 220 West 19th St., New York, NY 10011, Tel: 212-255-2940, TELEX: 238667-RAPID NYK, FAX: 212-691-8158; FSC No.: 34423; Empl.: 14 ..... **D•1236-1237**

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IL	Chicago, Pat Lind Elctrns.	312-726-3513
IN	Indianapolis, Pat Lind Elctrns.	317-632-7444
MA	Westford, ICS Assocs.	617-692-3545
MN	Circle Pines, Pat Lind Elctrns.	612-786-5770
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AR	Little Rock, J. Y. Schoonmaker	501-375-2168
CA	Irvine, Gravley & Assocs.	714-852-9994
CO	Englewood, Purdy Co. Assocs.	303-790-2230
CT	Meriden, Delta Conn Corp.	203-238-1240
FL	Coral Springs, HHP Assocs., Inc.	305-753-8389
FL	Palm Bay, H H P Assocs.	407-951-9236
FL	Tarpon Springs, H H P Assocs., Inc.	813-937-6099
FL	Winter Park, HHP Assocs., Inc.	407-740-0320
GA	Atlanta, ELCOM	404-594-1392
IL	Rolling Meadows, Sumer, Inc.	708-991-8500
IN	Fort Wayne, Needler Sls.	219-447-2123
IN	Indianapolis, Needler Sls.	317-255-8056
MI	Farmington Hills, W.R. Hummon & Assocs., Inc.	313-474-0661
MN	St. Paul, Cahill, Schmitz & Cahill, Inc.	612-646-7217
MO	St. Louis, K K B & Co.	314-647-2400
NH	Home Off., Clarostat	603-742-1120, 1-800-872-0042
NJ	Cherry Hill, Trinkle Sls., Inc.	609-795-4200
NY	Manhasset, Win-Cor Elctr. Sls.	516-627-9474
NY	Syracuse, L. D. Allen	315-437-8387
NC	Raleigh, C-Tech Sls., Inc.	919-782-8100
OH	Dayton, K.W. Elctrn. Sls.	513-890-2150
OH	Shaker Hgts., K.W. Elctrn. Sls.	216-491-9177
NM	Albuquerque, More Sls., Inc.	505-255-6265
OR	Beaverton, Electronic Sources, Inc.	503-627-0838
PA	Pittsburgh, K.W. Elctrn. Sls.	412-366-9396
TX	Dallas, J. Y. Schoonmaker	214-349-1650
WA	Bellevue, Elctrn. Sources, Inc.	206-451-3500
WI	Brookfield, Sumer	414-784-6641

CLARY CORP., Precision Instrs. Div., 320 W. Clary Ave., San Gabriel, CA 91776, Tel: 818-287-6111, FAX: 818-286-7216; Empl.: 1000; *Sls. Mgr.:* Stewart Nowak; *Dist. Mgr.:* Chris Dean

CLAUSS CUTLERY CO., Alco Industries, 223 N. Prospect St., Fremont, OH 43420, Tel: 419-332-7344, 800-225-2877, FAX: 419-332-8077; Empl.: 90; *Sls. Mgr.:* Thomas D. Reinert; *Dist. Mgr.:* Thomas D. Reinert

CLEAN ROOM PRODS., 1800 Ocean Ave., Ronkonkoma, NY 11779-6528, Tel: 516-588-7000, TELEX: 645151; Empl.: 110; *Sls. Mgr.:* Robert S. Kearton

CLEARPOINT RESEARCH CORP., 35 Parkwood Drive, Hopkinton, MA 01748, Tel: 508-435-2000, FAX: 508-435-7504; Empl.: 300; *Sls. Mgr.:* Dennis Kirshy

CLEVELAND CRYSTALS, Box 17157, Euclid, OH 44117, Tel: 216-486-6100, TWX: 810-421-8031, FAX: 216-486-6103; FSC No.: 8K400; Empl.: 46; *Sls. Mgr.:* P. D. Marlowe

CLIFFORD OF VERMONT, INC., Route 107, P.O. Box 51, Bethel, VT 05032, Tel: 802-234-9921, 800-451-4381, FAX: 802-234-5006; Empl.: 47; *Sls. Mgr.:* John F. Baxter

CLIFTON PRECISION, Litton Systems, Inc., Marple at Broadway, Clifton Hgts., PA 19018, Tel: 215-622-1000, TWX: 510-669-9782, FAX: 215-623-6344; FSC No.: 86197; Empl.: 1000; *Sls. Mgr.:* C.Scalies ..... **B•1251**

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AZ	Phoenix, Clifton Precision	602-242-0911
CA	Cupertino, Clifton Precision	408-996-7507
CA	Ontario, Clifton Precision	714-983-9374
CA	San Clemente, Clifton Precision	714-492-6904
CO	Denver, Motion Technlg.	303-757-3003
FL	Sorrento, Boetto Corp.	904-735-0077
KS	Lenexa, Midtec Assoc., Inc.	913-541-0505
MA	W. Newton, Larcom Inc.	617-244-2053
MI	Grand Rapids, Midwest Meridian	616-698-7391
MN	Eden Prairie, PWC, Inc.	612-934-1409
MO	St. Louis, Midtec Assoc. Inc.	314-275-8666
NM	Albuquerque, S. W. Sls., Inc.	505-899-9005
OH	Lakewood, Midwest Meridian	216-228-8636
PA	Clifton Heights, Eastern Sls.	215-622-1000
TX	Garland, Cary, McMahill & Assocs.	214-681-1414

CLIMATRONICS, 140 Wilbur Pl., Bohemia, NY 11716, Tel: 516-567-7300, TELEX: 5101007669, FAX: 516-567-7585; Empl.: 46; *Sls. Mgr.:* David Gilmore

CLIPLITE, See Visual Communications

CLOVER ELCTRNS., INC., 136 Hillwood Circle PO Box 972, Newnan, GA 30264, Tel: 404-251-5323, FAX: 404-251-7542; Empl.: 75; *Sls. Mgr.:* Patricia A. Walker

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CML MACARR, A Marine Electric Systems Co., 50 Carol St., P.O. Box 1135, Clifton, NJ 07014-1135, Tel: 201-471-6800; FSC No.: 00062; Empl.: 100; *Sls. Mgr.:* Gary Mandell ..... **D•1009**

Local Sales Offices & Reps

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OH	Cincinatti, Teplitz Assocs.	513-481-1648
OH	Cleveland, Teplitz Assocs.	216-439-3265
Can	Montreal, Metrone	514-483-2323,

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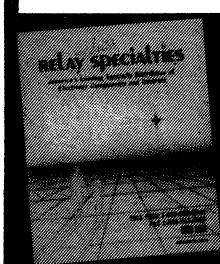

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COAXIAL DYNAMICS, 15210 Industrial Parkway, Cleveland, OH 44135, Tel: 1-800-COAXIAL, FAX: 216-267-3142; Empl.: 36; *Sls. Mgr.:* R. J. Scott; *Dist. Mgr.:* J. R. Ittel

COAXITUBE CORP., 245 Naylor Mill Rd., Salisbury, MD 21801, Tel: 301-546-3911, FAX: 301-546-3911; FSC No.: OBV02; Empl.: 13

COBER ELECTRONICS, 102 Hamilton Ave., Stamford, CT 06902, Tel: 203-327-0003, TWX: 710-474-3371, FAX: 203-359-6319; FSC No.: 28909; Empl.: 40; *Sls. Mgr.:* Art Fairman

CODAR TECHNOLOGY, INC., 2405 Trade Centre Ave., Longmont, CO 80503, Tel: 303-776-0472, TELEX: 4947090 Codar, FAX: 303-776-1806; Empl.: 125; *Sls. Mgr.:* L.Brose

CODENOLL TECHNOLOGY CORP., 1086 N. Bwy., Yonkers, NY 10701, Tel: 914-965-6300, TELEX: 646159, FAX: 914-965-9811; Empl.: 90; *Sls. Mgr.:* Paul A. O'Brien; *Dist. Mgr.:* Paul A. O'Brien

CODI SEMICONDUCTOR, 144 Market Street, Kenilworth, NJ 07033, Tel: 201-298-0400, FAX: 201-298-0477; Empl.: 49; *Sls. Mgr.:* James R. Beamish

CODY ELECTRONICS, INC., 2284-C Ringwood Ave., San Jose, CA 95131, Tel: 408-432-7570, FAX: 408-432-1891; Empl.: 30; *Sls. Mgr.:* Patrick Sargent

COGEBI, INC., 14 Farady Dr., Dover, NH 03820, Tel: 603-749-6896, FAX: 603-749-6958; Empl.: 20; *Sls. Mgr.:* M. Chaisson

COGENT SOFTWARE, 1030 Pine St., Menlo Park, CA 94025-3405, Tel: 415-324-4360; *Sls. Mgr.:* Jerry M. Seitzman; *Dist. Mgr.:* Leo D. Eskin

COGNEX CORP., 15 Crawford St., Needham, MA 02194, Tel: 617-449-6030, TELEX: 948022, FAX: 617-449-4013; Empl.: 111; *Sls. Mgr.:* Kris Nelson

COGNITRONICS, 25 Crescent St., Stamford, CT 06906, Tel: 203-327-5307, FAX: 203-327-2002; Empl.: 140; *Sls. Mgr.:* Vincent Harrison

COHERENT COMMUNICATIONS SYS. CORP., 60 Commerce Dr., Hauppauge, NY 11788, Tel: 516-231-1550, TELEX: WUI 96-1439, FAX: 516-231-0018; Empl.: 150; *Sls. Mgr.:* William Hendrix

COHERENT GENERAL, INC., Picker Rd., Sturbridge, MA 01566, Tel: 508-347-2681, TELEX: 95-1806, FAX: 508-347-5134; Empl.: 200; *Sls. Mgr.:* William H. Shiner

COHERENT, INC., P.O. Box 10042, Palo Alto, CA 94303, Tel: 415-493-2111, TELEX: 34-8304, FAX: 415-858-7631; Empl.: 1640; *Sls. Mgr.:* Paul Crosby

COHU, INC., Elctrns. Div., 5755 Kearny Villa Rd., San Diego, CA 92123, Tel: 619-277-6700, TELEX: 910-335-1244, FAX: 619-277-0221; FSC No.: 05157; Empl.: 165; *Sls. Mgr.:* Jeff Tyler

COILCRAFT, 1102 Silver Lake Rd., Cary, IL 60013, Tel: 708-639-2361, TELEX: 216378, FAX: 708-639-1469; Empl.: 1200; *Sls. Mgr.:* Larry Thompson ..... **A•1187-1192**

Local Sales Offices & Reps

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KS	Olathe, Advanced Tech. Sls.	913-782-8702
MD	Silver Spring, Mid Atlantic Sls. Co.	301-593-7749
MA	Braintree, Coilcraft	617-848-9194
MI	Clark Lake, Dick Trull	517-529-9285
MO	St. Louis, Advanced Tech. Sls.	314-878-2921
NY	Rochester, Micro-Tech Mktg.	716-328-1420
NC	Matthews, Coilcraft	704-846-5422
TX	Richardson, Coilcraft	214-437-5597
WA	Kirkland, DMI, Inc.	206-823-4798
Can	Oakville, Ont., Haltronics	800-387-7955

COIL-Q CORP., 340 Bronxville Rd., Bronxville, NY 10708, Tel: 914-337-4775, FAX: 914-779-7109; FSC No.: 55940; Empl.: 12

COIL WINDING EQUIPMENT CO., R.R. Plaza, P.O. Box 660, Oyster Bay, NY 11771, Tel: 516-922-5660, TELEX: 14-3128, FAX: 516-922-5029; Empl.: 25; *Sls. Mgr.:* Joseph Pizzonia

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FAX: 201-371-0318

COLBER CORP., 26E Buffington St., Irvington, NJ 07111, Tel: 201-371-9500, TWX: 710-995-4416; Empl.: 50; *Sls. Mgr.:* Roberta Bryner ..... **A•1882-1883**

COLE-FLEX CORPORATION, 91 Cabot Street, West Babylon, NY 11704, Tel: 516-249-6150, TELEX: 358084, FAX: 516-249-6186; FSC No.: 56352; Empl.: 25; *Sls. Mgr.:* Western:Mr. Mike Steffen Midwestern:Joseph Emma

COLE HERSEE CO., 20 Old Colony Ave., Boston, MA 02127-2467, Tel: 617-268-2100, TELEX: 94-0901, FAX: 617-268-9490; *Sls. Mgr.:* E. Carl Price; *Dist. Mgr.:* John R. West

COLE INSTRUMENT CORP

FAX: 714-241-9061

COLE INSTRUMENT CORP., 2650 S. Croddy Way, Santa Ana, CA 92704, Tel: 714-556-3100; FSC No.: 31946; Empl.: 60; *Sls. Mgr.:* P. Hanson; *Dist. Mgr.:* B. Hendricks ..... **B•1660**

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens	205-883-0445,
AZ	Scottsdale, Advent Comps.	602-481-0044
CA	Los Angeles, Wiley Co.	213-666-1611
FL	Deerfield Bch., Brandel-Stephens	305-427-5441,
FL	Orlando, Brandel-Stephens	407-425-3202
CO	Denver, Advent Comps. Corp.	303-455-1985
IL	Elk Grove, Oasis Sls. Co.	708-640-1850
IN	Ft. Wayne, Naunas Sls. Co.	219-432-4792,
MD	Gaithersburg, Carwithen Assocs.	301-921-9545,
MA	Norwood, Tom Maguire & Assocs.	617-551-0500,
CT	Avon, Tom Maguire & Assocs.	203-673-0601
MN	Bloomington, Oasis Sls. Co.	612-941-1917
MO	St. Louis, Harris & Hanson	314-432-3611
NH	Windham, Tom Maguire & Assocs.	603-437-1245
NY	Hauppauge, Aurora Schmitt	516-343-1313
GA	Norcross, Brandel Stephens Co.	404-662-8330
NC	Greensboro, Brandel-Stephens	919-274-6952,
PA	West Chester, TCA	215-692-6853,
TX	Dallas, Control Components Inc.	214-458-8877
WA	Bellevue, Flightlines Intl.	206-454-2026
WI	Brookfield, Oasis Sls. Co.	414-782-6660
EXP	Rishon LeZion, Israel, Elimec Electromechanical Ltd.	972-3 965-1422
Can	Rexdale, Ont., Myelco, Inc.	416-674-1636

COLE-PARMER INSTRUMENT COMPANY, 7425 North Oak Park Avenue, Chicago, IL 60648, Tel: 708/647-7600, TELEX: 28-9405, FAX: 708-647-9660

COLLINS COMMERCIAL AVIONICS, Rockwell Intl., 400 Collins Rd. NE, Cedar Rapids, IA 52498, Tel: 319-395-1000, TELEX: 464-421, TWX: 910-525-1321; Empl.: 6,600; *Sls. Mgr.:* S.M. Murchison

Collmer Semiconductor, Inc.

FAX: 214-233-0481

COLLMER SEMICONDUCTOR, INC., 14368 Proton Rd., Dallas, TX 75244, Tel: 800-527-0251, 214-233-1589; Empl.: 85; *Sls. Mgr.:* Gene Uecker ... **A•2085; D•1659**

Local Sales Offices & Reps

CA	Mission Viejo, Collmer Semiconductor Inc.	714-582-2188
CA	Playa Del Rey, Corcoran Assocs.	213-823-4589
TX	Dallas, Collmer Semiconductor Inc.	800-527-0251
GA	Alpharetta, Tec Rep Svcs. Inc.	404-664-0869
AZ	Scottsdale, Bill Earl Assoc. Inc.	602-994-3813
CO	Parker, TMA Colorado	305-841-3435
CA	San Jose, Comtech Mktg.	408-249-3330
MN	Minneapolis, Loren Green Assocs.	612-571-6666
MA	Burlington, Collmer Semiconductor	617-229-5822
IN	Frankfort, C-S Elctrn. Sls., Inc.	317-659-1874
NY	Franklin Square, Cooper Simon & Co., Inc.	516-489-0404
NY	Clark Mills, KLM Garner	315-853-6126
NY	Pittsford, KLM Garner	716-381-8350
NC	Cary, Tec Rep Svcs., Inc.	919-467-6444
NC	Charlotte, Tec Rep Svcs. Inc.	704-342-3900
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
OR	Portland, Elctrn. Engrg. Sls.	503-639-3978
PA	Hatboro, AQS Electro	215-674-4421
TN	Brentwood, Tec Rep Svcs. Inc.	615-832-0449
Can	Mississauga, Ont., Source Elctrns. Ltd.	416-676-0830
WI	Waukesha, Collmer Semiconductor, Inc.	414-547-0185
UT	Murray, TMA Colorado	801-483-1009
WA	Redmond, Elctrn. Engrg. Sls.	206-883-3374

Local Distributors

IN	Carmel, Altex Elctrns., Inc.	317-848-1323
AL	Mobile, Allied Elctrns.	205-476-1875
AZ	Phoenix, Allied Elctrns.	602-437-9080
AZ	Phoenix, Betaron Elctrns.	602-277-0133
AZ	Tucson, Allied Elctrns.	602-797-8260
AR	N. Little Rock, Allied Elctrns.	501-376-0233
CA	Camarillo, Milgray/Los Angeles	805-484-4055
CA	Chatsworth, Allied Elctrns.	818-882-6981
CA	Fremont, Allied Elctrns.	415-770-0590
CA	Irvine, Allied Elctrns.	714-727-3010
CA	Rocklin, Allied Elctrns.	916-632-3104
CA	S. San Francisco, Allied Elctrns.	415-952-9599
CA	San Diego, Allied Elctrns.	619-279-2550
CA	Torrance, Allied Elctrns.	213-373-8828
CO	Englewood, Allied Elctrns.	303-790-1664
CO	Englewood, Nep Elctrns.	303-799-9898
CO	Littleton, Indelco	303-795-3431
CT	Cheshire, Allied Elctrns.	203-272-7730
CT	Milford, Milgray/Connecticut	203-878-5538
FL	Casselberry, Allied Elctrns.	407-831-3331
FL	Jacksonville, Allied Elctrns.	904-346-0761
FL	Largo, Allied Elctrns.	813-541-4660
FL	Pompano Bch., Allied Elctrns.	305-978-3008
FL	Winter Park, Milgray/Florida	407-647-5747
GA	Duluth, Allied Elctrns.	404-497-9544
GA	Norcross, Allied Elctrns.	404-446-8595
GA	Norcross, Milgray/Atlanta	404-446-9777
IL	Arlington Hgts., Milgray/Chicago	312-253-1212
IL	Des Plaines, Allied Elctrns.	312-803-1040
IL	New Lenox, Allied Elctrns.	815-485-1511
IL	Schaumberg, Marsh Elctrns.	708-240-9290
IL	Wood Dale, Allied Elctrns.	312-860-0007
IL	Wood Dale, Nep Elctrns.	312-595-8500
IN	Indianapolis, Allied Elctrns.	317-876-0448
IA	Cedar Rapids, Dee Elctrns.	319-365-7551
IA	W. Des Moines, Allied Elctrns.	515-223-6488
KS	Lenexa, Allied Elctrns.	913-599-6227
KS	Overland Pk., Milgray/Kansas City	913-236-8800
KY	Louisville, Allied Elctrns.	502-452-2293
LA	Metairie, Allied Elctrns.	504-885-1195
MD	Columbia, Allied Elctrns.	301-381-1560
MD	Columbia, Milgray/Washington	301-621-8169
MA	Billerica, Allied Elctrns.	508-667-7921
MA	Norwood, Allied Elctrns.	617-255-0361
MA	Wilmington, Milgray/New England	508-657-5900
MI	Grand Rapids, Allied Elctrns.	616-949-8200
MI	Livonia, Allied Elctrns.	313-462-0190
MN	Eden Prairie, Allied Elctrns.	612-829-7554
MN	Minneapolis, AEI Elctrns.	612-338-4754
MN	Minneapolis, Marsh Elctrns.	612-831-4840
MO	Earth City, Allied Elctrns.	314-291-7031
NE	Omaha, Allied Elctrns.	402-696-0038
NH	Nashua, Allied Elctrns.	603-883-3006
NJ	Edison, Allied Elctrns.	908-572-9600
NJ	Fairfield, Allied Elctrns.	201-227-8776
NJ	Marlton, Milgray/Delaware Valley	609-983-5010
NJ	Mtn. Laurel, Allied Elctrns.	609-234-7769
NJ	Parsippany, Allied Elctrns.	201-428-3350
NJ	Parsippany, Milgray/New Jersey	201-335-1766
NM	Albuquerque, Betatron Elctrns.	505-821-1122
NY	Fairport, Allied Elctrns.	716-425-3850
NY	Farmingdale, Milgray/New York	516-391-3000
NY	La Grangeville, Allied Elctrns.	914-452-1470
NY	Mineola, Allied Elctrns.	516-248-2360
NY	Pittsford, Milgray/Upstate NY	716-381-9700
NC	Raleigh, Allied Elctrns.	919-876-5845
NC	Raleigh, Milgray/Raleigh	919-790-8094
OH	Cincinnati, Allied Elctrns.	513-771-6990
OH	Cleveland, Milgray/Cleveland	216-447-1520
OH	Solon, Allied Elctrns.	216-248-4200
OH	Worthington, Allied Elctrns.	614-785-1270
OK	Tulsa, Allied Elctrns.	918-664-0844
OR	Portland, Allied Elctrns.	503-245-4225
PA	Camp Hill, Allied Elctrns.	717-975-3570

PA Pittsburgh, Allied Elctrns. 412-367-4124
SC Greenville, Allied Elctrns. 803-288-8835
TN Knoxville, Industrial Elctrns. 615-573-7135
TN Memphis, Allied Elctrns. 901-367-2895
TX Austin, Allied Elctrns. 512-389-3771
TX Dallas, Allied Elctrns. 214-553-4370
TX Dallas, Milgray/Dallas 214-248-1603
TX El Paso, Allied Elctrns. 915-779-6294
TX Ft. Worth, Allied Elctrns. 817-595-3500
TX Humble, Allied Elctrns. 713-446-8005
TX Irving, Allied Elctrns. 214-570-5196
TX Stafford, Milgray/Houston 713-240-5360
UT Salt Lake City, Allied Elctrns. 801-272-4999
UT Salt Lake City, Milgray/Utah 801-272-4999
VA Alexandria, Allied Elctrns. 703-750-8206
VA Virginia Bch., Allied Elctrns. 804-363-8662
WA Seattle, Allied Elctrns. 206-547-2827
WI Milwaukee, Marsh Elctrns. 414-475-6000
WI New Berlin, Allied Elctrns. 414-796-1280
WI New Berlin, Nep Elctrns. 414-785-9100
Can Pointclaire, Que., Milgray/Montreal 514-426-5900
Can Willowdale, Ont., Milgray/Toronto 416-756-4481

FAX: 303-667-3500

COLORADO CRYSTAL CORP., 2303 W. 8th St., Loveland, CO 80537, Tel: 303-667-9248; FSC No.: 33096; Empl.: 75; *Sls. Mgr.:* David Lind ..... **A•1322**

Local Sales Offices & Reps

CA Calabasas, Shel Schreiber Assocs. ... 818-703-8083
CA Los Altos, Kolm Mktg. Assoc. 415-948-2635
IL Northfield, Feller Assocs. Inc. 800-776-7369
IA Cedar Rapids, Barnes Wes Tech Assoc. 319-393-9790
KS Overland Park, Barnes Midwest Sls. .. 913-469-9688
MD Kensington, Koebert Assocs. Inc. 301-493-8924
MA Randolph, Bengal 617-961-4120
OR Beaverton, L. D. Elctrns. 503-649-6177
PA Glenside, Koebert Assocs. Inc. 215-887-2310
TX Austin, Oeler & Menelaides 512-453-0275
TX Dallas, Oeler & Menelaides 214-361-8876
TX Houston, Oeler & Menelaides 713-682-7001
WA Snohomish, L.D. Elctrns. 206-568-0511
WV Inwood, Koebert Assocs. Inc. 304-229-8401

COLORADO DATA SYSTEMS, INC., 3301 W. Hampden Ave., Unit C, Englewood, CO 80110, Tel: 303-762-1640, 800-TEK-4VXI, TWX: 910-933-0193, FAX: 303-781-0253; Empl.: 80; *Sls. Mgr.:* Robert L. Frodge

COLORADO VIDEO, INC., Box 928, Boulder, CO 80306, Tel: 303-530-9580, FAX: 303-530-9569; Empl.: 21; *Sls. Mgr.:* Kirk Fowler

COLORGRAPHIC COMMUNICATIONS CORP., 30341 New Peachtree Rd./P.O. Box 30366, Atlanta, GA 30366, Tel: 404-455-3921, FAX: 404-458-0616; Empl.: 50; *Sls. Mgr.:* Elyse Mintz

COLT ELECTRONICS CO., INC., 15301 West 109th St., Lenexa, KS 66219, Tel: 913-888-1673, FAX: 913-888-3666; *Sls. Mgr.:* Michael S. Lynn

COLT TECHNOLOGY CORP., 15301 West 109th St., Lenexa, KS 66219, Tel: 913-888-1673, FAX: 913-888-3666; Empl.: 95; *Sls. Mgr.:* Jeffrey S. Lynn

COLUMBIA CHASE CORP., HUMISEAL DIV., See HumiSeal Div.

COLUMBIA COMPONENTS, 9 Division St., Sidney, NY 13838, Tel: 607-563-3520; FSC No.: 59178; Empl.: 12; *Sls. Mgr.:* Helen Montren

COLUMBIA ELCTRN. CABLES DIV., See Carol Cable Co., Inc., Columbia Elctrn. Cables Div.

COLUMBIA RESCH. LABS., Macdade Blvd. & Bullens La., Woodlyn, PA 19094, Tel: 215-872-3900, TWX: 510-669-3625, FAX: 215-872-3882; FSC No.: 07571; Empl.: 95; *Sls. Mgr.:* Robert R. Reymos

COLUMBUS INSTRUMENTS, 950 N. Hague Ave., Columbus, OH 43204, Tel: 614-488-6176, TELEX: 246514; *Sls. Mgr.:* Jan Czekajewski

COMAIR ROTRON, A KLI Company, 12 North Street, Saugerties, NY 12477, Tel: 914-246-3615, TELEX: 551496, TWX: 510-247-1941, FAX: 914-246-1176; FSC No.: 5Y921; Empl.: 800; *Dist. Mgr.:* Ralph R. Stevens

Local Sales Offices & Reps

AL Huntsville, Montgomery Mktg., Inc. 205-830-0498
AZ Phoenix, Westrep 602-820-9932
CA Anaheim, Westrep 714-527-2822
CA San Diego, Hadden Assocs. 619-565-9444
CA Santa Clara, Westrep 408-988-8833
CO Littleton, Lange Sls., Inc. 303-795-3600
FL Altamonte Springs, Semtronics 407-831-8233
FL Clearwater, Semtronics 813-461-4675
GA Norcross, Montgomery Mktg., Inc. 404-447-6124
IL (Northern), Sumer, Inc. 708-991-8500
IN Ft. Wayne, Frank J. Campisano Co. 219-486-6443
IN Indianapolis, Frank J. Compisano Co. 317-253-7651
IA Cedar Rapids, S & O Sls. 319-363-8878
MA Chelmsford, J.E. Boeing Co. 508-256-5800
MI Farmington Hills, Rathsburg Assocs., Inc. 313-489-1500
MN Mendota Hgts., G-II Sls., Inc. 612-454-3086
MO Bridgetown, Cen Tech, Inc. 314-291-4230
MO Raytown, Cen Tech, Inc. 816-358-8100
NJ Saugerties, Comair Rotron 201-227-7383
NY Saugerties, Comair Rotron, Inc. 914-246-3615
NC Raleigh, Montgomery Mktg., Inc. 919-851-0010
OH Cincinnati, Frank J. Campisano Co. 513-574-7111
OH Cleveland, Components, Inc. 216-243-9200
OK Tulsa, Ammon & Rizos Co. 918-749-6116
PA Broomall, L. D. Lowery, Inc. 215-356-5300
TX Austin, Ammon & Rizos Co. 512-454-5131
TX Houston, Ammon & Rizos Co. 713-781-6240
TX Richardson, Ammon & Rizos Co. 214-644-5591
UT Salt Lake City, Lange Sls., Inc. 801-487-0843
WA Seattle, Jas. J. Backer Co. 206-285-1300
WI Brookfield, Sumer, Inc. 414-784-6641
PR Hato Rey, Semtronics 809-766-0700
Can Hamilton, Ont., Cartwright/Southall Assocs., Inc. 416-528-0294
Can Montreal, PQ, McIntyre Agencies Ltd. 514-731-9617
Can Vancouver, Arwin Tech. Sls. 604-980-4557

Local Distributors

CA Garden Grove, Richey/Impact Elctrns. 714-895-0060
CO Aurora, Capstone Elctrns 303-375-1300
IL Chicago, Newark Elctrns. 312-784-5100
MI Livonia, Chelsea/Rs Elctrns 313-525-1155
MN Minneapolis, Sterling Elctrns. 612-831-2666
NM Thief River Falls, Digi-Key Corp. 218-681-6674
NY Buffalo, Summit Distrs., Inc. 716-887-2800
NY Westbury, Schweber Elctrns. 516-334-7474
TX Dallas, Hall-Mark Elctrns. 214-343-5000
TX Ft. Worth, Allied Elctrns. 817-595-3500
WA Bellevue, Almac Elctrns. Corp. 206-643-9992
WA Seattle, Radar Elec. 206-282-2511
Can Don Mills, Ont., Saynor Varah, Inc. 416-445-0723
Can Scarborough, Ont., Carsten Elctrns. 416-495-7705
Can Willowdale, Ont., Electrosonic 416-494-1666

COMARK CORP., 93 West Street, Medfield, MA 02052, Tel: 508-359-8161, FAX: 508-359-2267; Empl.: 35

COMATEL USA, INC., 22 Eagle Rd., Commerce Pk., Danbury, CT 06810, Tel: 203-797-9445, TELEX: 643-011, FAX: 203-790-9298; Empl.: 10; *Sls. Mgr.:* Tim Papp

COMCAB, 8255 Black Run Rd., Nashport, OH 43830, Tel: 614-828-2468, FAX: 614-828-2796; Empl.: 40; *Sls. Mgr.:* Cheryl Mumma; *Dist. Mgr.:* Cheryl Mumma

COMCLOK, INC., 1142 N. Gilbert St., Anaheim, CA 92801, Tel: 714-991-1580, 800-333-9825, 213-836-9592(Tech. Asst.), FAX: 714-491-9825; Empl.: 30; *Sls. Mgr.:* Herb Plumhoff ..... **A•1323**

Local Sales Offices & Reps

CA Arcadia, HMC 818-447-0958
CA San Jose, Blue Elctrns. Sls. 408-248-4399
CO Denver, Electrophase 303-296-0443
TX Rockwall, Eatman Mfg. Rep. 214-771-1903

Local Distributors

CA Fountain Valley, Ecliptek 714-963-4009
CA Stanton, Inductive Comps. 714-828-3420
CA Sunnyvale, Target Elctrns. 408-734-5611

COMDATA CORP., 7900 N. Nagle Ave., Morton Grove, IL 60053, Tel: 708-470-9600

COMLINEAR CORP., 4800 Wheaton Drive, Fort Collins, CO 80525, Tel: 303-226-0500; FSC No.: 62839; Empl.: 160; *Sls. Mgr.:* John Perzow; *Dist. Mgr.:* Bill Henderson

COMM CON CONNECTORS INC., 4111 Ocean View Blvd., Montrose, CA 91020, Tel: 818-957-2018, FAX: 818-957-4851; Empl.: 13; *Sls. Mgr.:* Robert Farnum; *Dist. Mgr.:* James Orr ..... **C•1323**

Local Sales Offices & Reps

AL Huntsville, Effective Mktg. Force 205-233-2947
AZ Tempe, Elctrn. Tech. Sls. 602-921-7122
CA Montrose, Signal Entprs. 818-957-0640
CA Napa, Stewart/Fullerton Assoc. 707-258-1160
CT New Fairfield, Sales Engrg. 203-746-6905
GA Atlanta, Effective Mktg. Force 404-948-6023
IL Wheaton, CS Tech. Sls. 708-653-8126
NH Salem, Sales Engrg. 603-893-5521
NC Raleigh, Effective Mktg. Force 919-867-6221
OR Portland, Caruso & Assoc. 503-246-5439
PA Souderton, Intek Inc. 215-723-0433
TX Plano, Connector Specialists Inc. 214-517-1207
Can Markham, Matrix Technlg. Ltd. 416-477-4442

Local Distributors

AZ Phoenix, Be-Switched 602-275-4805
CA Fremont, KEA Elctrns. 415-651-2691
CA Gardena, Cal Switch 213-538-9830
CA Riverside, Elctrn Supp. 714-781-0453
CA Sunnyvale, PSC Elctrns. 408-737-1333
CT Danbury, Heilind Elctrns 203-797-8600
GA Norcross, Century Elctrns. 404-449-3424
IL Chicago, Leeds Electro Comps. 312-625-3800
MA Wilmington, Heilind Elctrns. 508-657-4870
MN Plymouth, Leeds Electro Comps. 612-557-1277
NC Raleigh, Century Elctrns. 919-782-2116
OK Tusla, Radio Inc. 918-587-9123
PA Norristown, Century Elctrns. 215-631-5400
TX Richardson, Duke Elctrns 214-680-3853
WA Vancouver, Interconnect Sls. 206-256-4085
WI Milwaukee, Progressive Image 414-321-4722

COMM/SCOPE, INC., Network Cable Div., P.O. Box 879, Claremont, NC 28610, Tel: 704-324-2200, 800-982-1708, TELEX: 802-166, FAX: 704-459-5099; *Sls. Mgr.:* Nita Hunsucker

FAX: 312-637-8564

COMMUNICATION COIL INC., 2839 N. Narragansett Ave., Chicago, IL 60634, Tel: 312-637-1333; FSC No.: 81815; Empl.: 75; *Sls. Mgr.:* E. Goldman ..... **A•1193, 1665, 2190**

Local Sales Offices & Reps

AZ Chandler, Lindberg & Co. 602-786-9115
CO Denver, Lindberg & Co. 303-758-9033
GA Maitland, E.I.R. Inc. 407-660-9600
IL Chicago, CCI 312-637-1333
MA Brookline, TPG Inc. 617-731-0858
NM Albuquerque, Lindberg & Co. 505-881-1006
OH Beavercreek, Electro-Com 513-427-2696
UT Salt Lake City, Lindberg & Co. 801-277-2643

COMMUNICATION DEVICES, INC., 1-130 McLevin Ave., Scarborough, Ont., CAN M1B3R6, Tel: 416-292-4463, TELEX: 065-25428, FAX: 416-292-4295; Empl.: 70

COMMUNICATIONS INSTRUMENTS, INC., P.O. Box 520, Hwy. 74 East, Fairview, NC 28730, Tel: 704-628-1711, TELEX: 577436, FAX: 704-628-1439; FSC No.: 58614; Empl.: 260; *Sls. Mgr.:* R. McClinton ..... **B•1432-1438**

Local Sales Offices & Reps

AL Huntsville, Dean Assocs. 205-534-2255
AZ Phoenix, CPS Assocs. 602-246-1097
CA Santa Clara, Ross Mktg. 408-988-8111
CO Denver, Con-Tek Mktg. 303-973-8490
CT Torrington, Phoenix Sls. 203-496-7709
FL Oviedo, Conley & Assocs. 305-365-3283
GA Atlanta, Dean Assocs. 205-534-2255
IL Arlington Hts., MB Sls. 312-392-9499
IN Kokomo, Schillinger Assocs. 317-455-2708
IA Cedar Rapids, C. H. Horn & Assocs. .. 319-393-8703
KS Lenexa, Midwest Tech. Sls. 913-888-5100
MA Needham, Component Technlg., Inc. .. 617-449-8490
MI Grosse Pointe Park, Greiner Assocs., Inc. 313-499-0188
MN North Mankato, El Sls. 507-345-5786
NY Babylon, ASTROREP 516-422-2500
NY Syracuse, M. M. Hare Co. 315-457-6859
NC Raleigh, Godwin Assocs. 919-878-8000
OH Vandalia, Stegman Blaine 513-890-7975
PA Philadelphia, Tech. Sls. Assoc. 215-784-0170
WA Seattle, Eclipse Mktg. 206-885-6991
Can Montreal, Que., Empro Sls. Co. 514-341-6420
Can Richmond Hill, Ont., Renmark Elctrns., Ltd. (Off. No. 1) 416-881-8844

Local Distributors

AZ Tempe, Time Elctrns. 602-967-2000
CA Anaheim, Time Elctrns. 714-937-0911

CA Chatsworth, Time Elctrns. 818-998-7200
CA San Diego, Time Elctrns. 619-586-1331
CA Santa Ana, Norstan Elctrns. 714-540-4165
CA Sunnyvale, Time Elctrns. 408-734-9888
CA Torrance, Time Elctrns. 213-320-0880
CO Englewood, Time Elctrns. 303-799-8851
FL Orlando, T & T Prods., Inc. 305-857-2282
FL Orlando, Time Elctrns. 305-841-6565
GA Norcross, Time Elctrns. 404-448-4448
IL Wood Dale, Time Elctrns. 312-350-0610
MD Columbia, Time Elctrns. 301-964-3090
MA Peabody, Time Elctrns. 617-532-6200
NJ Pine Brook, Time Elctrns. 201-582-4611
NY Hauppauge, Time Elctrns. 516-273-0100
NY Lynbrook, Peerless Radio 516-593-2121
NY Centereach, Gemcap Comps. 516-736-0069
OH Dublin, Time Elctrns. 614-761-1100
OR Portland, Time Elctrns. 503-684-3780
PA King of Prussia, Time Elctrns. 215-337-0900
TX Carrolton, Time Elctrns. 214-241-7441
TX Houston, Time Elctrns. 713-530-0800
UT Salt Lake City, Time Elctrns. 801-973-8181
WA Redmond, Time Elctrns. 206-882-1600

COMMUNICATIONS SYS. TECHNOLOGY, INC., 2018 Rhodes Street, Hermosa Beach, CA 90254, Tel: 213-374-3849; Empl.: 4; *Sls. Mgr.:* A.L. Perry

COMPAC™

FAX: 516-585-3534

COMPAC, 1320-13 Lincoln Ave., Holbrook, NY 11741, Tel: 516-585-3400; FSC No.: 62099; Empl.: 35; *Sls. Mgr.:* Peter C. Rao ..... **C•1021-1025**

Local Sales Offices & Reps

GA Atlanta, EMA Inc. 404-448-1215
TX Dallas, Talo Products 214-644-6010
SC Greenville, EMA Inc. 803-233-4637
CA Westlake Village, CAL-Rep. 818-991-1940
AL Huntsville, EMA Inc. 205-837-7363
CA Campbell, Senah 408-374-1031
MA Haverill, L-K Assoc. 617-373-1313
MO St. Louis, Abrams & Assocs. 314-569-0447
NC Raliegh, EMA Inc. 919-847-8800
OR Portland, Temper Tech Mktg. 503-292-8201
VA Fairfax, Schibley Assocs. 703-591-3008

Local Distributors

CA Cupertino, DC Elctrns. 408-996-8858

COMPACT POWER COMPANY, 17282 Orange Drive, Yorba Linda, CA 92686, Tel: 714-996-5826; *Sls. Mgr.:* Charles Lindberg ..... **D•2183**

COMPACT SOFTWARE, INC., 483 McLean Boulevard, Paterson, NJ 07504, Tel: 201-881-1200, TELEX: 130073, FAX: 201-881-8361; FSC No.: 43304; Empl.: 60; *Sls. Mgr.:* Ray Pengelly; *Dist. Mgr.:* Scott Wheelis

COMPAR, D.G.W. Electronics Corporation, 85 Spy Ct., Markham, Ontario, Canada L3R 4Z4, Tel: 416-475-8500, FAX: 416-475-4158; Empl.: 36; *Sls. Mgr.:* Rick Lewis

COMPAS, 100 Chimney Point Dr., Ogdensburg, NY 13669, Tel: 315-393-3573, FAX: 315-393-7638; Empl.: 350; *Sls. Mgr.:* James L. Clare

COMPEX CORP., Taunton Professional Park, 238 Taunton Blvd., Medford, NJ 08055, Tel: 609-596-9388, FAX: 609-596-3482; Empl.: 24

COMPIX, INC., 16195 SW 72nd St., Tigard, OR 97224, Tel: 503-639-8496; Empl.: 14; *Sls. Mgr.:* James G. Walcutt-VP Sls. Mktg.

COMPLIANCE DESIGN INC., 593 Massachusetts Ave., Boxboro, MA 01719, Tel: 508-264-4668, TWX: 317-632-DASH; *Sls. Mgr.:* Chip Digirolamo

COMPONENT GENERAL, INC., 2445 Success Dr., Odessa, FL 33556, Tel: 813-376-6655, FAX: 813-372-9096; Empl.: 30; *Sls. Mgr.:* Thomas Floridio

Local Sales Offices & Reps

CA Santa Ana, Landa & Assocs., Inc. 714-543-7805
CA Los Angeles, Landa & Assocs., Inc. ... 213-879-0770
CA Mountain View, Bridge Mktg. 415-965-8045
DC Washington, M. Lader Co. 1-800-442-3177
GA Lawrenceville, M. Lader Co. 404-264-8111
MA N. Andover, Bee Assoc. 508-475-2124
MN Minneapolis, Comstrand 612-788-9234
MO Grandview, R. R. Burton 816-763-5385
NY Buffalo, Upstate Engrg. Sls. 716-632-0011
NY Rochester, Upstate Engrg. Sls. 716-225-2383
PA Conshohocken, M. Lader Co. 215-825-3177, 1-800-442-3177
PA Murrysville, Pittsburgh Sls. Assoc. 412-327-3268
TX Austin, Allied Comps., Inc. 512-331-4494
TX Dallas, Allied Comps., Inc. 214-238-0408
TX Ft. Worth, Allied Comps., Inc. 817-589-0456
EXP Odessa, FL, Comp. Gen. Inc. 813-376-6655

COMPONENT MFG. SVC., INC., 1 Component Park, W. Bridgewater, MA 02379, Tel: 508-580-0111, FAX: 508-559-9893; Empl.: 600; *Sls. Mgr.:* Scott Allen; *Dist. Mgr.:* Wayne Douglas

COMPONENT RESEARCH CO. INC., 1655-26 St., Santa Monica, CA 90404, Tel: 213-829-3615, FAX: 213-829-9584; FSC No.: 12517;Multiple; Empl.: 230; *Sls. Mgr.:* Sylvia Kellerman ..... **A•1022-1050**

Local Sales Offices & Reps

SC Greenville, Walter Lamphier 803-232-4687

COMPONENTS CORP., 6 Kinsey Pl., Denville, NJ 07834, Tel: 201-627-0290, FAX: 201-361-5801; FSC No.: 26364; Empl.: 20; *Sls. Mgr.:* Fred Bielenberg

COMPONENTS ELECTRONICS CORP., 629A Lowther Rd., Lewisberry, PA 17339, Tel: 717-938-4151, FAX: 717-938-5910; Empl.: 45; *Sls. Mgr.:* J.Galli; *Dist. Mgr.:* J.Galli

COMPONENT SPECIALTIES CORP., 9143 E. La Rosa Dr., Temple City, CA 91780, Tel: 213-283-0015, FAX: 818-287-7189; FSC No.: 28984; Empl.: 45; *Sls. Mgr.:* D.R. Heins

COMPUCART, Versa Tec, P.O. Box 2095, Tampa, FL 33601-2095, Tel: 800-237-9024, 813-251-2431; Empl.: 25

COMPU-CRAFT FABRICATORS INC., 669 Mary St., Warminster, PA 18974, Tel: 215-443-7107, FAX: 215-443-7195; FSC No.: 76977; Empl.: 18; *Sls. Mgr.:* Stephen Dalton

COMPU-MECH INC., 2375 Dorr St., Toledo, OH 43607, Tel: 419-535-6702, TWX: 510-601-7362, FAX: 419-535-0805; *Sls. Mgr.:* John Stanley III

COMPUMOTOR DIVISION, Parker Hannifin Corp., 5500 Business Park Dr., Rohnert Park, CA 94928, Tel: 707-584-7558, FAX: 707-584-8015; Empl.: 150; *Sls. Mgr.:* K. McNicholas; *Dist. Mgr.:* A. Wales

COMPUTER AVIONICS, See CAC Microcircuits, Inc.

COMPUTER CABLE & PRODS., INC., Vertex Computer Cable & Products

COMPUTER COMPONENTS INC.

FAX: 914-738-6706

COMPUTER COMPONENTS, INC., 629 Fifth Ave., Pelham, NY 10803, Tel: 914-738-1611; FSC No.: 12965; Empl.: 25; *Sls. Mgr.:* John Hunsicker; *Dist. Mgr.:* John Hunsicker ..... **B•1399**

COMPUTER CONVERSIONS CORP., 6 Dunton Ct., E. Northport, NY 11731, Tel: 516-261-3300, FAX: 516-261-3308; FSC No.: 51086; Empl.: 100; *Sls. Mgr.:* S. J. Renard ..... **D•1150-1151**

Local Sales Offices & Reps

IN Mishawaka, Engrd. Sls. 219-255-5111
WI Delavan, Clawson Controls 414-728-8325
MA Brookline, Technology Prod. Grp. 617-731-0858
MI Newport, Industrial Sensors, Inc. 313-289-3374
NY Moravia, Electrotech Sys. 315-497-1598
OH Cincinnati, Rilco 513-271-0630
PA Ingoma, Greye Glass 412-366-6664
TX Lewisville, Automated Dynamics 214-221-0052

COMPUTER DEVICES, 34 Linnell Cir., Nutting Lake, MA 01865, Tel: 508-663-4980, TELEX: 949398; Empl.: 30; *Sls. Mgr.:* Sandra R. Clark

COMPUTER DOCTORS, 9204-B Baltimore Blvd., College Park, MD 20740, Tel: 1-800-RAM-STAR, 301-474-3095, FAX: 301-474-0805

COMPUTER DYNAMICS SALES, 107 S. Main St., Greer, SC 29650, Tel: 803-877-8700, FAX: 803-879-2030; *Sls. Mgr.:* Barry Steele

COMPUTER INSTRUMENTS CORP., 1000 Shames Drive, Westbury, NY 11590, Tel: 516-476-8400, FAX: 516-876-9153

COMPUTER INSTRUMENTS DIV., 100 Madison Ave., Hempstead, NY 11550, Tel: 516-483-8200, TWX: 510-222-4189, FAX: 516-483-8327; Empl.: 65; *Sls. Mgr.:* Cary Ratner

COMPUTERIZED COIL WINDERS, INC., 5 W. Kenosia Ave., Danbury, CT 06810, Tel: 203-744-6715, FAX: 203-798-7563; Empl.: 6

COMPUTER MAINTENANCE CORP., 405 Murray Hill Pkwy, East Rutherford, NJ 07073, Tel: 201-896-0707, FAX: 201-896-8503; Empl.: 105; *Sls. Mgr.:* Arthur Young

COMPUTER OPTICAL PRODUCTS, INC., Sub. of Hathaway Corp., 9321 Eton Ave., Chatsworth, CA 91311-6910, Tel: 818-882-0424, TELEX: 18-33-73-UD, FAX: 818-882-0492; Empl.: 50; *Sls. Mgr.:* David Richards

COMPUTER PERIPHERALS INC., 667 Rancho Congo Blvd., Newbury Pk., CA 91320, Tel: 805-499-5751, 800-854-7600, TELEX: 759299CPI, FAX: 805-498-8848; Empl.: 100; *Sls. Mgr.:* Davius Antia; *Dist. Mgr.:* Mike Krunic

COMPUTER POWER INC., 124 W. Main St., High Bridge, NJ 08829, Tel: 908-638-8000, 800-526-5088, TELEX: 847481, FAX: 908-638-4931; FSC No.: 3643; Empl.: 170; *Sls. Mgr.:* John Deliman; *Dist. Mgr.:* Angela Anderson

COMPUTER PRODUCTS, INC., Measurement & Control Div., 2900 Gateway Dr., Pompano Beach, FL 33069, Tel: 305-974-5500, FAX: 305-979-7371; Empl.: 150; *Sls. Mgr.:* Gene Ackerman

COMPUTER PRODUCTS™ POWER CONVERSION

FAX: 510-683-6400

COMPUTER PRODUCTS INC., Power Conversion America, 3797 Spinnaker Ct. (P.O. Box 5102), Fremont, CA 94537-5102, Tel: 510-657-6700; FSC No.: 62125; Empl.: 1,200; *Sls. Mgr.:* Ken Clouther, VP, Sls.; *Dist. Mgr.:* Emilie Creager, Distbn. Mgr. ..... **D•1500, 1661-1679**

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AZ Phoenix, C.T. Carlberg 602-488-0750
CA Encinitas, Jones & McGeoy Sls. 619-753-6784
CA San Diego, Jones & McGeoy Sls. 714-756-6269
CA Santa Ana, Jones & McGeoy Sls. 714-547-6466
CA Santa Clara, Criterion Sls. 408-988-6300
CO Aurora, Electrodyne 303-695-8903
CT New Milford, Alpha-Omega Sls. 203-354-2923
FL Oviedo, Conley & Assocs. 407-365-3283
GA Norcross, Mountain Electro Mktg. 404-448-5594
IL Itasca, Janus, Inc. 708-250-9650
IN Indianapolis, Leslie M. Devoe Co. 317-842-3245
IA Cedar Rapids, Dy-Tronix, Inc. 319-377-8275
KS Leawood, Dy-tronix, Inc. 913-339-6333
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MD Columbia, Third Wave Solutions, Inc. 301-290-5990
MA North Reading, Alpha Omega Sls. 508-664-1118
MN Minneapolis, Stan Clothier Co. 612-944-3456
MO Bridgeton, Dy-tronix, Inc. 314-291-4777
NJ Mt. Laurel, Paragon Sls. & Mktg. 609-778-1190
NM Albuquerque, C.T. Carlberg 505-899-2155
NY Binghamton, Empire Tech. Assocs. 607-772-0651
NY Rochester, Empire Tech 719-381-8500
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NC Raleigh, Zucker Assocs., Inc. 919-782-8433
OH Cleveland, Elctrn. Salesmasters 216-831-9555
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OR Beaverton, Micro Sls., Inc. 503-645-2841
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TX Houston, Ammon & Rizos 713-781-6240
TX Richardson, Ammon & Rizos 214-644-5591
UT Salt Lake City, Electrodyne, Inc. 801-264-8050
WA Bellevue, Micro Sls., Inc. 206-451-0568
WI Waukesha, Janus, Inc. 414-542-7575
Can Montreal, Electro Source 514-630-7486
Can Ottawa, Ont., Electro Source 613-592-3214
Can Toronto, Electro Source 416-675-4490
Can W. Vancouver,B.C., Blakewood Elctrns. Sys., Inc. 604-273-9910

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AL Huntsville, Bell Inds. 205-837-1074
AL Huntsville, Lex Elctrns. 205-895-0480
AL Huntsville, Marshall Inds. 205-881-9235
AZ Phoenix, Lex Elctrns. 602-431-0030
AZ Phoenix, Marshall Inds. 602-496-0290
AZ Tempe, Bell Inds. 602-966-7800
CA Canoga Park, Lex Elctrns. 818-999-4702
CA Chatsworth, Marshall Inds. 818-407-4100, 818-880-9680
CA El Monte, Marshall Inds. 818-307-6000
CA Fountain Valley, Bell Micro Products .. 714-963-0667
CA Garden Grove, Bell Inds. 714-895-7801
CA Gardena, Bell Inds. 213-515-1800
CA Irvine, Lex Elctrns. 714-587-0404,213-537-4321
CA Irvine, Marshall Inds. 714-458-5380
CA Los Angeles, Bell Inds. 213-826-6778
CA Milpitas, Bell Micro Products 408-434-1150
CA Milpitas, Marshall Inds. 408-943-4600
CA N. Hollywood, B. J. Wolfe Entprs. 213-877-5518
CA Sacramento, Lex Elctrns. 916-929-9732
CA San Diego, Bell Inds. 619-268-1277
CA San Diego, Lex Elctrns. 619-495-0015
CA San Diego, Marshall Inds. 619-578-9600
CA San Jose, B.J. Wolfe Entprs. 408-371-3443
CA San Jose, Lex Elctrns. 408-432-7171
CA Sunnyvale, Bell Inds. 408-745-0400,408-773-1100
CA Thousand Oaks, Bell Inds. 805-499-6821
CO Englewood, Lex Elctrns. 303-799-0258
CO Thornton, Marshall Inds. 303-451-8383
CO Wheat Ridge, Bell Inds. 303-424-1985
CT Oxford, Lex Elctrns. 203-264-4700
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FL Altamonte Springs, Lex Elctrns. 407-331-7555
FL Altamonte Springs, Marshall Inds. 407-767-8585
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FL Deerfield Bch., Lex Elctrns. 305-977-7511
FL Ft. Lauderdale, Marshall Inds. 305-977-4880
FL Largo, Bell Inds. 813-541-4434
FL St. Petersburg, Marshall Inds. 813-576-1399
GA Norcross, Bell Inds. 404-662-0923
GA Norcross, Lex Elctrns. 404-449-9170
GA Norcross, Marshall Inds. 404-923-5750
IL Elk Grove, Bell Inds. 312-640-1910
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IN Indianapolis, Bell Inds. .. 317-875-8200,317-299-5487
IN Indianapolis, Lex Elctrns. 317-843-1050
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IA Cedar Rapids, Bell Inds. 319-395-0730
IA Cedar Rapids, Lex Elctrns. 319-373-1417
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KS Overland Park, Lex Elctrns. 913-492-2922
MD Columbia, Lex Elctrns. 301-596-7800
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MA Wilmington, Jaco Elctrns. 617-273-1860
MA Wilmington, Lex Elctrns. 508-694-9100
MA Wilmington, Marshall Inds. 617-658-0810
MI Ann Arbor, Bell Inds. 313-971-9093
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MI Livonia, LWC Distrs. 313-464-7700
MI Livonia, Marshall Inds. 313-525-5850
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MN Plymouth, Marshall Inds. 612-559-2211
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NH Hudson, Bell Inds. 603-882-1133
NH Manchester, Lex Elctrns. 603-625-2250
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NJ Mt. Laurel, Lex Elctrns. 609-274-7900
NJ Mt. Laurel, Marshall Inds. 609-234-9100
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NY Hauppauge, Marshall Inds. 516-273-2424
NY Johnson City, Marshall Inds. 607-798-1611
NY Pittsford, Lex Elctrns. 716-383-8020
NY Rochester, Marshall Inds. 716-235-7620
NC Raleigh, Century Elctrns. 919-782-2116
NC Raleigh, Lex Elctrns. 919-876-0000
NC Raleigh, Marshall Inds. 919-878-9882
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OH Dayton, Bell Inds. 513-434-8231,513-435-8660
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OH Dayton, Marshall Inds. 513-898-4480
OH Solon, Marshall Inds. 216-248-1788
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OR Beaverton, Almac Elctrns. 503-629-8090
OR Beaverton, Marshall Inds. 503-644-5050
OR Lake Oswego, Bell Inds. 503-635-6500
PA Horsham, Lex Elctrns. 215-441-0600
PA Norristown, Century Elctrn. Comps. ... 215-631-5400
PA Pittsburg, Lex Elctrns. 412-963-6807
PA Pittsburgh, Marshall Inds. 412-963-0441
TX Austin, Marshall Inds. 512-837-1991
TX Austin, Norvell Elctrns. 512-837-5555
TX Carrollton, Marshall Inds. 214-233-5200
TX Dallas, Lex Elctrns. 214-247-6300
TX Dallas, Norvell Elctrns. 214-233-0020
TX Houston, Lex Elctrns. 713-977-5383
TX Houston, Marshall Inds. 713-895-9200
TX Houston, Norvell Elctrns. 713-777-1666
TX Richardson, Bell Inds. 214-690-0466
UT Salt Lake City, Bell Inds. 801-255-2477
UT Salt Lake City, Marshall Inds. 801-485-1551
WA Bellevue, Almac Elctrns. 206-643-9992
WA Bothell, Marshall Inds. 206-747-9100
WA Redmond, Bell Inds. 206-867-5410
WA Spokane, Almac Elctrns. 509-924-9500
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Can Richmond, B.C., Zentronics 604-273-5575
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Can Winnipeg, Mani., Zentronics 204-694-1957

COMPUTER SYSTEM ASSOCS., 7564 Trade St., San Diego, CA 92121, Tel: 619-566-3911, TELEX: 333693, FAX: 619-566-0581; Empl.: 15; *Sls. Mgr.:* Bill Reed; *Dist. Mgr.:* Bill Reed

COMPUTER SYSTEM PRODUCTS, 14305 21st Ave. N., Minneapolis, MN 55447, Tel: 612-476-6866, 800-422-2537, FAX: 612-476-6966; Empl.: 50; *Sls. Mgr.:* Mick Maher; *Dist. Mgr.:* Tom Quanbeck

COMPUTER SYSTEMS TECHNICAL SUPPORT, 4015 E. Leaverton Ct., Anaheim, CA 92807, Tel: 714-632-1300, FAX: 714-632-1937; FSC No.: 9J740; Empl.: 13; *Sls. Mgr.:* Reuven Arad

COMPUTERWARE, INC., 8480-I Tyco Rd., Vienna, VA 22182-2266, Tel: 703-821-8200, FAX: 703-821-1746; Empl.: 18; *Sls. Mgr.:* John Dargo

COMPUTERWISE, 302 N. Winchester, Olathe, KS 66062, Tel: 913-829-0600, FAX: 913-829-0810; Empl.: 27; *Sls. Mgr.:* William W. Brown; *Dist. Mgr.:* William W. Brown

COMPUTROL:AN AEG CO., 239 Ethan Allen Hwy., Ridgefield, CT 06877, Tel: 203-431-2000, TELEX: 643358, FAX: 203-431-2090; Empl.: 45; *Sls. Mgr.:* C. R. Wolfe

COMPUTRON DISPLAY SYSTEMS, Xcel Corporation, 845 Bonnie Lane, Elk Grove Village, IL 60007, Tel: 708-952-8800, FAX: 708-952-0832; FSC No.: 07126; Empl.: 300; *Sls. Mgr.:* R. Van Horn; *Dist. Mgr.:* Kathy Privett ..... **B•1057**

COMSPEC DIGITAL PRODUCTS INC., 2313 W. Sam Houston Pkwy. N.S. 145, Houston, TX 77043, Tel: 713-461-4487, FAX: 713-461-8846; Empl.: 15; *Sls. Mgr.:* T. A. Paine; *Dist. Mgr.:* T. A. Paine

COMSTRON A DIV. OF AEROFLEX, 35 S. Service Road, Plainview, NY 11803, Tel: 516-752-2351, TWX: 310-497-3525, FAX: 516-694-6771; Empl.: 120; *Sls. Mgr.:* William J. Meditz

COMTECH MICROWAVE CORP., Comtech Corp., 63 Oser Ave., Hauppauge, NY 11788, Tel: 516-435-4646, TELEX: 221-234 CMTCH; FSC No.: 31196; *Sls. Mgr.:* J. Tardi

COM-2, INC., 1556 Woodland Dr., Saline, MI 48176, Tel: 313-429-9027, FAX: 313-429-1902; Empl.: 70; *Sls. Mgr.:* Robert Green

COMUS INTERNATIONAL, 263 Hillside Ave., Nutley, NJ 07110, Tel: 201-667-6200, FAX: 201-667-6837; *Sls. Mgr.:* Gene Moran ..... **B•1668**

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CA Milpitas, Maxim Elect. Sls. Co. 408-946-6001
CA Newport Beach, Forbes-Pacific 714-722-6174
IL Mundelein, Dynamic Elctrns. Co. 708-566-8350
MA Andover, Grassi Assocs. 508-475-3418
MN Savage, Comps. & Controls 612-890-3002
NJ Westfield, John Abruzzo 201-233-4321
PA Furlong, Avenir, Inc. 215-348-8290
TN Murfreesboro, Control Comps. 615-895-5175
Can Dawn Mills, Ontario, Control Comps. .. 416-447-2128

CONAP, INC., 1405 Buffalo St., Olean, NY 14760, Tel: 716-372-9650, FAX: 716-372-1594; Empl.: 135

CONAX BUFFALO CORPORATION, 2300 Walden Ave., Buffalo, NY 14225, Tel: 716-684-4500, FAX: 716-684-7433; FSC No.: 03688; Empl.: 190; *Sls. Mgr.:* R.C. Paluch

CONCORD ELECTRONICS CORPORATION, 30 Great Jones St., New York, NY 10012, Tel: 1-212-777-6571, TWX: 710-581-4930, FAX: 1-212-995-0161; FSC No.: MFR 18310; Empl.: 225; *Sls. Mgr.:* Josie Wheaton ..... **C•1324-1325, 1595**

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AR Little Rock, Carlton-Bates 501-562-9100
CA Mission Hills, Coast Air 818-898-2288
CA San Jose, Bisco 408-996-8420
CO Denver, CSID/Integrated 303-292-5538
CT Danbury, Heilind 208-797-8600
DE New Castle, Electronics Exchange 302-322-5401
FL Sanford, Electronic Fasteners 407-321-4000
GA Norcross, Atlanta Hardware Specialty 404-449-3000
HI AIEA, Newark Elctrns. 808-487-8951
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IN Indianapolis, Mar Elctrns. 317-633-6699
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LA New Orleans, Radio Pts. 504-581-5959
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MA Billerica, MS Inserts 508-670-5600
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MS Jackson, Newark Elctrns. 601-956-3834
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NH Nashua, Brevan 603-889-7230
NJ Kenilworth, Federated Purchasers 201-272-0505
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TN Knoxville, Industrial Elect 615-573-7135
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VT Colchester, Hooker Elctrns. 802-864-0885
VA Springfield, Southern Fasteners 703-922-8048
WA Redmond, Olander 206-881-3488
WV Beckley, State Elec. 304-256-2219
WI Grafton, Lakeview Elex 414-377-8250
EXP Taipei, Taiwan, Gold-Tek Elec. Co. 20-717-2302
Can Mississauga, Ont., Rush Elctrns. 416-677-7280

The Condenser Products Corporation

FAX: 904-799-0221

CONDENSER PRODUCTS CORP., 2131 Broad St., Brooksville, FL 34609, Tel: 904-796-3561; FSC No.: 16727; Empl.: 30; *Sls. Mgr.:* David Bauerschmidt ..... **A•1051**

Local Sales Offices & Reps

TX Lewisville, Elctrn. Prod. Reps. 214-436-4772

CONDOR

FAX: 805-487-8911

CONDOR D.C. POWER SUPPLIES, INC., 2311 Statham Pkwy., Oxnard, CA 93033, Tel: 805-486-4565,; Empl.: 250; *Sls. Mgr.:* Michael F. Kirkowski, Exec. VP Mktg.; *Dist. Mgr.:* Deborah Perez ..... **D•1680-1689**

Local Sales Offices & Reps

AL Huntsville, Adams Elctrns. 205-882-2988
AL Huntsville, The John Todd Co. 205-828-0808
AZ Phoenix, Aztech-CPS Inc. 602-246-1097
AZ Scottsdale, Aztech-CPS Inc. 602-991-6300
CA Fremont, Telesis Sls. Grp. 415-657-8645
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CA Milpitas, Telesis Sls. Grp. 408-946-7300
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CA Westlake Vlg., Elkins & Assoc. 818-597-1075
CO Denver, AKI Entprs. 303-388-4488
CT Madison, Focus Elctrns. Sls. 203-245-4314
FL Altamonte Springs, Semtronic Assoc. 407-831-8233
GA Lilburn, Adams Elctrns. 404-925-9115
IL Schaumberg, Engrg. Prods. Assoc. 708-882-7640
IN Indianapolis, Current Elctrns. Mktg. 317-257-1861
IA Cedar Rapids, C.H. Horn & Assocs. 319-393-8703
IA Cedar Rapids, Lorenz Sls., Inc. 319-377-4666
KS Overland Park, Lorenz Sls., Inc. 913-469-1312
KS Wichita, DLE Elctrns. 316-683-6400
MD Lutherville, J. A. Dougherty Sls. 301-321-7890
MA Taunton, Focus Elctrns. Sls., Inc. 508-824-3840
MI Bloomfield Hills, ENCO Mktg., Inc. 313-338-8600
MN Edina, Engrg. Prods. 612-835-9022
MN Minneapolis, Electric Comp. Sls. 612-933-2594
MO St. Louis, John G. Macke Co. 314-432-2830
MO St. Louis, Lorenz Sls., Inc. 314-997-4558
NE Lincoln, Lorenz Sls., Inc. 402-475-4660
NJ Marlton, BGR Assocs. 609-983-1020
NJ Medford, Comp. Consits. 609-654-5300
NY Pittsford, C. W. Beach Co. 716-586-3200
NY Yonkers, Sonkin Assocs. 914-968-8282
OH Gahanna, Manufacturers Direct Sales 614-476-3310
OR Beaverton, Eclipse Mktg. Grp. 503-642-1661
SC Lilburn, Adams Elctrns. 404-925-9115
TX Dallas, M Rep 214-484-5711
WA Redmond, Eclipse Mktg. Grp. 402-475-4660
Can Toronto, Ont., Duncan Instrs. 416-742-4448

Local Distributors

AL Huntsville, Allied Elctrns. 205-721-3500
AZ Phoenix, Aerospace S.W. 602-582-2779
CA Camarillo, Milgray 805-484-4055
CA Costa Mesa, FLW 714-751-7512
CA Fremont, FLW 415-651-6511
CA San Jose, Power & Data Tech. 408-629-3550
CA Santa Clara, Kent Elctrns. 408-727-9810
CO Broomfield, Future Elctrns. 303-421-0123
CT Milford, Milgray 203-878-5538
FL Ft. Lauderdale, Allied 305-973-7103
FL Orlando, Hammond Elctrns. 305-841-1010
FL Winter Pk., Milgray 407-647-5747
GA Norcross, Milgray 404-446-9777
IL Chicago, Dalec Distrs. 312-283-0300
IL Palatine, Milgray 708-202-1900
IL Schaumberg, Bortech Sls. 708-882-7640
IN Indianapolis, Allied Elctrns. 317-875-0448
KS Overland Pk., Milgray 913-236-8800
MD Columbia, Vantage 301-720-5100
MD Marlow Hgts., Allied 301-423-0161
MD Wheaton, Brimberg Sls. 301-946-2670
MA Billerica, Allied Elctrns. 617-667-7921
MA Westborough, Future Elctrns. 508-366-2400
MI Ann Arbor, McNaughton-McKay 313-995-9515
MI Madison Heights, McNaughton-McKay 313-399-7500
MN Eden Prairie, Allied Elctrns. 612-829-7554
MN Edina, Bortech Sls. 612-835-9036
MN Minneapolis, Aerospace Comp. Prod. 612-884-4725
MO St. Louis, Future Elctrns. 314-469-6805
NJ Marlton, Milgray 609-983-5010
NJ Mt. Laurel, Allied Elctrns. 609-234-7769
NJ Mt. Laurel, Future Elctrns. 609-778-7600
NJ Parsippany, Milgray 201-335-1766
NY Elmsford, Kintronics 914-347-2530
NY Farmington, Milgray 516-391-9800
NY Mineola, Allied 516-248-2360
NY Rochester, Future Elctrns. 716-272-1120
NC Raleigh, Allied 919-876-5845
NC Raleigh, Milgray 919-790-8094
OH Cleveland, Milgray 216-447-1520
OR Portland, Eoff 503-222-9411
PA McKean, Advacom, Inc. 814-476-7774
PA Pittsburgh, Allied Elctrns. 412-367-4124
SC Greenville, Hammond Elctrns. 803-232-0872
TX Dallas, Cypress Elctrns. 214-869-1435
TX Fort Worth, Allied Elctrns. 817-336-5401
TX Richardson, Future Elctrns. 214-437-2437
UT Salt Lake City, Future Elctrns. 801-972-8489
UT Salt Lake City, Milgray 801-272-4999
WA Seattle, Allied 206-547-2827
WA Vancouver, Eoff 206-694-7504
Can Toronto, Ont., Duncan Inst. Ltd. 416-742-4448

CONDOR PACIFIC INDS., INC., 8053 Deering Ave., Canoga Park, CA 91304, Tel: 818-347-8331, TELEX: 65-1442, FAX: 818-713-0162; FSC No.: 24321; Empl.: 110

CONDOR SYSTEMS, INC., 2133 Branham Lane, San Jose, CA 95124, Tel: 408-371-9580, FAX: 408-371-9589; FSC No.: 62065; Empl.: 270; *Sls. Mgr.:* Dave Klinger; *Dist. Mgr.:* Ed Brown

CONDUCTIVE RUBBER TECHNOLOGY, INC., 22125 17th Ave. S.E. Ste. 117, Bothell, WA 98021, Tel: 206-486-8559, FAX: 206-487-0945; Empl.: 30; *Sls. Mgr.:* K. Grant

CONDUCTIVE SYSTEM, INC., R.D. No. 1, Box 1040, Rte. 5 South, Amsterdam, NY 12010, Tel: 518-843-5740, FAX: 518-843-5829; Empl.: 25; *Sls. Mgr.:* Eivind Johansen

CONFORMING MATRIX, Box 5126, Pt. Pl. Sta., Toledo, OH 43611, Tel: 419-729-3777, FAX: 419-729-3779; Empl.: 35

CONKLIN INSTRUMENT CORP., West Rd., P.O. Box 650, Pleasant Valley, NY 12569, Tel: 914-635-2136, FAX: 914-635-2510; Empl.: 110; *Sls. Mgr.:* James Taffer

CONNECT-AIR INTERNATIONAL, INC., 50 37th St. N.E., Auburn, WA 98002, Tel: 206-939-4880, FAX: 206-939-4882; Empl.: 50; *Sls. Mgr.:* Ron Jones

CONNECTICUT HARD RUBBER CO., See CHR Inds.

CONNECTICUT MICROWAVE CORP., 10 B Trackside Business Park, Cheshire,, CT 06410, Tel: 203-250-9678, FAX: 203-250-9688; FSC No.: 50974; Empl.: 15; *Sls. Mgr.:* Joseph W. Raines

CONNECTOR ACCESSORIES, INC., See Mueller Elec. Co.

FAX: 312-539-3825

CONNECTOR CORP., 6025 N. Keystone Ave., Chicago, IL 60646, Tel: 312-539-3108, TWX: 910-221-6059; *Sls. Mgr.:* Bill Anthony ..... **C•1326-1327**

CONNECTOR INDUSTRIES OF AMERICA DIV., Microdot Mfg., 10340 Julian Dr., Cincinnati, OH 45215, Tel: 513-772-3680; FSC No.: 32076; Empl.: 60; *Sls. Mgr.:* Bob Cain

Connectronics Corp.

FAX: 419-537-0007

CONNECTRONICS CORP., 2745 Avondale Ave., Toledo, OH 43607, Tel: 419-537-0020; FSC No.: 0LE36; Empl.: 15; *Sls. Mgr.:* Thomas L. Ricketts ..... **C•1328**

Local Sales Offices & Reps

OH Toledo, Connectronics 419-537-0020
OH Troy, S-Tek 513-339-5882

Local Distributors

MI Ann Arbor, S-TEK 313-572-0516

FAX: 708-851-5040

CONNOR-WINFIELD CORP., 1865 Selmarten Rd., Aurora, IL 60505-1335, Tel: 708-851-4722, TELEX: 270244; FSC No.: 5955; Empl.: 35; *Sls. Mgr.:* Tom Grabowski; *Dist. Mgr.:* John Hoag ..... **A•1324-1327**

Local Sales Offices & Reps

AL Huntsville, Dean Assocs. 205-880-8200
AZ Scottsdale, Spectrum Mktg. Assoc. 602-890-9000
CA Campbell, Shur Sls. 408-374-5577
CA San Clemente, ATA 714-661-9700
CA San Diego, ATA 619-792-6079
CO Denver, Spectrum Mktg. Assoc. 303-480-9991
CT Cheshire, Scientific Comps. 203-272-2963
FL Boca Raton, Perrott Assocs. 407-362-0191
FL Casselberry, Perrott Assocs. 407-830-0094
FL Clearwater Beach, Perrott Assocs. 813-443-5414
FL Melbourne, Perrott Assocs. 407-676-0305
ID Boise, Q.R. Crown 208-344-9588
IN Ft. Wayne, R.O. Whitesell 219-432-5591
IN Indianapolis, R.O. Whitesell 317-359-9283
IN Kokomo, R.O. Whitesell 317-457-9127
KY Versailles, R.O. Whitesell 606-873-1182
MD Cockeysville, Koebert Assocs. 301-493-8924
MA Needham Hgts., Kanan Technlgs. 617-449-7400
MI Grand Blanc, R.O. Whitesell 313-695-0770
MI Grand Rapids, R.O. Whitesell 616-942-5420
MI Southfield, R.O. Whitesell 313-352-5454
MI St. Joseph, R.O. Whitesell 616-983-7337
NC Charlotte, Quantum Mktg. 704-523-8822
NC Raleigh, Quantum Mktg. 919-846-5728
OH Cincinnati, R.O. Whitesell 513-521-2290
OH Cleveland, R.O.Whitesell 216-447-9020
OH Columbus, R. O. Whitesell 614-888-9396
OH Dayton, R.O.Whitesell ..... 513—298-9546
OR Portland, Q.R. Crown 503-620-8320
PA Glenside, Koebert Assocs. 215-887-2310
PA Pittsburgh, R.O. Whitesell 412-963-6161
TX Austin, Synergistic Sls. 512-346-2122
TX Houston, Synergistic Sls. 713-937-1990
TX Richardson, Synergistic Sls. 214-644-3500
WA Bellevue, Q.R. Crown 206-453-5100
WV Inwood, Koebert Assocs. 304-229-8401
WI Oconomowoc, Artmor Ltd. 414-367-8789
Can Scarborough, Ont., Cantronics Ltd. 416-297-8668

CONRAC DISPLAY PRODUCTS, INC., 1724 S. Mountain Ave., Duarte, CA 91010, Tel: 818-303-0095, TELEX: 67-0437, TWX: 910-584-5913, FAX: 818-303-5484; Empl.: 109; *Sls. Mgr.:* G.L. Ives, Dir. Mktg. & Sls.

Consolidated electronic wire & cable

FAX: 708-455-8979

CONSOLIDATED ELECTRONIC WIRE & CABLE, 11044 King St., Franklin Park, IL 60131-1412, Tel: 708-455-8830; FSC No.: 73612; Empl.: 97; *Sls. Mgr.:* Karl Rankin; *Dist. Mgr.:* Steve Boynton ..... **C•1726-1743**

Local Sales Offices & Reps

CT Glastonbury, Liberty Electro Mktg. 203-657-8023
AZ Phoenix, Mercury Engrg. Sls. 602-265-0344
CA Montrose, Signal Entprs. Inc. 818-957-0640
MA Topsfield, Liberty Electro Mktg. 508-887-6655
CO Boulder, The Stratford Grp. 303-530-3194
FL Casselberry, T.Squared Mktg. 407-699-9992
IL Franklin Pk., Con. Elec. Wire & Cable 708-455-8830
IL Highland Pk., Bransky Sls. 708-433-2375
IN Carmel, Frank E. Kahsar, Sls. Inc. 317-844-9353
IA Cedar Rapids, R. W. Kunz & Assocs. .. 319-396-5386
KS Prairie Village, R. W. Kunz & Assocs. .. 913-648-3535
MD Walkersville, Jadelectronic Assocs. ... 301-845-6036
MI Warren, Frank E. Kahsar 313-795-3530
MN Eden Prairie, PWC Inc. 612-934-1409
MO St. Louis, R. W. Kunz & Assocs. 314-966-4977
NY Buffalo, NRM Mktg. Group 716-634-4300
NY Woodside, Greater Metro Sls. 718-424-1911
OH Cincinnati, Frank E. Kansar Sls., Inc. .. 513-922-3133
OR Hillsboro, Doran Sls. Assocs., Inc. 503-640-4500
PA Birchrunville, Jadelectronic Assocs. ... 215-827-7122
TX Richardson, Barry Sls. Inc. 214-234-0255
WA Redmond, Doran Sls. Assocs., Inc. 206-885-1885
WI McQuon, E.A. Dickinson & Assocs. 414-241-9140

CONSOLINK, 600 S. Sunset, Longmont, CO 80501, Tel: 303-651-2642, FAX: 303-678-8360; Empl.: 25; *Sls. Mgr.:* Dan Zec

CONTACT, INC., 5 Elm Ave., Hudson, NH 03051, Tel: 603-883-7708, FAX: 603-883-6230; FSC No.: MO7015; Empl.: 11; *Sls. Mgr.:* R.Reid; *Dist. Mgr.:* R.Reid

CONTACT EAST, 335 Willow St. S., N. Andover, MA 01845, Tel: 508-682-2000, TELEX: 383088, FAX: 508-688-7829; *Sls. Mgr.:* Richard Sullivan

CONTAQ TECHNOLOGIES CORP., 15 Main St., Bristol, VT 05443, Tel: 802-453-3332, FAX: 802-453-4250; FSC No.: 6680 ..... **B•1889**

CONTEC MICROELECTRONICS USA, 2010 N. First Street, San Jose, CA 95131, Tel: 408-436-0340, FAX: 408-436-0206; Empl.: 50; *Sls. Mgr.:* Alan Yankoski

CONTINENTIAL DEVICE INDIA LIMITED, C-120 Naraina Industrial Area, New Delhi, India 110028, Tel: 536150-53 (4 lines), TELEX: 031-76209, TWX: 031-76230; FSC No.: LJ.; Empl.: 1100; *Sls. Mgr.:* Mr. P. Gulati, Gen. Mgr.

CONTINENTAL ELECTRONICS CORPORATION, P.O. Box 270879, Dallas, TX 75227, Tel: 214-381-7161, TELEX: 73-398, FAX: 214-381-4949; FSC No.: 52151; Empl.: 500

CONTINENTAL RESOURCES, Computer & Peripherals Div., 175 Middlesex Tpke., Bedford, MA 01730-1469, Tel: 617-275-0850, 800-937-4688, FAX: 617-275-6563; Empl.: 250; *Sls. Mgr.:* Mark Berling

CONTINENTAL RESOURCES, INC, Test Instruments Div., 175 Middlesex Tpke., Bedford, MA 01730, Tel: 617-275-0850, 800-937-4688, FAX: 617-275-2046; Empl.: 250

CONTINENTAL SPECIALTIES CORP., See Global Specialties Corp.

CONTINENTAL WIRE & CABLE, Gulton Rd., P. O. Box 1863, York, PA 17405, Tel: 717-792-2644, TELEX: 84-0437; Empl.: 250; *Sls. Mgr.:* Edward W. Holland III; *Dist. Mgr.:* Shirley A. Eisenhart

CONTOURS INC., 290 Pratt St., Meriden, CT 06450, Tel: 203-237-8331, FAX: 203-237-6353; FSC No.: 033501; *Sls. Mgr.:* Eugene D. Rodman

CONTROL CABLE, INC., 7261 Ambassador Rd., Baltimore, MD 21207, Tel: 301-298-4411, FAX: 301-265-1646; FSC No.: 510124759; Empl.: 90; *Sls. Mgr.:* Greg Jones; *Dist. Mgr.:* Greg Jones

CONTROL CONCEPTS CORP., Liebert Corp., P.O. Box 1380, Binghamton, NY 13902-1380, Tel: 607-724-2484, TELEX: 62224380, FAX: 607-722-8713; Empl.: 65; *Sls. Mgr.:* Pat Gillette, VP Sls.; *Dist. Mgr.:* Fred Zack

CONTROL DISPLAYS, INC., 3075 Advance Lane, P.O. Box 227, Colmar, PA 18915, Tel: 215-822-3383, FAX: 215-997-1232; FSC No.: 27878; Empl.: 75; *Sls. Mgr.:* L. Rodrigue

CONTROL ELECTRONICS, Neurotech Corp., 139 Florida St., Farmingdale, NY 11735, Tel: 516-694-0125, FAX: 516-694-0133; FSC No.: 95924; Empl.: 35; *Sls. Mgr.:* Harold Goldstein; *Dist. Mgr.:* Barbara Kilroy

CONTROL ENGRG., INC., 190 Doty Circle, West Springfield, MA 01089, Tel: 413-781-1330, FAX: 413-732-3367; Empl.: 7; *Sls. Mgr.:* Mark Kimball

CONTROLEX, INC., 248 Francestown Tpke., New Boston, NH 03070, Tel: 603-487-5512, FAX: 603-487-2524; Empl.: 10; *Dist. Mgr.:* Patricia Butler

CONTROLEX/EANCO, See Fincor

CONTROL LASER CORP., 7503 Chancellor Dr., Orlando, FL 32809, Tel: 407-438-2500, TELEX: 514215; Empl.: 70; *Sls. Mgr.:* John Fitzgerald Sls. Mgr.

CONTROLLED ENVIRONMENTAL EQUIPMENT CORP., 3 Delta Drive, Westbrook, ME 04092, Tel: 207-854-9126, TELEX: 62903721, FAX: 207-854-4357; FSC No.: 25254; Empl.: 10; *Sls. Mgr.:* M. F. Peck

CONTROLLED POWER COMPANY

FAX: 313-528-0411

CONTROLLED POWER CO., 1955 Stephenson Hwy., Troy, MI 48083, Tel: 313-528-3700, 1-800-521-4792, TWX: 810-2323401; Empl.: 160; *Sls. Mgr.:* Reggie Peck ..... **D•2185-2189**

Local Sales Offices & Reps

AL	Homewood, Control Equip. & Sls.	205-945-8454
AK	Anchorage, Alaska Computer Environment	907-243-1429
CA	Foster City, Computer Support Sys.	415-572-9994
CA	Torrance, EDP ENV.	213-370-7446
CO	Denver, Computer Facility Components	303-778-8488
CO	Denver, Computer Facility Comps.	303-778-9131
CO	Denver, Innovative Tech.	603-624-4163
IL	Schaumburg, Protech	708-885-2040
MD	Towson, H. L. Frey Corp.	301-821-0058
MO	St.Louis, Rail Way Industry	314-966-3300
NM	Albuquerque, Sun Data Systems	505-272-1022
NC	Charlottte, Glen & Larson of Carolina	704-365-5917
OH	Westerville, Power Com Systems	614-890-1124
PA	Glenshaw, H.C. Johnson Agencies Inc.	412-487-1246
TN	Nashville, Jenkins & Associates	615-256-7606
TX	Richardson, Tubbesing Sales Corp.	214-234-3855
VA	Alexandria, ADAPT	703-684-6393
VA	Virginia Beach, Precision Environments	804-473-8767
Can	Againcourt, Ontario, Aircom Sales Inc.	416-293-3339
Can	Burnaby, BC, Datasphere Sales Ltd.	604-420-6040
Can	Calgary, AB, Datasphere Sales Ltd.	403-244-3666
Can	Dorval,PQ, Datasphere Sales Ltd.	514-631-7209
Can	Edmonton, AB, Datasphere Sales Ltd.	403-483-7979
Can	Halifax, NX, Datasphere Sales Ltd.	902-423-2246
Can	Mississauga, ON, Datasphere Sales Ltd.	416-278-5501
Can	N. Vancouver, B.C., Jerome & Francis Co. Ltd.	604-986-1286
Can	Nepan, On, Datasphere Sales Ltd.	613-723-2582
Can	Regina, SK, Datasphere Sales Ltd.	306-565-0421
Can	St. Leonard, Quebec, B. Beaudoin & Associates	514-328-2266
Can	Winnipeg, MB, Datasphere Sales Ltd.	204-943-7102

CONTROL LOGIC, See Hancock Electronics Corp.

CONTROL MICROSYSTEMS INC., 2049 Cohen St., St. Laurent, QC, Canada H4R 9Z7, Tel: 514-745-1270, FAX: 514-745-1610; Empl.: 25; *Sls. Mgr.:* Allan Erion; *Dist. Mgr.:* Scott McMeekin

CONTROL MODULE, 380 Enfield St., Enfield, CT 06082, Tel: 203-745-2433, TELEX: 643167, FAX: 203-741-6064; Empl.: 160; *Sls. Mgr.:* James W. Bianco

CONTROL PRODUCTS, INC., 280 Ridgedale Ave., E. Hanover, NJ 07936, Tel: 201-887-9400, FAX: 201-887-5083; FSC No.: 81901; Empl.: 62; *Sls. Mgr.:* H.M. Stuhler; *Dist. Mgr.:* H.M. Stuhler

CONTROL RESOURCES INC., SMART FAN DIV., POB 315, Harvard, MA 01451, Tel: 508-772-4043, FAX: 508-772-4142; Empl.: 7; *Sls. Mgr.:* James Quirk

CSI CONTROL SCIENCES INCORPORATED

FAX: 818-709-8546

CONTROL SCIENCES, INC., 9509 Vassar Ave., Chatsworth, CA 91311, Tel: 818-709-5510, TELEX: 4970496(CSI); FSC No.: 53317; Empl.: 20; *Sls. Mgr.:* Rhod Zimmerman ..... **D•1152-1157**

Local Sales Offices & Reps

CA	Luguna Niguel, Aktron Sls.	714-496-5057
CO	Broomfield, Hannah-Hill	303-460-0602
IN	Ft. Wayne, Naunas Sls. Co.	219-432-4792
MA	Salem, Forbes Engrg.	508-744-1693
MD	Annapolis, Hornersmith Inc.	301-269-6493
MN	St. Paul, Northstar Motion & Control	612-770-5311
NY	E. Rochester, A & D Dvcs.	716-385-2778
NY	Victor, A & D Dvcs.	716-385-2778
NC	Jamestown, Hornersmith, Inc.	919-883-3999
PA	Downington, Hornersmith, Inc.	215-269-3637
PA	Media, Hornersmith Inc.	215-543-2434
TX	Dallas, McDonald Assocs.	214-239-3293
Can	Nepean, Ont., Electrodesign, Ltd.	613-727-5220

CONTROLS UNLIMITED, INC., 4823 North Ridge Rd., Perry, OH 44081, Tel: 216-259-2500, FAX: 216-259-5015; Empl.: 45; *Sls. Mgr.:* Paul Adams

CTC

FAX: Fax 718-361-6386

CONTROL TECHNOLOGY CO., INC., 41-16 29th St., Long Island City, NY 11101, Tel: 718-361-2133; FSC No.: 14545; Empl.: 35; *Sls. Mgr.:* H. Cooper ... **D•2240-2241**

Local Sales Offices & Reps

Can	Montreal, Que., Control Tech. Elctrns. CTC Canada	514-733-3279,FAX:514-733-2132

CONTROL TECHNOLOGY, INC., 7608 N. Hudson, Oklahoma City, OK 73116, Tel: 405-840-3163, FAX: 405-848-0489; *Sls. Mgr.:* Charles Weddington; *Dist. Mgr.:* Charles Weddington

CONVER CORP., 916 W. Maude Ave., Sunnyvale, CA 94086, Tel: 408-739-9111, TWX: 910-338-2036, ESYLNK: 62024309, FAX: 408-739-9116; Empl.: 40; *Sls. Mgr.:* Robert Lloyd; *Dist. Mgr.:* Sherri Kirkpatrick

CDI CONVERSION DEVICES, INC.
EXCELLENCE IN CONVERSION TECHNOLOGY

FAX: 508-559-9288

CONVERSION DEVICES, INC., 15 Jonathan Drive, Brockton, MA 02401, Tel: 508-559-0880; Empl.: 65; *Sls. Mgr.:* Wayne Carlson ..... **D•1690-1691**

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs., Inc.	407-724-0920
AZ	Phoenix, Howe & Howe, Sls.	602-264-7971
CA	Camarillo, The Tricamo Co.	805-388-0039
CA	Redwood City, Sales One	415-369-3677
CA	San Diego, The Tricamo Co.	619-689-1000
CO	Englewood, Odyssey 1	303-773-8176
CT	Fairfield, Bossaco	203-255-2326
FL	Melbourne, Saber Assocs., Inc.	407-724-0920
FL	Orlando, Saber Assocs., Inc.	407-724-0920
GA	Lawrenceville, Saber Assocs.	404-962-8740
IL	Elmhurst, Sector Engrg. Sls.	708-530-7850
IN	Indianapolis, Sector Engrg. Sls.	317-253-9221
KS	Overland, Atech	913-362-1200
MD	Ellicott City, VPI	301-461-2525
MA	Scituate, N.E.A.R.	617-545-6327
MI	Livonia, Electro Sls. Assocs.	313-421-7500
MN	Minneapolis, Sector Engrg. Sls.	612-378-2123
MO	St. Charles, Atech	314-949-9075
NJ	Paramus, Eltech Sls., Inc.	201-967-1309
NM	Albuquerque, H.E.R. Elctrns.	505-265-7893
NY	Liverpool, R & D Assocs.	315-457-0100
NC	Clayton, Saber Assocs.	407-724-0920
OH	Dayton, Electro Sls. Assocs.	513-426-5551
OK	Tulsa, D. J. Sls.	918-663-8155
OR	Portland, SPS Elctrns.	503-697-7768
PA	Dresher, CMS Mktg.	215-885-4424
PA	Pittsburgh, Electro Sls. Assocs.	412-322-9000
TX	Austin, D.J. Sls.	512-258-3002
TX	Dallas, D.J. Sls.	214-783-8876
UT	Salt Lake City, Odyssey 1	801-485-4728
WA	Redmond, SPS Elctrns.	206-794-0154
WI	Milwaukee, Sector Engrg. Sls.	414-352-8280
Can	Mississauga, Ontario, Andy Baumen Assocs. Ltd.	416-828-2600

CONVERTER CONCEPTS, INC., Industrial Pkwy., Pardeeville, WI 53954, Tel: 608-429-2144, FAX: 608-429-9241; Empl.: 125; *Sls. Mgr.:* Rick Hartt ... **D•1692-1693**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech	205-880-0592
CA	Hayward, Pacific Mktg.	415-887-1620
CA	Irvine, Groh Assocs.	714-837-9871
CA	San Diego, Groh Assocs.	619-673-4321
FL	Clearwater, Tech Rep	813-572-9900
CO	Denver, NOW Devices	303-758-4884
AZ	Phoenix, Shefler-Kahn Co., Inc.	602-257-9015
IL	Des Plaines, Consult Factory	608-429-2144
KS	Shawnee, Lowell Kanges & Assocs.	913-631-0517
MD	Cockeysville, Koebert Assocs.	301-560-1926
MA	Chelmsford, Interstate Sls. Assocs.	617-256-2287
MI	Livonia, Electro Mktg.	313-421-7590
MI	Muskegon, Electro Mktg.	616-798-1912
MN	Minneapolis, Holmgren Assoc.	612-574-9983
GA	Norcross, Electro-Mech	404-447-6478
MO	St. Louis, Lowell Kangas & Assocs.	314-821-4050
NY	Rochester, APEX Assoc.	716-272-7040
OH	Cleveland, Electro Mktg.	216-582-0075
OH	Vandalia, Electro Mktg.	513-890-8322
PA	Glenside, Koebert Assoc.	215-887-2310
PA	Pittsburgh, JFCO	412-823-5400
TX	Houston, Scientific Sls. Co.	713-645-6218
TX	Richardson, Scientific Sls. Co.	214-231-6541
UT	Salt Lake City, Consult Factory	608-429-2144
WA	Kirkland, Northwest Comp. Sls.	206-828-2104
WV	Inwood, Koebert Assocs.	304-229-8401
WI	Sullivan, Consult Factory Inc.	608-429-2144
Can	Rexdale, Valtine Mktg.	416-851-0335
Can	Vancouver, BC, Davetek Mktg.	604-430-3680

Local Distributors

CA	San Jose, Delta Lu Research	408-403-0490
Can	Rexdale, Valtme Mktg.	416-851-0355

CONVERTER POWER, INC., 123 Brimbal Ave., Beverly, MA 01915, Tel: 508-927-8158, FAX: 508-922-9466; *Sls. Mgr.:* Barry Essig

COOKE VACUUM PRODS., INC., 13 Merritt St, Norwalk, CT 06854, Tel: 203-853-9500, FAX: 203-838-9553; Empl.: 45; *Sls. Mgr.:* Louis W. Genuario

THE COOL-AMP CONDUCTO-LUBE CO., 15834 Upper Boones Ferry Rd., Lake Oswego, OR 97035, Tel: 503-624-6426, FAX: 503-624-6436; FSC No.: 31628; Empl.: 7; *Sls. Mgr.:* Marian Bomber

COONER WIRE CO., 9186 Independence Ave., Chatsworth, CA 91311, Tel: 818-882-8311, TELEX: 353734 Cooner Wire UD, FAX: 818-709-8281; *Sls. Mgr.:* Steven W. Smith

COOPER INDUSTRIES/BELDEN DIV., P.O. Box 1980, Richmond, IN 47375, Tel: 317-983-5200, 800-BELDEN-1, TWX: 810-345-1393, FAX: 317-983-5294; Empl.: 3500; *Sls. Mgr.:* Rick Schneidewind, Dir. OEM Sls.; *Dist. Mgr.:* Mike Murphy, Dir. of Dom. Sls.

COOPER TOOLS, PO Box 30100, Raleigh, NC 27622, Tel: 919-781-7200, TELEX: 579497

CO-ORD SWITCH DIV., See LVC Inds., Inc.

COORS CERAMICS CO., Electronic Products Group, 17750 W. 32nd Ave., Golden, CO 80401, Tel: 303-277-4592, FAX: 303-277-4779; Empl.: 1700

COPAL (USA), INC., 2291 205th St, Ste. 105, Torrance, CA 90501, Tel: 213-618-0225, FAX: 213-618-9984; *Sls. Mgr.:* Hugh Namekawa

CORBY INDUSTRIES, INC., 1501 E. Pennsylvania St, Allentown, PA 18103, Tel: 215-433-1412, FAX: 215-435-1963; Empl.: 31; *Sls. Mgr.:* Sharon Cain; *Dist. Mgr.:* Sharon Cain

CORCOM, INC., 1600 Winchester Rd., Libertyville, IL 60048, Tel: 708-680-7400, FAX: 708-680-8169; FSC No.: 05245; Empl.: 800; *Sls. Mgr.:* George Mitchell, VP; *Dist. Mgr.:* Ken Bons ..... **A•1610-1611; C•1330-1331**

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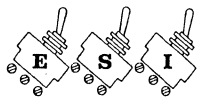

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AL	Huntsville, R. O. Whitesell Assocs.	205-883-5110
AZ	Tempe, Westrep	602-820-9932
CA	Anaheim, Westrep	714-527-2822
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, Westrep	619-566-6580
CO	Westminster, Straube Assocs.	303-426-0890
CT	Madison, Conti-Younger Assocs.	203-245-1136
GA	Norcross, Robert O. Whitesell	404-449-9190
ID	Boise, Jas J. Backer Co.	208-343-9831
IL	Itasca, Beta Technlg. Sls. Inc.	708-250-9586
IN	Ft. Wayne, Robert O. Whitesell	219-432-5591
IN	Indianapolis, Robert O. Whitesell	317-876-9000
IN	Kokomo, Robert O. Whitesell	317-457-9127
KS	Overland Pk., Spectrum Sls.	913-648-6811
KY	Versailles, Robert O. Whitesell	606-873-1182
MA	Burlington, Conti-Younger Assocs.	617-273-1582
MI	Grand Rapids, Robert O. Whitesell	616-942-5420
MI	Southfield, Robert O. Whitesell	313-352-5454
MI	St. Joseph, Robert O. Whitesell	616-983-7337
MN	Edina, Mel Foster Co.	612-941-9790
MO	Florissant, Spectrum Sls.	314-921-1313
MO	Hazelwood, Spectrum Sls.	314-731-5151
NJ	Englewood, MOS Mktg.	201-569-2071
NM	Albuquerque, Rontek, Inc.	505-299-4124
NY	Great Neck, MOS Mktg.	516-487-3966
NY	Skaneateles, Empire Tech Sls.	315-685-5703
NC	Raleigh, Zucker Assoc.	919-782-8433
OH	Cincinnati, Robert O. Whitesell	513-521-2290
OH	Cleveland, Robert O. Whitesell	216-447-9020
OH	Columbus, Robert O. Whitesell	614-888-9396
OH	Dayton, Robert O. Whitesell	513-298-9546
OR	Beaverton, Jas. J. Backer Co.	503-627-0775
PA	Pittsburgh, Robert O. Whitesell	412-963-6161
PA	Trevose, Professional Svc. Assoc.	215-245-0513
TN	Knoxville, Robert O. Whitesell	615-694-9476
TX	Austin, K & H Sls.	512-339-7950
TX	Plano, K & H Sls.	214-423-6520
UT	Salt Lake City, Straube Assocs.	801-263-2640
WA	Seattle, Jas. J. Backer Co.	206-285-1300
WI	Milwaukee, Beta Technlg. Sls. Inc.	414-543-6609
Can	Ontario, R.N. Longman	416-670-8100

Local Distributors

AL	Huntsville, Pioneer	205-837-9300
AL	Huntsville, Marshall Inds.	205-881-9235
AZ	Phoenix, Marshall Inds.	602-496-0290
CA	Anaheim, Compumech	714-939-9100
CA	Calabasas, Lex	818-880-9686
CA	Chatsworth, Marshall Inds.	818-407-0101
CA	Gardena, Cal Switch	213-770-2330
CA	Irvine, LEX	714-863-0200
CA	Irvine, Marshall Ind.	714-458-5395
CA	Milpitas, Marshall Ind.	408-942-4600
CA	Sacramento, LEX	916-364-0222
CA	San Diego, Lex	619-495-0015
CA	San Diego, Marshall Ind.	619-578-9600
CA	San Jose, Lex	619-495-0015
CA	Sunnyvale, CAPSCO	408-734-3020
CO	Thornton, Marshall Ind.	303-451-8444
CT	Wallingford, Greene Shaw	203-265-3333
FL	Altamonte Springs, Marshall Inds.	407-767-8585
FL	Altamonte Springs, Pioneer	407-834-9090
FL	Deerfield Beach, Pioneer	305-771-7520
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Orlando, Hammond Elctrns.	407-849-6060
FL	Tampa, Marshall Ind.	813-573-1399
GA	Norcross, Hammond	404-449-1996
GA	Norcross, Marshall Ind.	404-923-5750
ID	Boise, Radar Elec.	208-336-2227
IL	Addison, Pioneer/Chicago	708-495-9831
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Palatine, OHM Elctrns.	708-359-5500
IN	Indianapolis, Marshall	317-297-0483
IN	Indianapolis, Pioneer	317-573-0880
MD	Baltimore, Resco/Baltimore	301-529-0500
MD	Beltsville, Resco/Washington	301-937-9100
MD	Gaithersburg, Pioneer	301-921-0660
MA	Newton, Greene Shaw	617-969-8900
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Wilmington, Marshall Inds.	508-658-0810
MI	Grand Rapids, Pioneer	616-698-1800
MI	Livonia, Marshall Inds.	313-525-5820
MI	Livonia, Pioneer	313-525-1800
MN	Eden Prairie, Pioneer/Twin Cities	612-944-3355
MN	Minneapolis, Newark Elect	612-331-6350
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Bellmawr, Mid Atlantic Elctrns. Corp.	609-931-5303
NJ	Fairfield, Marshall Inds.	201-882-0320
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Fairport, Pioneer	716-381-7070
NY	Hauppauge, Sager	516-348-1300
NY	Mt. Vernon, All American	914-699-2224
NY	Rochester, Lex	716-328-3230
NY	Rochester, Summit Distrs.	716-334-8110
NY	Woodbury, Pioneer	516-921-8700
NC	Charlotte, Pioneer	919-544-5400
NC	Raleigh, Marshall Inds.	919-878-9882
OH	Cleveland, Pioneer	216-587-3600
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OH	Dayton, Marshall	513-898-4480
OH	Dayton, Pioneer	513-236-9900
OH	Solon, Marshall	216-248-1788
OR	Beaverton, Almac Elctrns.	503-629-8090
OR	Beaverton, Marshall Inds.	503-644-5050
OR	Portland, Radar	503-232-3404
PA	Horsham, Pioneer	215-674-4000
PA	Philadelphia, Sager	215-464-4336
PA	Pittsburgh, Pioneer	412-782-2300
TX	Austin, Marshall Inds.	512-837-1991
TX	Austin, Pioneer	512-835-4000
TX	Carrollton, Marshall Inds.	214-233-5200
TX	Dallas, Pioneer	214-386-7300
TX	Houston, Marshall Inds.	713-895-9200
TX	Houston, Pioneer	713-988-5555
UT	Salt Lake City, Marshall Inds.	801-485-1551
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Bellevue, Marshall Inds.	206-486-5747
WA	Seattle, Radar	206-282-2511
WA	Spokane, Almac Elctrns.	509-924-9500
WI	Milwaukee, Marsh Elctrns.	414-475-6000

CORECO, INC., 6969 Trans-Canada Hwy, Ste. 113, St. Laurent, Que., Canada H4T 1V8, Tel: 800-361-4914, 514-333-1301, TELEX: 76001120 COR UC, FAX: 514-333-1388; Empl.: 32; *Sls. Mgr.:* Pat Urbain

CORES UNLIMITED, INC., 8311 Westminster Ave., Ste. 230, Westminster, CA 92683, Tel: 714-894-3062, 800-422-CORE, FAX: 714-895-4502; Empl.: 8

CORLUND ELECTRONICS CORP., 2330 Teller Rd, Newbury Park, CA 91320, Tel: 805-499-6877, FAX: 805-499-4072; Empl.: 60; *Sls. Mgr.:* Wayne Smith

CORMAN TECHNOLOGIES INC., 75 Bathurst Dr., Waterloo, Ontario, Canada N2V 1N2, Tel: 519-884-4430, FAX: 519-884-0204; *Sls. Mgr.:* Bill Lochead; *Dist. Mgr.:* Bill Lochead

CDE CORNELL DUBILIER

FAX: 508-996-3830

CORNELL-DUBILIER ELCTRNS. (INTL. SLS., DISTBN. WAREHOUSE), 1605 E. Rodney French Blvd., New Bedford, MA. 02744, MA 02741, Tel: 508-996-8561, TELEX: 929 419; Empl.: 500ò; *Sls. Mgr.:* Anthony M. Cavuto, VP Sls. ..... **A•1052-1053; B•1439**

Local Sales Offices & Reps

CA	San Diego, CK Assocs.	619-279-0420
CA	Valencia, C & N Assocs.	805-254-5844
CO	Littleton, Megatronix	303-730-6262
CT	Branford, Coakley, Boyd & Abbett	203-481-2218
FL	St. Petersburg, QXI Inc.	813-894-4556
KS	Overland Park, Electri-Rep	913-649-2168
MD	Gaithersburg, Naudain Assoc. Southern, Inc.	301-258-5040
MI	Madison Heights, Pine Sales, Inc.	313-589-0350
MN	Eden Praire, PWC Incorporated	612-934-1409
MO	St. Louis, Electra-Rep	314-993-4421
NJ	Leonia, Peter E. Schmitt Co., Inc.	201-944-2806
NC	Raleigh, Prime Comps., Inc.	919-850-9866
OH	Richfield, The Lyons Corp.	216-659-9224
OR	Portland, Northwest Mktg. Assoc.	503-620-0441
SC	Easly, RA Sls.	803-859-1859
TN	Chattanooga, Indl. Mktg. & Sls., Inc.	615-894-2219
TX	Richardson, Comp. Partners, Inc.	214-644-1288
UT	Salt Lake City, Charles Fields & Assocs.	801-531-6177
WI	Waukesha, Eagle Tech. Sls.	414-896-0633
PR	San Juan, P.R., E.T.S. Inc.	809-798-1300
Can	Mississauga, Ont., Source Elctrns.	416-676-0830

Local Distributors

AZ	Phoenix, Arizona Comps.	602-269-5655
CA	Compton, Harper Sid	213-979-5090
CA	Los Angeles, Bell Inds.	213-826-6778
CA	Milpitas, California Capacitor	408-262-6000
CA	Sunnyvale, Capsco Sls.	408-734-3020
CA	Tustin, Projections Unlimited	714-544-2700
CO	Aurora, Capstone Elctrns.	303-375-1300
CO	Denver, Integrated Elctrns. Corp.	303-292-5537
FL	Boca Raton, NRC Elctrns.	407-241-8600
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Chicago, Waldom Elctrns.	312-585-1212
IL	Palatine, OHM Elctrns.	708-359-5500
MA	Newton, The Greene-Shaw Co.	617-969-8900
MN	St. Paul, Shelley/Ragon	612-642-2828
NY	Central Islip, Semi Cap Elctrns.	516-582-4400

NY Hauppauge, JACO Elctrns. 516-273-5500
NY Mamaroneck, New Yorker Elctrns. 914-698-7600
NY Port Chester, Zeus Comps. 914-937-7400
NY Rome, Rome Elctrns. 315-337-5400
OH Cleveland, Pioneer-Standard 216-587-3600
PA No. Versailles, CMD Elctrns. 412-678-6020
TX Dallas, Hallmark Elctrns. 214-553-4300
TX Fort Worth, TTI, Inc. 817-740-9000
TX Houston, Sterling Elctrns. 713-627-9800
WI Milwaukee, Marsh Elctrns. 414-475-6000

CORNELL-DUBILIER ELCTRNS. (CORPORATE HEADQUARTERS), 1700 Route 23 North, Wayne, NJ 07470, Tel: 201-694-8600; Empl.: 1000; *Sls. Mgr.:* A. Cavuto ..... **A•1052-1053**

Local Sales Offices & Reps

CA San Diego, C & N Assocs. 619-279-0420
CA Valencia, C & N Assocs. 805-254-5844
CO Littleton, Megatronix 303-730-6262
CT Branford, Coakley, Boyd & Abbett 203-481-2218
FL St. Petersburg, QXI, Inc. 813-894-4556
KS Overland Park, Electri-Rep. 913-649-2168
MD Gaithersburg, Naudain Assoc. Southern, Inc. 301-258-5040
MI Madison Hgts., Pine Sls., Inc. 313-589-0350
MN Eden Prairie, PWC Inc. 612-934-1409
MO St. Louis, Electri-Rep 314-993-4421
NJ Leonia, Peter E. Schmitt Co., Inc. 201-944-2806
NC Raleigh, Prime Comps. Inc. 919-850-9866
OH Richfield, The Lyons Corp. 216-659-9224
OR Portland, Northwest Mktg. Assocs. 503-620-0441
SC Easly, RA Sls. 803-859-1859
TN Chattanooga, Indl. Mktg. & Sls., Inc. ... 615-894-2219
TX Richardson, Comps. Partners, Inc. 214-644-1288
UT Salt Lake City, Charles Fields & Assocs. 801-531-6177
WI Waukesha, Eagle Tech. Sls. 414-896-0633
PR San Juan, E.T.S. Inc. 809-798-1300
Can Mississauga, Ont., Source Elctrns. 416-676-0830

Local Distributors

AZ Phoenix, Arizona Comp. Co. 602-269-5655
CA Compton, Harper Sid 213-979-5090
CA Los Angeles, Bell Inds. 213-826-6778
CA Milpitas, California Capacitor 408-262-6000
CA Sunnyvale, Capsco Sls. 408-734-3020
CA Tustin, Projection Unlimited 714-544-2700
CO Aurora, Capstone Elctrns. 303-375-1300
CO Denver, Integrated Elctrns. Corp. 303-292-5537
FL Boca Raton, NRC Elctrns. 407-241-8600
IL Chicago, Newark Elctrns. 312-784-5100
IL Chicago, Waldom Elctrns. 312-585-1212
IL Palatine, OHM Elctrns. 708-359-5500
MA Newton, Greene-Shaw, Co. 617-969-8900
MN St. Paul, Shelley-Ragon 612-642-2828
NY Central Islip, Semicap Elctrns. Corp. ... 516-582-4400
NY Hauppauge, Jaco Elctrns., Inc. 516-273-5500
NY Mamaroneck, New Yorker Elctrns. 914-698-7600
NY Port Chester, Zeus Comps. 914-937-7400
NY Rome, Rome Elctrns. 315-337-5400
OH Cleveland, Pioneer-Standard 216-587-3600
PA N. Versailles, CMD Elctrns. 412-678-6020
TX Dallas, Hallmark Electronics 214-553-4300
TX Ft. Worth, TTI, Inc. 817-740-9000
TX Houston, Sterling Elctrns. 713-627-9800
WI Milwaukee, Marsh Elctrns. 414-475-6000

CORNELL MANUFACTURING, An Elgin Co., 25 Ramland Road, Orangeburg, NY 10962, Tel: 914-365-0400, FAX: 914-359-6809; Empl.: 50; *Sls. Mgr.:* Lou Schnur; *Dist. Mgr.:* Lou Schnur

CORNING GLASS WORKS, Materials Business, Main Plant, MP 21-3, Corning, NY 14831, Tel: 607-974-7149, TELEX: 932498, FAX: 607-974-7618; *Sls. Mgr.:* Paul Marx; *Dist. Mgr.:* Dennis Naylor

Local Distributors

CA Los Angeles, Leed Plastics Corp. 213-746-5984
CA Santa Clara, San Jose Delta Assocs., Inc. 408-727-1448
IL Addison, Circle Fabrication, Inc. 708-543-4440
NJ Palisades Pk, Morgan Matroc Inc. 201-947-8313
NJ Washington, Accuratus Ceramic Corp. 201-689-0880
OH Cincinnati, Astro Met Assocs., Inc. 513-772-1242
TX Houston, EGC Corp. 713-447-8611
WI Hubertus, Tech. Prods., Inc. 414-628-2768
Can Ontario, Johns Scientific 416-699-1731

CORNING INCORPORATED, Opto-Electronics Group, MP-RO-03, Corning, NY 14831, Tel: 607-974-7914, FAX: 607-974-4914; Empl.: 26,000

CORTEC, INC., 15672 Chemical La., Huntington Bch., CA 92649, Tel: 714-897-2529, FAX: 714-897-2170; Empl.: 35

CORTRON DIV., See ITW Cortron,Illinois Tool Works

CORTRON INC., 1 Aegean Dr., Methuen, MA 01844, Tel: 508-975-5445, FAX: 508-975-0357; Empl.: 75; *Sls. Mgr.:* Philip P. Bodoni ..... **B•1803**

CORVUS MICROWAVE INC., 6075 E. Molloy Rd., Syracuse, NY 13211-2100, Tel: 315-437-4400, FAX: 315-437-8095; FSC No.: 26058; Empl.: 35; *Sls. Mgr.:* Diane L. Conklin

COSMO CORPORATION, 3239 W. 14th St., Cleveland, OH 44109, Tel: 216-861-5594, FAX: 216-861-0416; Empl.: 350; *Sls. Mgr.:* B. Gordon

COTO WABASH
A Kearney-National Company

FAX: 401-942-0920

COTO WABASH, Kearney National Corporation, 55 DuPont Drive, Providence, RI 02907, Tel: 401-943-2686; Empl.: 300; *Sls. Mgr.:* John E. Beigel, Dir. Mktg. & Sls.; *Dist. Mgr.:* David MacRae, Natl. Sls. Mgr. ..... **B•1441-1445**

Local Sales Offices & Reps

AL Owens Cross Rds., cmrCross Assocs. 205-883-5991
AZ Phoenix, Spectrum Mktg. Assocs., Inc. 602-890-9000
CA Newport Bch., Forbes Pacific Inc. 714-722-6174
CA Saratoga, Testco Inc. 408-253-1900
CO Denver, Spectrum Sls. 303-480-9991
DE Hunt Valley, Eagle Sls. Corp. 301-666-3930
DC Hunt Valley, Eagle Sls. Corp. 301-666-3930
FL Orlando, Standard Mktg. 407-856-4140
FL Sunrise, Standard Mktg. 305-749-5557
FL Tampa, Standard Mktg. 813-933-5833
IL Arlington Hgts., M.J. Petersen & Assocs. 708-577-8200
IN Ft. Wayne, M/S Sls. & Assocs. 219-436-3023
IN Greenwood, M/S Sls. & Assocs. 317-881-0110
IA Cedar Rapids, Midwest Tech. Sls. Inc. 319-393-5115
KS Goddard, Midwest Tech. Sls. Inc. 316-794-8565
KS Lenexa, Midwest Tech. Sls. Inc. 913-888-5100
MD Hunt Valley, Eagle Sls. Corp. 301-666-3930
MA Andover, Crawford Assocs. 508-470-2122
MN Roseville, TLC 612-483-2226
MO Earth City, Midwest Tech. Sls. Inc. 314-298-8787
NY Clifton Pk., Net Sls. 518-371-6864
NY Cortland, Net Sls. 607-756-6592
NY Great Neck, MOS Mktg. Assocs. 516-487-3966
NY Victor, Net Sls. 716-924-1844
NC Charlotte, Godwin Assocs. 704-549-8500
NC Raleigh, Godwin & Assoc. 919-878-8000
OR Oregon City, Halbar Pacific 503-656-3714
PA Trevose, Omega Elctrn. Sls. 215-244-4000
MA Swansea, Wm. Poisson & Assocs. 508-677-3655
TX Plano, Richmar Elctrns. 214-424-8388
TX Round Rock, Richmar Elctrns. 512-255-2551
UT Ogden, Spectrum Mktg. Assocs. Inc. .. 801-972-8552
WA Redmond, Halbar Pacific 206-882-0990
Can Pointe Claire, Que., A. R. Gray Assocs. 514-694-6378

Local Distributors

CA San Diego, Pyramid Elect. Supp. Inc. .. 619-271-5404
CA Santa Clara, Pyramid Elect. Supp. Inc. 408-727-9810
CA Santa Monica, Master Distrs. 213-452-1229
CA Saratoga, Testco Inc. 408-253-1900
CA Sunnyvale, Spirox 408-739-3334
CA Torrance, Pyramid Elect. Supp. Inc. ... 714-773-0781
CO Denver, Spectrum Distrbn. 303-480-9991
FL W. Melbourne, Astro Mktg. 407-727-8817
IL Bedsville, Voyager Elect. Corp. 708-860-1300
IL Elk Grove Village, Nu-Way Elect. Dist., Inc. 708-437-7120
MA Andover, Aved Elect. Inc. 508-688-3800
MA Sandwich, J.V. Elctrns. 508-833-0700
MN Fridley, Voyager Elect. Corp. 612-571-7766
NJ Oakland, Relay Specialties 201-337-1000
NY Buffalo, Summit Dist. 716-887-2800
NY Rochester, Masline Elect., Inc. 716-546-5373
OK Tulsa, Altair Co. 918-252-5781
CA Saratoga, Testco, Inc. 408-253-1900
PA Philadelphia, SHAP Elect. Co. 215-969-3300
TX Ft. Worth, Allied Elec. 817-595-3500
TX Austin, Altair Co. 512-837-4970
TX Houston, Altair Co. 713-462-3029
TX Richardson, Altair Co. 214-231-5166
UT Ogden, Spectrum Mktg. Assocs., Inc. .. 801-972-8552
WA Redmond, Pyramid Elect. Supp., Inc. .. 206-883-7200

COTRONICS, 3379 Shore Pkwy., Brooklyn, NY 11235, Tel: 718-646-7996, FAX: 718-646-3028; Empl.: 15; *Sls. Mgr.:* Alan Marks

COUTANT LAMBDA LTD., Kingsley Ave., Ilfracombe, Devon, England EX34 8ES, Tel: (0271) 863781, TELEX: 46310, FAX: (0271)64894; Empl.: 330; *Sls. Mgr.:* Nigel Davies; *Dist. Mgr.:* Nigel Davies

COVER CRAFT CORP., See Amherst International Corp., Cover Craft Div.

COVID, INC., 2400 W. 10th Place, Tempe, AZ 85281, Tel: 602-966-2221, FAX: 602-966-6728; Empl.: 40; *Sls. Mgr.:* Suzanne Jones

COVOX, INC., 675 Conger St., Eugene, OR 97402, Tel: 503-342-1271, FAX: 503-342-1283; Empl.: 25; *Sls. Mgr.:* Larry Quateman

CPS, INC., 47341 Bayside Parkway, Fremont, CA 94538-6517, Tel: 415-657-6363, FAX: 415-657-7220; FSC No.: 31640; Empl.: 30; *Sls. Mgr.:* Clifford Gaw

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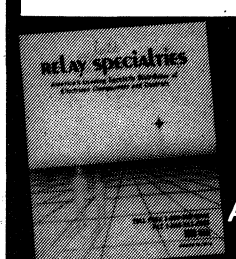

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CTS CORPORATION, Microelectronics business unit, 9210 Science Center Dr., New Hope, MN 55428, Tel: 612-533-3533, FAX: 612-533-3037; FSC No.: 16512; Empl.: 300; *Sls. Mgr.:* Steve Otto

Refer to CTS Corp., Elkhart, IN, for sales offices & representative listings.

CTS CORP., ELECTROCOMPONENTS BUSINESS UNIT (FORMERLY ELKHART DIV.), 1142 W. Beardsley Ave., Elkhart, IN 46514, Tel: 219-295-3575, FAX: 219-295-3580 ..... **B•1676-1677; D•1030**

Refer to CTS Corp., Elkhart, IN for sales offices and representative listings.

CTS CORP., FREQUENCY CONTROLS BUSINESS UNIT, (Formerly Knights Div.), 400 Reimann Ave., Sandwich, IL 60548, Tel: 815-786-8411, TWX: 910-642-0860, FAX: 815-786-9743; Empl.: 450; *Sls. Mgr.:* Rich Henry Sls. Mgr. ..... **A•1328-1351**

Refer to CTS Corp., Elkhart, IN, for sales offices & representative listings.

CTS CORPORATION, Microelectronics business unit, 1201 Cumberland Ave., W. Lafayette, IN 47906, Tel: 317-463-2565, TWX: 810-342-1882, FAX: 317-497-5399; Empl.: 505; *Sls. Mgr.:* Dick Kramer

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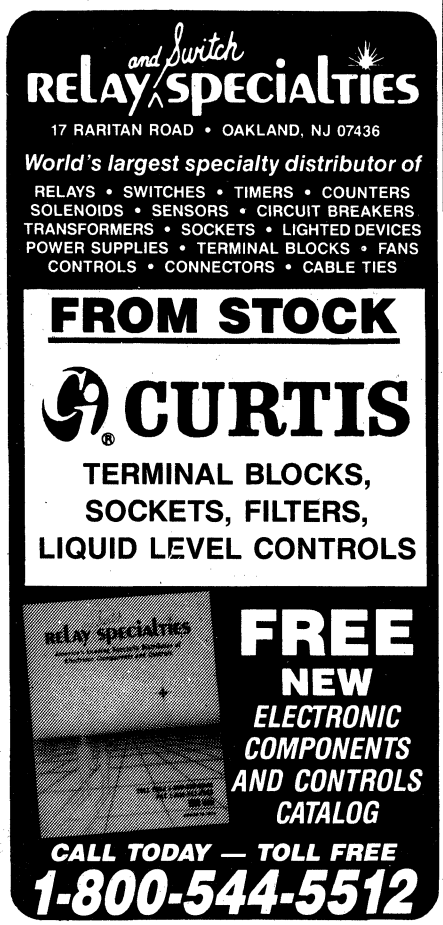

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CTSI INTERNATIONAL INC., 75 Mall Drive, Commack, NY 11725-5703, Tel: 516-864-5260, FAX: 516-864-5878; Empl.: 50; *Sls. Mgr.:* Paul Onish

CUBIT, Div. of Proteus Industries. Inc., 340 Pioneer Way, Mountain View, CA 94041, Tel: 415-962-8237, FAX: 415-965-9355; Empl.: 30; *Sls. Mgr.:* Jon Heiner

CUESTA SYSTEMS CORPORATION, 3440 Roberto Ct., San Luis Obispo, CA 93401, Tel: 805-541-4160, 800-332-3440, TELEX: 4949381 CUESTA; *Sls. Mgr.:* Dee Libin

CUI STACK INC., 9640 S.W. Sunshine Ct., Beaverton, OR 97005, Tel: 503-643-4899, FAX: 503-643-6129; Empl.: 11; *Sls. Mgr.:* Jim Seiler; *Dist. Mgr.:* T. Dougan K. Porter ..... **A•2195; D•1031, 1695**

Local Distributors

CA	Canoga Park, RAG Elctrns.	818-998-6500
CA	Milpitas, R & D Elctrn. Parts	408-262-7144
MN	Thief River Falls, Digi-Ker Corp.	218-681-6674
NJ	Newfoundland, Hosica Labs.	201-697-6111
NY	Great Neck, The Instr. Mart	516-487-7430
OR	Beaverton, Norvac Elctrns.	503-644-1052

CUNO, INC., Process Filtration Products, 400 Research Pkwy., Meriden, CT 06450, Tel: 203-237-5541, TELEX: 221083; Empl.: 700; *Sls. Mgr.:* Martin Mahard

CURRENT TECHNOLOGY, INC., 101 W. Buckingham Rd., Richardson, TX 75081-4802, Tel: 214-238-5300, FAX: 214-238-0911; *Sls. Mgr.:* Barry Epstein; *Dist. Mgr.:* Steve Larson

CURTIS INDUSTRIES, P.O. Box 19910, Milwaukee, WI 53219-0910, Tel: 414-649-4200, TWX: 910-262-3035, FAX: 414-649-4279; FSC No.: 73631; Empl.: 110; *Sls. Mgr.:* W.M. Tennie; *Dist. Mgr.:* Al Hungsberg

CURTIS

FAX: 914-666-2188

CURTIS INSTRUMENTS, INC., 200 Kisco Ave., Mt. Kisco, NY 10549, Tel: 914-666-2971, TWX: 710-571-2163; FSC No.: 18530; Empl.: 115; *Sls. Mgr.:* Jim Story ..... **D•1132**

Local Sales Offices & Reps

AZ	Astrocom Mktg.	602-991-6646
CA	Burlingame, NorCal RepCo	408-988-1643
CA	Seal Beach, Texel Engrg.	213-596-9411
CO	Littleton, J.F. Hurlbut Co.	303-279-7796
FL	Longwood, NSL Assocs.	407-629-5226
GA	L & D, Inc.	404-395-7079
IL	La Grange Park, Bierhaus Sls.	312-751-8088
MD	Advanced Tech. Sls.	301-323-3140
MA	Brookline, Harman Assocs.	617-232-6687
MN	Minnetonka, S.J. Collins & Assoc.	612-933-7661
MO	Acorn Elctrns.	314-421-1751
NY	Smith Tech. Sls.	716-223-5656
NY	Manhasset, WinCor Elctrn. Sls. Corp.	516-627-9474
OH	Chagrin Falls, T.E. Murphy Co.	513-692-8713
PA	W. Reeves Assocs.	215-356-7500
TX	Lektron	214-416-4585
WA	Seattle, Evergreen Mktg.	206-485-8063

Local Distributors

MO	St. Louis, Acorn Elctrns. Inc.	314-644-2510
PA	Newton Sq., W. Reeves Assocs.	215-356-7500
TX	Carrollton, Lektron	817-464-7784

CUSTOM BOBBIN WINDINGS, A & K Corporation, P.O. Box 2369, Zanesville, OH 43702-2369, Tel: 614-452-6973, FAX: 614-452-4156; Empl.: 16

CUSTOM CABLE CORP., 242 Butler St., Westbury, NY 11590, Tel: 516-334-3600, TELEX: 269301, FAX: 516-334-3989; Empl.: 20; *Sls. Mgr.:* J. Michelman; *Dist. Mgr.:* D. Pollack

CUSTOM COILS INC., Box 338, Alcester, SD 57001, Tel: 605-934-2460, FAX: 605-934-2440; FSC No.: 34808; Empl.: 75; *Sls. Mgr.:* Randy Larson ..... **A•2197**

Local Sales Offices & Reps

CA	Santa Clara, Rodgers Assocs.	408-984-8110
CO	Englewood, Krebill Comp. Sls.	303-771-0955
CO	Grand Junction, Krebill Comp. Sls.	303-243-8220
MN	Edina, M F I	612-832-9017

CUSTOM CONNECTOR, 1738 E. 30th St., Cleveland, OH 44114, Tel: 216-241-1679, FAX: 216-241-1734; Empl.: 24; *Sls. Mgr.:* Larry Weider

CUSTOM CONTROL SENSORS, INC., 21111 Plummer Street, Chatsworth, CA 91313-2516, Tel: 818-341-4610, FAX: 818-709-0426; Empl.: 350; *Sls. Mgr.:* Charles Ritner

CUSTOM ELECTRONICS, Browne St., Oneonta, NY 13820, Tel: 607-432-3880, FAX: 607-432-3913; FSC No.: 23280; Empl.: 130; *Sls. Mgr.:* D. Hathaway

CUSTOM LINEAR INC., 617-E. Arques Ave., Sunnyvale, CA 94086-3832, Tel: 408-749-9933, FAX: 408-736-4720; Empl.: 15; *Sls. Mgr.:* Earl Wentworth

CUSTOM LOGIC, P.O. Box 3940, Crestline, CA 92325, Tel: 714-338-4059, FAX: 714-338-4450

CUSTOM MICRO SYSTEMS, INC., P. O. Box 9472, Livonia, MI 48151, Tel: 313-559-5397

CUSTOM POWER SYSTEMS, INC.

FAX: 516-467-5066

CUSTOM POWER SYSTEMS, 33 Comac Loop, Ronkonkoma, NY 11779-9998, Tel: 516-467-5328; Empl.: 15 ..... **D•1697**

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AZ	Tucson, Siegel & Assocs.	602-323-9655
CA	Agoura Hills, Powerdyne	818-991-0632
CA	San Jose, NES	408-293-2600
MD	Hunt Valley, Eagle Sls. Corp.	301-666-3930
MA	Whitinsville, Power Factor & Assoc.	508-234-6415
FL	Oviedo, Lighthouse Mktg.	407-366-0073
NJ	Clementon, Systech Assocs.	609-784-8300
TX	Dallas, Eatman Engrg.	214-771-1903

CUSTOM SCI. INSTRS., 13 Wing Dr., Cedar Knolls, NJ 07927, Tel: 201-538-8500, FAX: 201-984-6793; Empl.: 47; *Sls. Mgr.:* Henry Piekarski

CUT CRAFT, INC., 1501 Northpark Drive, Ft. Worth, TX 76102, Tel: 817-332-6151, FAX: 817-332-3304; Empl.: 90; *Sls. Mgr.:* Fred A. Antonini ..... **C•1675, 1688**

CUTLER-HAMMER, INC., SHALLCROSS RESISTOR PRODS., See RCL Shallcross, Inc.

CVC PRODUCTS, INC., 525 Lee Rd., P.O. Box 1886, Rochester, NY 14603, Tel: 716-458-2550, TELEX: 265240, TWX: 4947142, FAX: 716-458-0424; Empl.: 160; *Sls. Mgr.:* Christopher J. Mann

CVDS INC., 6900 Trans Canada Hwy., Pte. Claire,Que., Canada H9R 1C2, Tel: 514-694-9320, FAX: 514-694-0786; Empl.: 100; *Sls. Mgr.:* K.(George) Sossoyan-Reg. Montreal

CW INDUSTRIES

FAX: 215-355-1088

CW INDUSTRIES, 130 James Way, Southhampton, PA 18966, Tel: 215-355-7080; FSC No.: 79727; Empl.: 450; *Sls. Mgr.:* Michael Klakis .... **B•1010-1011, 1678-1679; C•1332-1333**

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AL	Madison, Lamons Sls.	205-461-7871
AZ	Tempe, Westrep	602-820-9932
AR	Little Rock, Erickson Sls.	501-455-0618
CA	Garden Grove, ELSCO Elctrns.	714-892-4621
CA	Napa, Stewart-Fullerton	707-258-1160
CO	Englewood, Purdy Co. Assoc.	303-790-2211
CT	Guilford, Tynik, Inc.	203-453-1613
FL	Tampa, Standard Mktg.	813-933-5833
GA	Norcross, Lamons Sls.	404-242-2610
IL	Park Ridge, G. Mcl. Cole Co.	312-692-6040
IN	Greenfield, France Entprs.	317-462-6098
IN	Greenwood, Liberty Sls.	317-888-8396
MD	Columbia, Delta III Assocs.	301-730-4700
MD	Newton, Greene-Shaw Co.	617-969-8900
MA	Taunton, Focus Elctrn. Sls.	617-824-3840
MI	Holland, Mackinaw Sls, Inc.	616-399-4665
MN	Minneapolis, Robt. Marshall Co.	612-929-0457
MO	Kansas City, Ruffolo & Assocs.	816-471-5701
NJ	Englewood Cliffs, Ed Glass Assocs.	201-592-0200
NY	Buffalo, NRM Mktg. Grp.	716-634-4367
NC	Raleigh, Godwin Assocs.	919-878-8000
OH	Akron, Augnat Assocs.	216-273-1211
OR	Tigard, Eltech Inc.	503-684-3458
PA	Hatboro, A Q S	215-674-3562
TN	Greeneville, Lamons Sls. Co.	615-639-8711
TX	Dallas, Erickson Sls. Inc.	214-739-5833
WA	Bellevue, Eltech	206-643-4330
Can	Rexdale, True North Tech. Ltd.	416-744-2233

Local Distributors

AZ	Tempe, Cypress Elctrns.	602-966-2256
CA	Canoga Park, Acort Inds., Inc.	818-700-2991
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Los Angeles, Elec. Switches	213-660-1310
CA	Santa Ana, BDS Elctrns., Inc.	714-662-1050
CA	Santa Ana, El-Com/Cabletek	714-432-6630
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Santa Clara, Cypress Elctrns.	408-980-8400
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Sunnyvale, Bell Inds.	408-745-0400
CA	Torrance, Kent Elctrns.	213-320-2700
CO	Arvada, Denver Wintronics	303-431-7161
CT	South Windsor, Car-Lac Elctrns.	203-282-0631
DE	Wilimington, Wholesale Elctrns., Inc.	302-652-3222
FL	Stuart, Microwave Comps., Inc.	407-286-4455
IL	Crystal Lake, Sub-Sem Inc.	312-459-4139
IL	Wheeling, Hawk Elctrns., Inc.	312-459-4030
IN	Indianapolis, Bell Inds.	317-634-8202
MD	Beltsville, Petricko Sls., Inc.	301-937-4960
MD	Gaithersburg, Axis Elctrns., Inc.	301-840-9640
MA	Milford, Car-Lac Elctrns.	617-478-7797
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Norwood, Emtel Elctrns.	617-769-9500
MI	St. Clair Shores, Spemco	313-771-2700
MN	New Brighton, Chris Elctrns.	612-631-2647
MN	Thief River Falls, Digi-Key Corp.	800-346-5144
NJ	Roselle, Lectron Inds.	201-245-5858
NJ	Voorhees Township, PAR-TEC Comps. Co.	609-795-4884
NY	Amherst, Standard Elctrns.	716-691-3801
NY	Baldwinsville, Scibetta Distrs.	315-622-3993
NY	Bohemia, Car-Lac Elctrns.	800-645-1192
NY	Farmingdale, Pride Elctrns.	516-293-4020
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Englewood, Argent Inds., Inc.	513-836-8633
OH	Solon, Reh-Electra	216-248-1636
PA	Bristol, AIM Elctrns.	215-785-3500
TX	Carrollton, Connec Tek, Inc.	214-245-1266
TX	Mansfield, Edison Elctrns.	817-473-3322
WA	Redmond, Pyramid Elctrns.	206-883-7200
WA	Seattle, Preibe Elctrns.	206-575-1050

CYBERPAK CO., 251 S. Frontage Rd., Ste. 23, Burr Ridge, IL 60521, Tel: 708-654-3999, FAX: 708-654-4027; Empl.: 5; *Sls. Mgr.:* R. Weinbrenner

CYBER SYS., INC., 2570 E. Cerritos Ave, Anaheim, CA 92806, Tel: 714-722-2051, 714-634-2800, FAX: 714-937-1955; Empl.: 35

CYBRID INCORPORATED, 10 Woodcrest Drive, Woodcliff Lake, NJ 07675, Tel: 201-307-0426, FAX: 201-391-7112; Empl.: 9

CYCLO-TRONICS, INC., 1345 N. Old Rand Rd., Wauconda, IL 60084, Tel: 708-526-0800, FAX: 708-526-0803; Empl.: 10

THE CYLIX CORPORATION, 2637 Townsgate Rd., Ste. 200, Westlake Vl., CA 91361, Tel: 805-379-3155, FAX: 805-379-4551; FSC No.: 59; Empl.: 15; *Sls. Mgr.:* William J. Purcell; *Dist. Mgr.:* Peter Norman

CYPRESS MAGNETICS, INC., 8751 1/2 Industrial Lane, Rancho Cucamonga, CA 91730, Tel: 714-987-3570, FAX: 714-980-2009; FSC No.: 59791; Empl.: 15; *Sls. Mgr.:* Robert C. Greenwood

CYTEC CORP.

FAX: 716-381-0475

CYTEC CORP., 2555 Baird Road, Penfield, NY 14526, Tel: 716-381-4740, 800-346-3117; Empl.: 20; *Sls. Mgr.:* Harry Turner ..... **D•1240**

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OR	Portland, Westcon, Inc.	503-283-0132
WA	Kent, Westcon, Inc.	206-824-8922

DABURN

FAX: 201-768-9642

DABURN ELECTRONICS & CABLE CORP., 225 Pegasus Ave., Northvale, NJ 07647, Tel: 201-768-5400; FSC No.: 25706; *Sls. Mgr.:* Ed Rothenstein ..... **C•1745-1751**

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CA	Mountain View, Bridge Mktg.	415-965-8045
CA	Newport Beach, SPA Elctrns.	714-863-1193
CO	Denver, Mountain Reps	303-623-0972
FL	Tampa, SRT	813-884-4805
IL	Elgin, Markar Sls.	708-888-2207
IN	Indianapolis, STB & Assocs.	317-844-9227
LA	Kenner, Assoc. Mktg. Grp.	504-443-5072
MD	Bel Air, Freedman Malta Assocs.	301-879-3848
MA	No. Scituate, W. A. Hendrickson	617-545-0652
MN	Minneapolis, R. K. Sls.	612-571-1001
MO	Blue Springs, KKB & Co.	816-229-0001
MO	St. Louis, KKB & Co.	314-647-2400
NJ	Whippany, Robert Smith Assocs.	201-540-0204
NY	E. Syracuse, Liberty Elec.	315-437-8100
NY	Plainview, Robt. Smith Assocs.	516-681-3155
PA	Pittsburgh, Catalzst Sls.	412-733-5450
OR	Hillsboro, Turn-A-Round Sls.	503-640-4641
PA	King of Prussia, Freedman-Malta	215-337-9211
TX	Ft.Worth, Reynolds Assoc.	817-429-8207
WA	Kirkland, Turn-A-Round Sls.	206-822-4634
WI	Menomonee Falls, Voss-Dent Assocs.	414-781-0555
Can	Markham, Ont., Avotronics Ltd.	416-475-2024

Local Distributors

CA	Milpitas, Zack Elctrns.	408-942-5432
CA	San Carlos, Logan Elctrns.	415-594-0700
CA	San Diego, Shanks & Wright	619-239-0176
CT	New Haven, Hatry	203-787-5921
CT	West Hartford, Signal Ctr.	203-233-8551
FL	Miami, Small Parts	305-751-0856
GA	Atlanta, ACK Radio Supp.	404-351-6340
IA	Marion, Brenneman & Assoc.	319-377-6394
LA	Harahan, Elctrn. Parts & Supp.	504-734-0641
MD	Gaithersburg, M S Elctrns.	301-921-0200
MA	Needham, YDI Electronics	617-449-1005
MA	Woburn, Pacer	617-935-8330
NJ	Beachwood, Berkley Indl.	201-341-9366
NJ	Cranford, GSI Elctrns.	201-272-6400
NJ	Kenilworth, Federated Purchaser	201-272-0505
NJ	Moorestown, Marlac	908-234-4200
NY	Albany, E. E. Taylor	518-438-7811
NY	Buffalo, Summit Elctrns.	716-887-2800
NY	Hauppauge, Broadline	516-231-4100
NY	Rochester, Simcona	716-328-3230
PA	Allentown, Federated Purchaser	215-437-4481
PA	Philadelphia, AC Radio	215-462-9379
WA	Seattle, Westlake Elctrns.	206-622-6600
WI	Fond Du Lac, Fedco	414-922-6490
Can	Markham, Ont., Arma	416-475-2024

DADEN ASSOCIATES, 23011 Moulton Pkwy., Ste. A12, Laguna Hills, CA 92653, Tel: 714-770-1522, TWX: 910-596-1324, FAX: 714-472-0805; FSC No.: 57032; Empl.: 49; *Sls. Mgr.:* Dennis Hook

DAEDAL, Sandyhill Road, Harrison City, PA 15636, Tel: 412-744-4451, FAX: 412-744-7626; *Sls. Mgr.:* R. Mitchell; *Dist. Mgr.:* R. Mitchell

DAGE-MTI, 701-N. Roeske Ave., Michigan City, IN 46360, Tel: 219-872-5514, ESYLNK: 532521, FAX: 219-872-5559; Empl.: 51; *Sls. Mgr.:* Paul Thomas

DAGE PRECISION INDUSTRIES, INC., 46701 Fremont Blvd., Fremont, CA 94538, Tel: 415-683-3930, TELEX: 4990512, FAX: 415-683-3935; Empl.: 10; *Sls. Mgr.:* Joseph M. Tosta

DAHLSTROM OF CANADA LTD., 7 Copeland Street, Toronto, Ontario, Canada M4G 37E, Tel: 416-421-5900, FAX: 414-421-3728; Empl.: 44

DAICO INDUSTRIES, INC., 2453 East Del Amo Blvd., Compton, CA 90220, Tel: 213-631-1143, FAX: 213-631-8078; FSC No.: 28983; Empl.: 200; *Sls. Mgr.:* Kevin Townsend; *Dist. Mgr.:* Diane Felando

DAIDO CORP., Sumtak Electronics Division

DAITRON, INC., 7150 S.W. Hampton, Suite 130, Tigard, OR 97223, Tel: 503-620-2879, TELEX: 910-240-4863, FAX: 503-620-2942; Empl.: 10; *Dist. Mgr.:* Karen Sempert

DALE ELECTRONICS, INC., Columbus Div., 1122 23rd Street, Columbus, NE 68601-3647, Tel: 402-563-6506, FAX: 402-563-6418; FSC No.: 91637; Empl.: 2800; *Sls. Mgr.:* Darrell Smejkal; *Dist. Mgr.:* Jon Trabert ..... **A•1194-1200, 1352-1355, 1886-1908, 2032-2037, 2198-2199; B•1046-1048, 1839-1841; C•1335**

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-883-1712
AZ	Tempe, Dale Elctrns. Sls.	602-967-7874
CA	Fremont, Telesis Sls. Grp.	415-713-7300
CA	Redwood City, J. S. Heaton Co.	415-367-9000
CA	San Diego, Vishay EC Sls. Office	619-690-5112
CA	Tustin, Vishay EC Sls. Office	714-544-7024
CO	Colorado Springs, Vishay EC Rocky Mountains	719-593-7529
CO	Grand Junction, Vishay EC Rocky Mtns.	303-241-0150
CO	Loveland, Vishay EC Rocky Mountains	303-667-7500
CT	Riverside, Howard C. Jappe, Co.	914-937-4845
FL	Altamonte Springs, Semtronic Assocs.,Inc.	407-831-8233
FL	Clearwater, Semtronic Assocs.,Inc.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs.,Inc.	305-731-2484
GA	Roswell, JWL Assocs.	404-993-0100
IL	Skokie, Indl. Reps.	708-967-8430
IN	Fort Wayne, Scott Elctrns.	219-489-5690
IN	Indianapolis, Scott Elctrns.	317-841-0010
KS	Olathe, Tech. Sls. Assocs.	913-829-2800
MD	Glen Burnie, Tri-Mark	410-761-6000
MA	Wakefield, Howard C. Jappe Co.	617-245-9359
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MN	Bloomington, Industrial Reps., Inc.	612-854-8027
NJ	Flanders, K & R Engrg.	201-584-5235
NY	East Rochester, L-Mar Assocs.,Inc.	716-381-9100
MO	Ferguson, Tech. Sls. Assocs.	314-521-2044
NC	Charlotte, JWL Assocs.	704-541-5750
NC	Raleigh, JWL Assocs.	919-787-4826
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Dayton, Scott Elctrns., Inc.	513-294-0539
OH	Westerville, Scott Elctrns.	614-882-6100
OR	Beaverton, LD Elctrns.	503-684-8221
PA	Horsham, TMI	215-441-4300
TX	Dallas, E. F. Aymond Co.	214-349-4014
TX	Houston, E. F. Aymond Co.	713-943-3149
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883
WI	Brookfield, Indl. Reps.	414-789-9393

Local Distributors

AL	Huntsville, Hamilton/Avnet	205-837-7210
AL	Huntsville, Pioneer Technlgs.	205-837-9300
AZ	Chandler, Hamilton/Avnet	602-961-6400
AZ	Chandler, Hamilton/Avnet	602-961-6613
AZ	Phoenix, Sterling Elctrns.	602-437-5565
AZ	Tempe, Acacia Elctrns.	602-894-2874
AZ	Tempe, Shelley-Ragon, Inc.	602-894-2058
AZ	Tempe, T.T.I. Inc.	602-431-1191
CA	Chatsworth, Shelley-Ragon, Inc.	818-998-3333
CA	Costa Mesa, Hamilton Electro Sls.	714-754-6030
CA	Culver City, Hamilton/Avnet	213-558-2111
CA	Fremont, Acacia	415-623-7500
CA	Gardena, Hamilton Electro Sls.	213-217-6750
CA	Gardena, Hamilton/Avnet	213-217-6700
CA	Inglewood, Newark Elctrns.	213-671-7377
CA	Irvine, Acacia Elctrns.	213-971-2428
CA	Milpitas, T. T. I, Inc.	408-946-5577
CA	Mission Hills, T.T.I,Inc.	818-891-8885
CA	Roseville, Hamilton/Avnet	916-920-3150
CA	San Diego, Acacia Elctrns.	619-597-0577
CA	San Diego, Hamilton/Avnet	619-571-7536
CA	San Diego, Shelley-Ragon, Inc.	619-453-7133
CA	San Diego, T.T.I., Inc.	619-748-2025
CA	San Jose, Shelley-Ragon, Inc.	408-432-0600
CA	Santa Ana, T.T.I, Inc.	714-641-9393

CA Sunnyvale, Hamilton/Avnet 408-743-3358
CA Woodland Hills, Hamilton/Avnet 818-594-8224
CO Commerce City, Waco Elctrns. 303-289-4743
CO Denver, Newark Elctrns. 303-757-8531
CO Denver, T.T.I. Inc. 303-429-6806
CO Englewood, Hamilton/Avnet 303-799-7815
CO Englewood, Shelley-Ragon, Inc. 303-762-0670
CO Lakewood, Acacia/Deanco Elctrns. ... 303-232-2882
CT Danbury, Hamilton/Avnet 203-797-2854
CT Norwalk, Pioneer Std. 203-853-1515
CT Wallingford, Sterling Elctrns. 203-265-9535
CT Wallingford, T.T.I., Inc. 203-284-7474
FL Altamonte Springs, Pioneer Technlgs. 407-834-9090
FL Deerfield Beach, Pioneer Technlgs. ... 305-428-8877
FL Ft. Lauderdale, Hamilton/Avnet 305-971-2900
FL Orlando, T.T.I., Inc. 407-859-1000
FL St. Petersburg, Hamilton/Avnet 813-573-3930
FL Tampa, Reptron Elctrns. 813-854-2351
FL Tampa, Shelley-Ragon, Inc. 813-623-6560
FL Winter Park, Hamilton/Avnet 407-628-3888
GA Duluth, Hamilton/Avnet 404-447-7523
GA Norcross, Pioneer Technlgs. 404-448-1711
GA Norcross, T.T.I., Inc. 404-662-0911
IL Addison, Pioneer Standard 312-495-9680
IL Bensenville, Hamilton/Avnet 708-860-7780
IL Chicago, Newark Elctrns. 312-784-5100
IL Elk Grove Village, Bell Ind. 708-640-1910
IL Glendale Heights, Shelley-Ragon, Inc. 708-529-9977
IL Palatine, Ohm Elctrns. 708-359-5500
IN Carmel, Hamilton/Avnet 317-844-9333
IN Ft. Wayne, Bell Ind.,Graham Div. 219-423-3422
IN Indianapolis, Bell Ind., Graham Div. 317-875-8200
IN Indianapolis, Pioneer Std. 317-573-0880
IA Cedar Rapids, Dee Elctrns. 319-365-7551
IA Cedar Rapids, Hamilton/Avnet 319-362-4757
IA Cedar Rapids, Shelley Ragon, Inc 319-373-0525
KS Lenexa, Hamilton/Avnet 913-888-8900
KY Lexington, Hamilton/Avnet 606-259-1475
MD Baltimore, RESCO 410-931-8200
MD Beltsville, RESCO 301-937-9100
MD Columbia, Hamilton/Avnet 410-995-3526
MD Columbia, T. T. I, Inc. 410-995-1331
MD Gaithersburg, Pioneer Technlgs. 301-921-0660
MA Billerica, Mayer Co. 617-229-2255
MA Chelmsford, Shelley-Ragon, Inc. 508-250-9666
MA Lexington, Pioneer Std. 617-861-9200
MA Peabody, Hamilton/Avnet 508-532-9861
MA Springfield, C & D Elctrns. 413-781-1776
MA Wilmington, T.T.I. Inc. 508-658-4700
MA Woburn, Sterling Elctrns. 617-938-6200
MI Grand Rapids, Pioneer Std. 616-698-1800
MI Grand Rapids, S-F Elctrn. Supp. 616-459-0216
MI Grandville, Hamilton/Avnet 616-531-0345
MI Livonia, Pioneer Std. 313-525-1800
MI Livonia, R-S Elctrns. 313-525-1155
MI Livonia, Reptron Elctrns. 313-525-2700
MI Novi, Hamilton/Avnet 313-347-4270
MI Oak Pk., Newark Elctrns. 313-967-1570
MA Springfield, C & D Electronics, Inc. 413-781-1776
MN Eden Prairie, Pioneer-Std. 612-944-3355
MN Minneapolis, Newark Elctrns. 612-331-6350
MN Minnetonka, Hamilton/Avnet 612-932-0674
MN Minnetonka, T.T.I., Inc. 612-933-8555
MN St. Paul, Shelley-Ragon, Inc. 612-642-2828
MO Chesterfield, Hamilton/Avnet 314-537-4265
MO Independence, Shelley-Ragon, Inc. 816-254-3410
MO Hazelwood, Shelley-Ragon, Inc. 314-895-1515
NJ Cherry Hill, Hamilton/Avnet 609-424-0117
NJ Cranford, G.S.I. Elec. 201-272-6400
NJ Fairfield, Hamilton/Avnet 201-575-3490
NJ Fairfield, Pioneer-Standard 201-575-3510
NJ Kenilworth, Federated Purchaser 201-272-0505
NJ Mount Laurel, T.T.I., Inc. 609-234-6400
NM Albuquerque, Hamilton/Avnet 505-345-0001
NY Binghampton, Pioneer Std. 607-722-9300
NY Bohemia, March Elctrns. 516-563-6000
NY Buffalo, Summit Distr. 716-887-2800
NY Endwell, A.S.I. Elctrns. 607-754-3823
NY Fairport, Pioneer Std. 716-381-7070
NY Farmingdale, Command Elctrns. 516-293-1212
NY Hauppauge, Fairmont 516-231-3313
NY Hauppauge, Hamilton/Avnet 516-231-9800
NY Medford, L.I., Shelley-Ragon, Inc. 516-447-2000
NY Rochester, Hamilton/Avnet 716-272-2704
NY Rome, Rome Elctrns. 315-337-5400
NY Ronkonkoma, T.T.I., Inc. 516-737-2000
NY Syracuse, Hamilton/Avnet 315-437-2641
NY Valley Stream, L.I., L&S Elctrns. 516-561-2474
NY Woodbury, Pioneer Std. 516-921-8700
NC Charlotte, T.T.I., Inc. 704-522-0277
NC Durham, Pioneer Technlgs. 919-544-5400
NC Raleigh, Hamilton/Avnet 919-878-0819
NC Raleigh, RESCO 919-781-5700
OH Cleveland, Pioneer Standard 216-587-3600
OH Columbus, Hamilton/Avnet 614-882-7004
OH Dayton, Bell Inds. 513-435-8660
OH Dayton, Bell Inds., Military Div. 513-434-8231
OH Dayton, Hamilton/Avnet 513-439-6730
OH Dayton, Hamilton/Avnet 513-439-6700
OH Dayton, Pioneer Standard 513-236-9900
OH Dayton, Stotts-Friedman Co. 513-298-5555
OH Solon, Hamilton/Avnet 216-349-5100
OH Valley View, Newark Elctrns. 216-447-8860
OH Worthington, T.T.I. Inc. 614-848-5770
OK Tulsa, Hamilton/Avnet 918-252-7297
OK Tulsa, Radio, Inc. 918-587-9123
OK Tulsa, Sterling Elctrns. 918-663-2410
OR Beaverton, Acacia Electronics 503-646-3377
OR Beaverton, Hamilton/Avnet 503-526-6209
OR Portland, Radar Elec. 503-232-3404
PA Horsham, Pioneer Technlgs. 215-674-4000
PA Mars, Hamilton/Avnet 412-281-4151
PA McKean, Advacom 814-476-7774
PA Pittsburgh, Pioneer Std. 412-782-2300
PA Trevose, Almo Elctrns. 215-953-2800
PA York, E.C.I., Inc. 717-846-5334
TX Austin, Hamilton/Avnet 512-837-8911
TX Austin, Pioneer-Standard 512-835-4000
TX Austin, Sterling Elctrns. 512-836-1341
TX Carrollton, Sterling Electronics 214-243-1600
TX Dallas, Hamilton/Avnet 214-308-8111
TX Dallas, Pioneer Std. 214-386-7300
TX Ft. Worth, T.T.I, Inc. 817-595-3100
TX Ft. Worth, T.T.I., Inc. 817-831-8300
TX Ft. Worth, T.T.I,Inc. 817-847-6666
TX Garland, Newark Elctrns. 214-494-5911
TX Houston, Newark Elctrns. 713-783-1629
TX Houston, Pioneer Std. 713-495-4700
TX Houston, Sterling Elctrns. 713-627-9800
TX Stafford, Hamilton/Avnet 713-274-9336
UT Salt Lake City, Hamilton/Avnet 801-974-9649
WA Redmond, Acacia Elctrns. 206-881-5566
WA Redmond, Hamilton/Avnet 206-867-0149
WA Redmond, Shelley-Ragon Inc. 206-883-2220
WA Redmond, T.T.I. Inc. 206-882-0291
WA Seattle, Radar Elec. 206-282-2511
WI Milwaukee, Marsh Elctrns. 414-475-6000

DALE ELECTRONICS, INC., El Paso Div., P.O. Box 26728, El Paso, TX 79926-6728, Tel: 915-592-3253; FSC No.: 91637; Empl.: 272; *Sls. Mgr.:* Bill Buchanan; *Dist. Mgr.:* Jon Trabert ..... **B•1839-1841**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE ELECTRONICS, INC., Norfolk Div., 2300 Riverside Blvd., Norfolk, NE 68701-2242, Tel: 402-371-0080; FSC No.: 91637; Empl.: 1200; *Sls. Mgr.:* Eldon Engel; *Dist. Mgr.:* Jon Trabert ..... **A•1891-1899**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE ELECTRONICS, INC., Tempe Div., 1155 W. 23rd St., Tempe, AZ 85282-1883, Tel: 602-967-7874; FSC No.: 22929; Empl.: 139; *Sls. Mgr.:* Mike Brown; *Dist. Mgr.:* Jon Trabert ..... **A•1352-1355, 2032-2035**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE ELECTRONICS, INC., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078-0180, Tel: 605-665-9301; FSC No.: 09969; Empl.: 400; *Sls. Mgr.:* John Elliot; *Dist. Mgr.:* Jon Trabert ..... **A•1194-1196, 1198-1199, 2198; C•1334-1335**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE WESTERN THERMISTOR DIVISION, See Dale Norfolk Division

DALLAS SEMICONDUCTOR, 4401 South Beltwood Pkwy., Dallas, TX 75067, Tel: 214-450-0400, FAX: 214-450-0470; Empl.: 720; *Sls. Mgr.:* John Mattis ..... **A•1529-1531**

Local Sales Offices & Reps

AL Huntsville, Glen White & Assocs. 205-882-6751
AZ Scottsdale, Haas & Assocs. 602-998-7195
AR Tusla, West Assocs. 918-665-3465
CA San Diego, Harvey King, Inc. 619-587-9300
CA Santa Clara, I Squared 408-988-3400
CO Wheat Ridge, Waugaman Assoc. 303-423-1020
CT Wallingford, Technology Sls. Inc. 203-269-8853
FL Ft. Lauderdale, Semtronic Assoc., Inc. 305-731-2484
GA Norcross, Glen White & Assocs. 404-441-1447
IL Rolling Meadows, Sumer, Inc. 708-991-8500
IN Indianapolis, Elctrn. Sls. & Eng. 317-849-4260
IA Cedar Rapids, Cahill, Schmitz & Howe 319-377-8219
KS Stanley, West Assocs. 913-897-6366
MA Woburn, Mill-Bern Assocs. 617-932-3311
MI Livonia, Geisting & Assocs. 313-478-8106
MN St. Paul, Cahill, Schmitz & Cahill 612-646-7217
MO St. Louis, Technical Sls. Assoc. 314-521-2044
NJ Haddonfield, Sunday O'Brien Inc. 609-429-4013
NJ Mt. Laurel, S-J Assocs. 609-866-1234
NY Rockville Centre, S-J Assocs. 516-536-4242
NC Huntersville, Glen & White Assoc. 704-875-3777
NC Raleigh, H & A Sls. 919-846-0082
OH Cincinnati, Geisting & Assocs. 513-385-1105
OK Tusla, West Assocs. 918-665-3465
OR Beaverton, Western Tech. Sls. 503-644-8860
TN Gray, Glen White & Assoc. 615-477-8850
TX Houston, West Assocs. 713-621-5983
UT Salt Lake City, Waugaman Assocs. ... 801-261-0802
VA Falls Church, S-J Chesapeake 703-533-2233
WA Bellevue, Western Tech. Sls. 206-641-3900
WA Spokane, Western Tech. Sls. 509-922-7600
WI Brookfield, Sumer, Inc. 414-784-6641
Can Kanata, Electro-Source Inc. 613-592-3214

Local Distributors

AL Huntsville, Hall-Mark Elctrns. 205-837-8700
AZ Phoenix, Hall-Mark Elctrns. 602-437-1200
CA Irvine, Insight Elctrns. 714-727-2111
CO Wheat Ridge, Added Value Elect. Dist. 303-422-1701
CT Wallingford, Sterling Elctrns. 203-265-9535
FL Winter Park, Milgray-Elctrns. 407-647-5747
GA Duluth, Hall-Mark Elctrns. 404-623-4400
IL Arlington Heights, Milgray Elctrns. 708-253-1212
IN Indianapolis, Added Value Elect. Dist. 317-872-4910
IA Cedar Rapids, Added Value Elect. Dist. 319-363-0221
KS Lenexa, Hall-Mark Elctrns. 913-888-4747
MA Wilmington, Milgray Elctrns. 508-657-5900
MI Livonia, Hall-Mark Elctrns. 313-462-1205
MN Minneapolis, Sterling Elctrns. 612-831-2666
NJ Marlton, Milgray Elctrns. 609-983-5010
NY Farmingdale, Milgray Elctrns. 516-391-3000
NC Raleigh, Hall-Mark Elctrns. 919-872-0712
OH Solon, Hall-Mark Elctrns. 216-349-4632
OK Tusla, Sterling Elctrns. 918-663-2410
OR Beaverton, Anthem Elctrns. 503-643-1114
TX Richardson, Anthem Elctrns. 214-238-1700
UT Salt Lake City, Anthem Elctrns. 801-973-8555
VA Richmond, Sterling Elctrns. 804-226-2190
WA Bellevue, Almac Elctrns. 206-643-9992
Can Ville St. Laurent, Que., ITT Multicomponents 514-335-7697

DALSA INC., 605 McMurray Road, Waterloo, Ont., Canada N2V 2E9, Tel: 519-886-6000, FAX: 519-886-8023; *Sls. Mgr.:* Dan Blacklock

DANCER COMMUNICATIONS, INC., 162 Saxer Ave., Media, PA 19064-2334, Tel: 215-543-8066, FAX: 215-543-2151; *Sls. Mgr.:* Barbara Gordon

Local Sales Offices & Reps

CO Littleton, Base Technlgs. Co. 303-979-3392

Local Distributors

WI Milwaukee, Nuvisco, Inc. 414-445-9206

D & B POWER, INC.

FAX: 516-586-5952

D & B POWER, INC., 204 N. Fehr Way, P.O. Box 40M, Bayshore, NY 11706, Tel: 516-586-5955; FSC No.: 54337; Empl.: 25; *Sls. Mgr.:* Gordon Best; *Dist. Mgr.:* Dan Hall ..... **D•1698-1699**

Local Sales Offices & Reps

CA Pasadena, Electro Mecha. Instrs. 818-795-7193
MD Hunt Valley, Eagle Sls. 301-666-3930
CA Santa Clara, Veer Mktg. 408-986-1610

D & P MFG. INC., 32 Hamilton St., Chalfont, PA 18914, Tel: 215-997-1200, FAX: 215-997-1200; Empl.: 7

DMC DANIELS MANUFACTURING CORPORATION

FAX: 407-855-6884

DANIELS MANUFACTURING CORP., 526 Thorpe Rd., Orlando, FL 32824, Tel: 407-855-6161, TELEX: 564321; FSC No.: 11851; Empl.: 180; *Sls. Mgr.:* Don Malinovsky; *Dist. Mgr.:* Don Malinovsky ..... **C•1703**

Local Sales Offices & Reps
CA El Toro, DMC Western Reg. 714-588-8090

DAN-L INC., 229 Laurel Rd., E. Northport, NY 11731, Tel: 516-757-8000; FSC No.: 28327; Empl.: 22

DANMAR INDS., 11952 Challenger Court, Moorpark, CA 93021, Tel: 1-805-529-3788,1-800-666-6268, FAX: 805-529-3837; FSC No.: 31690; Empl.: 10; *Sls. Mgr.:* Mukund Patel

DANTEL, 2991 N. Argyle Ave., Fresno, CA 93727, Tel: 209-292-1111, TELEX: 35-5457, FAX: 209-292-9355; FSC No.: 56960; Empl.: 205; *Sls. Mgr.:* Bob Long

DANTRONICS, INC., 3175 Hafner Ct., St. Paul, MN 55126, Tel: 612-484-2108; Empl.: 22

DARE ELECTRONICS, INC., 3245 S. County Rd., 25A, Troy, OH 45373, Tel: 513-335-0031; FSC No.: 55901; Empl.: 20; *Sls. Mgr.:* Paul J. Gilmore

DATA, INC., 7702 Emerald Ave., Box 2071, Ft. Collins, CO 80525, Tel: 303-493-1222; Empl.: 3; *Sls. Mgr.:* Sharon Shilling; *Dist. Mgr.:* Sharon Shilling

D.A.T.A. BUSINESS PUBLISHING, Information Handling Services, 15 Inverness Way East, P.O. Box 6510, Englewood, CO 80155-6510, Tel: 303-799-0381, TELEX: 530606; Empl.: 30; *Sls. Mgr.:* Tom Littman; *Dist. Mgr.:* Ray Coakes

DATA CHECK CORPORATION, 9918 Via Pasar, San Diego, CA 92126, Tel: 619-578-0101, FAX: 619-578-9215; FSC No.: 55792; Empl.: 45; *Sls. Mgr.:* Bill Acosta

DATACHRON INC., 1150 E. Stanford Court, Anaheim, CA 92805, Tel: 714-385-1705, FAX: 714-978-2514; FSC No.: 56259; Empl.: 19; *Sls. Mgr.:* Clyde Davis

DATA CIRCUITS, COMPUTER LOGICS LTD., 6380 Viscount Rd., Mississauga, Ont., Canada L4V 1H3, Tel: 416-672-3833, TELEX: 416-672-3869; Empl.: 80; *Sls. Mgr.:* Rick Way; *Dist. Mgr.:* Rick Way

DATACOM, INC., Box 278, Ft. Walton Beach, FL 32549, Tel: 904-244-6121, FAX: 904-244-6344; FSC No.: 32365; Empl.: 50

DATACON, INC., Interconnect Sub-Systems, 60 Blanchard Rd., Burlington, MA 01803, Tel: 617-273-5800, FAX: 617-273-4809; Empl.: 350; *Dist. Mgr.:* Lonise M. Evelyn

DATACUBE, INC., 4 Dearborn Rd., Peabody, MA 01960, Tel: 508-535-6644, TELEX: 6817540, FAX: 508-535-5643; Empl.: 130; *Sls. Mgr.:* Denny Maher

FAX: 201-773-9672

DATA DELAY DEVICES, 3 Mount Prospect Ave., Clifton, NJ 07013-1915, Tel: 201-773-2299 ..... **A•1532-1548**

Local Sales Offices & Reps
AL Huntsville, Hughes Assocs. 205-533-9108
AZ Phoenix, Tech Sls., Inc. 602-246-1614
AR R-Squared 713-820-3210
CA Mission Viejo, Jay Mktg. Assocs. 714-768-7519
CA Mountain View, Weseloh/Swanson & Assocs. 415-961-0565
CT Dynamic Sls., Inc. 617-272-5676
DE Jack McCoy Assocs. 215-363-0350
FL Pensacola, Hughes Assocs.,Inc. 904-433-1787
GA Norcross, Hughes Assocs., Inc. 404-662-1587
IN J. M. Finnegan & Co. 216-238-5905
KY J. M. Finnegan & Co. 216-238-5905
LA R-Squared 713-820-3210
ME Dynamic Sls., Inc. 617-272-5676
MA Burlington, Dynamic Sls., Inc. 617-272-5676
MI Grand Rapids, Jim Finnegan & Co. ... 616-245-4621
MS Corinth, Hughes Assocs., Inc. 601-287-2915
NH Dynamic Sls., Inc. 617-272-5676
NJ Medford, Jack McCoy Assocs. 609-953-0770
NY Pittsford, James E. Zimmmerman Sls. 716-381-3186
NC Raleigh, Hughes Assocs., Inc. 919-467-7029
OH Dayton, Jim Finnegan & Co. 513-890-8322
OK R-Squared 713-820-3210
PA Downingtown, Jack McCoy, Inc. 215-363-0350
PA Pittsburgh, Jim Finnegan & Co. 412-823-5400
RI Dynamic Sls., Inc. 617-272-5676
SC Hughes Assocs., Inc. 919-467-7029
TN Morristown, Hughes Assocs, Inc. 615-587-2433
TX Houston, R-Squared 713-820-3210
VT Dynamic Sls., Inc. 617-272-5676
VA Jim Finnegan & Co. 216-238-5905
Can Ont., Source Elctrns. 416-676-0830

Local Distributors
CA Sunnyvale, Target Elctrns. 408-734-5611
TX Dallas, Omni Pro 214-233-0500

DATA-DESIGN LABS., P.O. Box 711, 7925 Center Ave., Cucamonga, CA 91730, Tel: 714-987-2511; Empl.: 1200

DATA DEVICE CORP., See ILC Data Device Corp.

FAX: 213-640-7639

DATA DISPLAY PRODUCTS, 445 So. Douglas St., El Segundo, CA 90245-4630, Tel: 213-640-0442, 800-421-6815; FSC No.: 15513; Empl.: 40; *Sls. Mgr.:* Anthony Toniolo; *Dist. Mgr.:* Anthony Toniolo ..... **B•1142-1144**

DATA ENGINEERING, INC., 2515 N. State Rd. 7 Ste. 207, Margate, FL 33063-3206, Tel: 305-971-0400; *Sls. Mgr.:* Mario M. Martinez

DATA ENVIRONMENT, INC., Box 91511, Beaverton, OR 97291, Tel: 503-643-4292

DATA INSTRUMENTS, INC., 100 Discovery Way, Acton, MA 01720, Tel: 508-264-9550, TELEX: 200081, FAX: 508-263-0630; Empl.: 300; *Sls. Mgr.:* Ernest C. Lutfy ..... **B•1891**

Local Sales Offices & Reps
AL Huntsville, FLW Southeast, Inc. 205-536-6207
AL Mobile, FLW S.W. 205-990-8989
AZ Scottsdale, Williams Assocs. 602-494-0790
CA Laguna Hills, Elotek Sys., Inc. 714-830-4856
CA Santa Clara, Johnson Assoc. 408-984-4626
CO Highlands Ranch, Valcomp Elctrns., Inc. 303-791-0330
FL Orlando, FLW Southeast, Inc. 407-894-9671
GA Marietta, FLW Southeast, Inc. 404-424-1731
IL Bridgeview, Finn & Conway, Inc. 708-599-0103
IA Cedar Rapids, Delltron Co. 319-393-0075
MD Forest Hill, Dick Pfeffer 301-557-9167
MA Acton, Data Instrs., Inc. 617-264-9550
MA Acton, Dave Hannon 617-264-9550
MI Sterling Hgts., Geotronix, Inc. 313-254-0520
MO Florissant, Delltron Co. 314-839-0033
MO Kansas City, Delltron Co. 816-436-6445
NM Albuquerque, Williams Assocs. 505-255-1638
NY Albany, Expert Indl. Sys., Inc. 518-869-3355
NY Buffalo, Expert Indl. Sys., Inc. 716-827-1111
NY Rochester, Expert Indl. Sys., Inc. 716-323-1305
NY Syracuse, Expert Indl. Sys., Inc. 315-455-2469
NC Charlotte, Emco, Inc. 704-372-8281
OH Richfield, Geotronix, Inc. 216-659-6100
OH Trotwood, Geotronix Inc. 513-854-5939
OK Oklahoma City, Bauman Instr. Corp. .. 405-631-8080
OK Tulsa, Bauman Instr. Corp. 918-492-8086
PA Allison Park, Geotronix, Inc. 412-487-1770
PA Richboro, Technical Dvcs. Inc. 215-953-1595
TN Memphis, FLW Southeast, Inc. 901-345-3563
TX Grand Prairie, Collingsystems, Corp. .. 214-647-3569
TX Houston, Collinsystems, Corp. 713-464-9460
WA Redmond, S.E.A. Sls. 206-883-4999
WA Vancouver, S.E.A. Sls. 206-573-5161
WI Brookfield, Finn & Conway Inc. 414-784-3300
Can Richmond, BC, Maxwell Morton Assocs. 604-273-1337
Can Woodbridge, Ont., Technel Engrg. Inc. 416-851-4244

Local Distributors
CA Milpitas, A. Biederman, Inc. 408-435-0209
CO Lafayette, Big Horn Instrmn. 303-665-4054
CT Meriden, Meriden Cooper 203-237-8448
GA Norcross, AA Elec. Inc. 404-449-8670
IN Indianapolis, C & E Sls., Inc. 317-844-9799
MD Baltimore, Bevier 301-242-8800
MA Billerica, Tanyx Meas. Inc. 508-671-0183
MI Taylor, North Cen. Engrg., Inc. 313-942-0900
MN St. Paul, Power/mation 612-645-0781
MS Jackson, B&B Controls 601-354-0405
MO St. Louis, ISL Corp. 314-423-3141
NJ Newark, Norman Bragar Co., Inc. 201-344-1100
NY Buffalo, KOM Lamb Inc. 716-874-3530
NC Charlotte, EMCO 704-372-8281
OH Cincinnati, J.N. Fauver Co., Inc. 513-891-8400
OH Twinsburg, The Stanley M. Proctor Co. 216-425-7814
OR Portland, Branom Instr. 503-283-2555
TX Dallas, Butler and Land 214-343-8800
TX Sugar Land, Alpha Process Sls. 713-240-4505
UT Salt Lake City, Rust Automation Equip. 801-486-9865
VA Richmond, Meter Metrics Div., Fidus Corp. 804-275-1431
WA Seattle, Branom Instr. 206-762-6050
WI Waukesha, Power/mation 414-542-2868
Can Don Mills, Ont., Intertechnology, Inc. ... 416-445-5500
Can Montreal, Que., Emaco(Canada) Ltd./Ltee 514-331-0551

DATA I/O CORP., 10525 Willows Rd. N.E., Redmond, WA 98073-9746, Tel: 206-881-6444, TELEX: 15-2167; Empl.: 550

DATAK CORP., 55 Freeport Blvd., No. 23, Sparks, NV 89431, Tel: 702-359-7474, FAX: 702-359-7494; *Sls. Mgr.:* Barry Brown ..... **C•1583, 1685**

Local Sales Offices & Reps
AL Huntsville, DHR Mktg., Inc. 205-722-0440
CA Foster City, Polach & Bensinger 415-578-8200
CA Gardena, Ungar Sls. Assocs. 213-532-6837
CT Lebanon, Adams McGregor Sales 203-537-5737
FL Hollywood, Mel Yarish & Assoc. 305-985-5605
GA Duluth, DHR Mktg., Inc. 404-564-0529
IL Sugar Grove, Manx Co. 708-466-4200
IN Indianapolis, Current Elec. Mktg. 317-257-3858
KS Overland Park, M.I.N.K. Associates 913-341-8309
MD Silver Spring, Mid-Atlantic Sls. 301-593-7749
MI Grand Blanc, Inter-Comm, Inc. 313-695-0665
MO Bridgeton, M.I.N.K. Assocs. 314-291-5454
NC Raleigh, DHR Mktg., Inc. 919-829-1970
OH Chagrin Falls, L.W. Bennett & Assoc. .. 216-247-2174
OR Portland, Jos. V. Belusko 503-222-4279
PA Philadelphia, Instrmn. Specialties 215-742-0898
RI Coventry, Adams McGregor 401-726-1300
SC Greenville, DHR Marketing Inc. 803-235-3594
TN Nashville, DHR Marketing Inc. 615-331-2745
TX Dallas, J & J Sls. Co. 214-328-9739
VA Charlottesville, Mid Atlantic Sales 804-973-8099
Can Montreal, Cantronics Ltd./Cantronics Intl. Ltd. 514-848-7132
Can Scarborough, Ont., Cantronics Ltd./Cantronics Intl. Ltd. 416-297-8668,FAX:416-297-0107

Local Distributors
AL Birmingham, ACK Radio Supply Co. .. 205-322-0588
AZ Phoenix, Dalis Elctrns. 602-275-2885
AZ Scottsdale, D.C. Elctrns. 602-945-7736
CA Canoga Pk., Sandys Elctrns. 818-346-8353
CA Milpitas, Zack Elctrns. 408-942-5432
CA San Jose, Quement Elctrns. 408-998-5900
CA Sunnyvale, Fry's Elctrns. 408-733-1770
CA Thousand Oaks, Pace Elctrns. 805-497-7515
CA Van Nuys, All Elctrns. 818-333-8009
CO Denver, Fistell Micro 303-393-6000
CT Greenwich, Wise Comps. 203-531-4880
DE New Castle, Electronics Exch. 302-322-5401
FL Miami, Elctrn. Equip. 305-871-3500
FL Orlando, Orlando Frame & Art 305-898-6271
GA Atlanta, Ack Radio Supply 404-351-6340
ID Boise, Kimball Elctrns. 208-232-2201
IL Berwyn, B-B & W, Inc. 312-749-1710
IL Mt. Prospect, Tri-State Elec. 312-255-0600
IL Niles, Joseph Elec. 312-297-4200
IL S. Holland, Union Elctrns. 708-333-4100
IN Ft. Wayne, Warren Radio 219-426-5344
KY Louisville, Peerless Elec. 502-637-7674
LA Lafayette, Ralph's 318-233-0105
MD Aberdeen, Harco Elctrns. 301-838-7990
MD Rockville, Capitol Radio Whlsrs. 301-881-2270
MA Needham, You-Do-It Elctrns. 617-449-1005
MA Norwood, Gerber Elec. 617-769-6000
MI Flint, Shand Elctrns. 313-743-8940
MI Livonia, Norwest Elctrns. 313-261-4551
MN Minneapolis, AEI/Acme Elctrn Parts. .. 612-338-4754
MO Kansas City, Elctrn. Supp. 816-931-0250
MO St. Louis, Gateway Elec. 314-427-6116
MO St. Louis, Van Sickle 314-621-5000
NE Lincoln, Scott Elec. Supp. 402-466-8221
NV Las Vegas, Hurley Elec. 702-384-5666
NV Reno, Elect. Distr. Co. 702-323-2766
NJ Greenbrook, Greenbrook Elctrns. 201-968-3500
NJ Kenilworth, Federated Purchasers, Inc. 201-272-0505
NM La Cruces, Elctrn. Parts Co. 505-523-4578
NY Buffalo, Summit Distr. 716-887-2800
NY Hauppauge, Broadline Elctrns. 516-231-4100
NY Plainview, Kelvin Elctrns. 516-349-7620
NY Rochester, Summit Elec. 716-334-8110
OH Warren, REM Elctrns. Supply 216-373-1300

OK Oklahoma City, Radio Supp. 405-232-6127
PA Harrisburg, Cumberland Elctrns. 717-233-5883
PA Braddock, Leff Elctrns. 412-351-5000
PA Philadelphia, A.C. Radio 215-462-9379
PA Reading, Barbey Elctrns. 215-376-7451
RI Pawtucket, Jabbour Electronic Supply 401-728-4600
RI Providence, W. Dandreta & Co. 401-861-2800
SC Charleston, Wholesale Inds. Elctrns. .. 803-722-2634
TN Memphis, W & W Distbg. 901-527-4627
TX Houston, Elctrn. Parts Outlet 713-784-0140
TX Richardson, Off The Shelf Comps. 214-238-0808
UT Salt Lake City, Kimball Elec. 801-328-2075
UT Salt Lake City, Standard Supp. Co. 801-486-3371
VA Annadale, Arcade Elctrns. 703-256-4610
VA Norfolk, Priest Elctrns. 804-855-0105
WA Seattle, Radar Elec. Co., Inc. 206-282-2511
WI Milwaukee, Indl. Elctrns. 414-276-1212
WI Wausau, Electronics Inc. 715-845-4671

DATAKEY, INC., 407 W. Travelers Trail, Burnsville, MN 55337, Tel: 612-890-6850, FAX: 612-890-2726; FSC No.: 7025; Empl.: 44; *Sls. Mgr.:* Jerry Korsbon

DATALUX

FAX: 703-662-1682

DATALUX CORP., 2836 Cessna Dr., Winchester, VA 22601, Tel: 703-662-1500; Empl.: 25; *Sls. Mgr.:* R.H. Twyford ..... **B•1804**

Local Sales Offices & Reps

CA San Jose, Peter Luiten 408-496-8578
IL Buffalo Grove, Key Mktg. 708-459-6900
MA Brookline, Technlg. Prods. 617-731-0858
NY Hauppauge, Sticom 516-366-4221
TX Richardson, R. F. Kimball 241-231-3447
WA Renton, Jensen Sls. 206-277-2772

Local Distributors

IL Wheeling, Hawk Elctrns., Inc. 718-459-4030
NY Elmsford, Kintronics, Inc. 914-347-2530

DATAMEDIA CORPORATION, 11 Trafalgar Square, Nashua, NH 03063, Tel: 603-886-1570; Empl.: 300; *Sls. Mgr.:* Dan Caldwell

DATA MEGA INC.

FAX: 708-860-3672

DATA MEGA INC., Mega Data, 790 Maple Lane, Bensenville, IL 60106, Tel: 708-860-6501 ..... **D•1087-1089**

DATA POWER, See Beaver Labs

DATAPROBE, 170 Coolidge Ave., Englewood, NJ 07631, Tel: 201-569-6464, TELEX: 200679-PROB-UR, FAX: 201-894-0939; Empl.: 30; *Sls. Mgr.:* D. Weiss; *Dist. Mgr.:* S. Weiss

DATAPRODUCTS CORPORATION, 6200 Canoga Ave., Woodland Hills, CA 91367-2499, Tel: 818-888-4014, TELEX: 67-4734, FAX: 818-887-4789; Empl.: 3500; *Sls. Mgr.:* Paul Depa; *Dist. Mgr.:* John Thorse

DATAPRODUCTS NEW ENGLAND, INC., 50 Barnes Park North, Wallingford, CT 06492, Tel: 203-265-7151, FAX: 203-265-7801; FSC No.: 96238; Empl.: 300; *Sls. Mgr.:* Robert Griffith

DATAQ INSTRUMENTS, INC., 825 Sweitzer Ave., Akron, OH 44311, Tel: 216-434-4284 , 800-553-9006, TELEX: 6502817028, FAX: 216-434-5551

DATA RACE, INC., 11550 IM-10 West, Ste. 395, San Antonio, TX 78230, Tel: 512-558-1900, FAX: 512-558-1929; Empl.: 50; *Sls. Mgr.:* Garrick C. Colwell

DATARAM CORP., P. O. Box 7528, Princeton, NJ 08543-7528, Tel: 609-799-0071, 800-822-0071, TWX: 510-685-2542, FAX: 609-799-6734; Empl.: 120; *Sls. Mgr.:* Carl Anderson, Sls. V.P.

DATA RAY

FAX: 303-451-1143

DATA RAY CORP., 12300 Pecos, Westminster, CO 80234, Tel: 1-800-926-5556, 303-451-1300; Empl.: 100; *Sls. Mgr.:* A. Woodley ..... **B•1050-1053**

Local Sales Offices & Reps

CA Seal Bch., Texel 213-596-9411
OR Beaverton, Olson Tech. Sls. 503-643-9488
WA Bellevue, Olson Tech. Sls. 206-883-7792
Can Vancouver, Olsen Tech. Sls. 604-980-5801

DATA SET CABLE CO., INC., 748 Danbury Rd., Ridgefield, CT 06877, Tel: 203-438-9684, TWX: 710-467-0668, FAX: 203-431-4657; Empl.: 70; *Sls. Mgr.:* T. Busch

DATASOUTH COMPUTER CORP., 4216 Stuart Andrew, P.O. Box 240947, Charlotte, NC 28217, Tel: 704-523-8500, TELEX: 6843018, FAX: 704-523-9298; Empl.: 140; *Dist. Mgr.:* Ann Vetas, National Accounts Mgr.

DATA SPECIALTIES, INC., See Zebra Technologies Corp.

DATA TECH, DIV. OF PENRIL CORP., See Moisture Register Products Div., Aqua Measure Instrument Co.

DATA TECHNOLOGY, INC., 4 Gill St., Woburn, MA 01811, Tel: 617-935-8820, FAX: 617-935-9656; Empl.: 45; *Sls. Mgr.:* L. Rizzo

DATATRAN CORP., 355 Yuma St., Denver, CO 80223, Tel: 303-778-0870, FAX: 303-778-0877; Empl.: 17; *Sls. Mgr.:* Cindi L. Kemper; *Dist. Mgr.:* Cindi L. Kemper

DATA TRANSLATION, INC., 100 Locke Dr., Marlboro, MA 01752, Tel: 508-481-3700, TELEX: 951646, FAX: 617-481-8620; FSC No.: 61867; Empl.: 270; *Sls. Mgr.:* Pam Nelson; *Dist. Mgr.:* Lori Dustin

DATATRONICS, INC., 28151 Highway 74, Romoland, CA 92380, Tel: 714-928-7700, FAX: 714-928-7701

For all States not listed, please contact factory in Romoland,CA 714-928-7700 For all states not listed, please contact factory in Romoland, CA 714-928-7700

DATATRONIC SYSTEMS CORP., Computer Sciences Div., Bx 44128 EEM/NMR, Panorama City, CA 91412-0128, Tel: 818-988-5290; Empl.: 150

DATAWARE ELECTRONICS INC., 8227 44th Ave. West, Mukilteo, WA 98275, Tel: 206-742-8577, FAX: 206-742-8900

DATAWRAP, INC., 37 Water St., Wakefield, MA 01880, Tel: 617-246-5757, FAX: 617-246-5758; Empl.: 16; *Sls. Mgr.:* Tony Lockwood

Local Sales Offices & Reps

FL Melbourne, R REP 407-242-9800
NY Great Neck (East), F & F Metro 516-482-4080
OH Mount Orab, Benjenn Engrg. 513-444-3175
NY Syracuse (West), Labtronics 315-455-7314

DA-TECH CORP., 141 Railroad Drive, Ivyland, PA 18974, Tel: 215-322-9410, FAX: 215-322-9730; Empl.: 110; *Sls. Mgr.:* Bradford W. Bentz

DATEL

FAX: 508-339-6356

DATEL, INC., 11 Cabot Blvd., Mansfield, MA 02048-1194, Tel: 508-339-3000, TELEX: 174388; Empl.: 550; *Sls. Mgr.:* A. Risley ..... **D•1158-1162**

Local Sales Offices & Reps

AL Huntsville, Hughes Assocs. Inc. 205-533-9108
AZ Phoenix, Tech. Sls. 602-246-1614
CA San Diego, Bestronics of San Diego .. 619-693-1111
CA Santa Clara, W. J. Electrns. 408-982-9222
CO Denver, Elcom, Inc. 303-337-2300
CT Hamden, Datcom 203-288-7005
CA La Mirada, Select Elctrns. 213-921-5159
FL Largo, Q-Rep 813-397-8431
GA Norcross, Hughes Assocs. Inc. 404-662-1587
IL Inverness, Carvel Engrg. & Sls. 708-934-9600
IN Indianapolis, Wilson Tech. Sales 317-872-2513
KS Lenexa, Midtec Assocs. 913-541-0505
MD Burtonsville, Chesapeake Technlg., Inc. 301-236-0530
MA Waltham, Datcom 617-891-4600
MI W. Bloomfield, Infinity, Inc. 313-932-1179
MN Edina, Mel Foster Tech. Sls., Inc. 612-941-9790
MS Corinth, Hughes Assocs., Inc. 601-287-2915
MO St. Louis, Midtec Assocs. 314-275-8666
NJ Haddenfield, G. L. Williams Assocs. ... 609-428-6060
NY Clark Mills, KLM-Garner 315-853-6126
NY Elmont, Crane & Egert 516-872-0800
NC Cary, Hughes Assocs., Inc. 919-467-7029
OH Cincinnati, Arthur Baier Co. 513-779-2395
OH Cleveland, Arthur Baier Co. 216-461-6161
OH Columbus, Arthur Baier Co. 614-764-1144
OH Dayton, Arthur Baier Co. 513-276-4128
PA Pittsburgh, Arthur Baier Co. 412-367-7799
TN Knoxville, Hughes Assocs, Inc. 615-558-0283
TX Carrollton, Tech. Mktg., Inc. 214-387-3601
TX Houston, Technical Mktg, Inc. 713-783-4497
TX Round Rock, Technical Mktg, Inc 512-244-2291
UT Murray, Elcom, Inc. 801-262-2400
WA Bellevue, Advanced Power Comps. ... 206-747-9127
WA Seattle, Advanced Power Comps. 206-527-7945
WA Spokane, Advanced Power Comps. ... 206-928-7959
WA Vancouver, Advanced Power Comps. 206-896-4239
WI New Berlin, Carvel Engrg. & Sls. 414-784-7007
Can Calgary, Alb., Future Elctrns. 403-250-5550
Can Downsview, Ont., Future Elctrns. 416-638-4771
Can Pointe Claire, Que., Future Elctrns. 514-694-7710
Can Winnipeg, Man., Future Elctrns. 204-786-7711

DATRICON, Scientific Technologies, Inc., 31069 Genstar Rd., Hayward, CA 94544, Tel: 415-471-9717, FAX: 415-471-9752; Empl.: 42

DATRON INSTRUMENTS, A Wavetek Company, Hurricane Way, Norwich, England, United Kingdom NR6 6JB, Tel: 603-404824, TELEX: 851975173, FAX: 603-483670

DATRON SYSTEMS, INC., 200 West Los Angeles Ave., Simi Valley, CA 93065-1650, Tel: 805-584-1717, TWX: 910-494-2787, FAX: 805-526-0885; FSC No.: 32255; Empl.: 175; *Sls. Mgr.:* Chester Rowley

FAX: 714-533-6345

DATUM TIMING, Datum Inc., 1363 S. State College Blvd., Anaheim, CA 92806-5790, Tel: 714-533-6333, ESYLNK: 714-533-6345; FSC No.: 31160; Empl.: 280; *Sls. Mgr.:* Charles Neumann ..... **D•1067, 1120, 1164-1167**

Local Sales Offices & Reps

AL Huntsville, Southern Mktg. Assocs. Ltd. 205-534-6020
AK Anchorage, Dryden Instrmn. 907-344-4995
CA Anaheim, Datum 714-533-6333
CA San Diego, M. Ficken 619-292-9392
CA Santa Clara, Ward/Davis Assocs. 408-245-3700
CO Littleton, Vic Meyers Assocs. Inc. 303-730-7313
CT Mt. Carmel, Scientific Dvcs.- Connecticut 203-248-9361
FL Longwood, Southern Mktg. Assocs. Ltd. 407-682-7317
FL Satellite, Southern Mktg. Assocs. Ltd. 407-777-3587
GA Marietta, Southern Mktg. Assocs. Ltd. 404-565-0603
IL Des Plaines, Marsland Assocs. 312-298-2620
IN Brownsburg, Marsland Assoc. 317-852-8688
IA Marion, Marsland 319-373-0566
LA Metairie, Data Mktg. Assocs. 504-833-3655
MA Waltham, Scientific Devices-New England 617-890-2252
WI New Berlin, Marsland 414-786-6611
MN Minneapolis, Marsland Assocs. 612-545-4481
MO St. Louis, Marsland Assocs. 314-991-1399
NJ Haddonfield, G. L. Williams Assocs. ... 609-428-6060
NJ Union, Friedman Assocs., Inc. 201-964-6200
NM Albuquerque, Vic Meyers Assocs. Inc. 505-884-6878
NY Frankfort, Kapital Instr. Sls. 315-894-4245
NC Durham, Southern Mktg. Assoc. Ltd. .. 919-479-6034

OH Dublin, Micro Sls. Corp. 614-792-9117
TX Austin, Data Mktg. Assocs. 512-338-4701
TX Dallas, Data Mktg. Assocs. 214-661-0300
TX Houston, Data Mktg. Assocs. 713-579-2995
TX San Antonio, Data Mktg. Assocs. 512-342-3031
UT Salt Lake City, Vic Meyers Assocs. Inc. 801-581-1760
MD Columbia, Creative Mktg. Assocs. 301-880-4161
WA Seattle, Comptronics 206-284-4842

DAVIDGE CORPORATION, 94 Commerce Dr., Buellton, CA 93427, Tel: 805-688-9598, FAX: 805-688-3306; Empl.: 6; *Sls. Mgr.:* Dean Davidge

DAVIES, HARRY, MOLDING CO., 4920 Bloomingdale Ave., Chicago, IL 60639, Tel: 312-622-8966; FSC No.: 72512; Empl.: 113; *Sls. Mgr.:* Leo A. Sera; *Dist. Mgr.:* Leo A. Sera

DAVIS INSTRUMENTS MFG. CO., INC., 4701 Mt. Hope Drive, Baltimore, MD 21215, Tel: 800-368-2516, FAX: 301-358-0252

DAYCO PRODUCTS, INC., P.O. Box 1004, Dayton, OH 45401-1004, Tel: 513-226-5926, TELEX: 288219, TWX: 810-459-1822; Empl.: 6000

DAYTRONIC CORP., Hawker Siddeley, 2589 Corporate Pl., Miamisburg, OH 45342, Tel: 513-866-3300, TWX: 810-473-2978, FAX: 513-866-3327; Empl.: 180; *Sls. Mgr.:* Ronald J. Toke

DBA SYSTEMS, INC., P.O. Drawer 550, Melbourne, FL 32902-0550, Tel: 305-727-0660, TELEX: 56-4383; Empl.: 740

DCI

FAX: 913-782-5766

DCI INC., 14812 W. 117th Street, P.O. Box 215, Olathe, KS 66062, Tel: 913-782-5672; FSC No.: 58677; Empl.: 35; *Sls. Mgr.:* Larry Shelton ..... **B•1054; D•1342**

Local Sales Offices & Reps

FL Sarasota, REP USA 813-923-2897
MA Pembroke, R.G. Assocs., Inc. 617-293-5233
MA Lowell, R.G. Assocs., Inc. 508-458-9802
NY Pittsford, L-Tron 716-383-0050
WA Seattle, Brett Assocs., Inc. 206-328-6900

Panel Meters

AZ Phoenix, J.Smith & Assoc. 602-267-0981
CA Los Angeles, Power Partners 213-215-0800
CA Mtn. View, XEL 415-969-1222
CO Colorado Springs, J. Smith & Assoc. .. 719-597-5343
CT Tolland, R.G. Assoc. 203-875-4201
FL Sarasota, REP USA 813-923-2897
IL Chicago, Commodore I 312-394-5441
IL Rolling Meadows, Commodore I-Inc. .. 708-394-5441
MO Raytown, Vertec Assocs., Inc. 816-737-0377
MI Clarkston, Bradcor Elctrns. 313-325-0941
MN Minneapolis, Trask Engrg. 612-537-2434
NJ Manchester, Vertec 314-394-6242
NV Las Vegas, Jim Smith & Assocs., Inc. 702-798-5053
NJ Cherry Hill, Analectro, Inc. 800-795-6676
NM Albuquerque, J. Smith & Assoc. Inc. 505-345-6501
NM Albuquerque, Jim Smith & Assocs., Inc. 505-345-6501
NC Charlotte, Zelco Assocs. Inc. 704-541-6122
NC Charlotte, Zelco Assocs., Inc. 704-541-6122
MI Clarkston, Bradcor Elctrns. 313-325-0941
OH Cleveland, Bradcor Elctrns. 216-671-1200
TX Dallas, Meas., Inc. 214-661-8292
TX Dallas, Measurements, Inc. 214-661-8292
Can Montreal, Que., Morrison & Force Dvcs. 514-737-0072

Displays

FL Longwood, CBC Elctrns. 407-831-5380
GA Norcross, The Novus Grp. 404-263-0320
IL Elmhurst, Utronix Sls. Inc. 312-834-1100
KS Olathe 913-829-2800
MI Clarkston, Bradcor Elctrns. 313-325-0941
MO Manchester 314-394-6242
MO St. Louis, Technical Sls. Assocs. 314-521-2044
NV Las vegas 702-798-5053
NJ Cherry Hill, Analectro, Inc. 800-247-3581
NY Pittsford, L-Tron Corp. 716-383-0050
NC Gary, The Novus Grp. 919-460-7771
OH Cleveland, Bradcor Elctrns. 216-671-1200
OR Portland 503-241-9776
RI Warwick, Ertronics, Inc. 401-732-3567
TX Dallas, Kay Todd Assocs. 214-458-8833
Can St.Laurent, Que., Componetics 514-331-9930

DDI INC., 5 Dodge St., Ste. 310, Beverly, MA 01915-1703, Tel: 508-927-7976, FAX: 508-921-6388; Empl.: 4; *Sls. Mgr.:* Erik Valeur; *Dist. Mgr.:* Erik Valeur

DDK

FAX: 416-470-1479

DDK ELECTRONICS, INC., 401 Bentley Street , Markham, Ont., Canada L3R 9T2, Tel: 416-470-1346; Empl.: 25; *Sls. Mgr.:* Steven Norton ..... **C•1337-1345**

Local Sales Offices & Reps

CA Fremont, DDK Elctrns., Inc. 415-226-0400
CA Laguna Hills, DDK Elctrns., Inc. 714-455-9874
CT Guilford, DDK Elctrns. 203-458-2563
NC Cary, DDK Elctrns., Inc. 919-460-8577
TX Dallas, DDK Elctrns., Inc. 214-480-1346
Can Markham, DDK Elctrns. 416-470-1346

Local Distributors

IL Bensenville, Voyager Elctrns. 708-860-1300
MN Fridley, Voyager Elctrns. 708-860-1300
OH Akron, AESCO 216-762-8818
TX Richardson, Altair 214-231-5166
UT Salt Lake City, Kimball Elctrns. 801-328-2075
Can Montreal, Elctrn. Wholesalers 514-769-8851

DEAK TECHNOLOGY, INC., See Elpaz Instruments, Inc.

DE ANZA MFG. SVCS. INC., 310 E. Caribbean Dr., Sunnyvale, CA 94089, Tel: 408-734-2020, FAX: 408-734-2580; FSC No.: 5935 & 5965; Empl.: 100; *Sls. Mgr.:* Michael A. Takahara

DEARBORN WIRE & CABLE, INC., 250 W. Carpenter, Wheeling, IL 60090, Tel: 708-459-1000, 800-323-0198, FAX: 708-459-0170; FSC No.: 28105; Empl.: 135; *Sls. Mgr.:* Ray Grabowski; *Dist. Mgr.:* Donna Kudlicki

DE COURSEY ENGINEERING LABORATORY, 11828 W. Jefferson, Culver City, CA 90230, Tel: 213-EX7-9668; Empl.: 7

DEGUSSA CORP., Temperature Sensing Products, 104 New Era Drive, So. Plainfield, NJ 07080, TELEX: 4754247, FAX: 908-757-8561; FSC No.: 630673043; *Sls. Mgr.:* Ron Fichter

DEI, 230 N. Market Pl., Escondido, CA 92029, Tel: 619-743-8344, FAX: 619-743-5297; Empl.: 30; *Sls. Mgr.:* Matt Pedote

DEK, INC., 3840 Swenson Drive, St. Charles, IL 60174, Tel: 708-377-2575, FAX: 708-377-0372; Empl.: 115; *Sls. Mgr.:* Mark N. Cohen

DELBERT BLINN CO., Box 2007, Pomona, CA 91769, Tel: 714-629-3900, FAX: 714-622-6218; Empl.: 6

DEL

FAX: 914-699-4005

DEL ELCTRNS. CORP., 250 E. Sandford Blvd., Mt. Vernon, NY 10550, Tel: 914-699-2000, TWX: 710-562-0130; FSC No.: 01378; Empl.: 95 .. **A•1056-1057, 2200; D•1700-1705**

Local Sales Offices & Reps

CA Alhambra (So. CA), M.W.Riedel & Co. 213-283-7694
CA Santa Clara (N.CA), Sourcetronics, Inc. 408-988-8801
MA Burlington, Tritek Inc. 617-272-4550
PA Glenside, Koebert Assoc. 215-887-2310
WV Inwood, Koebert Assoc. 304-229-8401
MD Kensington, Koebert Assoc. 301-493-8924

DELEVAN DIV., American Precision Inds. Inc., 270 Quaker Rd., E. Aurora, NY 14052-0449, Tel: 716-652-3600, FAX: 716-652-4814; FSC No.: 99800; Empl.: 300; *Sls. Mgr.:* Denis Kohlhagen ..... **A•1202-1205**

Local Sales Offices & Reps

AL Decatur, El Tech 205-353-7899
AZ Phoenix, Toward Engrg. 602-955-3193
CA Chatsworth, First Rep. of S. CA 818-718-6155
CA Milpitas, Advanced Technlg. Sls. 408-946-4111
CA Solana Bch, Cerco 619-792-5555
CO Parker, TMA 303-841-3435
FL Deerfield Bch., Electro Comp. 305-429-0802
IL Downers Grove, Momak Sls. 312-963-6400
IN Fort Wayne, Liberty Sls. 317-888-8396
IN New Albany, Liberty Sls. 317-888-8396
IA Cedar Rapids, C. Horn & Asst. 319-393-8703
KS Parker, S. W. Wollard 913-898-6552
MD Lutherville, D. A. Dougherty Sls. Co. ... 301-321-7890
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CA Irvine, ITT Multicomponents 714-727-4001
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CA Santa Clara, Trinity Elctrns. 408-980-9014
CA Stanton, Inductive Comps. 716-828-3420
FL Ft. Lauderdale, Bros. Elec. of Fl 800-342-6700
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NJ E. Brunswick, Brothers Elctrns. 201-238-2200
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NY Plainview, ACI Elctrns. 516-293-6630
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Can Burnaby B.C., R-A-E Indl. Elctrns. Ltd. 604-291-8866
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DELTA CONTROLS CORP., 585 Fortson St., Shreveport, LA 71107, Tel: 318-424-8471, TELEX: 784554, FAX: 318-425-2421; Empl.: 32; *Sls. Mgr.:* Howard Entwistle, V.P. Sls.

DELTA WIRE & CABLE CO., 2550 Commonwealth Ave., P.O. Box 833, North Chicago, IL 60064, Tel: 708-473-4990, FAX: 708-473-2425; Empl.: 12; *Sls. Mgr.:* Perry Stein

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CA San Diego, Falcon Sls., Technlg. 619-591-0504
CA Santa Clara, Gagner-Toomey Assocs. 408-244-2200
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CO Denver, Moss Mkt. 303-340-8535
IL Rolling Meadow, Eagle Tech. Sls. 708-991-0700

IL Wheeling, United Prods. Co. 312-459-1222
MA Burlington, Kitchen & Kutchen 617-229-2660
MN Edina, Hanna Lind Ltd. 612-925-5700
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OH Shaker Hgts., Omega Sls., Inc. 513-434-5507
OH University Hgts., Omega Sls.-Cleveland 216-751-9600
OK Tulsa, Advance Tech. Sls. 918-664-0482
OR Portland, Turn Around Sls. 503-640-4641
PR San Juan, Elctrn. Tech. Sls. 809-720-1300

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AZ Phoenix, Future Elctrns. 602-968-7140
CA Buena Park, Cypress Elctrns. 714-521-5230
CA Fullerton, Kent Elctrns. 714-773-0781
CA San Diego, Cypress Elctrns. 619-535-0011
CA San Diego, Sigma Elctrns. 619-565-2000
CA San Jose, Compass Comp. 408-432-7575
CA San Jose, Sierra West 408-435-7477
CA Santa Clara, Cypress Elctrns. 408-980-2500
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DELTEC, 2727 Kurtz St, San Diego, CA 92110, Tel: 619-291-4211, 800-854-2658, TELEX: 910-335-1241, FAX: 619-299-6124; FSC No.: 52297; Empl.: 250; *Sls. Mgr.:* Jeff Frank; *Dist. Mgr.:* Gary Page

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CA Santa Clara, Gagner-Toomey Assocs. 408-244-2200
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IL Elk Grove Village, Tristar Group 708-593-0200
IN Ft. Wayne, Nationwide Comps. 219-423-9535
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MO Chesterfield, Weisler & Assocs. 314-537-0010
NY Pt. Washington, Ashtec Inc. 516-767-0336
NY Rochester, Omni Sls. 716-248-0340
NC Charlotte, JWL Assocs. 704-541-5750
OH Willoughby, Nationwide Comps. 216-946-3226
PA Valley Forge, Providence Mktg. 215-935-3300
RI Warwick, Cannon Assoc. 401-732-1570
TX Houston, Weisler & Assocs. 713-467-1862
WA Redmond, Halbar-PNW, Inc. 206-882-0990
Can Pointe Claire, Nobel-Teck Inc. 514-695-7498

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AR Little Rock, Carlton-Bates Co. 501-562-9100
CA Anaheim, Control Design 714-821-1516
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CA San Jose, Consolidated Parts 408-435-1200
CA Tustin, Western Switches 714-259-8144
CA Van Nuys, Wes-Garde Comps. 213-873-4802
CO Denver, Integrated Elctrns. 303-292-6121
CT Hartford, Hatry Elctrns. 203-527-1881
CT Waterbury, Century Elec. 203-755-0405
FL Altamonte Springs, Control Des. 407-788-3220
FL Ft. Lauderdale, SE Elctrns. 305-563-4131
FL Lakeland, Wes-Garde Comps. 813-644-7564
FL Orlando, EMSCO 407-849-6362
GA Stone Mountain, Control Des. 404-979-3500
IL Bensenville, Gould Elctrns. 708-860-7171
IL Geneva, Melvin Elctrns. 708-232-7300
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IA Dubuque, Miller Elec. Supp. 319-588-1469
IA Marion, Control Des. 319-373-2923
IA West Des Moines, Ramco Co. 515-225-6933
KS Kansas City, Kornfield Thorp Elec. 913-321-7070
KS Wichita, Kriz-Davis Co. 316-267-4354
KY Louisville, Peerless Elctrn. Equip. 502-637-7674
MD Aberdeen, Harco Elctrns. 301-838-7990
MA Brighton, Interstate Elctrns. Equip. 617-782-9000
MA Westborough, In Stock Prods. 508-870-5750
MI Jackson, Fulton Radio Supp. 517-784-6107
MI Madison Hgts., Galco Indl. Elctrns. 313-542-9090
MN Minneapolis, Control Design 612-721-6555
MO St. Louis, Wes-Garde Comps. 314-567-7776
NH Keene, Tradesmen Elctrl. Supp. 603-352-1205
NJ Oakland, Relay Specialties 201-337-1000
NJ Raritan, Masters Elctrn. 201-725-3533
NY Hauppauge, Broadline Elctrns. 516-231-4100
NY Hempstead, Davis Elctrns. 516-483-9200
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NY Vestal, Wholesale Elec. Supp. 607-729-1526
ND Fargo, WESCO 701-232-4446
ND Minot, J.I. Company 801-852-4466
OH Akron, AESCO Elctrns. 216-762-8818
OH Willoughby, Gateway Megatech 216-953-0333
OK Ardmore, Ardmore Elec. Supp. 405-223-3571
OK Tulsa, Radio, Inc. 918-587-9123
OR Portland, Dunn Elec. 503-285-0214
PA Erie, Rem Elctrns. 814-453-5626
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PA Philadelphia, Lindley Elec. 215-329-7005
TX Dallas, Control Design 214-358-1441
TX Lubbock, R & R Elec. Co. 806-765-7727
TX San Antonio, Blackburn Drives Controls 512-349-2621
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VA Glen Allen, Hermitage Distrs. 804-550-3030
VA Staunton, Southern Elec. 703-886-6218
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WI New Berlin, Control Design 414-784-1015

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FAX: 213-534-8419

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CT W. Hartford, Nova Assocs. (M-R Tech. Sls.) 203-521-2101
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GA Acworth, E.A.B., Inc. 404-975-3660
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PA Wynnewood, Metz-Benham Assocs., Inc. 215-896-7300
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Can Mississauga, Ont., IntelaTech 416-629-0082

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MA Wayland, M. L. Assocs. 508-358-5540
MI Ferndale, Detroit Coil Co. 313-398-5600
MN Little Canada, Assured Sls. 612-482-1309
NJ Morristown, Andrews & Andrews 201-569-8800
NY Glen Head, Andrews & Andrews 516-692-8686
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WA Kent, C. B. Parsons Co. 206-762-7373

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DEXTER SCIENTIFIC, 308 Benham St., Palatka, FL 32177, Tel: 904-328-2450; Empl.: 1

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FL Oviedo, Panamtech Inc. 407-679-5506
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IA Cedar Rapids, Lowell-Kangas & Assoc. 319-362-9290
KS Shawnee, Lowell Kangas & Assocs. .. 913-631-3515
LA Covington, Cartwright & Bean 504-892-1780
MA Chelmsford, John E. Boeing Co., Inc. .. 508-256-5800
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MN Minneapolis, Professional Sales For Ind. 612-944-8545
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NC Raleigh, Cartwright & Bean 919-876-4130
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PA Warrendale, Baehr, Greenleaf & Assocs. 412-934-3088
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TN Nashville, Cartwright & Bean 901-362-8345
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TX Houston, Tesco, Inc. 713-690-4909
VA Earlysville, L.D. Lowery, Inc. 804-973-6672
WA Redmond, Earl & Brown Assocs. 206-885-5064
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Can Mississauga, Ont., Longman Sls., Inc. 416-670-8100
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CA Gardena, California Switch 213-770-2330
CA Los Angeles, Bell Inds. 213-826-6778
CA Santa Clara, Cypress Elctrns. 408-980-8400
CO Denver, CSID 303-292-9594
FL Orlando, EMSCO 407-849-6362
FL Orlando, Hammond Elctrns. 407-849-6060
GA Norcross, Dow Elctrns. 404-448-4004
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IL Palatine, Ohm Elctrns. 708-359-5500
IL Peoria, Klaus Radio, Inc. 309-691-4840
LA Lafayette, Ralph's of Lafayette 318-233-0105
LA New Orleans, Southern Radio 504-524-2343
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NY Buffalo, Summit Distrs. 716-887-2800
NY Elmsford, Ancar Elctrns. 914-592-7100
NY Hauppauge, Broadline Elctrns. 516-231-4100
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NY Melville, Arrow Elctrns. 516-391-1300
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OH Columbus, Hughes-Peters, Inc. 614-294-5351
OH Dayton, Stotts Friedman 513-298-5555
OH Warren, Rem Elctrn. Supp. 216-373-1300
OK Tulsa, Radio, Inc. 918-587-9123
PA Philadelphia, PEI/Genesis 215-673-0400
PA Reading, Barbey Elctrns. 215-376-7451
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TX Dallas, Norvell Elec., Inc. 214-233-0020
TX Houston, Harrison Equip. Co. 713-879-2600
VA Charlottesville, Virginia Elctrns. 804-296-4184
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WI Milwaukee, Marsh Elctrns. 414-475-6000
Can Don Mills, Ont., Saynor Varah 714-895-0060
Can Edmonton, Alb., Cardinal Ind. Elec. 403-483-6266
Can Willowdale, Ont., Electro Sonic 416-494-1666

DIANACHART INC., 101 Round Hill Dr., Rockaway, NJ 07866, Tel: 201-625-2299, FAX: 201-625-2449; Empl.: 10; *Sls. Mgr.:* B. McWilliams

DI/AN CONTROLS, INC., 16 Jonathan Drive, Brockton, MA 02401, Tel: 508-599-8000, FAX: 508-599-8658; FSC No.: 06900; Empl.: 25; *Sls. Mgr.:* Raymond Stafford

DICKINSON USA INC., Dickinson Manufacturing Co. Ltd., 11324 Mukilteo Speedway, Lynnwood, WA 98037, Tel: 206-742-3677, 800-659-9768, In Canada 604-525-6444, FAX: 206-347-8502; Empl.: 30; *Sls. Mgr.:* Robert Farr

DIELECTRIC COMMUNICATIONS, General Signal, Tower Hill Rd., Raymond, ME 04071, Tel: 207-655-4555, 800-341-9678, TELEX: 710-229-6890, FAX: 207-655-4669; FSC No.: 08441; Empl.: 220; *Sls. Mgr.:* Rolf Olsen

DIELECTRIC LABS., Rte. 20 E., Cazenovia, NY 13035, Tel: 315-655-8710, TELEX: 882-691 Dielectric Labs., FAX: 315-655-8179; FSC No.: 55153; Empl.: 100; *Sls. Mgr.:* Gunter Vorlop

DIE-TECH INC., 295 Sipe Rd., RDI, York Haven, PA 17370, Tel: 717-938-6771, FAX: 717-938-6099 ..... **C•1347**

DIETERICH STANDARD, A Dover Industries Company, P.O. Box 9000, Boulder, CO 80301, Tel: 303-530-9600, FAX: 303-530-7064; Empl.: 105; *Sls. Mgr.:* Robert Heiser; *Dist. Mgr.:* Robert Heiser

DIETZ DESIGN, INC., 100 Electronics Pkwy., Belton, MO 64012, Tel: 816-331-4911, FAX: 816-331-4914; FSC No.: 93652; Empl.: 75; *Sls. Mgr.:* Chas. A. McMurray

DIGI-DATA CORP., 8580 Dorsey Run Rd., Jessup, MD 20794, Tel: 301-498-0200, TELEX: 87-580, FAX: 301-498-0771; Empl.: 40; *Sls. Mgr.:* Allen Grams

DIGI-KEY CORP., 701 Brooks Ave. South, Thief River Falls, MN 56701-0677, Tel: 218-681-6674, 1-800-344-4539, FAX: 218-681-3380

DIGITAL DATA SYSTEMS, 1551 N.W. 65 Ave., Ft. Lauderdale, FL 33313, Tel: 305-792-3290, TWX: 910-997-4751 (Digital), ESYLNK: 62756087, FAX: 305-581-13; FSC No.: 65136; Empl.: 20

DIGITAL DYNAMICS, INC., 5274 Scotts Valley Dr., Scotts Valley, CA 95066, Tel: 408-438-4444; FSC No.: (S.I.C. Code – 3823); Empl.: 15

DIGITAL EQUIP., One Iron Way, Marlborough, MA 01752

DIGITAL MOTOR, INC., 1075 N.W. Murray Rd., Ste. No. 255, Portland, OR 97229-5501, Tel: 503-629-9692, FAX: 503-690-9876; Empl.: 6

DIGITAL PRODUCTS, INC., 108 Water Street, Watertown, MA 02172, Tel: 617-924-1680, 800-243-2333, TELEX: 312345, FAX: 617-924-7814; Empl.: 100; *Dist. Mgr.:* Neil Peterson

DIGITAL RADIO CORP., 601 S. Pacific Coast Hwy., Redondo Beach, CA 90277, Tel: 213-316-4114, FAX: 213-543-1256; Empl.: 27; *Sls. Mgr.:* Arvin L. Perry

DIGITEC, 959 Cheney Ave., Marion, OH 43302, Tel: 614-387-3444, TELEX: 3775688; FSC No.: 16152; Empl.: 45; *Sls. Mgr.:* Bruce Poplin; *Dist. Mgr.:* Bruce Poplin

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FAX: 714-391-4558

DIGITRAN DIVISION, Xcel Corporation, 4290 E. Brickell St., Ontario, CA 91761, Tel: 714-391-4321; FSC No.: 07126; Empl.: 300; *Sls. Mgr.:* W. Miller; *Dist. Mgr.:* Kathy Simonds ..... **B•1680, 1805**

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AL Huntsville, Comp. Distrs. 205-883-7501
AL Huntsville, Powell Elec. 205-539-2731
AZ Tempe, Powell Elctrns. 602-967-7538
AR Little Rock, Comp. Distrs. 501-227-6278
CA Cerritos, El-Com 213-404-2961
CA Fullerton, Pyramid 714-773-0781, 213-691-0561
CA San Diego, El-Com 619-578-0900
CA San Jose, Powell Elctrns. 408-943-9020
CA Santa Clara, Pyramid Elec. 408-727-9810
CT Hamden, Impact Elctrns. 203-281-1331
FL Ft. Lauderdale, Comp. Distrs. 305-971-4950
FL Ft. Lauderdale, Powell Electr./Fla. 305-972-4300
GA Norcross, Comp. Distrs. 404-441-3320

IL Mt. Prospect, Magnuson Elctrns. 312-956-0700
IN Indianapolis, Graham Elec. 317-634-8202
MD Columbia, Powell Electr. 301-621-4070
MA Canton, Impact Sls. Co. 617-821-1500
MA West Borough, Powell Electrns. 617-336-6100
MI Livonia, Pioneer/Michigan 313-525-1800
MI St. Clair Shores, Specialties Mfg. 313-771-2700
MN St. Paul, Magnuson Elec. 612-227-8495
NJ Hasbrouck Hgts., Tory Sls. 201-288-5656
NY Rochester, Modutex Corp. 716-647-9700
NC Cary, Powell Elec. 919-467-1212
NC Raleigh, Comp. Distrs. 919-834-9465
PA Philadelphia, Powell Electr. 215-365-1900

DILL INSTRUMENTS INC., 436 W. Willard, Kalamazoo, MI 49005, Tel: 616-388-5708, FAX: 616-388-5704; Empl.: 10; *Sls. Mgr.:* Terry Simpson; *Dist. Mgr.:* Robert Boyle

DILLON, Weigh-Tronix, Inc., 1000 Armstrong Dr., Fairmont, MN 56031, Tel: 507-238-4461, TELEX: 756594, FAX: 507-238-4195; Empl.: 500; *Sls. Mgr.:* Randy Newlin; *Dist. Mgr.:* Tom Gallagher

DILOG, 1555 S. Sinclair St., Anaheim, CA 92806, Tel: 714-937-5700, 1-800-DILOG 32, TELEX: 6836051, FAX: 714-978-2420; FSC No.: 95-3205555; Empl.: 250; *Sls. Mgr.:* Dennis Edwards

DILWOL WIRE & CABLE INC., 435 Enfield Rd., Burlington, Ont., Canada L7T 2X5, Tel: 416-681-2343, FAX: 416-681-8440; *Sls. Mgr.:* J. R. Mattie

DIMCO-GRAY, 8200 S. Suburban Rd., Dayton, OH 45458, Tel: 513-433-7600, FAX: 513-433-0520; Empl.: 120; *Sls. Mgr.:* James L. Harl

DIMENSIONS UNLIMITED, INC., 1636 Gervais Ave., St. Paul, MN 55109, Tel: 612-770-5630, FAX: 612-770-0847; *Sls. Mgr.:* David Flod

DIODES INC., 9957 Canoga Ave., Chatsworth, CA 91311, Tel: 818-882-4920, 800-821-1178, FAX: 818-341-1736; FSC No.: 12060; Empl.: 55; *Sls. Mgr.:* Marvin Zidel; *Dist. Mgr.:* Sue Reinish ..... **A•2093**

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AL Huntsville, Hughes Assocs. 205-533-9108, FAX:205-533-4667
AZ Phoenix, Sanford Sls. 602-957-3570, FAX:602-955-2836
CA Los Angeles, Landa & Assoc. 213-879-0770, FAX:213-478-0190
CA Los Gatos, Norcal 408-356-7771
CA San Diego, Costal Elctrns. Sls. 619-459-4148, FAX:619-454-2611
CA Santa Ana, Landa & Assocs. 714-543-7805, FAX:714-543-1380
CO Denver, AKI Entprs. 303-388-4488
FL Maitland, Hughes Assocs. 407-629-5933
FL Tamaroc, Hughes Assocs. 305-720-1674
GA Norcross, Hughes Assocs. 404-662-1587, FAX:404-662-1561
IL Highland Park, Bransky Sls. 708-433-2375, FAX:708-433-2377
IL McHenry, Mesa 815-344-2820:FAX:815-344-2730
IN Indianapolis, Mktg. Engrs. Inc. 317-872-5665, FAX:317-872-5668
IA Cedar Rapids, KKB & Co. 319-373-1730, FAX:319-373-2019
KY Louisville, Mktg. Engrs. Inc. 502-267-7093, FAX:502-267-6533
MD Randallstown, Beacon North 301-655-2265
MA Needham Heights, The Newscott Co., Inc. 617-444-1923,FAX:617-449-4689
MI Farmington Hills, J.L. Montgomery Assoc. 313-489-0099,FAX:313-489-0189
MN St. Paul, Proud Inds. 612-646-9428, FAX:612-646-6109
MS Cornith, Hughes Assocs. 601-287-2915
MO Blue Springs, KKB & Co. 816-229-0001, FAX:816-228-1466
MO St. Louis, KKB & Co. 314-647-2400, FAX:314-647-3773
NJ Berkeley Heights, Cambridge Allen & Assoc. 201-464-0203,FAX:201-464-3030
NY Binghamton, Ontec Elctrn. Mkg., Inc. .. 607-724-5266
NY Forest Hills, Cambridge Allen & Assoc. 718-592-6361
NY Rochester, Ontec Elctrn. Mkg., Inc. 716-464-8636, FAX:716-464-0122
NY Syracuse, Ontec Elctrn. Mkg., Inc. 315-425-9600, FAX:315-478-6108
NY Wappingers Falls, Ontec Elctrn. Mkg., Inc. 914-462-7188,FAX:914-462-8706
NC Gary, Huges Assocs. 919-467-7029, FAX:919-481-9255
OH Dayton, J.C. Hofstetter Co. 513-296-1010, FAX:513-296-1274
OH Medina, J.C. Hofstetter Co. 216-241-4880, FAX:216-725-4471
OK Bethany, Design Mktg. 405-789-5911
OR Beaverton, Westmark Elctrns. Inc. 503-641-8780, FAX:503-641-8783
OR Tigard, Elctrns. Comps. Sls. 503-245-2342
PA Erie, J.C. Hofstetter Co. 412-356-7303
TN Hemitage, Hughes Assocs. 615-871-0908
TN Knoxville, Hughes Assocs. 615-558-0283
TX Austin, Design Mktg. 512-263-9151, FAX:512-263-3447
TX Dallas, Design Mktg. 214-480-8151, FAX:214-480-8214
TX Fort Worth, Design Mktg. 817-232-3155
TX Houston, Design Mktg. 713-550-3318, FAX:713-550-9114
UT Salt Lake City, Wasatch Reps. 801-268-3434, FAX:801-266-9021
VA Lynchburg, Jim Griffin 804-237-0598
VA Sterling, Beacon North 703-478-2480, FAX:703-435-7115
WA Bellevue, Westmark Elctrns. Inc. 206-454-1944, FAX:206-454-2488
WA Mercer Island, Elctrns. Comps. Sls. 206-232-9301
PR Caguas, Caribbean Elctrns. 809-746-9897, FAX:809-746-9441
Can Calgary, Cana Rep. Grp. Inc. 403-255-0294, FAX:403-255-4902
Can Montreal, Cana Rep Grp. Inc. 514-276-4477, FAX:514-276-3646
Can Surrey, Cana Rep Grp. Inc. 604-599-1232, FAX:604-599-3616
Can Willowdale, Cana Rep Grp. Inc. 416-250-6683, FAX:416-250-6684

DIONICS, 65 Rushmore St., Westbury, NY 11590, Tel: 516-997-7474, FAX: 516-997-7479; FSC No.: 50857; Empl.: 45; *Sls. Mgr.:* Ron Colino

DIO-REY, Div. of Info-Lite Corp., 422 Cliff St., Fairview, NJ 07022, Tel: 201-941-4455, FAX: 201-941-4919; Empl.: 13; *Sls. Mgr.:* Joseph M. Cartelli ..... **B•1058-1064**

DIRECT AID, 31332 Via Colinas, Ste. 102, Westlake Vl., CA 91362, Tel: 818-889-1013, 800-443-8080; *Sls. Mgr.:* Todd Smith; *Dist. Mgr.:* Todd Smith

DIRECT CONVERSION TECHNIQUE, INC., 1245 Fogest Ave. 12, Des Plaines, IL 60016, Tel: 708-827-2282, FAX: 708-827-2280; Empl.: 6; *Sls. Mgr.:* Thomas A. Ochal

DIRECT SOUND CORPORATION, 150 Fifth Ave., Suite 845, New York, NY 10011, Tel: 212-691-9050, FAX: 212-807-1598; Empl.: 3; *Sls. Mgr.:* A. Takayama ..... **B•1681; C•1349**

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NY New York, Dai-Ichi Shoji of America, Inc. 212-691-9050

DISC INSTRUMENTS, Honeywell, 102 E. Baker St., Costa Mesa, CA 92626, Tel: 714-433-0343, TWX: 910-595-1987, FAX: 714-432-7567; Empl.: 150

DISPLAY DEVICES, INC., P.O. Box 230677, Encinitas, CA 92023, Tel: 619-753-0113; FSC No.: 26107

DISPLAYS, INC., 31 Industrial Park Rd., Lewistown, PA 17044, Tel: 717-242-2541, FAX: 717-248-8680; Empl.: 65; *Sls. Mgr.:* Richard Crawford

DISPLAYTECH, INC., 2200 Central Ave., Boulder, CO 80301, Tel: 303-449-8933, FAX: 303-449-8934; Empl.: 26; *Sls. Mgr.:* Ann Perry; *Dist. Mgr.:* Ann Perry

DISPLAY TECHNOLOGIES, 1355 Holmes Rd., Elgin, IL 60123, Tel: 708-931-2100, FAX: 708-931-2120; Empl.: 220; *Sls. Mgr.:* Robert Valentine; *Dist. Mgr.:* Timothy Knutsen

DISTRIBUTED LOGIC CORP., See DILOG

DISTRIBUTED PROCESSING TECHNLG. CORP., 140 Candace Dr., Maitland, FL 32751, Tel: 407-830-5522, FAX: 407-260-5366; *Sls. Mgr.:* Steve Holler

DISTRIBUTOR & SPECIAL PRODUCTS, Thomson Consumer Electronics, Inc., 2000 Clements Bridge Rd., Deptford, NJ 08096, Tel: 609-853-2525, FAX: 609-853-2231; Empl.: 250; *Sls. Mgr.:* M.J. Cashen; *Dist. Mgr.:* R. McKinstry, R.M.

DISTRIBUTOR SPECIALISTS, 1942 14th Street, Santa Monica, CA 90404-4606, Tel: 213-452-3445

DIVELBISS CORP., 9776 Mt. Gilead Road, Fredericktown, OH 43019, Tel: 614-694-9015, FAX: 614-694-9035; Empl.: 40; *Sls. Mgr.:* Terry Divelbiss; *Dist. Mgr.:* Tim Knaul, Rick Reed

DIVERSIFIED CASE CO., Ellis Ave., Off. 2, Whitesboro, NY 13492, Tel: 315-736-3028, FAX: 1-315-736-2049; Empl.: 75; *Sls. Mgr.:* Charlie Fisher

DIVERSIFIED ELECTRONICS, INC., P.O. Box 1140, Evansville, IN 47706-1140, Tel: 812-426-2806, FAX: 812-425-8930; Empl.: 55; *Sls. Mgr.:* John L. Smith

DIVERSIFIED OPTICAL PRODUCTS, INC., 282 Main St., Salem, NH 03079, Tel: 603-898-1880, TWX: 7103386747, ESYLNK: 62229740, FAX: 603-898-3970; FSC No.: IHT10; Empl.: 49; *Sls. Mgr.:* James A. Greene

DIVERSIFIED SYSTEMS, INC., 6232 La Pas Trail, Indianapolis, IN 46268, Tel: 317-299-9547, FAX: 317-298-2055; FSC No.: 5693;5999;R212;R498;R698;S901;S902;S903;S908; Empl.: 100ò; *Sls. Mgr.:* Paul Madden

DIVERSIFIED TECHNLG., P.O. Box 748, Ridgeland, MS 39157, Tel: 601-856-4121, TELEX: 585326, FAX: 601-856-2888; Empl.: 100ò; *Sls. Mgr.:* Barrie McArthur; *Dist. Mgr.:* Barrie McArthur

DIXSON, INC., 287 27 Rd., Grand Junction, CO 81503, Tel: 303-244-1241, FAX: 303-245-6267; Empl.: 250; *Sls. Mgr.:* Ray Carlson

DJ INSTRUMENTS, INC., 18 Republic Rd., N. Billerca, MA 01862, Tel: 508-667-5301, FAX: 508-667-6804; FSC No.: 57747; Empl.: 30; *Sls. Mgr.:* David First

DLCustom

FAX: 416-475-0602

D. L. CUSTOM, 7250 Victoria Park Ave., Markham, Ont, Canada L3R 2M5, Tel: 416-475-0275; *Sls. Mgr.:* Les Hull, Jr. ..... **C•1026**

D. O. INDUSTRIES, 200 Commerce Dr., Rochester, NY 14623, Tel: 716-359-4000, TELEX: 200802, FAX: 716-359-4999; *Sls. Mgr.:* Jeremy Goldstein

DOLAN-JENNER INDS., Box 1020, Woburn, MA 01801, Tel: 617-935-7444, TELEX: 94-8161, FAX: 617-938-7219; Empl.: 120; *Sls. Mgr.:* B.J. Dolan; *Dist. Mgr.:* S. Futran

DOLPH, JOHN C., CO., New Rd., Monmouth Junction, NJ 08852, Tel: 201-329-2333, FAX: 201-329-1143; *Sls. Mgr.:* J. E. Rooze

DOMINO, INC., P.O. Box 9309, Fort Wayne, IN 46899, Tel: 219-456-5512; FSC No.: 9Y350; Empl.: 19; *Sls. Mgr.:* Rick Smith

D1 INTERNATIONAL, INC., 95 E. Main St., Huntington, NY 11743, Tel: 516-673-6866, FAX: 516-673-6893; Empl.: 24; *Sls. Mgr.:* Bron Kutny ..... **D•1343**

DONTECH, INC., 700 Airport Industrial Blvd., Doylestown, PA 18901, Tel: 215-348-5010, TELEX: 685 1155 DONTK, FAX: 215-348-9959; FSC No.: 63009; *Sls. Mgr.:* Jordan C. Miller, Sls. Mgr.

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MN Golden Valley, J.H. Hanson Co. 612-377-4997
NJ Brielle, EMC Technologists 201-223-6699
OR Beaverton, Elctrns. Northwest Inc. 503-629-9241
PA Sewickley, Teplitz- Byrne Assocs. 412-741-3628
TX Richardson, Scientific Dvcs. 214-231-8106
WA Redmond, Elctrns. Northwest Inc. 206-883-1959
Can British Columbia, Asten Holdings 604-853-5724
Can Montreal, Tekron Comms. Inc. 514-335-0152

DORAN MANUFACTURING CO., 2834 Sidney Ave., Cincinnati, OH 45225, Tel: 513-681-5424, FAX: 513-681-5604; Empl.: 60; *Sls. Mgr.:* Jeff Stegman

DORMEYER INDS., A. F. Dormeyer Mfg. Co., Inc., 3418 N. Milwaukee, Chicago, IL 60641, Tel: 312-283-4000, FAX: 312-283-4927; Empl.: 250; *Sls. Mgr.:* R. Steinberg; *Dist. Mgr.:* Ken Harthun ..... **B•1621-1623**

Local Sales Offices & Reps

CA	Valencia, T & C Engrg.	805-254-8778
IL	Chicago, Dormeyer Inds.	312-283-4000
NY	Rochester, H.C. Johnson Agencies	716-586-0777

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MA	Lynn, Land Elctrns.	617-592-2220
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Mamaroneck, Logicomp Elctrns.	914-698-9332
NY	Rochester, Summit Distrs.	716-334-8110
OH	Akron, Sun Radio Co.	216-434-2171
OH	Dayton, Stotts Friedman	513-298-5555
PA	Montgomeryville, Pyttronic Inds., Inc.	215-643-2850
TX	Corpus Christi, Douglas Elctrns.	512-883-5103
WI	Milwaukee, Elctrn. Expeditors, Inc.	800-558-8547

DOTRONIX, 160 First St. SE, New Brighton, MN 55112, Tel: 612-633-1742, TWX: 910-563-3541, FAX: 612-633-7025; Empl.: 470; *Sls. Mgr.:* Len Stewart, Natl. Sls. Mgr.

DOUGLAS ELECTRONICS, INC., 2777 Alvarado St., San Leandro, CA 94577, Tel: 510-483-8770, FAX: 510-483-6453; Empl.: 15

DOUGLAS RANDALL, P.O. Box 156, 100 Mechanic St., Bldg 26, Pawcatuck, CT 06379, Tel: 203-599-2075, FAX: 203-599-1754; Empl.: 125; *Sls. Mgr.:* Gary Polkow ..... **B•1458-1461; D•1133**

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AZ	Tempe, Trembly Assoc.	602-967-2058
CA	Oakland, Powermatic Assoc.	415-635-6825
CA	San Clemente, ATA Assocs.	714-661-9700
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CT	Yalesville, JMG-Glynn Connecticut	203-265-9452/2498
FL	Oldsmar, Boggs & Assocs.	813-855-1812
IL	Arlington Hgts., Thermek Inc.	708-577-6900
MA	Norwood, JMG, Inc.	617-762-5333
MN	St. Anthony, RCOM	612-788-3605
NV	Las Vegas, Trembly Assoc.	702-739-9770
NJ	Watchung, Dolan Assocs.	201-753-2671
NM	Albuquerque, Trembly Assoc.	505-266-8616
NY	Roochester, J. G. Welch Assoc.	716-244-1100
NY	Syracuse, Mullahy/Welch	315-685-6280
OH	Cleveland, Geotronix Mktg. Assoc.	216-659-6100
OH	Trotwood, Geotronix, Inc.	513-252-6700
PA	Newtown, Total Control	215-860-5333
TX	Carrollton, High Point Sls.	214-446-0406
Can	Mont., Que., Solid State Engrg. Co.	514-481-3313

Local Distributors

CA	Chatsworth, Mill-Comm Dist.	213-998-3111
CA	S. San Francisco, Steven Engrg.	415-588-9200
CA	San Clemente, ATA Assocs.	714-661-9700
FL	Hollywood, MRO Elctrn. Distrs.	305-966-4847
FL	Orlando, Accurate Temperature Controls.	407-292-6800
IL	Palatine, Promark Sys.	708-806-0066
LA	New Orleans, Butler & Land	504-734-8888
MA	Middleboro, Glynn Elec.	508-947-4262
MN	Minneapolis, Control Design	612-721-1628
NC	Burlington, AC DC Elctrns.	919-226-0496
OH	Cleveland, Alpha Corp.	216-659-7100
OK	Tulsa, Butler & Land	918-665-7979
PA	Narberth, Power Modules	215-668-0664
PA	Yeadon, Y-L Prods.	215-583-2800
TX	Dallas, Butler & Land	214-343-8800
TX	Houston, Butler & Land	713-896-0808

DOVA CONTROLS, 4052 148th Ave. N.E., Redmond, WA 98052-5165, Tel: 206-881-7414, FAX: 206-861-8080; Empl.: 6; *Sls. Mgr.:* Phil Johnson

DOVER ELECTRONICS MANUFACTURING, Kirkwood Industrial Park, P.O. Box 5212, Binghamton, NY 13902-5212, Tel: 607-772-7563, 1-800-PWB-ASSY, TWX: 510-252-1990, FAX: 607-772-9274; Empl.: 371; *Sls. Mgr.:* Robert P. Egan ..... **D•2234**

Local Sales Offices & Reps

NY	Binghamton, Dover Elctrns. Mfg.	607-772-7563

DOW CORNING CORP., Box 0994, Midland, MI 48686-0994, Tel: 517-496-4000, TELEX: 227450, TWX: 810-266-9006; Empl.: 7,000

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DOW-KEY MICROWAVE CORPORATION, 1667 Walter St., Ventura, CA 93003, Tel: 805-650-0260; FSC No.: 00471; Empl.: 69; *Sls. Mgr.:* Nick Pena, Jayne Larson; *Dist. Mgr.:* Jack Dysart ..... **B•1682**

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AL	Huntsville, Southern Mktg. Assocs.	205-534-6020
AZ	Scottsdale, Detomasi & Grupp, Inc.	602-947-3724
CA	Mission Hills, Detomasi & Grupp Inc.	818-365-8285
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
CA	San Diego, Detomasi & Grupp Inc.	619-277-0178
CA	Torrance, Detomasi & Grupp, Inc.	213-618-8898
CO	Englewood, Sierra Tech. Grp., Inc.	303-790-1700
FL	Longwood, Southern Mktg. Assocs.	407-682-7317
GA	Marietta, Southern Mktg. Assocs.	404-565-0603
IL	Palatine, Wave Mktg.	708-934-8008
IN	Fort Wayne, Naunas Sls, Co.	219-432-4792
MO	Maryland Hts., Dytec/South, Inc.	314-739-0665
KS	Lenexa, Dytec/South, inc.	913-888-0215
KS	Wichita, Dytec/South, Inc.	316-263-7090
MD	Ellicott City, VPI, Inc.	301-461-2525
MA	Chelmsford, Matrix Sls. Inc.	508-459-4000
MA	Lowell, Matrix Sls., Inc.	508-459-4000
MN	Bloomington, Bill Deming & Assocs.	612-888-5000
MO	Maryland Hgts., Dytec/South, Inc.	314-739-0665
NY	Hartsdale, Spectrum Sls. Inc.	914-472-8600
NY	Rochester, Lamb Comps., Inc.	716-272-7720
NC	Durham, Southern Mktg. Sls.	919-479-6034
OH	Dayton, Delta Sls.	513-435-9735
OH	Miamisburg, Elctrns. Comps.	513-866-3340
PA	Spring City, W. M. Assocs. Inc.	215-948-0505
TX	Garland, Carey, McMahill & Assoc.	214-681-1414
WA	Kirkland, Anzak Corp.	206-822-1510
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Local Sales Offices & Reps

AL	Huntsville, L & D Inc.	205-837-1469
AR	Hot Springs, Automation Supp. Inc. (ASI)	501-767-5444
CA	San Jose, O'Donnell Assocs.-North	408-263-6500
CA	Torrance, O'Donnell Assoc.	213-539-9664
CO	Broomfield, Connors Co.	303-466-9628
CT	Bloomfield, Zaslow Sls. Co.	203-242-7781
FL	Longwood, NSL Assocs., Inc.	305-629-5226
GA	Atlanta, L & D Inc.	404-395-7079
IL	Downers Grove, Golten Assocs.	708-512-0093
KS	Overland Park, Spectrum Sls.	913-648-6811
MA	Westboro, Zaslow Sls. Co.	617-393-8150
MI	Livonia, Electro-Mktg. Grp., Inc.	313-421-7590
MN	Minneapolis, Ohlin Sls. Co.	612-929-6924
MO	Florissant, Spectrum Sls.	314-921-1313
NH	Londonderry, Zaslow Sls. Co.	603-432-8907
NY	Massapequa Pk., HC Assocs.	516-541-0262
NY	Morrisville, Naylor Elec. Co.	315-684-9620
NC	Raleigh, L & D Inc.	919-876-5301
OH	Dayton, Electro-Mktg. Grp., Inc.	513-890-8322
OH	Dayton, Lyons Corp.	513-278-0714
OR	Beaverton, Pacific Mktg. Spec.	503-641-9373
PA	Exton, Kiley Elec. Co.	215-363-8550
TX	Dallas, Rem Air Comps.	214-234-1069
VA	Richmond, L & D Inc.	804-359-0125
WA	Redmond, Pacific Mktg. Spec.	206-882-3144

Local Distributors

AK	Anchorage, Frigid North Co.	907-561-4633
AZ	Tempe, Lynntronics	602-433-0288
AR	Hot Springs, Automation Supp. Inc.	501-767-5444
CA	Anaheim, Carefree Unltd.	714-630-3433
CA	Mountain View, The Power Source	415-960-0700
CO	Denver, Hensley	303-455-3643
FL	Dunedin, Battery Powered Lighting & Sys.	813-734-9498
GA	Smyrna, Mark C. Pope Assocs.	404-435-2471
IN	Muncie, Sealed Energy	317-358-4749
KS	Wichita, RSC Elctrns.	316-267-5213
LA	New Orleans, William B. Allen	800-535-9593
MA	Hingham, Sager Elctrns.	617-749-6700
MN	Minneapolis, Ohlin Sls. Co.	612-929-6924
OH	Cincinnati, M & B Battery	513-385-5900
PA	Bensalem, Scotts Emergency Lighting	215-639-1777
TX	Austin, Wofford Elctrns.	512-339-1131
TX	Dallas, Wofford Elctrns.	214-320-0294
TX	Houston, Wofford Elctrns.	713-847-3583
UT	Salt Lake City, Standard Supp. Co.	801-846-3371
WA	Seattle, Radar Electric	206-282-2511
WI	Milwaukee, Battery Shop	414-384-5410
Can	Mississauga, Ont., Battery Tech.	416-670-7373
Can	New Westminster, B.C., Magnacharge Battery	604-525-0391

EAGLE SIGNAL CONTROLS:A MARK IV INDS. CO., 8004 Cameron Rd., Austin, TX 78753, Tel: 512-837-8300, FAX: 512-837-8486; Empl.: 3000; *Sls. Mgr.:* Patrick Short

EAGLE WICHITA

FAX: 316-942-5190

EAGLE WICHITA, P.O. Box 9446, Wichita, KS 67277, Tel: 316-942-5100 ..... **A•1666-1669**

Local Sales Offices & Reps

AZ	Mesa, Sedco	602-461-9069
MA	BrainTree, Lancer Assocs.	617-849-3083

EALING ELECTRO-OPTICS, New Englander Industrial Park, Holliston, MA 01746, Tel: 508-429-8370, 1-800-343-4912, FAX: 508-429-7893; *Sls. Mgr.:* Brian Gaynor

E & L INSTRUMENTS, Interplex Electronics, Inc., 70 Fulton Terrace, New Haven, CT 06512, Tel: 800-368-0880, FAX: 203-468-0060; Empl.: 70; *Sls. Mgr.:* Katina Boulais

EAO SWITCH CORP., 198 Pepe's Farm Rd., P.O. Box 552 MO, Milford, CT 06460, Tel: 203-877-4577, TELEX: 96-4347, FAX: 203-877-3694; FSC No.: 61706; Empl.: 19; *Sls. Mgr.:* George T. Bracci ..... **B•1684-1685**

Local Sales Offices & Reps

AZ	Scottsdale, Luscombe Engrg. Co. of AZ	602-949-9333
CA	Los Gatos, Luscombe Engrg. Co. of S.F.	408-370-2020
CA	Montrose, Luscombe Engrg. Co. of L.A.	818-249-9000
CA	San Diego, Luscombe Engrg. Co. of S.D.	619-292-4323
CO	Longmont, Luscombe Engrg. Co. of CO	303-772-3342
CT	Bethel, Ray Perron & Co.	203-798-0261
CT	Waterbury, Ray Perron & Co., Inc.	203-756-9684
FL	Tampa, Florida Comp. sls.	813-873-3622
GA	Norcross, Mtn. Electro Mktg.	404-448-5594
IL	Arlington Hgts., Brainard-Nielsen Mktg., Inc.	708-437-2700
IN	Ft. Wayne, M/S Sls. & Assocs.	219-436-3023
IN	Greenwood, M/S Sls. & Assocs.	317-881-0110
IA	Cedar Rapids, Delltron Co., Inc.	319-393-0075
MD	Columbia, Delta III Assocs., Inc.	301-730-4700
MA	Needham, Ray Perron & Co., Inc.	800-225-4280, 617-449-6162
MI	Plymouth, Jay Mktg. Assocs., Inc.	313-459-1200
MN	Golden Valley, Highland Elctrn. Sls.	612-546-2123
MO	Florissant, Delltron Co., Inc.	314-839-0033
MO	Gladstone, Delltron Co., Inc.	816-436-6445
NM	Albuquerque, Luscombe Engrg. Co.	505-888-0333
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NY	Rochester, Apex Assocs., Inc.	716-272-7040
NC	Raleigh, C-Tech Sls., Inc.	919-782-8100
OR	Lake Oswego, Luscombe Engrg. Northwest	503-636-6664
PA	Horsham, Jacobsen Assocs.	215-674-2937
PA	Pittsburgh, R. W. Kneip	412-823-0169
TX	Dallas, Glidden Electro Equip. Co	214-341-0610
TX	Houston, Glidden Electro Equip. Co.	713-681-1415
UT	Midvale, Luscombe Engrg. Co.	801-565-9885
WA	Bellevue, Luscombe Engrg. N.W.	206-223-1541
WI	Mequon, Badgerep	414-241-9200

Local Distributors

AZ	Phoenix, Minarik Elec.	602-233-3000
AZ	Scottsdale, Electronic Supp.	1-800-622-3726
CA	Anaheim, Minarik Elec. Co.	714-994-2251
CA	Fremont, KEA Elctrns.	415-651-2600
CA	Gardena, California Switch & Sig.	213-770-2330
CA	Glendale, Minarik Elec. Co.	818-507-6500
CA	Riverside, Electronic Supp.	714-683-7300
CA	S. San Francisco, Bell Elctrl. Supp.	415-589-7055
CA	Salinas, Bell Elctrl. Supp.	408-758-6110

CA San Diego, Electronic Supp. 619-693-8222
CA San Diego, Minarik Elec. Co. 619-560-6632
CA San Jose, Electronic Supp. 408-453-3770
CA Santa Clara, Bell Elctrl. Supp. 408-727-2355
CA Santa Clara, Minarik Elec. Co. 408-727-0575
CA Sunnyvale, Target Elctrns., Inc. 408-733-0384
CO Commerce City, Minarik Elec. Co. 303-289-5800
CO Denver, CSID, Inc. 303-292-9594
CT Wallingford, Sager Elec. Supp. co. 203-265-4600
FL Lakeland, Wes-Garde/Switch Controls, Inc. 813-644-7564
FL Orlando, Sager Elctrns. 407-240-3114
FL Oviedo, Dixie Sls. 407-365-5211
FL Pompano Beach, Control Design Supp., Inc. 305-782-1331
GA Atlanta, Motion Elctrns. 404-455-8262
IL Crystal Lake, Sub-Sem, Inc. 815-459-4139
IL Elk Grove, Martec Assoc. 708-956-8090
IL Rosemont, Advent Elctrns., Inc. 708-297-6200
IL Schaumburg, Marsh Elctrns. 708-240-9290
IL Schaumburg, Minarik Elec. Co. 708-885-9337
IN Indianapolis, Advent Elctrns. 317-872-4910
IN Indianapolis, Mar Elctrns. 317-633-6699
IA Cedar Rapids, Advent Elctrns., Inc. 319-363-0221
KS Wichita, Radio, Inc. 316-264-2798
KY Louisville, Peerless Elctrns. 502-637-7674
LA Baton Rouge, Menard Elctrns. 504-355-0323
LA New Orleans, Menard Elctrns. 504-734-8445
ME W. Buxton, Nelson & Wright 207-929-8238
MD Columbia, Sager Elctrns. 301-995-6580
MD Gaithersburg, Axis Elctrns. 301-840-9640, 800-492-3190
MD Jessup, Treeko Sls. 301-792-0112
MA Canton, Richey Impact Elctrns. 617-821-1500
MA Hingham, Sager Elec. Supp. Co. 617-749-6700
MA N. Billerica, Minarik Elec. Co. 508-663-0740
MI Farmington Hills, Advent Elctrns. 313-477-1650
MI Grand Rapids, R. M. Elctrns. Co. 616-531-9300
MI St. Claire Shores, SPEMCO Switches 313-771-2700
MN Fridley, Voyager Elctrns. 612-571-7766
MN Minneapolis, Electronic Ctr., Inc. 612-378-2442
MO St. Louis, Beckwith, Inc. 314-343-6463
NH Salem, Sager Elec. Supp. Co. 603-898-1348
NJ Cranford, Garden State Indl. Elctrns., Inc. 201-272-6400
NY Bohemia, Key Comps., Inc. 516-567-7500
NY Buffalo, Summit Distrs., Inc. 716-887-2800
NY Hauppauge, Sager Elctrl. Supp. 516-348-1300
NY New York, Martin-Audio/Video 212-541-5900
NY Rochester, Simcona Elctrns. 716-328-3230
NY Rochester, Summit Elctrns., Inc. 716-334-8110
NY Woodside, Switches Unlimited 718-478-5000
NC Charlotte, Dixie Elctrns. 704-377-4348
NC Charlotte, Elctrns. Mktg. Corp. 704-394-6195
NC Raleigh, Sager Service Plus 919-850-9550
NC Winston-Salem, Kirkman Elctrns., Inc. 919-722-9131,800-334-8688
OH Columbus, Electronics Mktg. Corp. 614-299-4161
OH Highland Hgts., Electronics Mktg. Corp. 216-442-3441
OK Tulsa, Radio, Inc. 918-587-9123
OR Portland, Minarik Elc. Co. 503-253-3402
PA Harrisburg, Ad-Tech Elctrns. 717-561-9905
PA Mars, Sager Elctrns. 412-772-2233
PA McKean, Advacom 814-476-7774
PA Norristown, Kimberly-James Co. 215-666-7286
PA Philadelphia, Sager Elctrns. 215-464-4336
PA Pittsburgh, Grant Indl. Controls, Inc. 412-787-9770
PA Wayne, Peak Elctrns. Corp. 215-293-9000
SC Columbia, Dixie Elctrns. 803-779-5332
TX Houston, Minarik Elec. Co. 713-748-0808
TX Irving, Harper S.I.D. 214-621-0500
TX Irving, Minarik Elec. Co. 214-402-8188
WA Redmond, Minarik Elec. Co. 206-885-0832
TX San Antonio, Minarik Elec. Co. 512-822-7097
WA Seattle, Platt Elec. 206-624-4083
WI Milwaukee, Marsh Elctrns. Corp. 414-475-6000

E-A-R SPECIALTY COMPOSITES, Cabot Safety Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, Tel: 317-872-1111, TWX: 810-341-3412; *Sls. Mgr.:* Greg R. Handy

EASCO/K D TOOLS, See Hunter Tools, Easco/K D Tools

EASI FILE CORPORATION, 6 Wrigley St., Irvine, CA 92718, Tel: 714-855-4121, FAX: 714-380-0561; Empl.: 10; *Sls. Mgr.:* Jean A. James

EAST CONTROLS, 6851 Church St., Hanover Park, IL 60103, Tel: 708-837-7709, TELEX: 708-837-6235; Empl.: 1

EASTERN AIR DEVICES, INC., 1 Progress Dr., Dover, NH 03820, Tel: 603-742-3330, FAX: 603-742-9080; Empl.: 150 ..... **B•1254**

Local Sales Offices & Reps
CA Glendale, Electric Motor Engr. 818-502-1866
CA San Jose, Motion Sys. 408-246-0641
CO Boulder, R. G. Entprs. 303-447-9211
FL Winter Park, HHP Assocs. 407-740-0320
KS Shawnee Mission, LSC Co. 913-362-2121
MN Edina, Jay Borman Sls. 612-922-5525
NH Dover, Eastern Air Dvs. 603-742-3330
NJ Ridgefield, Rical Assocs. 201-945-5250
NY Rochester, Elcom Sls. 716-385-1400
NY Syracuse, ELCOM Sls. 315-685-8245
NC Charlotte, Jake Rudisill Assocs. 704-377-6901
OH Cincinnati, KCH Co. 513-931-1686
OR Portland, D.A. Sullivan Co. 503-292-2448
PA Paoli, ETC Sales 215-296-3527
TX Dallas, D.J. Sls. Co. 214-783-8876
TX Richardson, D.J. Sls. 214-783-8876
WI Racine, KMG Sls., Inc. 414-639-9005

Local Distributors
CT Hartford, Bearings, Inc. 203-249-1691
CT No. Haven, Bearings, Inc. 203-288-2201
CT Waterbury, Bearings, Inc. 203-755-3151
ME Auburn, Bearings, Inc. 207-784-3769
ME Bangor, Bearings, Inc. 207-947-6583
MA Avon, Bearings, Inc. 508-584-9200
MA W. Springfield, Bearings, Inc. 413-739-4701
MA Wakefield, Bearings, Inc. 617-246-3906
MA Worcester, Bearings, Inc. 617-852-1050
NH Berlin, Bearings, Inc. 603-752-6001
NH Dover, Bearings, Inc. 603-749-2121
NH Manchester, Bearings, Inc. 603-623-8897
NY Plainview, Controls Sls. Inc. 516-756-5652
NC Charlotte, Motionex 704-377-6901
PA Pittsburgh, EXONIC Sys. 412-784-8400
RI Warwick, Bearings, Inc. 401-732-2600
VT Rutland, Bearings, Inc. 802-775-3550

EASTERN ELECTRONICS MFG. CORP., National Patent Dev. Corp., 180 Roberts St., East Hartford, CT 06108, Tel: 203-528-9821, FAX: 203-289-7639; FSC No.: 203-289-7639; Empl.: 200; *Sls. Mgr.:* Wayne M. Baker

EASTERN MARKING MACHINES, 422 S Franklin St., Hempstead, NY 11550, Tel: 516-483-7070, TELEX: 968095, FAX: 516-483-7071; Empl.: 8; *Sls. Mgr.:* L Sherman; *Dist. Mgr.:* L Sherman

EASTERN MICROWAVE, 40 Ray Ave., Burlington, MA 01803, Tel: 617-273-4700; FSC No.: 30616; Empl.: 25; *Sls. Mgr.:* S. C. Lowe

EASTMAN KODAK COMPANY, Motion Analysis Systems Division, 11633 Sorrento Valley Road, San Diego, CA 92121-1095, Tel: 619-535-2908, FAX: 619-481-6254; *Sls. Mgr.:* Don Pike

EAST PENN MANUFACTURING, Lyon Station, PA 19536, Tel: 215-682-6361, FAX: 215-682-4781; Empl.: 2000; *Sls. Mgr.:* Peter Grimes

EASY HEAT WIREKRAFT, See Electrical Systems, Div. of Bristol Corp.

EATON CORP, Durant Products, 901 S. 12th St., Watertown, WI 53094, Tel: 414-261-4070, 800-289-3866, TWX: 910-260-3713, FAX: 414-261-9097; Empl.: 350

EATON CORPORATION, Electric Drives Division, 3122-14th Avenue, Kenosha, WI 53141, Tel: 414-656-4011, TELEX: 910-274-2356, FAX: 414-656-4370; Empl.: Approx. 300

EATON CORP., Electronic Instrument Div., 5340 Alla Rd., Los Angeles, CA 90066, Tel: 213-822-3061, TWX: 910-343-6969; Empl.: 200; *Sls. Mgr.:* Lawrence Caney Jr.

EATON (LORLIN) CORP., See Lorlin, Div. of Axiam, Inc.

EATON CORP./CUTLER-HAMMER PRODS, Aerospace & Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216, Tel: 414-449-7487, TELEX: 26-716, FAX: 414-449-6760; FSC No.: 81640; *Sls. Mgr.:* Bernard C. Hay

Local Sales Offices & Reps
CA Los Angeles, Eaton Corp./A & CCD ... 714-548-8553
CA San Francisco, Eaton Corp./A & CCD 415-967-0606
FL Tampa, Eaton Corp./A & CCD 813-628-4717
GA Atlanta, Eaton Corp./A & CCD 404-394-0911
IL Chicago, Eaton Corp./A & CCD 708-530-7980
KS Kansas City, Eaton Corp./A & CCD ... 913-384-0081
MD Baltimore, Eaton Corp./A & CCD 301-296-9640
MA Boston, Eaton Corp./A & CCD 617-863-5427
MI Detroit, Eaton Corp./A & CCD 313-354-7513
MN Minneapolis, Eaton Corp./A & CCD ... 612-831-8668
NJ Mt. Laurel, Eaton Corp./A & CCD 609-778-1100
NY Long Island, Eaton Corp./A & CCD ... 516-864-6065
OH Cleveland, Eaton Corp./A & CCD 216-835-4554
OH Dayton, Eaton Corp./A & CCD 513-294-1877
Can Burnaby, B.C., Solution Elctrns. Ltd. ... 604-439-9004
TX Dallas, Eaton Corp./A & CCD 214-386-4121
WA Seattle, Eaton Corp./A & CCD 206-946-5157
WI Milwaukee, Eaton Corp./A & CCD 414-449-6709
Can Scarborough, Ont., Eaton Ltd. 416-291-2563

EBERHARD MFG. CO., DIV., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136, Tel: 216-238-9720, FAX: 216-572-2732; FSC No.: 19220; *Sls. Mgr.:* Edward Hongosh

EBG-ELEKTRONISCHE BAUELEMENTE, Gesellschaft m.b.H., 8082 Kirchbach 384, Austria, Tel: (43) 03116 2625, TELEX: 312540, FAX: 43/3116/27540; Empl.: 63; *Sls. Mgr.:* Mag. G. Klauser

EBM INDUSTRIES, INC., 110 Hyde Road, Farmington, CT 06034, Tel: 203-674-1515, TWX: 710-423-8723, FAX: 203-674-8536; FSC No.: 62292; *Sls. Mgr.:* Robert Sobolewski ..... **C•1612-1613**

Local Sales Offices & Reps
AL Huntsville, Cartwright & Bean 205-830-1540
AZ Phoenix, C.T. Carlberg 602-468-0750
CA Los Angeles, Wiley Co. 213-666-1611
CA San Diego, Wiley Co. 619-453-9018
CA Santa Clara, Ross Mktg. Assocs. 408-988-8111
CO Littleton, Simpson Assocs. 303-794-8381
CT Clinton, Selmark Assocs. 203-573-9088
FL Apopka, Cartwright & Bean 407-889-9100
FL Deerfield, Cartwright & Bean 305-429-3400
GA Norcross, Cartwright & Bean 404-368-0160
IL Chicago, Vogel & Assoc. 708-286-6833
IL Itasca, Beta Technlg. Sls. 708-250-9586
IN Greenwood, Liberty Sls. 317-888-8396
IN Noblesville, Powercon 317-773-7745
KS Overland Park, Web Elctrns. 913-381-7986
MD Baltimore, Bramman Co. 301-367-9111
MA Millis, Selmark Assocs. 508-376-2914
MI Warren, Burcaw Co. 313-573-4605
MN St. Paul, Arkco Sls. 612-777-7454
MS Jackson, Cartwright & Bean 601-981-1170
MO Florissant, Web Elctrns. 314-921-5720
NH Hopkinton, Selmark Assocs. 603-746-3299
NJ Marlton, b.g.r. Assocs. 609-983-1020
NM Albuquerque, C.T. Carlberg 505-899-2155
NY Buffalo, NRM Mktg. Grp. 716-634-4300
NY Frankilin Sq., Cooper-Simon & Co., Inc. 516-489-4636
NY Skaneateles, NRM Mktg. Grp. 315-685-8991
NC Raleigh, Cartwright & Bean 919-876-4130
OH Kettering, Versatron 513-293-8506
OH Willoughby Hills, Versatron 216-944-0082
OR Hillsboro, Temco Northwest 503-645-2030
TN Knoxville, Cartwright & Bean 615-693-7450
TN Memphis, Cartwright & Bean 901-362-8345
TX Austin, Bonser-Philhower Sls. 512-346-9186
TX Houston, Bonser-Philhower Sls. 713-782-4144
TX Richardson, Bonser-Philhower Sls. 214-234-8438
UT Midvale, Simpson Assocs. 801-566-3691
VA Birch Bay, Temco Northwest 206-371-0423
VA Chantilly, Colrud 703-904-0240
WA Bothell, Temco Northwest 206-481-6150
WA Spokane, Temco Northwest 509-927-9392
WI Milwaukee, Beta Technolg. Sls., Inc. ... 414-543-6609
PR Bayamon, Selmark 809-797-9176

Local Distributors
AL Huntsville, Powell Elec. 205-837-5300
AK Anchorage, Alaska Elctrns. 907-563-3774
AZ Phoenix, Arizona Comps. Co. 602-269-5655
AZ Tucson, Southwest Sls. 602-628-1613
CA Anaheim, Deco Elec. 714-630-8252
CA Costa Mesa, Powell 714-754-1717
CA Hollywood, Yale Elctrns. 213-465-3186
CA Irvine, Integrated Elctrns. 714-837-9960
CA Sacramento, Integrated Elctrns. 916-363-6030
CA San Diego, Deco Elctrns. 619-693-1595
CA San Diego, Pyramid 619-271-5404
CA San Jose, Integrated 408-435-1000
CA San Jose, Powell Elctrns. 408-943-9020
CA San Jose, Powell Elec. 408-943-9020
CA Santa Clara, Pyramid Elctrns. 408-727-9810
CA Sunnyvale, Power Supply Comps. 408-737-1333
CA Torrance, Pyramid 213-320-2700
CO Denver, Integrated Elctrns. 303-292-6121
CO Denver, Integrated Elctrns. 303-292-5537
CO Wheat Ridge, Added Value 303-422-1701
CT Danbury, Pilgrim Elctrns. 203-792-7274
CT E. Haven, J. V. Elctrns. 203-469-2321
CT Southbury, Heilind Elctrns. 203-262-1700
CT Wallingford, Cronin Elec. 203-265-3134
CT Yalesville, Glynn Elctrns. 203-265-2498
FL Ft. Lauderdale, Powell Elec. 305-484-8377
FL Largo, Electronic Precepts 813-544-3636
GA Atlanta, ACK Radio Supp. 404-351-6340

GA	Fayetteville, Frankland	404-461-4026
IL	Chicago, Leeds Elctrns. Comps.	708-625-3800
IL	Hoffman Estates, I.E.C. Intercomp	708-843-2040
IL	Rosemont, Advent Elctrns.	708-297-6200
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Chelsea/RS Elctrns.	317-253-9065
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
KS	Overland Park, Chelsea/RS Elctrns.	913-362-1923
KY	Florence, U.R.I. Elctrns.	606-371-4423
MD	Annapolis Jct., Powell Elctrns.	301-880-3255
MD	Baltimore, Resco/Baltimore	301-931-8200
MD	Beltsville, Resco/D.C.	301-937-9100
MD	Columbia, Peerless Radio	301-997-1717
MA	Canton, Richey Impact	617-821-1500
MA	Middleboro, Glynn Elctrns.	508-947-4262
MA	Needham, Cronin	617-449-5000
MA	Westborough, Powell	508-366-6100
MA	Wilmington, Heilind Elctrns.	508-657-4870
MI	Battle Creek, Great Lakes Elctrns.	616-963-6282
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Rapids, Chelsea/RS Elctrns.	616-241-3483
MI	Grand Rapids, S.F. Elctrns.	616-459-0216
MI	Livonia, Chelsea/RS Elctrns.	313-525-1155
MN	Minneapolis, Control Des. Supp.	612-721-1628
MN	Plymouth, Leeds Elctrn. Comps.	612-557-1277
MO	Kansas City, L Comp	816-221-2400
MO	Maryland Hgts., Chelsea/RS Elctrns.	314-997-7709
MO	Maryland Hgts., L Comp	314-291-6200
MO	St. Louis, Control Design Supply	314-426-3150
NH	Manchester, Cronin	603-624-0105
NH	Manchester, Glynn Elctrns.	603-622-8131
NH	Nashua, Brevan Elctrns.	603-889-7230
NJ	Englewood, Powell Elec.	201-890-0010
NJ	Rockaway, Tonar	201-586-9000
NJ	W. Berlin, General Comps.	609-768-6767
NM	Albuquerque, Betatron	505-821-1122
NY	Falconer, Falconer Elctrns.	716-665-4176
NY	Hauppauge, Addem Distbg. Grp.	516-273-6777
NY	Hauppauge, Broadline Elec. Distr.	516-231-4100
NY	Hauppauge, Chelsea/RS Elctrns.	516-231-3313
NY	Hicksville, Janesway Elctrns.	516-935-1827
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Mt. Vernon, Janesway Elctrns.	914-699-6710
NY	Rochester, Simcona	716-328-3230
NY	Suffern, Nobel Elctrns.	914-357-4500
NY	Syracuse, Stewart W. Smith	315-437-7836
NC	Boone, I.R.S/Tresco	704-264-8861
NC	Cary, Powell Elec.	919-467-1212
NC	Raleigh, Century	919-782-2116
OH	Akron, Akron Elctrns.	216-762-8818
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CA San Jose, Spectra Elctrns. 408-452-1590
CA Canoga Pk., Acort Inds. 818-700-2991
MD Columbia, DK Elctrns. 301-995-1950
MA Billerica, A. W. Mayer Co. 508-229-2255
MA Newton, The Greene-Shaw Co. 617-969-8900
NJ Oakland, Relay Specialties 201-337-1000

FAX: 401-738-7154

EICHHOFF ELECTRONICS, 205 Hallene Rd., Warwick, RI 02886, Tel: 401-738-1440, 800-678-1040; Empl.: 2,000; *Sls. Mgr.:* Randall Jones .... **A•1614-1617, 2206-2207; B•1464-1465**

Local Sales Offices & Reps

CA	Arcadia, Van Gott & Assocs.	818-445-9728
CA	Mission Hills, The Pentagon Co.	818-894-0299
CA	Mountainview, The Pentagon Co.	415-961-3610
CT	W. Simsbury, Electrotechnika, Inc.	203-658-6762
FL	Tampa, Std. Mktg. Inc.	813-933-5833
FL	W. Melbourne, Std. Mktg. Inc.	305-725-7073
IL	Wheaton, CS Tech. Sls.	312-653-8126
MA	Needham, Kanan Assoc.	617-449-7400
MA	Waltham, Newport Tech. Sls.	617-890-7255
MD	Norwell, M.J. Sls. & Engrg. Inc.	617-982-8776
MI	Livonia, Wenner & Assocs.	313-591-7955
MN	Minneapolis, Electro-Serv Co.	612-338-3475
NC	New Hill, Tom Santel	919-362-4091
NJ	Kenvil, Comps. for Elctrns.	201-927-6662
NJ	Red Bank, Varreiman Corman	201-219-0088
OH	Mansfield, Rich Tech. Sls.	419-756-1953
SC	Mauldin, Carl Hart Assoc.	803-288-2023
TN	Chattanooga, Stetco, Inc.	615-899-6831
TX	Missouri City, Intercon Sls.	713-499-4163
VA	Front Royal, Eltron Sls. Ltd.	703-635-7201

EIKONIX, 15 Wiggins Avenue, Bedford, MA 01730, Tel: 617-276-7161, TELEX: 951231, FAX: 617-276-5063; Empl.: 175; *Sls. Mgr.:* Jim LLoyd

E.I.L. INSTRUMENTS, INC., 10 Loveton Circle, Sparks, MD 21152, Tel: 301-771-4800, TELEX: 87797, FAX: 301-771-4629; Empl.: 500; *Sls. Mgr.:* Keith D. Hadley

EI MICROCIRCUITS, INC., 1651 Pohl Road, Mankato, MN 56001, Tel: 507-345-5786, FAX: 507-345-7559; Empl.: 55; *Sls. Mgr.:* Perry Eimers

EI NORTH AMERICA, 435 E. 79th St, New York, NY 10021, Tel: 212-517-5622, FAX: 212-517-5516; *Sls. Mgr.:* Judy Simons; *Dist. Mgr.:* Adam Goodman

EIP MICROWAVE, INC., 1589 Centre Pointe Dr., Milpitas, CA 95035, Tel: 408-945-1477, FAX: 408-945-0977; FSC No.: 34257; Empl.: 100; *Sls. Mgr.:* Rick Bush

EITEL MFG., 33208 Paseo Cerveza, Ste. G, San Juan Capistrano, CA 92675, Tel: 714-240-3933; Empl.: 6; *Sls. Mgr.:* H. Mengel

ELAN DIGITAL SYSTEMS, Div. of Elan Digital Sys. Ltd., 538 Valley Way, Milpitas, CA 95035, Tel: 800-541-ELAN, 408-946-8495, FAX: 408-946-0351; Empl.: 3 ..... **A•1724**

Local Sales Offices & Reps

CA	Milpitas, Elan	408-946-8495

ELAN TECHNICAL CORP., 35 Kings Highway East, Fairfield, CT 06430, Tel: 203-335-2115, FAX: 203-335-2723

ELANTEC, INC., 1996 Tarob Ct, Milpitas, CA 95035, Tel: 408-945-1323, 800-821-7429, FAX: 408-945-9305; FSC No.: 64762; Empl.: 106; *Sls. Mgr.:* Ralph Granchelli; *Dist. Mgr.:* John Charette

ELASTOMERIC TECHNOLOGIES, INC.

FAX: 215-672-4633

ELASTOMERIC TECHNOLOGIES, INC., 2940 Turnpike Dr., Hatboro, PA 19040, Tel: 215-672-0787, 215-672-4741, TWX: 387-236; FSC No.: 64914; *Sls. Mgr.:* George Glatts ..... **C•1357**

Local Sales Offices & Reps

AL	Huntsville, Remco/Huntsville	205-533-3763
AZ	Scottsdale, TC Elctrn. Sls., Inc.	602-994-5153
CA	Orange, Libratronix	714-871-1513
CA	San Jose, W I N	408-559-8118
CO	Monument, Sunbird Inds.	719-481-2900
FL	Ft. Lauderdale, Synergistic Tech. Inc.	305-791-8255
FL	Melbourne, Synergistic Tech. Inc.	407-242-9661
FL	Odessa, Synergistic Tech.	813-920-5814
GA	Lilburn, Remco/Atlanta	404-447-6937
IL	Des Plaines, Lincoln, Hodges	708-297-3810
IN	Ft. Wayne, Outman Sls.	219-489-7699
KS	Wichita, Baka Corp.	316-682-8411
MD	Gaithersburg, Carwithen	301-921-9545
MA	Needham, Comp. Technlg., Inc.	617-449-8490
MI	Troy, C. B. Jensen & Assocs.	313-643-0506
MN	Bloomington, Northmark Assocs.	612-854-9299
MO	St. John, Baka Corp.	314-878-4224
NJ	Hasbrouck Hgts., Comp-Tech	201-288-7400
NY	Pittsford, Franklin Sls. Corp.	716-248-8251
NC	Raleigh, C-Tech Sls. Co.	919-782-8100
OH	Cleveland, Arthur Baier Co.	216-461-6161
OR	Tigard, L. D. Elctrns.	503-684-8221
PA	Hatboro, A.Q.S. Electro	215-674-3562
PA	Pittsburg, Arthur Baier Co.	412-367-7799
TX	Dallas, M-Rep	214-484-5711
TX	Houston, M-REP	713-271-5635
UT	Ogden, Sunbird Inds., Inc.	801-479-7151
WA	Snohomish, L. D. Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883
WI	Janesville, Lincoln,Hodges	608-754-4214

ELCO CORP., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652, Tel: 814-643-0700, FAX: 814-643-0426; Empl.: 500; *Sls. Mgr.:* W. J. Graef; *Dist. Mgr.:* W.J. Graef

U.S. ELCO INC., 2930 Scott Blvd., Santa Clara, CA 95054, Tel: 1-800-888-ELCO, FAX: 408-980-9754; *Sls. Mgr.:* Douglas Hemingway

EL-COM CABLETEK, 22612 Albares, Mission Viejo, CA 92691, Tel: 714-432-6630

ELCOM INDUSTRIES, INC., 10268 Bach Blvd., St. Louis, MO 63132, Tel: 314-429-3100, FAX: 314-429-9706; Empl.: 25; *Sls. Mgr.:* Thomas C. Noel

ELCOM SYSTEMS, INC., 932 Clint Moore Rd., Boca Raton, FL 33487, Tel: 407-994-1774, FAX: 407-994-1770; FSC No.: 32424; Empl.: 8; *Sls. Mgr.:* D. Pollachek ..... **A•1747**

ELCON INSTRUMENTS, INC., 135-137-139 Gibralter Street, Annapolis, MD 21401, Tel: 301-280-6686, FAX: 301-263-5790; Empl.: 5; *Sls. Mgr.:* Paolo Landrini

ELCON PRODUCTS INTERNATIONAL COMPANY, 42700 Lawrence Place, Fremont, CA 94538, Tel: 415-490-4200, FAX: 415-490-3740; FSC No.: 85901; Empl.: 33; *Sls. Mgr.:* Shirlee Gendreau (inside Sls. Mgr.)

ELDRE CORPORATION, 1500 Jefferson Rd., Rochester, NY 14623, Tel: 716-427-7280, FAX: 716-272-0018; FSC No.: 19648; Empl.: 220; *Sls. Mgr.:* James N. Fitzpatrick

Local Sales Offices & Reps

AL	Huntsville, Elctrns. Mktg. Assocs.	205-880-8050
AZ	Scottsdale, Fred Board Assocs.	602-994-9388
CA	Carlsbad, Prime Source Comps.	619-434-1297
CA	Los Gatos, Norwest Elctrns.	408-395-1190
CO	Wheat Ridge, Waugaman Assocs.	303-423-1020
FL	Tampa, APM Assocs.	813-886-2457
GA	Atlanta, Electronic Mktg. Assocs.	404-448-1215
IN	Indianapolis, Mohrfield Mktg.	317-546-6969
MD	Towson, Arbotek Assocs.	301-825-0775
MA	Brookline, Harman Assocs.	617-232-6687
MO	St. Louis, Cadon Techn. Sls.	314-645-8670
NJ	Haddonfield, Tritek Sls.	609-429-1551
NY	Rochester, ELDRE Corp.	716-427-7280
NY	Yonkers, Sonkin Assocs.	914-968-8282
NC	Raleigh, Electronic Mktg. Assocs.	919-847-8800
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
OH	Centerville, Omega Sls.	513-434-5507
UT	Salt Lake City, Waugaman Assocs./Utah	801-261-0802
SC	Greenville, Elctrns. Mktg. Assocs.	803-233-4637
Can	St. Laurent, Que., Componetics, Ltd.	514-331-9930
WA	Redmond, Electronic Mktg. Grp.	206-882-0962

ELECSYS,INC., Div. of C & C Jetronic, 320 Wall St, Princeton, NJ 08540, Tel: 609-921-2726, TELEX: 4971717, FAX: 609-921-7971; Empl.: 1; *Sls. Mgr.:* C. Jerry Chiang

ELECTRA-SSEMBLY, Lancer Chemical, 80 Cutter St. - Box 30, Warren, RI 02885, Tel: 401-245-5493

ELECTRA-TEC, Impert Industries, Inc., 557 W. M-89, Otsego, MI 49078, Tel: 800-225-3532, 616-694-2058, FAX: 616-694-5880; FSC No.: 4J966; Empl.: 20; *Sls. Mgr.:* William Robinson ..... **C•1033**

ELECTRICAL INDUSTRIES CORP., 691 Central Ave., Murray Hill, NJ 07974, Tel: 908-464-3200, FAX: 908-464-7619; FSC No.: 20093; Empl.: 300; *Sls. Mgr.:* D.V. Wilson

ELECTRICAL INSTRUMENT SERVICE, 25 Dock St, Mt. Vernon, NY 10550, Tel: 914-699-9717, FAX: 914-699-9410; FSC No.: 32590;16034A; Empl.: 35 ..... **D•1322-1323**

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-494-0790
CO	Commerce City, Williams Assocs.	303-289-5647
IL	Lincolnwood, Saffro & Assocs.	708-677-9722
LA	Metairie, Data Mktg. Assocs.	504-833-3655
MA	Lexington, Zieco	617-861-8300
MI	Southfield, Comtel Instrs. Co.	313-358-2505
MN	Minneapolis, Hei-Lite Sls.	612-550-0506
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Mount Vernon, Elctrl. Instr. Svc.	914-699-9717
OH	Cleveland, Comtel Instrs. Co.	216-442-8080
OH	Columbus, Comtel Instrs. Co.	614-876-8305
OH	Dayton, Comtel Instrs. Co.	513-426-5310
OK	Tulsa, Data Mktg. Assocs.	918-494-2711
PA	Pittsburgh, Comtel Instrs. Co.	412-922-5720
TX	Austin, Data Mktg. Assocs.	512-338-4701
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	Houston, Data Mktg. Assocs.	713-954-5020
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
WI	Lake Mills, Saffro & Assocs.	1-800-327-0312
Can	Beaconsfield, Que., Mesurina Ltee/Ltd.	514-630-5990

ELECTRICAL INSULATION SUPPLIERS, INC., 300 N. Mannheim Road, Hillside, IL 60162, Tel: 708-574-5400, FAX: 708-547-7538; Empl.: 450; *Sls. Mgr.:* Robert Gannon

ELECTRICAL STANDARDS DIV., E.S.R.S., Inc., 7337 Greenbush, N. Hollywood, CA 91605, Tel: 818-765-4224; Empl.: 6

ELECTRIC DEVICE, PO Box 337, Canfield, OH 44406, Tel: 216-533-1111, FAX: 216-533-2639

ELECTRIC INDICATOR COMPANY INC., 272 Main Ave., Norwalk, CT 06851, Tel: 203-847-5861, FAX: 203-846-3933; FSC No.: 73693; Empl.: 60

ELECTRIC MOTOR ENGINEERING, 23362 Madero, Suite C, Mission Viejo, CA 92691, Tel: 714-583-9802, FAX: 714-583-9785; Empl.: 5; *Sls. Mgr.:* Jerry Kibler; *Dist. Mgr.:* Frank Buday

Distributor

ELECTRIC SWITCHES, INC., 2478 Fletcher Dr., Los Angeles, CA 90039, Tel: 213-660-1310, TWX: 910-321-2971; Empl.: 42; *Sls. Mgr.:* Louis Lim ..... **B•1780-1781**

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ELECTRIC TACHOMETER, 68th & Upland Sts., Philadelphia, PA 19142, Tel: 215-726-7723, FAX: 215-724-3582; FSC No.: 20049; Empl.: 50; *Sls. Mgr.:* F. M. Porter

ELECTRIC TIME COMPANY, INC., P.O. Box 466, Medfield, MA 02052, Tel: 508-359-4396, FAX: 508-359-4482; FSC No.: 6645; Empl.: 10

ELECTRO ASSEMBLIES CORP., 425 Huehl Rd., Bldg. 17, Northbrook, IL 60062-2319, Tel: 708-498-6520, FAX: 708-272-2915; FSC No.: 09250; Empl.: 60; *Sls. Mgr.:* Greg Andrews

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Local Sales Offices & Reps

IN	Indianapolis, STB & Assocs., Inc.	317-844-9227
NJ	Medford, Champion Elctrn. Sls., Inc.	609-983-0932
OH	Beachwood, Elctrn. Salesmasters Inc.	216-831-9555

Local Distributors

AZ	Phoenix, Lynntronics	602-433-0288
AZ	Scottsdale, Electro Mktg.	602-991-0110
CA	Costa Mesa, Battery Specialties	714-755-0888

CA	San Diego, Tauber Elctrns.	619-274-7242
CA	San Jose, Rose Elctrns.	408-943-0200
CO	Englewood, AVT, Inc.	303-795-8298
MA	Sutton, Engrd. Assemblies Corp.	508-865-0722
FL	Lutz, Engrd. Assemblies Corp.	813-971-9471
GA	Marietta, Engrd. Assemblies & Comps. Corp.	404-951-8935
IL	Morton Grove, Power Pak	708-966-6000
MA	Sharon, Adcour, Inc.	617-784-8123
MI	Ann Arbor, Wedemeyer Elctrns. Supp. Co.	313-665-8611
NJ	Teterboro, Engrd. Assemblies Corp.	201-288-4477
NY	Penn Yan, Advacom Technlg., Inc.	315-536-2221
NC	Raleigh, Engrd. Assemblies Corp.	919-790-9700
OR	Beaverton, Micro Power	503-626-7086
PA	McKean, Advacom, Inc.	814-476-7774
TX	Houston, K Power Elctrns.	713-783-2288
TX	Stafford, Southwest Elctrns. Inc.	713-240-4000
WA	Redmond, Priebe Elctrns.	206-881-2363
Can	Brampton, Innovative Power Pak	416-791-2132
Can	Calgary, Alberta, Electro-Sonic, Inc.	403-255-9550
Can	Don Mills, Ont., Saynor Varah Inc.	416-445-2340
Can	Quebec, Saynor-Varah	514-630-7470
Can	Richmond, BC, Electro Sonic, Inc.	604-273-2911
Can	Victoria, BC, Pacific Coast Elctrns. Ltd.	604-385-5111

ELECTROCOM INDUSTRIES, 1105 N. Ironwood Dr., S. Bend, IN 46615, Tel: 219-232-2743; FSC No.: 27114; *Sls. Mgr.:* B. Jaffe

ELECTRODATA, INC., 23020 Miles Rd., Bedford Heights, OH 44128, Tel: 216-663-3333, TWX: 810-427-2280, FAX: 216-663-0507; FSC No.: 34-1173465; Empl.: 15; *Sls. Mgr.:* Anthony Cardone; *Dist. Mgr.:* Anthony Cardone

ELECTRODYNAMICS

FAX: 708-255-3827

ELECTRODYNAMICS, INC., A Talley Inds. Co., 1200 Hicks Rd., Rolling Meadows, IL 60008, Tel: 708-259-0740; FSC No.: 10236; Empl.: 200; *Sls. Mgr.:* Frank Rafferty ..... **D•1134**

Local Sales Offices & Reps

CA	Alameda, Liaison, Inc.	415-769-1991
CA	Alhambra, M. W. Riedel & Co.	213-283-7694
CO	Denver, West High-Tech, JV	303-477-8180
CT	Old Saybrook, FJS Assocs.	203-388-5374
FL	Altamonte Spgs., Quantum Sls.	407-788-0550
IL	Collinsville, Magna Engrg. Sls.	618-345-5583
IA	Cedar Rapids, J.R. Sales Engrg.	319-393-2232
KS	Wichita, Magna Engrg. Sls.	316-744-0851
MD	Severna Park, Delmarva Engrg. Assocs., Ltd.	301-647-8007
MA	Burlington, FJS Assocs.	617-273-5959
NJ	Basking Ridge, Churchill Assocs.	201-204-0744
NY	E. Rochester, Noeth Honsinger Assocs.	716-381-4430
NY	Larchmont, Hingston Walsh Assocs., Inc.	914-834-5781
OR	Tigard, ElTech, Inc.	503-684-3458
PA	Norristown, Rivco January Inc.	215-631-1414
TX	Roanoke, CMR	817-379-6540
UT	Centerville, West, Inc.	801-292-8787
WA	Bellevue, ElTech, Inc.	206-643-4330

ELECTRO-DYNAMICS DEV. CO., 475 Mt. Hood Dr. S.W., Issaquah, WA 98027-4038, Tel: 206-392-2493; FSC No.: 9J838; *Sls. Mgr.:* W. A. Pommer

ELECTRO-DYN ELECTRONICS, 1201-19th St., Niagara Falls, NY 14301, Tel: 716-284-8747, FAX: 716-284-9112; *Sls. Mgr.:* H. Emes

THE ELECTRODYNE COMPANY, INC., 4188 Taylor Rd., Batavia, OH 45013, Tel: 513-732-2822, TELEX: 241 463, FAX: 513-732-6953

ELECTROFILM, 27727 Avenue Scott, P.O. Box 55669, Valencia, CA 91355, Tel: 805-257-2240, TELEX: 65-1438; FSC No.: 85932; Empl.: 95; *Sls. Mgr.:* Richard W. Pearson

ELECTRO-FILMS

FAX: 401-738-4389

ELECTRO-FILMS, INC., 111 Gilbane St., Warwick Central Indl. Pk., Warwick, RI 02886, Tel: 401-738-9150, TWX: 710-382-0405; FSC No.: 57252; Empl.: 275; *Sls. Mgr.:* Jean Madden .. **A•1748, 1910-1912; C•1680-1681**

Local Sales Offices & Reps

AL	Huntsville, BCI, Inc.	205-539-4411
CA	San Jose, NES Assocs.	408-437-9300
CA	Santa Ana, Weatherman Assocs.	714-544-1304
CA	Sunnyvale, NES Assocs.	408-738-3259
CO	Ft. Collins, Rep Sls.	303-226-1504
FL	Apopka, Micro Mktg., Inc.	407-889-2022
GA	Chamblee, BCI, Inc.	404-455-0405
IL	Palatine, M & S Sls.	708-934-1200
IN	Ft. Wayne, Corrao Marsh	219-482-2725
IN	Greenfield, Corrao Marsh, Inc.	317-462-4446
MA	Bedford, Vector Assocs.	617-271-0000
MN	Minneapolis, Ferrian Sls.	612-721-8915
NM	Albuquerque, Western High Tech. Mktg.	505-884-2256
NY	Clifton Park, Empire Technlg., Inc.	518-371-2480
NY	Plainview, Robert Smith Assocs.	516-681-3155
NC	Lewisville, Component Circuits, Inc.	919-945-5678
OH	Cincinnati, Arthur Baier Co.	513-779-9011
OH	Cleveland, Arthur Baier Co.	216-461-6161
OH	Columbus, Arthur Baier Co.	614-764-1157
OH	Dayton, Arthur Baier Co.	513-276-5486
OK	Broken Arrow, Merlin Elctrns.	918-251-2084
OK	Broken Arrow, Merlin Elctrns.,	918-251-2084
OR	Portland, Demarest Assocs., Inc.	503-297-7327
PA	Pittsburg, Arthur Baier Co.	412-367-7799
TX	Ft. Worth, Merlin Elctrns.,	817-429-4420
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ELECTRO FORCE CORP., 727 Oakstone Way, Anaheim, CA 92806, Tel: 714-774-3666; Empl.: 4

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ELECTRO IMPULSE, 1805 Corlies Ave. Box 278, Neptune, NJ 07754-0278, Tel: 908-776-5800, FAX: 908-776-6793; FSC No.: 91161; Empl.: 79; *Sls. Mgr.:* Mark Rubin

ELECTRO INDUSTRIES, Div. E.I. Elctrns., Inc., 1800 Shames Drive, Westbury, NY 11590, Tel: 516-334-0870, TELEX: 4948652 ELECTRO, FAX: 516-338-4741; Empl.: 40; *Sls. Mgr.:* S. Kagan

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ELECTRO INSULATION CORP./REMTEK CORP., 3921 Ventura Drive, Arlington Hgts., IL 60004, Tel: 708-632-1020, FAX: 708-632-1089; Empl.: 25; *Sls. Mgr.:* Mike Kamperschroer; *Dist. Mgr.:* Mike Kamperschroer

ELECTROL CO., 321 Dewey St., P.O. Box 29, York, PA 17405, Tel: 717-848-1722, FAX: 717-848-4514; Empl.: 30; *Sls. Mgr.:* Debra Dudley; *Dist. Mgr.:* Debra Dudley

ELECTROL, Hamlin, Inc., 612 East Lake St, Lake Mills, WI 53551, Tel: 414-648-3000; Empl.: 450; *Sls. Mgr.:* Mike Bucher

ELECTROL/HAMLIN INC., Hamlin, Inc., 612 East Lake St, Lake Mills, WI 53551, Tel: 414-648-3000, FAX: 414-648-3001; Empl.: 350; *Sls. Mgr.:* Michael L. Bucher

ELECTROLOGIC, INC., 1359 28th St, Signal Hill, CA 90806, Tel: 213-595-0551, FAX: 213-595-0554; Empl.: 10; *Sls. Mgr.:* Tony Hudson

ELECTRO MAGNETIC PROCESSES, INC., 9616 Owensmouth Ave., Chatsworth, CA 91311-4858, Tel: 818-882-6333, TELEX: 499 2240 EMP UI; FSC No.: 51290; Empl.: 100

ELECTROMATIC CONTROLS CORP., 2495 Pembroke Road, Hoffman Estates, IL 60195-2010, Tel: 708-882-5757, TWX: 910-222-3452; FSC No.: 75203; Empl.: 400; *Sls. Mgr.:* Mike Meurer; *Dist. Mgr.:* Mike Meurer

ELECTRO MAZE AIR FILTERS, 5936 Don Way, Carmichael, CA 95608, Tel: 916-485-4079, FAX: 916-485-7925; Empl.: 7

Electromech

FAX: 201-997-9208

ELECTROMECH, INC., 528 Elm Street, Kearny, NJ 07032, Tel: 201-997-0950; Empl.: 40; *Sls. Mgr.:* Solomon Ezra ..... **A•2208-2209; D•1717**

Local Sales Offices & Reps

NJ	Kearny, Electromech, Inc.	201-997-0950

ELECTRO MECHANICAL SYSTEMS, INC., 801 W. Bradley Ave., Champaign, IL 61820, Tel: 217-359-7125, FAX: 217-359-2075; Empl.: 26; *Sls. Mgr.:* Julie L. Redman

ELECTRO-MECHANISMS, INC., 2745 E. Huntington Dr., Duarte, CA 91010, Tel: 818-359-2535, FAX: 818-303-2189; FSC No.: 52592; Empl.: 27 ..... **B•1624-1625**

Local Sales Offices & Reps

CA	San Carlos, Hickey Indl. Sls.	415-594-9978
OH	Dayton, Harvey Teplitz	513-898-5282

ELECTRO-MECH CO., 707 Hathaway Dr., Colorado Springs, CO 80915, Tel: 719-597-1620, FAX: 719-597-1628

ELECTRO-MECH COMPONENTS, INC., 1826 N. Floradale Ave., South El Monte, CA 91733-3689, Tel: 818-442-7180, FAX: 818-350-8070; FSC No.: 07150; Empl.: 25; *Sls. Mgr.:* Terry Trumbull; *Dist. Mgr.:* Terry Trumbull ..... **B•1686-1687**

Local Sales Offices & Reps

CA	Irvine, Vale Elctrn. Assoc.	714-551-4004
CA	San Diego, Qualtronics	619-695-0118
CA	Santa Clara, Engrg. Assocs.	408-988-5001
CO	Denver, Franklin Sls.	303-722-8824
FL	Orlando, Publicover	407-898-9361
IL	Chicago, IRI	312-967-8430
MD	Baltimore, Callas Elctrns., Inc.	301-744-7711
MA	Needham Hgts., Todino Engrg.	617-444-7925
MI	Livonia, Leading Edge Sls.	313-478-6700
MN	Minneapolis, D. A. Case Assocs.	612-831-6777
NJ	Medford, Comp. Consits.	609-654-5300
NY	Mamaroneck, Bassin Tech.	914-698-9332
NY	Orchard Pk., SHR	716-662-0589
OH	Cincinnati, KCH Co.	513-931-1686
OR	Hillsboro, Doran Sls.	503-640-4500
TX	Richardson, McCoy Assocs.	214-864-1838
WA	Redmond, Doran Sls.	206-885-1885

Local Distributors

CA	Los Angeles, Elec. Switches	213-660-1310
CA	Los Angeles, Master Distrs.	213-452-1229
NY	Buffalo, Genesee Ind. Elec.	716-873-9661
NY	Mamaroneck, Logicomp Elctrns.	800-431-2625

ELECTRO-METRICS, INCORPORATED, A Penril Corp., 100 Church St, Amsterdam, NY 12010, Tel: 518-843-2600, TWX: 710-446-4798, FAX: 518-843-2812; FSC No.: 18581; Empl.: 80; *Sls. Mgr.:* Vito L. Greco

ELECTRO NATIONAL CORP., P.O. Box 402 Matthews Ave., Canton, MS 39046, Tel: 601-859-5511, TWX: 810-990-0938, FAX: 601-859-5518; FSC No.: M-54208; Empl.: 40; *Sls. Mgr.:* Patsy Hicks

ELECTRONETICS, INC., Paine Field Bldg 335, Everett, WA 98204, Tel: 206-355-1855; Empl.: 10

ELECTRONIC APPLICATIONS CO., 4918 Santa Anita Ave., PO Box 4308, El Monte, CA 91734, Tel: 818-442-3212, FAX: 818-442-6873; Empl.: 70; *Sls. Mgr.:* Harvey Smith

ELECTRONIC ASSOCIATES, INC., 185 Monmouth Pkwy, W. Long Branch, NJ 07764, Tel: 201-229-1100, FAX: 201-229-1329; Empl.: 400; *Sls. Mgr.:* Mark H. Ellsworth

ELECTRONIC COIL CORP., 125 Old Iron Ore Rd, Bloomfield, CT 06002, Tel: 203-243-5233, FAX: 203-243-5233; Empl.: 8; *Sls. Mgr.:* Raymond Gorski, Jr.

ELECTRONIC COMPONENTS & MATLS. DIV., GTE Products Corp., 816 Lexington Ave., Warren, PA 16365, Tel: 814-723-2000, FAX: 814-723-2446; *Sls. Mgr.:* Robert Scalise

ELECTRONIC COMPONENTS GROUPE, INC.

FAX: 612-375-1905

ELECTRONIC COMPONENTS GROUPE, Stein Industries, Inc., 26 North 5th Street, Minneapolis, MN 55403, Tel: 612-375-9639, 800-677-8719; *Sls. Mgr.:* Rick Hampton; *Dist. Mgr.:* Rick Hampton ..... **B•1689-1693**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Irvine, Groh Assocs.	714-837-9871
CA	San Diego, Groh Assocs.	619-673-4321
CA	Santa Clara, Cindel/Penmark	408-988-8331
FL	Melbourne, Phoenix Comps.	407-723-4414
GA	Norcross, Cartwright & Bean, Inc./GA Div.	404-368-0160
IL	Palatine, Golbeck Milota Assoc.	708-639-3424
IN	Indianapolis, STB & Assocs., Inc.	317-844-9227
KS	Overland Pk., Electri-Rep	913-649-2168
LA	Covington, Cartwright & Bean, Inc.	504-892-1780
MA	Amherst, Bennetron	603-880-7008
MI	Ypsilanti, Tech Rep	313-572-1950
MD	Glen Burnie, Macrotech Assoc.	301-766-1111
MN	Oakdale, Complete Sls.	612-731-2923
MS	Jackson, Cartwright & Bean, Inc.	601-981-1170
MO	St. Louis, Electri-Rep	314-993-4421
NH	Amherst, Bennetron	603-880-7008
NY	Islip, Cogent Technlg. Assoc., Inc.	516-277-7101
NY	Syracuse, Pi'Tronics	315-455-7346
NC	Charlotte, Cartwright & Bean, Inc.	704-536-0303
NC	Raleigh, Cartwright & Bean, Inc.	919-876-4130
OH	Centerville, Components Inc.	513-436-0255
OH	Cleveland, Components, Inc.	216-243-9200
OR	Hillsboro, Turn-Around Sls.	503-640-4641
TN	Knoxville, Cartwright & Bean	605-693-7450
TN	Memphis, Cartwright & Bean, Inc.	901-362-8345
TX	Dallas, Rem Air Comps. Corp.	214-234-1069
WA	Kirkland, Turn-Around Sls.	206-822-4634
WI	Madison, Golbeck Milota Assocs.	608-222-7037

Local Distributors

AL	Huntsville, C.D.I.	205-883-7501
AZ	Phoenix, Beswitched	602-275-4805
AR	Little Rock, C.D.I.	501-227-6278
CA	Hollywood, Yale Elec.	213-465-3186
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	San Carlos, Logan Elec.	415-594-0700
CA	San Diego, Sigma Elctrns.	619-565-7000
CA	Santa Ana, El-Com, Inc.	714-432-6630
CA	Santa Ana, Sigma Elctrn.	714-558-8600
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Target Elctrns.	408-734-5611
CA	Yorba Linda, Target Elctrns.	714-692-1630
CO	Englewood, CDI	303-799-4916
CO	Littleton, Indelco	303-795-3431
CT	Norwalk, Cobra Comps.	203-847-6442
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Melbourne, C.D.I.	305-724-9910
GA	Norcross, C.D.I.	404-441-3320
IL	Bensenville, Voyager Elctrns.	708-860-1300
IA	Cedar Rapids, Dee Elctrns.	319-365-7551
KS	Wichita, Radio Inc.	316-264-2798
MD	Beltsville, PSI	301-937-4960
MD	Columbia, D. K. Elctrns.	301-995-1950
MD	Elk Ridge, Interconnect Elect.	301-621-5424
MI	Grand Rapids, Calder Elctrns.	616-698-7400
MA	Nashua, Brevan Elctrns.	603-889-7230
MA	Salem, Diamond Elctrns.	603-894-4420
MN	Fridley, Voyager Elctrns.	612-571-7766
MN	New Brighton, Chris Elctrns.	612-631-2647
MO	Florrissant, Delltron Co., Inc.	314-839-0033
NJ	W. Berlin, G.C.I.	609-768-6767
NY	Rochester, CAM-RPC	716-427-9999
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Woodside, Switches Unlimited	800-221-0487
NC	Raleigh, C.D.I.	919-834-9465
OH	Cleveland, CAM-RPC	216-461-4700
OH	Columbus, CAM-RPC	614-888-7777
OH	Dayton, CAM-RPC	513-898-1111
OK	Oklahoma City, Radio Inc.	405-789-0741
OK	Tulsa, Radio Inc.	918-587-9123
OR	Beaverton, Comp. Resources	503-641-8488
OR	Portland, Radar Elec.	503-232-3404
PA	Pittsburgh, CAM-RPC	412-963-6202
TX	Austin, Wofford Elctrns.	512-339-1131
TX	Dallas, C.D.I.	214-644-0373
TX	Dallas, Off-the-Shelf Comps.	214-247-0052
TX	Dallas, Wofford Elctrns.	214-320-0294
TX	Houston, Wofford Elctrns.	713-847-3593
TX	Richardson, Off-the-Shelf Comps.	214-238-0808
WA	Kent, Comp. Resources	206-454-8666
WA	Seattle, Radar Elec. Co., Inc.	206-282-2511
WA	Spokane, Radar Elec.	509-747-3053
WI	Milwaukee, Progressive Image	414-321-4722

FAX: 908-452-0524

ELECTRONIC CONCEPTS, INC., Box 1278, Eatontown, NJ 07724, Tel: 908-542-7880, TELEX: 7107226661; FSC No.: 50558; Empl.: 240; *Sls. Mgr.:* Philip N. Lepore ..... **A•1058-1063**

Local Sales Offices & Reps

AZ	Tempe, Piper Sls. Co.	602-949-0048
CA	La Mirada, Select Elctrns.	714-739-8891
CO	Englewood, TMC	303-770-8995
IL	Wheaton, Elctrn. Concepts, Inc.	312-668-8747
MN	Minneapolis, Components Grp.	612-374-1250
MO	Grandview, Harris-Hanson Co.	816-763-6200
NJ	Eatontown, Elctrn. Concepts, Inc.	908-542-7880
NM	Albuquerque, Piper Sls. Co.	505-883-9090
MO	St. Louis, Harris-Hanson Co.	314-432-3611

Local Distributors

NJ	Clifton, Elcon Sls.	201-546-5022

ECD

FAX: 503-659-4422

ELECTRONIC CONTROLS DESIGN, 4287-A SE International Way, Milwaukie, OR 97222, Tel: 503-659-6100; Empl.: 100; *Sls. Mgr.:* Steven Glass ..... **D•1169**

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ELECTRONIC DESIGN ENGINEERING, 1820 Temescal Av., Norco, CA 91760, Tel: 714-735-1761; Empl.: 3

ELECTRONIC DEVELOPMENT ASSOCIATES, INC., 1 Westcliff Drive, Dix Hills, New York 11746, Tel: 516-673-3881, FAX: 516-673-5979; FSC No.: 9V841

FAX: 617-268-6754

ELECTRONIC DEVELOPMENT CORP., EDC, 11 Hamlin St., Boston, MA 02127-4198, Tel: 617-268-9696, TELEX: 951596; FSC No.: 12619; Empl.: 25; *Sls. Mgr.:* R. B. Ross ..... **D•1242-1243**

Local Sales Offices & Reps

AL	Huntsville, Jim Springer	205-883-4163
AZ	Tempe, Mesa Tech.	602-279-5243
CA	All of CA, F.L.W.	800-339-6030
CO	Englewood, R. A. Mayes Co.	303-761-9447
FL	Orlando, Gentry Assocs.	407-859-7450
FL	Tampa, Gentry Elec. & Instr.	813-886-0720
IL	Arlington Heights, Berndt Assoc.	708-632-0900
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Overland Park, Ramsey Assocs.	913-541-1007
MA	Boston, Elctrn. Dev. Corp.	617-268-9696
MA	Needham, Addelco Corp.	617-444-4754
MI	Hazel Park, Tiby Co.	313-547-3550
MN	Minneapolis, The Mark Co.	612-933-3026
MO	Chesterfield, Ramsey Assocs.	314-532-9386
NJ	Union, Friedman Assocs.	201-964-6200
NM	Albuquerque, Mesa Technlg.	505-883-8833
NY	Victor, SAN WAL Technlg.	716-924-1950
NC	Raleigh, Lee Assocs.	919-848-8818
OH	Cleveland, Tiby Co.	216-371-5335
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Hatboro, Rhodes Technlg.	215-672-3336
TX	Richardson, Scientific Sls.	214-231-6541
VA	Richmond, Advance Control Equip.	804-282-9499
WI	Milwaukee, Berndt Assoc.	414-545-8400
Can	Mississauga, Ont., Omnitronix Ltd.	416-828-6221

ELECTRONIC DEVELOPMENT LABS., See EDL Inc.

ELECTRONIC DEVICES, INC., 21 Gray Oaks Ave., Yonkers, NY 10710, Tel: 914-965-4400, TELEX: 681-8047, FAX: 914-965-5531; Empl.: 200; *Sls. Mgr.:* Paul Dengler; *Dist. Mgr.:* Paul Dengler ..... **A•2094**

Local Sales Offices & Reps

AZ	Tempe, Cantec Sls.	602-345-1276
CA	Northridge, Myco Sls.	818-886-7101
CA	San Jose, Nelson Elctrn. Sls., Inc.	408-437-9300
CO	Golden, Dossett Elctrn. Mktg. Inc.	303-278-4620
FL	Melbourne, Kennedy Assocs.	407-676-6875
IN	Carmel, Berndt Assocs.	317-844-0114
MA	Sharon, Cummings Assocs.	617-784-5600
MI	Livonia, Amtech	313-474-8300
MN	Brooklyn Ctr., Lydon Assoc.	612-535-6526
MO	St. Louis, Rep-tronics Inc.	314-997-4707
NY	Patchogue, Optimum Sls. Co.	516-758-0644
NY	Victor, Net Sls.	716-924-1844
NC	Raleigh, B.T. Funderburk Inc.	919-846-2373
OH	Cleveland, Versatron	216-581-0090
OR	Portland, Index, Inc.	503-297-3364
PA	Pipersville, Yax Assocs.	215-776-2100
TX	Dallas, Kruvand Assocs. Inc.	214-437-3355
WI	Mequon, Stumm Sls.	414-241-8414
Can	Montreal, Que., Elcom GMB Inc.	514-668-3361

Local Distributors

AL	Huntsville, Comp. Dists.	205-883-7501
CA	San Jose, Compass	408-432-7575
CA	Costa Mesa, Orange Cty. Comps.	714-979-3597
CO	Englewood, Comp. Distrs.	303-799-4916
CT	Greenwich, Wise Comps.	203-531-4880
FL	Melbourne, Comp. Dists.	305-724-9910
GA	Norcross, Comp. Dists.	404-449-9508
IL	Chicago, E M D	312-577-0067
IN	Indianapolis, Gateway Megatech	317-844-3906
KY	Louisville, Peerless Elctrn. Equip.	502-637-7674
MA	Billerica, Mayer Elctrns. Inc.	617-229-2255
MI	Grand Rapids, SF Elctrns.	616-459-0216
MN	Minneapolis, Bergquist Co.	612-835-2322
MO	St. Louis, Ric-Tronics	314-576-9816
NJ	Fairfield, Verdura Sls. Co.	201-227-0414
NY	Albany, Edwin Taylor Co.	518-438-7811
NM	Albuquerque, Walker Radio	505-247-2288
NY	Buffalo, Summit Dists.	716-334-8110
NY	Elmsford, Multmetrics	914-347-3666
NC	Raleigh, Comp. Distrs.	919-787-2116
OH	Willoughby, Gateway Megatech	216-953-0333
OK	Tulsa, Quality Comps.	918-664-8812
OR	Portland, Radar Elec. Co.	503-232-3404
TX	Houston, Jaco/QC	713-240-2255
PA	Pittsburgh, Advacom	814-476-7774
VA	Roanoke, Peoples Elctrns.	703-342-8933
WA	Seattle, Radar Elec.	206-282-2511
WI	Racine, Badger Elctrns.	414-637-1256
Can	Ontario, Westburne	613-737-5570

ELECTRONIC DISPLAYS, INC., 780 Creel Dr., Wood Dale, IL 60191, Tel: 708-860-5838, FAX: 708-860-0502

ELECTRONIC ENCLOSURES, Div. Wyle Laboratories, 225 South Aviation Blvd., El Segundo, CA 90245, Tel: 213-643-8181, FAX: 213-643-8565; FSC No.: 09097; Empl.: 230; *Sls. Mgr.:* Robert Sproul ..... **C•1030-1032**

Local Sales Offices & Reps

AL	Huntsville, FLW Southeast	205-990-8989
AZ	Phoenix, Mercury Engrg. Sls.	602-265-0344
CA	Campbell, Carlson & Assocs.	408-370-1284
CA	El Segundo, Wyle Labs.;Elctrn. Encl.	213-643-8181
CA	San Diego, McKinley Elctrn. Sls.	619-271-7221
FL	Casselberry, T-Squared Mktg.	407-699-9992
FL	Ft. Lauderdale, T-Squared Mktg.	305-735-3246
GA	Marietta, FLW Southeast	404-424-1731
IL	Arlington Heigts, Coombs Assoc.	708-439-9810
MD	Upperco, Imigtron Sls. Co.	301-374-5600
MA	Needham Heights, Todino Engrg. Sls. Inc.	617-444-7925
MI	Jackson, Norwood Scroggs Co.	517-750-1170
NJ	Pennsauken, Wyle Labs.;Elctrn. Encl.	609-665-6810
NY	Sanquoit, JBR Engrg. Inc.	315-737-9432
OH	Galion, J. R. Bright Agy.	419-468-3787
TX	Ft. Worth, Zonk Engrg. Co.	214-238-7651
TX	Houston, Zonk Engrg. Co.	713-579-7777
TX	Richardson, Zonk Engrg. Co.	214-238-7651
WI	Milwaulkee, Coombs Assoc.	414-351-6123

ELECTRONIC ENGRG. CO. OF CAL., See EECO

EEM/ELECTRONIC ENGINEERS MASTER, 645 Stewart Ave., Garden City, NY 11530, Tel: 516-227-1300, FAX: 516-227-1901

ELECTRONIC ESSENTIALS, 60-20 34th Avenue, Woodside, NY 11377, Tel: 718-898-8300, TELEX: 384-873, ESYLNK: 6275-6172, FAX: 718-899-7995; Empl.: 49

ELECTRONIC FILM CAPACITORS, INC., 41 Interstate Lane, Waterbury, CT 06705, Tel: 203-755-5629, FAX: 203-755-0659; Empl.: 65; *Sls. Mgr.:* A. Jewel Quinn; *Dist. Mgr.:* A. Jewel Quinn

ELECTRONIC HARDWARE, 320 Broad Hollow Rd., Farmingdale, NY 11735, Tel: 516-752-1950, FAX: 516-752-1971; Empl.: 110; *Sls. Mgr.:* June Franke

ELECTRONIC INDUSTRIES ASSOC., 2001 Pennsylvania Ave. NW, Washington, DC 20006, Tel: 202-457-4900, FAX: 202-457-4985

ELECTRONIC INNOVATIONS CORP., 3107 W. Hampden Ave., Englewood, CO 80110, Tel: 303-789-0424, FAX: 303-789-0809; Empl.: 4

ELECTRONIC MEASUREMENTS INC.

FAX: 908-922-9334

ELECTRONIC MEASUREMENTS, 405 Essex Rd., Neptune, NJ 07753, Tel: 908-922-9300, TELEX: 132-424; FSC No.: 89022; Empl.: 250; *Sls. Mgr.:* Charles Lehmann ..... **D•1718-1727**

Local Sales Offices & Reps

AZ	Phoenix, Sci. Devices	602-957-0401
CA	Huntington Beach, Sci. Devices	714-840-3501
CA	San Diego, Sci. Devices	619-573-0157
CA	San Jose, Sci. Devices	408-554-0455
CO	Broomfield, Sci. Devices	303-469-5145
GA	Marietta, Elctrn. Measurements	404-427-8660
IL	Chicago, Comtel	312-539-4838
IN	Indianapolis, Comtel	317-253-1681
IA	Cedar Rapids, Comtel	319-377-9434
MA	Winchester, FJS Assoc.	617-729-3135
MI	Southfield, Comtel	313-358-2510
MN	Wayzata, Comtel	612-476-1551
NM	Albuquerque, Sci. Devices	505-883-3668
NY	Syracuse, T-Squared	315-463-0355
OH	Dayton, WKM Assoc.	513-434-7500
PA	Pittsburgh, WKM Assoc.	412-892-2953
PA	Plymouth Meeting, Electronic Mktg. Assocs.	215-828-7400
TX	Houston, AccuData	713-580-2451
WA	Redmond, Sci. Dvcs.	206-885-0004
WI	New Berlin, Comtel	414-544-6042

ELECTRONIC MODULES, INC., 10410 Vista Park Rd., Dallas, TX 75238-1687, Tel: 214-340-6789; Empl.: 40-50; *Sls. Mgr.:* Leo Rios; *Dist. Mgr.:* Paul Stolar

ELECTRONIC NAVIGATION INDUSTRIES, See ENI, Inc.

ELECTRONIC PRECISION COMPONENTS CORPORATION, 519 South 5th Ave., Mt. Vernon, NY 10550-4430, Tel: 914-664-2333, FAX: 914-664-4729; FSC No.: 59131; Empl.: 8; *Sls. Mgr.:* Don Edwards ... **A•1670**

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FAX: 617-661-2989

ELECTRONIC PRECISION TECHNOLOGY INC., 126 Jackson St., Cambridge, MA 02140, Tel: 617-661-2454; Empl.: 4; *Sls. Mgr.:* Werner Christ ... **C•1359-1361**

Local Sales Offices & Reps

AL	Huntsville, McKay Smith Assocs.	205-539-8000, FAX:205-539-2472
AZ	Mesa, McDonald Kerr Technlg. Assocs.	602-833-7734,FAX:602-834-8339
CA	Campbell, PCA Mktg. & Sls. Engrg.	408-559-2866, FAX:408-559-8277
CA	Dana Point, P C A	714-493-9822, FAX:714-240-1894
FL	Orlando, McKay Smith Assocs.	407-423-4353, FAX:407-841-8554
FL	Pinellas Pk., P & M Mktg. Assocs.	813-546-4175, FAX:813-544-3826
GA	Tucker, McKay Smith Assocs.	404-496-9913, FAX:404-496-5743
IN	Fishers, Carter, McCormic & Peirce Inc.	317-842-9277,FAX:317-577-2741
MD	Randallstown, Chesepeak Indl. Mktg.	301-653-0476,FAX:301-653-4675
MA	Concord, Noyes Assoc.	508-369-0425, FAX:508-371-2931
MI	Farmington Hills, Carter, McCormic & Pierce Inc.	313-477-7700,FAX:313-477-4149
NC	Raleigh, McKay Smith Assocs.	919-847-2277, FAX:919-847-0956
OH	Englewood, Carter, McCormic & Peirce Inc.	513-836-0951,FAX:513-836-2358
OH	Parma, Carter,McCormic & Peirce Inc.	216-398-0400,FAX:216-398-0766
PA	Pittsburgh, Carter, McCormic & Peirce Inc.	412-826-3800,FAX:412-826-3800
TX	Plano, Connector Specs.	214-517-3660, FAX:214-517-1207

Local Distributors

CA	Costa Mesa, Eric Elctrns.	714-751-1185, FAX:619-236-9910
CA	San Jose, Eric Elctrns.	408-432-1111, FAX:408-433-0570
CA	Santa Anna, Elcom Cabletek	714-432-6630, FAX:714-556-0468
CA	Sunnyvale, PSC	800-654-1518,FAX:408-737-0502
MD	Beltsville, PSC/Petricko Sls.	800-333-5292, FAX:301-937-5299
MD	Gaithersburg, Axis Elctrns.	800-368-2815, FAX:301-840-9299
MA	Ashland, Quality Components	508-881-6504, FAX:508-881-1704
TX	Arlington, Bell Comp. Sls. Inc.	817-461-5303
Can	Mississagua, Ont., R. Theta	416-890-0221, FAX:416-890-1628

ELECTRONIC PRODUCTS MAGAZINE, 645 Stewart Avenue, Garden City, NY 11530, Tel: 516-227-1300, FAX: 516-227-1444

ELECTRONIC RESEARCH CO., 7618 Wedd St, Overland Park, KS 66204, Tel: 913-631-6700, TWX: 910-749-6477; FSC No.: 13571; Empl.: 60; *Sls. Mgr.:* Charles Ditzler

ELECTRONIC RESOURCES INC., 568 Weddell Dr., No. 8, Sunnyvale, CA 94089, Tel: 408-745-1420, FAX: 408-745-0533; Empl.: 6; *Dist. Mgr.:* Cari Ikya

THE ELECTRONICS GROUP, INC., 2828 Interstate St, Charlotte, NC 28208, Tel: 704-391-9500, FAX: 704-597-9500 Ext. 20; Empl.: 30; *Sls. Mgr.:* Doug Mckenzie

ELECTRONIC SOLUTIONS, A Unit of Zero Corp., 6790 Flanders Dr., San Diego, CA 92121, Tel: 619-452-9333, TELEX: 910-335-1169, FAX: 619-452-9464; Empl.: 150

ELECTRONIC SPACE SYSTEMS CORP., Old Powder Mill Rd., Concord, MA 01742, Tel: 508-369-7200, TELEX: 923480 ESSCO WCRD, FAX: 508-369-7641; FSC No.: 15175; Empl.: 150; *Sls. Mgr.:* Susan M. Cuevas

ELECTRONIC SPECIALISTS, 171 South Main St, Natick, MA 01760, Tel: 508-655-1532, 800-225-4876, TELEX: 955-329 ATTN: ESP; Empl.: 42; *Sls. Mgr.:* Frank Brown

FAX: 206-573-4635

ELECTRONIC SPECIALTY CORP., 14511 N.E. 13th Ave., Vancouver, WA 98665, Tel: 206-574-5000; FSC No.: 98927; Empl.: 100; *Sls. Mgr.:* Leon Fuller ..... **B•1467, 1626**

Local Sales Offices & Reps

CA	Anaheim, Gabriel & Assocs.	714-666-0660
CA	San Jose, Westron Assocs.	408-997-7332
CO	Longmont, Tri Tec Sls.	303-440-7862
GA	Atlanta, &	404-395-7079
IA	Des Moines, SPS Assocs. Ltd.	515-225-0607
KS	Olathe, SPS Assocs. Ltd.	913-764-4460
MD	Baltimore, Eastern Comps.	301-788-7050
MD	Gaithersburg, Eastern Comp.	215-825-8610
MA	Lexington, Hathaway Elctrns.	617-861-7010
MN	Hopkins, The Kits Co.	612-933-1888
MN	Stillwater, The Kits Co.	612-439-8088
MO	Earth City, SPS Assocs. Ltd.	314-291-0520
NE	Panama, SPS Assocs. Ltd.	913-764-4460
NJ	Ft. Lee, Neptune Elctrns. Co.	201-461-2789
NM	Albuquerque, Tri Tec Sls.	505-293-3730
NY	Glen Head, Neptune Elctrns. Co.	516-349-1600
NC	Raleigh, Eastern Comp.	919-787-3416
NC	Raleigh, L & D Inc.	919-876-5301
OH	Cleveland, Components Inc.	216-243-9200
OR	Beaverton, Earl & Brown Co., Inc.	503-643-5500
PA	West Conshohocken, Eastern Comp.	215-825-8610
TX	Dallas, Barry Sls.	214-234-0255
TX	Houston, Barry Sls. Inc.	713-784-5860
TX	Richardson, Barry Sls. Inc.	612-439-8088
VA	Annandale, Eastern Comp.	703-354-0723
WA	Redmond, Earl & Brown Co., Inc.	206-885-5064

EP/ELECTRONICS PRODUCTS, 645 Stewart Ave., Garden City, NY 11530, Tel: 516-227-1300, TELEX: 516-227-1901

ELECTRONICS REPRESENTATIVE ASSOC., 20 E. Huron St., Chicago, IL 60611, Tel: 312-649-1333, FAX: 312-649-9509

ELECTRONICS RESEARCH ASSOCIATES INC., West Hill Rd., Winsted, CT 06098, Tel: 203-379-2731, TWX: 710-449-6464, FAX: 203-379-8861; FSC No.: 28564; Empl.: 200; *Sls. Mgr.:* Phillip J. Brown

ELECTRONIC SYS. & PROGRAMMING, See Augat/ES)sP, Inc.

ELECTRONIC SYSTEMS DIVISION, Boeing Defense & Space Grp., P.O. Box 3999, M/S 9/F-UA, Seattle, WA 98124-2499, Tel: 206-657-7474, TELEX: 329430, FAX: 206-657-9874; FSC No.: 81205; Empl.: 4,000; *Sls. Mgr.:* R.F. Priebe

ELECTRONICS SYSTEMS, INC., P.O. Box 5013, Sioux Falls, SD 57117, Tel: 605-338-6868, FAX: 605-338-5061; Empl.: 98; *Sls. Mgr.:* Leo Reynolds

ELECTRONICS TEST CENTRE, Alberta Research Council, 250 Karl Clark Road, Edmonton, AB, Canada T6N 1E4, Tel: 403-450-5370, TELEX: 0372147, FAX: 403-462-7285; Empl.: 16; *Sls. Mgr.:* Chris Talliss

ELECTRONIC TELE-COMMUNICATIONS, INC., 3620 Clearview Parkway, Atlanta, GA 30340-2178, Tel: 404-455-4890, FAX: 404-455-7972; Empl.: 145; *Sls. Mgr.:* Doug Altman; *Dist. Mgr.:* Doug Altman

ELECTRONIC TESTING & CONSULTING, Rt 4 Box 933, Decatur, TX 76234, Tel: 817-627-2929; Empl.: 2

ELECTRONIC TRANSFORMER CORP., P.O. Box 188, Totowa, NJ 07511, Tel: 201-942-2222, FAX: 201-942-9014; FSC No.: 72149; Empl.: 130; *Sls. Mgr.:* Dan Rovine

ELEC-TRON, INC., 2050 Northern St., Wichita, KS 67216, Tel: 316-522-3401, FAX: 316-524-6767; Empl.: 65; *Sls. Mgr.:* Gary Beddow

ELECTRON PRODUCTS, 5367 Third St., Irwindale, CA 91706, Tel: 818-960-2299, ESYLNK: 910-333-9810, FAX: 818-814-4434; FSC No.: 99515; Empl.: 65; *Sls. Mgr.:* Cliff Sailor; *Dist. Mgr.:* Ann Meunier

FAX: 714-250-0958

ELECTRO-NUMERICS, INC., 1811 Reynolds, Irvine, CA 92714, Tel: 714-250-1501; FSC No.: 51666; Empl.: 16; *Sls. Mgr.:* Ro Shultz ..... **D•1344**

Local Distributors

IL	Chicago, Dalec Distrs.	312-283-0300
CA	Costa Mesa, FLW, Inc.	714-751-7512
GA	Atlanta, FLW S.E., Inc.	404-424-1731
MI	Detroit, RAM Meter, Inc.	313-398-6767
NY	Syracuse, W.E.I., Inc.	315-437-4281

ELECTRO OPTICAL INDUSTRIES INC., 859 Ward Drive, Santa Barbara, CA 93111, Tel: 805-964-6701 (ext. 280), TELEX: 65-8427 EOIND SNC, FAX: 805-967-8590; Empl.: 130

ELECTRO-PACIFIC, 5770 Thornwood Dr., Goleta, CA 93117, Tel: 805-964-0751; FSC No.: 29853; Empl.: 60; *Sls. Mgr.:* T. Calhoun

ELECTRO PHYSICS CO., INC., 3009 Central Ave., Waukegan, IL 60085, Tel: 708-249-5801; Empl.: 6; *Sls. Mgr.:* Abe Siegelman

ELECTROPHYSICS CORP., 48 Spruce St., Nutley, NJ 07110, Tel: 201-667-0170; Empl.: 25; *Sls. Mgr.:* Frank J. Vallese

ELECTRO PREP INC. & N-E-D CABLE, 14 Kendrick Rd, Unit 3, Wareham Ind. Park, Wareham, MA, MA 02571, Tel: 508-291-2880, FAX: 568-291-2882; Empl.: 10; *Sls. Mgr.:* R. M. Sullivan

ELECTRORACK PRODUCTS CO., 1443 S. Sunkist St., Anaheim, CA 92806, Tel: 714-776-5420, FAX: 714-776-9683; FSC No.: 26073; Empl.: 50; *Sls. Mgr.:* Chris Allen

ELECTRO RENT CORP., 6060 Sepulveda Blvd., Van Nuys, CA 91411, Tel: 818-787-2100, FAX: 818-786-4224; Empl.: 480; *Sls. Mgr.:* Gary Phillips

ELECTRO-SCIENCE LABS., INC., 416 E. Church Rd., Po Box 1533, King of Prussia, PA 19406-1533, Tel: 215-272-8000, TELEX: 83-4788, FAX: 215-272-6759; Empl.: 120

ELECTRO SCIENTIFIC INDUSTRIES, INC. (ESI), 13900 N.W. Science Pk. Dr., Portland, OR 97229, Tel: 503-641-4141, TELEX: 474-2064; FSC No.: 11837; Empl.: 600; *Sls. Mgr.:* Dick Donaca, Sys.

FAX: 215-682-2133

ELECTRO SPACE FABRICATORS, 300 W. High St, P.O. BOX 67, Topton, PA 19562-0067, Tel: 215-682-7181; Empl.: 205; *Sls. Mgr.:* T. Roth ..... **C•1034-1037**

Local Sales Offices & Reps

CA	Campbell, Shursales	408-374-5577
CA	Irvine, Vale Assocs.	714-551-4004, 4821
FL	Melbourne, Winter Assocs.	305-254-6556
FL	Vero Beach, S.E. Pro. Sls.	407-778-0454
GA	Norcross, Benchmark Tech. Sls.	404-448-2854
IL	Northbrook, Howard Benjamin Assocs.	312-272-2900
MD	Monkton, Imagitron Sls. Co.	800-638-3592
MD	Upperco, Imagitron Sls. Co.	800-638-3592
MA	Needham Heights, TESCO	617-444-7925
NJ	Boonton, Winter Assocs.	201-334-3434
NY	Buffalo, Promark Elctrns., Inc.	716-877-6300
NY	Morrisville, Promark Elctrns., Inc.	315-662-3310
OH	Galion, James R. Bright	419-468-3787
PA	Huntingdon Valley, OMEGA Elctrn. Sls., Inc.	215-947-4135
TX	Dallas, Dynamark	214-437-3333

Local Distributors

CA	Irvine, McGillis Inds.	714-551-4004
CA	Redwood City, HdB Elctrns.	415-368-1388
MD	Columbia, DK Elctrns.	301-995-1950
NY	Baldwin, Accessories for Elctrns.	516-546-1751

ELECTROSPACE SYSTEMS, INC., P. O. Box 831359, Richardson, TX 75083-1359, Tel: 214-470-2137, TELEX: 163590 ESIUT, TWX: 910-867-4768, FAX: 214-470-2466; FSC No.: 33875; Empl.: 1283; *Sls. Mgr.:* John E. Cochran, Dir. Bus Dev.

ELECTRO STANDARDS LAB., INC., Data Communications Products Div., 36 Western Industrial Dr., Cranston, RI 02921, Tel: 401-943-1164, FAX: 401-946-5790; Empl.: 25; *Sls. Mgr.:* R. B. Sepe; *Dist. Mgr.:* R. B. Sepe

ELECTROSTATIC CONSULTING ASSOCS., 556 Lowell Rd., P.O. Box 552, Groton, MA 01450, Tel: 508-448-5583, FAX: 508-448-5583; Empl.: 5; *Sls. Mgr.:* Paul Malinaric

ELECTROSTATICS, 7718 Clairemont Mesa Blvd., San Diego, CA 92111, Tel: 619-279-1414, FAX: 619-279-1126; FSC No.: 34538; Empl.: 10

ELECTRO-SUPPORT SYSTEMS, 43445 Business Park Dr., Temecula, CA 92390, Tel: 714-676-2751, FAX: 714-694-0097; FSC No.: 66760; Empl.: 37; *Sls. Mgr.:* Don Pretot

ELECTROSWITCH, Unit of Electro Switch Corp., 180 King Ave., Weymouth, MA 02188, Tel: 617-335-5200, FAX: 617-335-4253; FSC No.: 82121; Empl.: 290; *Sls. Mgr.:* W. M. Mello ..... **B•1694**

Local Sales Offices & Reps

AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Irvine, Vale Elctrns.	714-551-4004
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Vale Elctrns.	619-693-0113
CA	San Diego, Wiley Co.	619-453-9018
CA	San Ramon, W. Nott & Co.	415-820-8102
CO	Boulder, Comp. Prods. Sls.	303-530-2800
FL	Apopka, Floritronics	407-886-4818
GA	Albany, Holman-Gillespie	912-883-5565
GA	Atlanta, Holman-Gillespie	404-992-8820
IL	Elk Grove Village, Electroswitch	708-593-2225
IA	Bettendorf, Weisler & Assocs.	319-355-5911
MD	Baltimore, Eastern Comps. Sls.	301-788-7050
MD	Gaithersburg, Naudain Assocs.-Southern	301-258-5040
MA	Weymouth, Electroswitch	617-340-0066
MI	Grand Haven, Hilltronics, Inc.	616-847-1010
MI	Royal Oak, Hilltronics	313-435-0920
MN	Roseville, Pro Tech Power Sls., Inc.	612-483-0409
MO	Chesterfield, Weisler & Assocs.	314-537-0010
MO	Kansas City, Weisler & Assocs.	816-421-1679
NH	Salem, Sales Engrg. Co.	603-893-5521
NJ	Fairfield, Electroswitch	201-227-6559
NJ	Marlton, Naudain Assocs.	609-983-5300
NY	Buffalo, Upstate Engrg.	716-632-0011
NY	Johnson City, Upstate Engrg.	607-729-0827
NY	Rochester, Upstate Engrg. Sls.	716-225-2383
NY	Utica, Upstate Engrg. Sls.	315-797-6721
NC	Raleigh, L.G. White Southern	919-872-6049
NC	Winston-Salem, L.G. White Southern	919-725-3612
OH	Medina, Rockford Controls OH, Inc.	216-725-3705
OR	Beaverton, Luscombe Engrg.	503-636-6664
PA	Pittsburgh, R. F. Clark	412-242-9500
PA	W. Conshohocken, Eastern Comps.	215-825-8610
SC	Greenville, L.G. White Southern	803-271-0630
WA	Olympia, Alster Comm.	206-754-7965
TX	Plano, Brice Co.	214-442-9808
TX	Stafford, Brice Co.	713-240-1788
VA	Ashland, L.G. White Southern	804-752-7055
WA	Bellevue, Luscombe Engrg.	206-223-1541
WA	Kent, C.B. Parsons & Co.	206-762-7373
WI	Wauwatosa, Larsen Assocs.	414-258-0529

Local Distributors

CA	Los Angeles, Electric Switches	213-660-1310
FL	Ft. Lauderdale, Peerless Radio Corp. of Fla.	305-973-4141
GA	Atlanta, Georgia Control Ctr.	404-876-8833
IL	Bridgeview, Midco Comp. Sls.	312-599-7777
MN	St. Paul, K. D. I.	612-645-7717
NC	Raleigh, Wholesale Elctrns.	919-878-9400
OH	Medina, R.C.O.	216-725-3705
TX	Stafford, Barclay Whls.	713-240-1788
WA	Seattle, C.B. Parsons Co.	206-762-7373

ELECTRO-TEC CORPORATION A KAYDON COMPANY, 1501 North Main St., Blackburg, VA 24060, Tel: 703-552-2111, FAX: 703-951-3832; Empl.: 200; *Sls. Mgr.:* John J. Daly

ELECTRO-TECH SYSTEMS, INC., 115 E. Glenside Ave., Glenside, PA 19038, Tel: 215-887-2196, TELEX: 797137; Empl.: 13; *Sls. Mgr.:* Sharon Sandy; *Dist. Mgr.:* Stanley Weitz

ELECTROVERT USA CORP., 3440 Beltway Place, Suite 340, Arlington, TX 76018, Tel: 817-468-5171, FAX: 817-468-1959; Empl.: 500; *Sls. Mgr.:* John Gammer, Eastern Zone

ELECTROWEAVE, INC., 425 Shrewsbury St., Worcester, MA 01604, Tel: 508-752-8932, FAX: 508-753-2173; FSC No.: 54207; Empl.: 25; *Sls. Mgr.:* Peter Andrews

ELEKTRISOLA INC., 126 High Street, Boscawen N, NH 03303, Tel: 603-796-2114, FAX: 603-796-2119; Empl.: 150; *Sls. Mgr.:* John W. Mueller

ELETECH ELECTRONICS, INC., 1262 E. Katella Ave., Anaheim, CA 92805, Tel: 714-385-1707, FAX: 714-385-1708; Empl.: 5

ELFORM, INC., P.O. Box 7362, Reno, NV 89510, Tel: 702-829-1905, FAX: 702-829-1693; *Sls. Mgr.:* Roger R. Reinke

ELGAR

FAX: 619-458-0267

ELGAR ELECTRONICS CORPORATION, 9250 Brown Deer Rd., San Diego, CA 92121, Tel: 619-450-0085, 800-733-5427, TELEX: 211063 ELSD UR; FSC No.: 25965; Empl.: 275 ..... **D•1728-1729, 2191-2193**

Local Sales Offices & Reps

CA	Carpenteria, Elgar Corp.	805-684-4400
CA	Redondo Beach, Ward/Davis Assocs.	213-643-6977
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	Santa Clara, Ward/Davis Assocs.	408-245-3700
FL	Clearwater, Beacon	813-796-2378
FL	Longwood, Beacon	407-332-1940
FL	Satelitte Beach, Beacon	407-711-6303
GA	Atlanta, Beacon	404-256-9640
GA	Norcross, Beacon	404-449-8464
IL	Arlington Heights, Dytec/Midwest	708-255-3200
IN	Indianapolis, Dytec/Midwest	317 849-9898
KS	Lenexa, Dytec/South	913-888-0215
KS	Wichita, Dytec/South	316-263-7090
KS	Wichita, Dytec/Souyh, Inc.	316-263-7090
MD	Laurel, Elctrn Mktg. Assocs.	301-953-7800
MA	Beverly, P. Jenks Assocs.	508-921-4600
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Edina, Dytec Instrs.	612-831-7169
NM	Albuquerque, Gary Brooks	505-884-3444
NY	Great Neck, RTI	516-829-3770
NY	Syracuse, Labtronics	315-455-7314
NC	Raleigh, Beacon	919-781-8118
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OR	Wilsonville, Syntek	503-682-2750
PA	Pittsburgh, WKM Assocs.	412-892-2953
TX	Richardson, Testech, Inc.	214-644-5010
TX	San Antonio, Jack Howard Assoc.	512-828-5741
WA	Bellevue, Syntek	206-462-7700
WA	Spokane, Syntek	509-466-0451
WI	Brookfield, Dytec Midwest	414-367-4550
WI	Brookfield, Dytec/Midwest	414-367-4550
Intl	CA San Diego, Elgar Intl. Corp.	619-450-0085

Local Distributors

AZ	Phoenix, Tech. Mktg. Spec.	602-678-4940
CA	Irvine, Ward/Davis Assoc.	714-756-9084
CO	Englewood, Tech. Mktg. Spec.	303-781-8819
GA	Sylvester, Beacon	912-776-4100
MI	Livonia, Elgar Corp.	313-591-2529
TX	Austin, Testech	512-338-9246
TX	Austin, Testech	512-338-9426
TX	Dallas, Beacon	214-437-1505
TX	Houston, Testech	713-893-9661

ELGAR/INTEPRO SYSTEMS, 9250 Brown Deer Road, San Diego, CA 92121, Tel: 619-458-0261, 1-800-733-5427, TELEX: 211063 ELSO UR, FAX: 619-458-0267; Empl.: 250; *Sls. Mgr.:* Mike Cagney ..... **D•1728-1729**

Local Sales Offices & Reps

AZ	Phoenix, Tech. Mktg. Spec.	602-678-4940
CA	Redondo Bch., Ward/Davis Assocs.	213-643-6977
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	Santa Clara, Ward Davis Assocs.	408-245-3700
CO	Englewood, Tech. Mktg. Spec.	303-781-8819
FL	Clearwater, Beacon	813-796-2378
GA	Atlanta, Beacon	404-256-9640
GA	Norcross, Beacon	404-449-8464
IL	Arlington Heights, Dytec/Midwest	708-255-3200
IN	Indianapolis, Dytec/Midwest	317-849-9898
KS	Lenexa, Dytec/South	913-888-0215
KS	Wichita, Dytec/South, Inc.	316-263-7090
MD	Laurel, Elctrn. Mktg. Assocs.	301-953-7800
MD	Maryland Hgts., Dytec/South	314-739-0665
MA	Beverly, P. Jenks Assocs.	508-921-4600
MI	Madison Hgts., WKM Assocs.	313-588-2300
MN	Edina, Dytec Instrs.	612-831-7169
NM	Albuquerque, Gary Brooks	505-884-3444
NY	Great Neck, RTI	516-829-3770
NY	Syracuse, Labtronics	315-455-7314
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OR	Wilsonville, Syntek	503-682-2750
TX	Austin, Testech	512-338-9246
TX	Houston, Testech	713-893-9661
TX	Richardson, Testech, Inc.	214-644-5010
TX	San Antonio, Jack Howard Assoc.	512-828-5741
WA	Bellevue, Syntek	206-462-7700
WA	Spokane, Syntek	509-466-0451
WI	Brookfield, Dytec Midwest	414-367-4550
EXP	CA/San Diego, Elgar Intl. Corp.	619-450-0085

ELGENCO, INC., Box 460, Hurricane, UT 84737, Tel: 801-635-4954, FAX: 801-635-2158; FSC No.: 15455; *Sls. Mgr.:* D. E. Beecher ..... **D•1244**

Local Sales Offices & Reps

CA	Sherman Oaks, Windsor Dynamics	818-990-4173
CA	Sunnyvale, N-S Westronics	408-745-1102
CT	Meriden, Polytek Assoc.	203-634-4499
MA	Ashland, Polytek Assoc.	508-881-4741
NJ	Marmore, SWR Tech., Inc.	609-390-0094
NM	Albuquerque, Technology Mktg. Assoc.	505-345-8921
PA	Broomall, SWR Tech., Inc.	215-353-6639

ELGIN ELECTRONICS, 5533 New Perry Hwy., Erie, PA 16509-3570, Tel: 814-864-4921, FAX: 814-864-1260; Empl.: 300; *Sls. Mgr.:* Paul R. Barlock; *Dist. Mgr.:* Stanley R. Carlburg

ELITE ELECTRONIC ENGINEERING CO., 1516 Centre Circle, Downers Grove, IL 60515, Tel: 708-495-9770, FAX: 708-495-9785; FSC No.: 099-9999; Empl.: 34

ELITE ELECTRONICS, INC., 1408 Summit - Suite 65, Plano, TX 75074, Tel: 214-881-0026, 800-553-4376, FAX: 214-424-7299; Empl.: 4

ELITE SOFTWARE DEVELOPMENT, INC., P.O. Drawer 1194, Bryan, TX 77806, Tel: 409-846-2340, FAX: 409-846-4367; Empl.: 9; *Sls. Mgr.:* Terri J. King

ELIWELL-USA LTD., EliWell, S.P.A., 226 East 54th St. Ste. 800, NYC, NY 10022, Tel: 212-832-9393, FAX: 212-832-0738; *Sls. Mgr.:* Paul R. de Ridder

ELLIOTT/JORDAN, A Company of Vishay, 461 N. 22nd St., P.O. Box 1090, Grand Junction, CO 81502, Tel: 619-690-2401, FAX: 619-690-0132; Empl.: 500; *Dist. Mgr.:* Iris Demeritt ..... **A•1914-1915**

ELMA

FAX: 415-656-3783

ELMA ELECTRONIC INC., 41440 Christy Street, Fremont, CA 94538, Tel: 415-656-3400; Empl.: 40; *Sls. Mgr.:* Kris Holla .... **B•1695, 1806; C•1039-1041, 1584**

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech	205-881-9298
AZ	Scotsdale, I.M. Systems	602-948-1495
CA	Fremont, Bear Resources	415-793-1064
CA	Fremont, ELMA Elctrn. Inc.	415-656-3400
CA	Orange, Viatek	714-634-8411
FL	Oviedo, Pen-Tech	407-366-8706
FL	W. Palm Bch., Pen-Tech	407-640-0800
GA	Roswell, Pen-Tech	404-642-4110
MN	Plymouth, James R. Johnson & Assocs.	612-478-9442
NH	Nashua, Bell Controls Inc.	603-882-6984
NY	Amsterdam, Traxonics Inc.	518-843-1445
NY	Port Chester, Radiation Elctrns., Inc.	914-937-2300
NC	Greensboro, Pen-Tech	919-852-6000
OH	Strongville, Dolfuss-Root & Co.	216-899-9370
PA	King of Prussia, KSI	215-783-6400
TX	Plano, EITA Elctrns., Inc.	214-578-9406

ELMA ENGINEERING, 1066 E. Meadow Circle, Palo Alto, CA 94303, Tel: 415-494-7303, TELEX: 345-560, FAX: 415-494-1093; FSC No.: 59810; Empl.: 38; *Sls. Mgr.:* T. A. Beno; *Dist. Mgr.:* T. A. Beno

ELMAG DIVISION, Lindgren RF Enclosures, 3750 Prospect Ave., Riviera Bch., FL 33404, Tel: 407-881-9292, FAX: 407-844-4175; FSC No.: 23160; Empl.: 15

ELMEC, INC., Technautic Corp., 300 N. McKemy Ave., Chandler, AZ 85226, Tel: 602-961-7100, FAX: 602-961-7173; FSC No.: 50691; Empl.: 70; *Sls. Mgr.:* Ron Pittman

ELMEC TECHNOLOGY OF AMERICA, INC., 1255 Corporate Center Dr. Suite 406, Monterey Park, CA 91754, Tel: 213-265-1861, FAX: 213-265-1908; *Sls. Mgr.:* Steve Sameshima ..... **A•1549-1557**

Local Sales Offices & Reps

CA	Monterey Pk., ELMEC Technlg. of America	213-265-1861
CA	San Jose, Prime Source	408-943-0344
CA	Seal Bch., Texel Engrg.	213-596-9411
IL	Northfield, Feller Assocs. Inc.	708-446-8065
IN	Ft. Wayne, Outman Sls.	219-487-7699
KS	Overland Pk., Web Elctrns.	913-381-7986

MA Natic, Wayland Engrg. Sls. 508-655-6080
MO Florissant, Web Assoc. Elctrns., Inc. ... 314-921-5720
NJ Paramus, Eltech Sls., Inc. 201-967-1309
TX Dallas, Orion Assocs. 214-241-3505

Local Distributors

CA Monterey Park, ELMEC TECHNLG OF AMERICA INC. 213-265-1861

ELM SYSTEMS, 1101 Brown St., Wauconda, IL 60084, Tel: 708-526-5003, FAX: 708-526-5022

HAWKER SIDDELEY
Elmwood Sensors

FAX: 401-728-5390

ELMWOOD SENSORS, 500 Narragansett Park Drive, Pawtucket, RI 02861, Tel: 401-727-1300, TELEX: 6814066 ELMWOOD; Empl.: 1,000ò; *Sls. Mgr.:* Steve Hecht ..... **B•1842-1843**

Local Sales Offices & Reps

AL Decatur, Tenn. Tech. Sls. 205-350-0630
AZ Phoenix, O'Donnell SW 602-944-9542
CA San Diego, O'Donnell Assocs. 619-578-1645
CA San Jose, O'Donnell Assocs. 408-432-1940
CA Torrance, O'Donnell Assocs. 213-539-9664
CO Boulder, Front Range Mktg. 303-443-4780
FL Coral Springs, CBC Electronics 305-755-1111
FL Longwood, CBC Elctrns. 407-831-5380
FL Tampa, CBC Elctrns. 813-969-1901
GA Marietta, Tenn. Tech. Sls. 404-971-1419
IL Arlington Heights, Thermek 708-577-6900
IN Fort Wayne, O. Bromberg 219-456-6010
KY Alexandria, O. H. Bromberg & Assocs. 502-635-3063
KY Louisville, O. Bromberg 502-456-1498
MD Towson, Arbotek 301-825-0775
MA Danvers, C. H. Burnham Assoc. 508-774-0111
MA Topsfield, Whitehead Associates, Inc. 508-887-8050
OH Toledo, Engineered Comps. 419-475-4900
MN Minneapolis, C. Listug Sls. 612-881-8143
MO Kansas City, Hill & Company 816-361-1669
MO St. Louis, Hill & Co. 314-842-6868
NH Durham, C. H. Burnham Assoc. 603-868-2282
NJ Pitman, Colrud Corp. 609-589-5866
NM Albuquerque, O'Donnell Assocs. 505-889-4522
NY E. Syracuse, Bastian Sales Agency ... 315-437-1482
NY Fairport, Bastian Sls. 716-223-0237
NY Islip, Cogent Technlgs. 516-277-7101
NY Larchmont, Cogent Technlg. Assocs. 914-834-3530
NC Garner, Tenn-Tech 919-779-3309
OH Cleveland, Allied Entprs. 216-779-0080
OH Dayton, O. H. Bromberg 513-434-8788
OK Tulsa, Advance Technical Sales 918-664-0482
OR Hillsboro, Temco-Northwest 503-645-2030
NJ Pittman, Colrud Corp. 609-589-5866
PA Pittsburgh, Allied Entprs. East 412-788-2992
RI Woonsocket, C. H. Burnham Assoc. ... 401-762-9889
TX Austin, Advance Technical Sales 512-467-9209
TX Austin, Ion Assocs. 512-331-7251
TX El Paso, Advance Technical Sales 915-591-3142
TX Grand Prairie, Ion Assocs. 214-647-8225
TX Houston, Ion Assocs. 713-537-7717
TX Dallas, Advance Tech. Sls. 214-340-1300
TX Houston, Advance Tech. Sls. 713-440-3888
WA Birch Bay, Temco B.C. 206-371-0423
WA Bothell, Temco Northwest 206-481-6150
WA Spokane, Temco Northwest 509-927-9392
WI Milwaukee, R. Zingler 414-351-5005
Can Mississauga, Ont., Andy Baumen Assocs. 416-828-2600

ELNA AMERICA, INC., 5686 Corporate Ave., Cypress, CA 90630, Tel: 714-761-8600, FAX: 714-761-9188; Empl.: 5,011 Nationwide; *Sls. Mgr.:* Dennis King; *Dist. Mgr.:* Dennis King

ELNETIC ELECTRONICS, INC.:PLANT LOCATIONS, 1332 130th St., Gardena, CA 90247, Tel: 213-515-1546; FSC No.: 98460; Empl.: 25; *Sls. Mgr.:* Ernest H. Carlson, Jr.

ELOGRAPHICS INC., 105 Randolph Rd., Oak Ridge, TN 37830, Tel: 615-482-4100, FAX: 615-482-4943; *Sls. Mgr.:* Richard Brooks

FAX: 714-241-7293

ELPAC COMPONENTS, Elpac Electronics, Inc., 3131 S. Standard Ave., Santa Ana, CA 92705, Tel: 714-979-4440; Empl.: 130; *Dist. Mgr.:* Jim Degerstrom ..... **A•1065, 1619**

Local Sales Offices & Reps

AZ Phoenix, Eltron 602-266-2164
CA San Diego, Addem 619-729-9216
CA Santa Ana, Elpac Comps. 714-979-4440
OR Beaverton, Harry Levinson Co. 503-690-1312
IL Highland Park, Bransky Sls. 312-433-2375
IN Indianapolis, J.C. Hofstetter Co. 317-897-7914
MA Needham Heights, Todino Engr. Sls. .. 617-444-7925
MN Minneapolis, Scott Elctrn. Sls. 612-929-2985
OH Dayton, J. C. Hofstetter Co. 513-296-1010
OH Medina, J. C. Hofstetter Co. 216-241-4880
WA Seattle, Harry Levinson Co. 206-382-1300
WI Cedarburg, Bransky Sls. 414-377-6837

Local Distributors

CA Chatsworth, Mil-Comm 818-998-3111
CA Irvine, Kelex 714-863-1230
CA Santa Ana, BDS Elctrns. 714-662-1050
CA Santa Clara, PSC Elctrns. 800-654-1518
FL Melbourne, New Yorker 407-727-0955
WI Milwaukee, Progressive 414-321-4722
IL Northbrook, Classic Components 312-272-9650
IA Cedar Rapids, Dee Elctrns. 319-365-7551
MA Andover, Aved Elctrns. 508-688-3800
MN Roseville, Parts 1 612-633-8079
NJ S. Hackensack, Waltech 201-641-7300
NY Mamaroneck, New Yorker Elec. 914-698-7600
NJ Wiippany, American Distr. Inc. 201-428-0510
NY Elmsford, Ancar 914-592-7100
OH Dayton, Electro Supp. 513-299-5020
OK Tulsa, Altair Co. 918-252-5781
TX Houston, Altair Co. 713-462-3029
TX Richardson, Altair 214-231-5166
VA Charlotte, Kellner 802-425-3250
WA Seattle, Kam Elec. 206-382-1300
WI New Berlin, Classic 414-786-5300
WI Racine, Badger Elctrns. 414-637-1256

ELPAC

FAX: 714-241-7293

ELPAC POWER SYSTEMS, Elpac Electronics, Inc., 3131 S. Standard Ave., Santa Ana, CA 92705, Tel: 714-979-4440; Empl.: 115; *Sls. Mgr.:* H. Myers; *Dist. Mgr.:* H. Myers ..... **D•1731**

Local Sales Offices & Reps

AL Huntsville, Hughes Assoc. 205-533-9108
AZ Scottsdale, BSE 602-483-0373
CA San Jose, Ruppert Sls. 408-998-8717
CA Woodland Hills, Varigon, Inc. 818-594-5080
CO Englewood, Purdy Co.Assoc. 303-790-2211
FL Tamarac, Hughes Assoc 305-720-1674
GA Norcross, Hughes Assoc. 404-662-1587
MN Minneapolis, RK Sls. 612-571-1001
MS Corinth, Hughes Assoc. 601-287-2915
NC Cary, Hughes Assoc 919-467-7029
TN Knoxville, Hughes Assoc. 615-558-0283
TX Arlington, T-Tec Sls. 817-429-9151
Can Willow Dale, Ont., Cana-Rep Grp. 416-250-6684

Local Distributors

AL Huntsville, Bell Inds. 205-837-1074
AZ Phoenix, Marshall Inds. 602-496-0290
AR Little Rock, Newark Elctrs. 501-225-3130
CA El Monte, Marshall Indus. 800-522-0084
CO Denver, Marshall Indus. 303-451-8383
CT Bloomfield, Newark Elctrns. 203-243-1731
FL Deerfield Beach, Bell Indus. 305-421-1997
GA Norcross, Marshall Indus. 404-923-5750
ID Boise, Marshall Inds. 208-342-4311
IL North Brook, Classic Components 312-272-9650
IN Indianapolis, Marshall Inds. 317-297-0483
IA Cedar Rapids, Newark Elctrns. 319-393-3800
KS Lenexa, Marshall Ind. 913-492-3121
KY Louisville, Newark Elctns. 502-423-0280
LA Metaire, Newark Elctrns. 504-838-9771
MD Silver Springs, Marshall Ind. 301-622-1118
MA Wilmington, Helind Elctrns. 508-657-4870
MI Ann Arbor, Bell Indus. 313-971-9093
MN Plymouth, Marshall Inds. 612-559-2211
NY Hauppauge, Marshall Inds. 516-231-4100
OH Dayton, Marshall Inds. 513-236-8088
PA Pittsburgh, Marshall Inds. 412-963-0441
TX Austin, Marshall Inds. 512-837-1991
UT Salt Lake City, Marshall Inds. 801-485-1551
WI New Berlin, Classic Comps. 414-786-5300

ELPAZ INSTRUMENTS, INC., 160 N. Craig St., Pittsburgh, PA 15213, Tel: 412-687-8700, FAX: 412-687-8702; FSC No.: OA2J2; Empl.: 15; *Sls. Mgr.:* Stephen Phelps; *Dist. Mgr.:* Stephen Phelps

E-L PRODUCTS CORP., Sub.of Astronics Co., 77 Olean Rd., E. Aurora, NY 14052, Tel: 716-655-0800, FAX: 716-655-0309; Empl.: 134; *Sls. Mgr.:* Patrick McCann

ELTECH, 181 Gibraltar Rd., Horsham, PA 19044, Tel: 215-441-0404, FAX: 215-441-8299; Empl.: 40; *Sls. Mgr.:* Brad Lizotte

ELTEC INSTRUMENTS INC., P.O. Box 9610, Daytona Bch., FL 32120, Tel: 904-253-5328, TWX: 810-832-6294, FAX: 904-258-3791; Empl.: 100; *Sls. Mgr.:* Douglas S. Armstrong

ELTEK CORPORATION, 445 E. Main St., Hagerstown, IN 47346, Tel: 317-489-6121, FAX: 317-489-5491; Empl.: 7

ELTROL CORPORATION, 20942 Osborne Street, Bldg. I, Canoga Park, CA 91304, Tel: 818-709-0131, FAX: 818-709-0132; FSC No.: IER54; Empl.: 6; *Sls. Mgr.:* Terry E. Donovan ..... **B•1255**

Local Sales Offices & Reps

CA Van Nuys, Halbar Assocs. 818-906-3941
OH Broadview Hgts., Controlled Prods. ... 216-838-5700

ELVO:DIVISION OF ZUMBACH ELECTRONICS CORPORATION, 140 Kisco Avenue, Mt. Kisco, NY 10549-1407, Tel: 914-241-1008, TWX: 910-250-5181, FAX: 914-241-7096; *Sls. Mgr.:* Thomas H. Stein

EMCA-REMEX PRODUCTS, National Starch & Chem. Co., 160 Commerce Dr., Montgomeryville, PA 18936, Tel: 215-855-1000, TWX: 710-566-1128; Empl.: 50; *Sls. Mgr.:* Jeff Gausepohl; *Dist. Mgr.:* John Wagnon

EMCO ELECTRONICS, 1172 Rte. 109, Lindenhurst, NY 11803, Tel: 516-845-7080, FAX: 516-845-7082; Empl.: 12; *Sls. Mgr.:* M. Sachar; *Dist. Mgr.:* Jay Robinson

EMCO HIGH VOLTAGE CO.

FAX: 209-223-2779

EMCO HIGH VOLTAGE CO., 11126 Ridge Road, Sutter Creek, CA 95685, Tel: 209-223-3626, TELEX: 5101008006; FSC No.: 3T243; Empl.: 38; *Sls. Mgr.:* Roxanne McCoy ..... **D•1732-1738**

Local Sales Offices & Reps

PA Downington, Grasso & Assoc. 215-458-8967
PA Pipersville, Yax & Assoc. 215-766-2100

E/M CORPORATION, 2801 Kent Avenue, P.O. Box 2400, W. Lafayette, IN 47906, Tel: 317-497-6346, FAX: 317-497-6348; FSC No.: 11770; Empl.: 300; *Sls. Mgr.:* Nathan B. Barlow; *Dist. Mgr.:* Nathan B. Barlow

EMCOR PRODUCTS, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, Tel: 507-289-3371, FAX: 507-287-3405; *Sls. Mgr.:* Dan Estes ..... **C•1043**

EMC TECHNOLOGY INC, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034, Tel: 609-429-7800, FAX: 609-429-6814; FSC No.: 24602; Empl.: 70; *Sls. Mgr.:* Peter Semitschew

EMDS

FAX: 301-840-8589

EMDS, INC., 16618 Oakmont Ave., Gaithersburg, MD 20877, Tel: 301-840-5710; *Sls. Mgr.:* Patrick E. Roney ..... **D•1245**

EMERSON COMPUTER POWER, 15041 Bake Parkway No. L, Irvine, CA 92718, Tel: 714-380-1005, FAX: 714-380-0456; Empl.: 50; *Sls. Mgr.:* R.L. Calvin; *Dist. Mgr.:* R. Braud

Please call factory for sales offices and nearest reps.

EMHART CANADA, LTD., See Mallory Components Div.

EMICO INC., Box 368, Dublin, PA 18917, Tel: 215-249-9330, FAX: 215-249-9336; FSC No.: 85925; Empl.: 100; *Sls. Mgr.:* C. Davis

EMI GENCOM INC., See THORN EMI Gencom Inc.

EMI TECHNOLOGY INC., See THORN EMI Technology Inc.

EMM SEMI, SUB OF EM & M, See GTE Microcircuits

EMPIRE MAGNETICS, 5780 B LaBath Ave, Rohnert Park, CA 94928, Tel: 707-584-2801, FAX: 707-584-3418; Empl.: 10

Empro SHUNTS ®

FAX: 317-823-4835

EMPRO MANUFACTURING COMPANY, INC., P.O. Box 26060, Indianapolis, IN 46226, Tel: 317-823-4478; Empl.: 25 ..... **D•1246**

Local Sales Offices & Reps

CA	Montrose, Signal Entprs. Inc.	818-957-0640
GA	Atlanta, Brownell Electro Inc.	404-362-9009
IL	Chicago, Best Rep Co.	708-632-0473
MA	Burlington, E.I.L. Instr.	617-272-9450
NJ	Franklin, D. F. Tobias & Co.	201-209-8825
OH	Cleveland, Weschler Elec. Corp.	216-238-2550
OK	Portland, Westcon, Inc.	503-283-0132
PA	Philadelphia, Sunshine Sci. Instr. Inc.	215-673-5600
TX	Houston, Ev Smith Sls.	713-931-0403
WA	Seattle, Branom Instr. Co.	206-762-6050

Local Distributors

CA	Glendale, Instr. Meter Specialties	818-243-0416
CA	Livermore, Std. Meter Lab	415-449-0220
CA	S. Pasadena, Dae Instr. & Svc., Inc.	213-942-8843
LA	Harahan, Indl. Instrs. Works	504-733-8355
MD	Sparks, E.I.L. Instrs.	301-771-4800
NJ	Belleville, Miscorp	201-751-1190
PA	Norristown, Kimberly-James	215-666-7286
TX	Beaumont, Straughn Elctrns.	409-838-4563
TX	Houston, American Analog	713-941-7265
TX	Houston, Meters & Instrs.	713-644-1631
WA	Seattle, Branom Instr. Co.	206-762-6050
WI	Milwaukee, E-M Instrs.	414-272-7799

EMS

FAX: 714-838-2967

E.M.S., Div. of Sandberg Industries, 14251 Chambers Rd., Tustin, CA 92680, Tel: 714-669-9473; Empl.: 125; *Sls. Mgr.:* Duane Halverson, VP Sls.; *Dist. Mgr.:* Bruce Flemming ..... **C•1682**

E M S DEVELOPMENT CORP., 100 Sea La., Farmingdale, NY 11735, Tel: 516-293-7900, FAX: 516-694-1093; FSC No.: 51435; Empl.: 100

ET
Emulation Technology, inc.

FAX: 408-982-0664

EMULATION TECHNOLOGY, INC., 2344 Walsh Ave., Bldg. F, Santa Clara, CA 95051, Tel: 408-982-0660, TELEX: 981866; Empl.: 18; *Sls. Mgr.:* Joseph J. Bagliere, Jr. ..... **C•1358**

Local Distributors

CO	Denver, Alliance Elctrns. CO	303-433-1648
MI	Bloomfield Hills, Mackellar Assocs.	313-335-4440
NJ	Union, Meridian Supply Co.	201-687-6220
TX	Allen, Prime Distributing Co.	214-231-0170
TX	Richardson, Off The Shelf Comps., Inc.	214-238-0808

ENCLOSURE CORP., 2900 Wharton Rd., Bristol, PA 19007, Tel: 215-785-2900, FAX: 215-785-2960; FSC No.: 32360; Empl.: 75; *Sls. Mgr.:* Gene Goldner

ENCODER DIV., LITTON SYSTEMS, INC., See Litton Encoder Div.

ENCODER PRODUCTS, 1601 B Dover Rd.-Hwy.2, Sandpoint, ID 83864, Tel: 208-263-8541, FAX: 208-263-0541; Empl.: 100; *Sls. Mgr.:* Jim Burcham; *Dist. Mgr.:* Jim Burcham

ENCORE ELECTRONICS, INC., 4400 Route 50, Saratoga Springs, NY 12866, Tel: 518-584-5354, FAX: 518-584-5963; Empl.: 20

ENDEVCO CORPORATION, Allied Signal Aerospace Co., 30700 Rancho Viejo Rd, San Juan Capistrano, CA 92675, Tel: 714-493-8181, TELEX: 68-5608, TWX: 910-596-1415, FAX: 714-661-7231; FSC No.: 95411; Empl.: 400; *Sls. Mgr.:* D. McMahon

ENDICOTT COIL CO., INC., 24 Charlotte St., Binghamton, NY 13905, Tel: 607-797-1263, FAX: 607-797-0151; Empl.: 110; *Sls. Mgr.:* Thomas E. Frank

ERG™ Endicott Research Group, Inc.

FAX: 607-754-9255

ENDICOTT RESEARCH GROUP, 2601 Wayne St, P.O. Box 269, Endicott, NY 13760, Tel: 607-754-9187; FSC No.: 63312; Empl.: 120 ... **B•1066-1067, 1151; D•1740-1741**

Local Sales Offices & Reps

AZ	Phoenix, Finn-Pat Co., Inc.	602-954-0301
CA	Saratoga, Testco	408-253-1900
CO	Littleton, MRC	303-794-4684
CT	Bloomfield, Sands Co./Sir Assocs.	203-243-9343
FL	Maitland, EIR, Inc.	407-660-9600
GA	Atlanta, Wallace Electronics	800-334-3518
IL	Elk Grove Village, Carlson Elctrn. Sls.	708-956-8240
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-378-1450
MA	Westford, SIR Assocs.	617-692-2500
MI	West Bloomfield, Granneman & Mize	317-849-2000
MN	Minneapolis, OEM Prods.	612-831-7373
NC	Kernersville, Wallace Electronics	919-996-2742
OH	Dayton, Elctrn. Sls. & Technlg.	513-433-2800
PA	King of Prussia, Freedman-Malta Assocs.	215-337-9211
UT	Salt Lake City, MRC	303-794-4684
WA	Bellevue, Testco	206-454-7422
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790
Can	Toronto, Ont., Norgay Entprs., Ltd.	416-259-9663

ENEGREN ELECTRONICS, INC., 15605-C S. Keeler Terr., Olathe, KS 66062, Tel: 913-782-4720, FAX: 913-782-4752; Empl.: 7; *Sls. Mgr.:* Floyd Enegren ..... **A•2210**

ENERCO, INC., 9615 W. Marginal Way S., Seattle, WA 98108, Tel: 206-762-1422; Empl.: 5; *Sls. Mgr.:* Lee Rabie

ENERGY

FAX: 301-699-8107

ENERGY, LTD., 4714 Upshur Street, Bladensburg, MD 20710, Tel: 301-699-1144; Empl.: 10 ..... **D•2194**

Local Sales Offices & Reps

MD	Bladensburg, Energy, Ltd.	301-699-1144

Local Distributors

MD	Bladensburg, Energy, Ltd.	301-699-1144

ENERGY SYSTEMS, 12004 NE 95th St., No. 840, Vancouver, WA 98682, Tel: 206-896-8310, FAX: 206-896-8457; Empl.: 25 ..... **D•1247**

ENGINEERED ASSEMBLIES & COMPONENTS CORP., 380 North St, Teterboro, NJ 07608, Tel: 201-288-4477, 800-447-5639, FAX: 201-288-1515; Empl.: 100; *Sls. Mgr.:* John Deleodice; *Dist. Mgr.:* P. Teen ..... **D•1452-1455**

Local Sales Offices & Reps

FL	Orlando, Engrd. Assemblies & Comp. Corp.	407-291-6710
GA	Atlanta, Engrd. Assemblies & Comp. Corp.	404-525-0676
MA	Boston, Engrd. Assemblies & Comp. Corp.	407-291-6710
NC	Raleigh, Engrd. Assemblies & Comp. Corp.	919-790-9700

ENGINEERED COMPONENTS CO., P. O. Box 8121, San Luis Obispo, CA 93403-8121, Tel: 805-544-3800, FAX: 805-544-8091; FSC No.: 32440; Empl.: 193

ENGINEERED MAGNETICS, INC., 18435 Susana Rd., Rancho Dominguez, CA 90221, Tel: 213-635-9555, TWX: 910-325-6208, FAX: 213-631-0313; FSC No.: 06509; Empl.: 200; *Sls. Mgr.:* S. Miller

ENGINEERING DESIGN & SLS., One E.D.S. Way, Danville, VA 24541, Tel: 804-792-6405, FAX: 804-792-6415; Empl.: 75; *Sls. Mgr.:* Mark Gignac

ENGLER INSTRUMENTS OPERATION, See Stemco Instruments, Colt Inds.

ENI, DIV. OF ASTEC AMERICA, INC., 100 Highpower Road, Rochester, NY 14623, Tel: 716-427-8300, FAX: 716-427-7839; Empl.: 390

ENM COMPANY, 5617 Northwest Highway, Chicago, IL 60646, Tel: 312-775-8400, TELEX: 25-4068, FAX: 312-775-5968; Empl.: 1000; *Sls. Mgr.:* Lee Bryant

ENNOVATION OF WISCONSIN, INC., 806 Elm St.-P.O. Box 258, Watertown, WI 53094, Tel: 414-261-2996, FAX: 414-261-3432; Empl.: 5; *Sls. Mgr.:* Enno Knief; *Dist. Mgr.:* Enno Knief

ENPROTECH CORP., 445 West Michigan Ave., Kalamazoo, MI 49007, Tel: 616-381-0665, FAX: 616-381-9810; Empl.: 125

ENSIGN CORP., 7960 S. Madison Street, Burr Ridge, IL 60521, Tel: 708-325-9343, FAX: 708-789-3206; Empl.: 150; *Sls. Mgr.:* D. Brent Ensign

ENTECH CORPORATION, 17A Herman Drive, Simsbury, CT 06070, Tel: 203-658-2740, 203-651-9557, FAX: 203-658-2740

ENTECH SYSTEMS, INC., 17B Herman Dr., Simsbury, CT 06070, Tel: 203-651-9557, FAX: 203-658-2740; *Sls. Mgr.:* A. D. Jorczak

ENTERPRISE SYSTEMS CORP., PO Box 698, Dover, NH 03820, Tel: 603-742-7363, FAX: 603-742-9284; FSC No.: 79543; Empl.: 5; *Sls. Mgr.:* George Perrine

ENTRA CORPORATION, 8651 Castle Park Drive, Indianapolis, IN 46256, Tel: 317-849-8270, FAX: 317-849-7041; Empl.: 75; *Sls. Mgr.:* F. Paul McDonald

Entran

FAX: 201-227-6865

ENTRAN DEVICES, 10 Washington Ave., Fairfield, NJ 07004, Tel: 201-227-1002, 800-635-0650, TELEX: 130-361; *Sls. Mgr.:* Robert L. Morrell ..... **B•1892-1901**

Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assocs.	602-267-0981
CA	Long Beach, Saber Entprs.	213-595-5646
CA	Mtn. View, Saber Entprs.	415-968-0427
CA	San Diego, Saber Entprs.	619-271-1523
CO	Colorado Springs, J. Smith & Assoc.	719-597-5343
CT	Wallingford, Pond Tech. Sls.	203-284-1500,
FL	Indian Rocks Bch., PAR Assocs.	813-596-8841
GA	Atlanta, PAR Assocs.	404-391-9117
IL	Woodstock, TMI Inc.	815-385-2212
ME	North Windham, Pond Tech. Sls.	207-892-9629
MA	Waltham, Pond Tech. Sls.	617-890-5535,
MI	St. Clair Shores, Stress Analysis Svcs.	313-776-9734

MN Eden Prairie, TMI Inc. 612-934-8665
NJ Budd Lake, Measurements, Inc. 201-770-1281
NM Albuquerque, J. Smith & Assocs. 505-345-6501,
NY Clarence, Trott Elctrns./E.I.L. 716-634-8500
NY Pittsford, Trott Elctrns./E.I.L. 716-586-8251
NC Charlotte, PAR Assocs. 704-535-9858
OH Bellbrook, Stress Analysis Svcs. 513-848-8215
OH Cincinnati, Stress Analysis Svs. 513-521-3967
OH Maumee, Stress Analysis Svs. 419-893-4591
OH Medina, Stress Analysis Svc. 216-725-7733
PA Exton, Measurements, Inc. 215-524-0310
PA Murrysville, Stress Analysis 412-733-1766
TX Dallas, Pace Tech. Sls. 214-368-0135
VA Fredericksburg, Measurements, Inc. 703-373-5520
WA Renton, Westech 206-271-5490
WI Oregon, TMI Inc. 608-835-5527
Can Ontario, Intertechnology 416-445-5500

ENTRELEC DIV/GEC ALSTHOM INTERNATIONAL, INC., 1950 Hurd Drive, Irving, TX 75038, Tel: 214-550-9025, FAX: 214-550-9215; Empl.: 50; *Sls. Mgr.:* F. D. Leynaert

ENVIRONMENTAL CONTAINER SYS., INC., See ECS Composites

ENVIRONMENTAL STRESS SYSTEMS, INC., 16310 N. Morris Rd., Sonora, CA 95370, Tel: 209-928-4900, FAX: 209-928-1117; *Sls. Mgr.:* Gino DiBartolomeo; *Dist. Mgr.:* Gino DiBartolomeo ..... **D•1200**

Local Sales Offices & Reps
AZ Chandler, Blackhart Assocs. 602-893-3488
CA San Jose, Microwave Meas. 415-846-0377
FL Ft. Lauderdale, Sun Elctrn. Sys. 305-587-5577
NY Stony Brook, L.I., Gama Metro 516-751-2072
PA North Wales, Scientific Dvcs. 215-699-7707
TX Dallas, Textec 214-233-1928
EXP Santa Cruz, CA, Step Elctrns. 408-423-8722

ENVIRONMENTAL TELESIS & CONTROLS, P.O. Box 180206, Austin, TX 78718, Tel: 512-835-0330, TWX: 910-350-5536, FAX: 512-832-1775; Empl.: 12; *Sls. Mgr.:* Sharon Grimm

ENVIROPLAN, 3 Becker Farm Rd., Roseland, NJ 07068, Tel: 201-994-2300, FAX: 201-994-5100; Empl.: 50; *Sls. Mgr.:* Robert Mullowney

EOG, INC., OMX, INC., 10947 Golden West Drive, Hunt Valley, MD 21030, Tel: 301-785-3000, FAX: 301-771-5814; FSC No.: 17521; Empl.: 130; *Sls. Mgr.:* Arthur C. Rutledge, Jr.; *Dist. Mgr.:* Arthur C. Rutledge, Jr.

EPC IDENTIFICATION SYS., 505 Martin Ave., Rohnert Park, CA 94928, Tel: 707-585-8811, TWX: 910-3382-311, FAX: 707-585-8688; FSC No.: 67041; Empl.: 16; *Sls. Mgr.:* William Bolster; *Dist. Mgr.:* William Bolster

EPCO PRODUCTS INC., P.O. Box N. Cottage St., WAllkill, NY 12589, Tel: 914-895-2033, FAX: 914-895-2279; Empl.: 45; *Sls. Mgr.:* Mark Giegel

E.P.D./GENERAL POWER CORP., 1045 So. East Street, Anaheim, CA 92805-8508, Tel: 714-520-0881, 1-800-343-1813, TELEX: 678870 ATTN:EPD, FAX: 714-491-8644; Empl.: 150; *Sls. Mgr.:* Don Royer,Sls. Dir.; *Dist. Mgr.:* Connie Kouri ..... **D•1069**

Local Distributors
CA Santa Ana, Micro D 800-642-7631
IL Des Moines, United Stationers 800-323-1783
MN Edina, Radix 800-328-3004
NY Buffalo, Ingram Software 800-828-7250
NY Melville, Arrow Elctrns. 516-391-1847
NY Plainview, Global Computers 516-752-2299
TX Dallas, Hall-Mark Elctrns. 214-343-5000
TX Ft. Worth, Allied Elctrns. 817-336-5401

EPD ELECTRONICS, INC., 16921 S. Western Ave.-Bldg. 300, Gardena, CA 90247, Tel: 213-515-4996, TELEX: 691-738, FAX: 213-515-5011; Empl.: 6 ..... **D•1742**

Local Sales Offices & Reps
IA Burlington, JS Ridge Entprs., Inc. 319-754-8745
NJ Bricktown, Bryan Elctrn. Sls. Co. 201-840-8487
OR Portland, Dale G. Weber Co. 503-234-0686
TN White House, Apple Sls. & Mktg. 615-672-4498

EPE TECHNOLOGIES, INC., Subsidiary of Merlin Gerin, 1660 Scenic Avenue, Costa Mesa, CA 92626, Tel: 714-557-1636, FAX: 714-957-1103; Empl.: 350; *Sls. Mgr.:* Joe T. Amos, Jr.; *Dist. Mgr.:* Todd Hunter

EPH ENGINEERING ASSOCIATES, INC., 31 E. 400 S., Orem, UT 84058, Tel: 801-226-1383, FAX: 801-226-1437

EPIC, INC., 150 Nassau St., New York, NY 10038, Tel: 212-349-2470, FAX: 212-406-2508; Empl.: 8; *Sls. Mgr.:* Marge Couteau

EPIC RESINS, General Fiberglass Supply, Inc., 1415 Ellis St., Waukesha, WI 53186, Tel: 414-521-2255, FAX: 414-521-1320; Empl.: 20; *Sls. Mgr.:* Daniel Veenhuis

EPM CORPORATION, 8866 Kelso Dr., Baltimore, MD 21221, Tel: 301-686-7800, TELEX: 87569, FAX: 301-686-4662; Empl.: 75

EPOXY TECHNOLOGY, INC., 14 Fortune Dr., Billerica, MA 01821, Tel: 508-667-3805, 800-227-2201, TELEX: 94-7140, FAX: 508-663-9782; FSC No.: 33246; Empl.: 24

EPSCO INCORPORATED, 1115 Hilltop Dr., Unit A2, Itasca, IL 60143-1120, Tel: 708-250-0410, FAX: 708-250-0521; FSC No.: 53003; Empl.: 8; *Sls. Mgr.:* Wendie Amerena ..... **D•1743**

Local Distributors
AZ Phoenix, Fisher Sci. 602-995-1556
AR Little Rock, Carlton-Bates Co. 501-562-9100
CA San Francisco, Delray Distr. 415-861-6318
CO Denver, Sargent-Welch 303-399-8220
FL Mirimar, Aero Quality Sls. 305-432-2288
IL Carpentersville, Frank Fryer Co. 708-426-6731
IL Elmhurst, McMaster-Carr Supp. 312-834-9600
IN East Chicago, Acro Elctrns. Corp. 219-397-8681
KY Louisville, Peerless Elctrn. Equip. 502-637-7674
LA Lafayette, Ralph's Inc. 318-233-0105
MD Rockville, Capital Radio Whlsrs. 301-881-2270
MA Woburn, Rainin Instr. 617-935-3050
MI Farmington Hills, Motion Control Corp. 313-478-1640
MN Eden Prairie, Allied Elctrns. 612-829-7554
NJ Bridgeport, VWR Scientific 609-467-2600
NM Albuquerque, Walker Elec. Supp. 505-883-2992
NY Syracuse, Stewart Smith 315-437-7836
OH Warren, Rem Elctrns. Supp. 216-373-1300
PA Pittsburgh, Allied Elctrns. 412-367-4124
RI Providence, A & J Distrs., Inc. 401-421-0991
SC Charleston, Wholesale Inds. Elec. 803-722-2634
TX Ft. Worth, Allied Elctrns. 817-336-5401
TX Houston, Angie Elctrns. 713-659-8686
WA Kent, Fisher Scientific 206-872-0330
WI Milwaukee, Industrial Elctrns. Supp. ... 414-276-1212

EPSILON-LAMBDA ELCTRNS. CORP., 427 Stevens St., Geneva, IL 60134, Tel: 708-232-9611, TELEX: 708-232-9613; Empl.: 20; *Sls. Mgr.:* R. Knox

EPSON AMERICA, INC./OEM DIV., 20770 Madrona Ave., Torrance, CA 90503, Tel: 213-534-4500, FAX: 213-534-4449; Empl.: 900; *Sls. Mgr.:* John R. Confrey

EPSON

FAX: 213-782-5320

EPSON AMERICA INC., Component Sales Dept., 20770 Madrona Ave., Torrance, CA 90503, Tel: 213-787-6300; *Sls. Mgr.:* Hideo Akiyama; *Dist. Mgr.:* Craig Dyer ..... **A•1358-1363**

Local Sales Offices & Reps
AL Madison, Concord Comp Reps 205-772-8883, FAX:205-772-8262
AZ Scottsdale, Fred Board Assocs. 602-994-9388, FAX:602-994-9477
AZ Tucson, Fred Board Assocs. 602-299-1508, FAX:602-797-1683
CA Cupertino, Costar, Inc. 408-446-9339, FAX:408-446-4885
CA Encinitas, Bager Elctrns. Inc. 619-944-4108, FAX:619-632-8810
CA Woodland Hills, Bager Elctrns.Inc. 818-712-0011, FAX:818-712-0160
CO Broomfield, Western Region Mktg. 303-469-8088, FAX:303-469-8585
CO Colorado Springs, Western Region Mktg. 719-548-8282,FAX:719-548-0462
FL Casselberry, Dyne-A-Mark 407-831-2822, FAX:407-834-4524
FL Clearwater, Dyne-A-Mark 813-441-4702, FAX:813-447-4120
FL Ft. Lauderdale, Dyne-A-Mark 305-771-6501, FAX:305-772-0114
GA Norcross, Concord Comp. Reps 404-416-9597, FAX:404-441-0790
IL Itasca, LTD Technlgs. 708-773-2900, FAX:708-773-0358
IN Indianapolis, C.C. Electro Sls. 317-921-5000, FAX:317-921-5005
KS Shawnee Mission, Microtronics, Inc. 913-262-1444, FAX:913-262-1445
MD Ellicott City, Technlg. Sls. Assocs. 301-461-7802, FAX:301-461-7888
MA Needham Heights, Rosen Assocs. Inc. 617-449-4700,FAX:617-449-5245
MA Needham Heights, Rosen Assocs., Inc. 714-957-3367,FAX:714-546-2654
MN Eden Prairie, Electromark 612-944-5850, FAX:612-944-5855
NJ Parlin, JMR Sls; Inc. 201-525-8000, FAX:201-525-8805
NY Pittsford, Elcom Sls., Inc. 716-385-1400, FAX:716-248-8531
NY Skaneateles, Elcom Sls., Inc. 315-685-8967, FAX:315-685-6273
NY Wading River, Niktronics 516-929-4671, FAX:516-929-1683
NC Raleigh, WLA Assocs. 919-231-9939, FAX:919-231-9949
OH Sheffield, J.D. Babb 216-934-4454, FAX:216-934-4454
OR Tigard, Matrex Sls. 503-245-8080, FAX:503-246-1848
PA Trevose, Omega Sls. 215-244-4000, FAX:215-244-4104
TX Austin, Component Technlg. Sls. 512-250-2450, FAX:512-288-7328
TX Dallas, Component Technlg. Sls. 214-783-8831, FAX:214-783-4801
TX Houston, Component Technlg. Sls. 713-961-1262, FAX:713-462-9906
UT Salt Lake City, Western Region Mktg. 801-268-9768,FAX:801-268-9796
WA Bellevue, Matrex Sls. 206-643-0363, FAX:206-746-3672
WI Milwaukee, LTD Technlgs. 414-774-1000, FAX:414-774-0593

Local Distributors
AL Bell Inds., Inc. 205-837-1074,FAX:205-830-5598
AZ Tempe, Bell Inds., Inc. 602-966-7800, FAX:602-967-6584
CA Agoura Hills, Bell Inds., Inc. 818-706-2608, FAX:818-991-7695
CA Cypress, Bell Inds., Inc. 714-895-7801, FAX:714-891-4570
CA Irvine, IEC Irvine ... 714-837-9960,FAX:714-837-8308
CA Los Angeles, Bell Inds., Inc. 213-826-6778, FAX:213-447-3265
CA Orange, Orange Electro Mechanical ... 714-937-0714, FAX:714-937-0916
CA Rocklin, Bell Inds., Inc. 916-652-0414, FAX:916-652-0403
CA Sacramento, Integrated Elctrns. (IEC) 916-363-6030,FAX:916-362-6926
CA San Diego, Bell Inds., Inc. 619-268-1277, FAX:619-268-3733
CA San Jose, IEC San Jose 408-435-1000, FAX:408-435-8709
CA Santa Fe Springs, Cable & Comps./CCD 213-921-3611,FAX:213-921-9385
CA Santa Fe Springs, Corporate Warehouse 213-921-3611,FAX:213-921-9385
CA Santa Fe Springs, Just-In-Time 213-921-3611, FAX:213-404-0732
CA Sunnyvale, Bell Inds., Inc. 408-734-8570, FAX:408-734-8875
CO Denver, Integrated Elctrns. (IEC) 303-292-5537, FAX:303-292-0114
CO Wheatridge, Bell Inds., Inc. 303-424-1985, FAX:303-424-0932
CT Cronin Elctrns., Inc. 203-265-3134
CT Wallingford, Bell Inds., Inc. 203-269-6801, FAX:203-269-6527
CT Wallingford, Greene-Shaw Co. Inc. 203-265-3333, FAX:203-265-3583
FL Altamonte Springs, Bell Inds., Inc. 407-339-0078, FAX:407-339-0139
FL Ft. Lauderdale, Bell Inds., Inc. 305-421-1997
FL Melbourne, Greene-Shaw Co. Inc. 407-951-3636, FAX:407-951-3637
FL Tampa, Bell Inds., Inc. 813-541-4434
GA Norcross, Bell Inds., Inc. 404-662-0923, FAX:404-449-6901
IL Bensenville, Voyager Elctrns. 708-860-1300, FAX:708-860-1573
IL Elk Grove Village, Bell Inds., Inc. 708-640-1910, FAX:708-640-0474
IL Hoffman Estates, IEC IL (Hoffman Estates) 708-843-2040,FAX:708-843-2320
IL Urbana, Bell Inds., Inc. 217-328-1077, FAX:217-328-1148
IN Ft. Wayne, Bell Inds., Inc. 219-423-3422, FAX:219-424-2433
IN Indianapolis, Bell Inds., Inc. 317-875-8200, FAX:317-875-8219

IN Indianapolis, Custom Svc. Elect. 317-879-9119, FAX:317-879-9136
IN Indianapolis, Just-In-Time 317-299-5487, FAX:317-293-8256
IN Indianapolis, Mar Elctrns. 317-633-6699, FAX:317-633-6687
IA Bell Inds., Inc. 319-395-0730,FAX:319-875-8219
KS Olathe, ECS Inc. ... 913-782-7787,FAX:913-782-6991
MD Jessup, Bell Inds., Inc. 301-953-2566, FAX:301-953-0039
MA Andover, Bell Inds., Inc. 508-474-8880, FAX:508-474-8902
MA Needham, Cronin Elctrns., Inc. 617-449-5000, FAX:617-444-8395
MI Wixon, Bell Inds., Inc. 313-347-6633, FAX:313-347-3356
MN Bell Inds., Inc. 612-941-1493,FAX:612-938-7410
MN Fridley, Voyager Elctrns. Corp. 612-571-7766, FAX:612-571-9519
MO Bell Inds., Inc. 314-647-2355,FAX:317-875-8219
NH Golfstown, Key Comps. 603-626-1717, FAX:603-626-1720
NJ East Brunswick, Bell Inds., Inc. 201-613-0200, FAX:201-613-9689
NJ Hopelawn, Dove Elctrns. 201-324-7830, FAX:201-442-6789
NM Albuquerque, Bell Inds., Inc. 505-292-2700, FAX:505-275-2819
NY Bohemia, Key Comps. 516-567-7500, FAX:516-576-2920
NY Stony Brook, Dove Elctrns. 516-689-7733, FAX:516-689-7362
NC Bell Inds., Inc. 919-821-4041,FAX:919-821-4953
NC Raleigh, Greene-Shaw Co. Inc. 919-954-7138, FAX:919-954-7139
OH Dayton, Bell Inds., Inc. (Industrial) 513-435-8660, FAX:513-435-6765
OH Dayton, Bell Inds., Inc. (Military) 513-434-8231, FAX:513-434-8103
OR Beaverton, IEC Beaverton (OR) 503-641-1690, FAX:503-646-3737
OR Lake Oswego, Bell Inds., Inc. 503-635-6500, FAX:503-635-4095
PA Trevose, Bell Inds., Inc. 215-953-2899, FAX:215-364-4928
SC Bell Inds., Inc. 800-322-7908,FAX:407-339-0139
TN Bell Inds., Inc. 615-367-4400,FAX:407-339-0139
TX Austin, Norvell Austin 512-837-5555, FAX:512-837-3729
TX Austin, Omni Pro Elctrns. 512-794-9200, FAX:512-338-9576
TX Dallas, Norvell Elctrns., Inc. 214-233-0020, FAX:214-490-7245
TX Dallas, Omni Pro Elctrns. 214-233-0500, FAX:217-385-7508
TX Houston, Norvell Houston 713-462-1666, FAX:713-462-3210
TX Richardson, Bell Inds., Inc. 214-690-0466, FAX:214-690-0822
UT Midvale, Bell Inds., Inc. 801-255-9611, FAX:801-255-2477
UT West Valley City, IEC Utah (Salt Lake) 801-977-9750,FAX:801-975-1207
WA Bell Inds., Inc. 206-867-5410,FAX:206-867-5159
WA Bellevue (WA), IEC Bellevue (MA) 206-455-2727, FAX:206-453-2963
WI Waukesha, Bell Inds., Inc. 414-547-8879, FAX:414-547-6547

EQUIPMENT REMARKETING COMPANY, Boston Financial & Equity Corporation, 20 Overland Street, Boston, MA 02215, Tel: 617-267-8600, FAX: 617-267-2370

EQUIPTO, 225 S. Highland Ave., Aurora, IL 60506, Tel: 708-859-1000, 800-323-0801, TWX: 910-232-0845, FAX: 708-859-3255; Empl.: 300; *Sls. Mgr.:* Tom Nilles; *Dist. Mgr.:* Jerry Reidy

EQUIPTO ELECTRONICS CORP., 351 Woodlawn Ave., Aurora, IL 60506, Tel: 708-897-4691, FAX: 708-897-5314; FSC No.: 14002;Multiple; Empl.: 100; *Sls. Mgr.:* Kent Jarnig ..... **C•1044-1048**

ERA POLY-PLANAR DIV., See Poly-Planar, Inc.

ERASER CO., Box 4961, Syracuse, NY 13221, Tel: 315-454-3237, TELEX: 93-7442, FAX: 315-454-3090; Empl.: 45; *Sls. Mgr.:* Linda S. Cahill

ERC, See Electronic Research Co.

ERCONA, 979 North Ocean Ave., Patchogue, NY 11772, Tel: 516-758-0700, FAX: 516-758-0422; Empl.: 10; *Sls. Mgr.:* G. Moore; *Dist. Mgr.:* L. Mills

ERCON INCORPORATED, 26 Emerson Road, Waltham, MA 02154, Tel: 617-899-1497, FAX: 617-899-2650; *Sls. Mgr.:* Dennis Ehrreich

ERGOTRON, INC., 3450 Yankee Dr., Eagan, MN 55122, Tel: 612-452-8135, TELEX: 4310015, FAX: 612-452-8346; Empl.: 32; *Sls. Mgr.:* Harry C. Sweere

ERICSSON

FAX: 214-680-1059

ERICSSON COMPONENTS, INC., 403 International Parkway, Richardson, TX 75081, Tel: 214-480-8300, TELEX: 735389 ERICS RCHN ..... **D•1744-1748**

Local Sales Offices & Reps

AL Huntsville, The Novus Grp.,Inc. 205-534-0044
AZ Phoenix, CPS Assocs., Inc. 602-246-1097
CA Cupertino, PEI Assocs. Inc. 408-253-1960
CA Garden Grove, Elsco Elctrns. 714-891-4621
CA Grass Valley, Unitronics, Inc. 916-268-1737
CA San Diego, Elsco Elctrns. 619-292-1771
CO Denver, NOW Dvcs. 303-758-4884
CT Greenwich, Ericsson Comps. Inc. 203-625-7300
CT Woodbury, Power Factor & Assocs. ... 203-264-9812
FL Boynton Bch., Burke Assoc., Inc. 407-364-8203
FL Largo, Burke Assoc. Inc. 813-536-4335
FL Oldsmar, Burke Assoc. Inc. 813-786-8105
FL Winter Springs, Burke Assoc. Inc. 407-699-1888
GA Norcross, The Novus Grp., Inc. 404-263-0320
IL Elk Grove Village, Carlson Elctrns. Sls. 708-956-8240
IA Cedar Rapids, Carlson Elec. Sls. Assoc. 319-378-1450
MA Whitinsville, Power Factor & Assoc. ... 508-234-6415
MN Richfield, Clay Rep. Co. 612-861-2191
NJ Marlton, Naudain Assocs., Inc. 609-983-5300
NJ Parlin, JMR Sls., Inc. 201-525-8000
NY Fayetteville, H.C. Johnson 315-637-1143
NY Rochester, H.C. Johnson 716-586-0777
NY Wading River, Niktronics 516-929-4671
NC Cary, The Novus Grp., Inc. 919-460-7771
OH Cleveland, RK Comp. Sls., Inc. 216-642-9312
PA Glenshaw, H. C. Johnson 412-487-1246
TX Dallas, Dynamark 214-437-3333
VA Herndon, Stinson Assocs. 703-620-1331
WA Chattaroy, EMG-Elec. Mktg. Grp. 509-238-6476
WA Redmond, EMG-Elec. Mktg. Grp. 206-882-0962
WA Vancouver, EMG Elec. Mktg. Grp. 206-254-4572
WI Milwaukee, Carlson Elctrns., Sls. 414-476-2790
Can Markham, Ont., Deskin Sls. 416-475-1412

ERICSON MANUFACTURING CO., 4215 Hamann Pkwy., Willoughby, OH 44094, Tel: 216-951-8000, TELEX: 98-5390, FAX: 216-951-1867; Empl.: 110; *Sls. Mgr.:* Keith E. Wigman

ERIE TECHN. PRODS., See Murata Erie No. Amer., Inc.

ERNI COMPONENTS, 520 Southlake Blvd., Richmond, VA 23236, Tel: 804-794-6367, FAX: 804-379-2109; Empl.: 700; *Sls. Mgr.:* Thomas Noack

ESCAP PRODUCTS, 36 Central Ave., Hauppauge, NY 11788, Tel: 516-234-3900, FAX: 516-234-3986; *Sls. Mgr.:* Dave Hall

ESC ELECTRONICS CORPORATION

FAX: 201-947-0406

ESC ELECTRONICS CORP., 534 Bergen Blvd., Palisades Pk., NJ 07650, Tel: 201-947-0400; Empl.: 120 ..... **A•1558-1571, 1671, 2211**

Local Sales Offices & Reps

AL Huntsville, Murcota Corp. 205-539-8476
AZ Mesa, Sedco Sls. 602-461-9069
CA Newbury Pk., Westaironics 805-499-9844
CA Santa Clara, Rodgers Assocs. 408-984-8110
CO Denver, Donohue Sls. Co. 303-455-1719
FL Palm Harbor, Sigma Tech. Assocs. ... 813-789-5522
IL Elk Grove, Carlson Elctrn. Sls. Co. 312-956-8240
NJ Kenvil, Comps. for Elctrns., Inc. 201-927-6662
IA Cedar Rapids, Carlson Elctrn. Sls. Co. 319-378-1450
KS Lenexa, Midwest Tech. Sls. 913-888-5100
MA Taunton, Sutton Associates 508-366-2102
MI Livonia, Electro-Mktg. Grp., Inc. 313-421-7590
MI Muskegon, Electro-Mktg. Grp. Inc. 616-798-1912
MN Minneapolis, R-J, Inc. 612-866-3661
MO Earth City, Midwest Tech. Sls. 314-298-8787
NC Winston-Salem, Murcota Corp. 919-722-9445
OH Dayton, Electro-Mktg. Grp. Inc. 513-890-8322
OH No. Royalton, Electro-Mktg. Grp. Inc. .. 216-582-0075
OR Beaverton, Ravencraft 503-646-9261
PA Ft. Washington, Simon Mktg. Consits. 215-628-3394
TX Plano, Zeus Engrg. 214-423-2027
VA Reston, Tytronics Tech. Sls. 703-620-4600
WI Milwaukee, Carlson Elctrn. Sls. Co. 414-476-2790
EXP NJ, Palisades Pk, ESC Elctrns. Corp. 201-947-0400
Can Toronto, Ont., CEA Assocs. 416-231-9717

ESE, 142 Sierra St., El Segundo, CA 90245, Tel: 213-322-2136; FSC No.: 58525; Empl.: 25; *Sls. Mgr.:* R. Mayers; *Dist. Mgr.:* R. Mayers ..... **D•1135**

Local Distributors

AL Birmingham, Midwest 0 205-942-8585
AZ Phoenix, Midwest 602-220-9440
CA Burbank, Midwest 818-954-0150
CA Hollywood, Shoreline 213-461-9800
DC Washington, Bradley Broadcast 301-948-0650
DC Washington, Midwest 301-577-4903
FL Miami, Midwest 305-592-5355
FL Ocala, Broadcast Gen. Store 904-622-9058
GA Atlanta, Midwest 404-449-0900
HI Honolulu, Midwest 808-521-4644
IL Chicago, Midwest 312-981-1107
IN Richmond, Allied 317-962-8596
IA Davenport, Video Midwest 319-322-1525
KY Edgewood, Midwest 606-331-8990
LA New Orleans, MZB/Gray 504-733-7265
MD Baltimore, Midwest 301-484-0131
MI Detroit, Midwest 313-350-3038
MN Minneapolis, Video Midwest 612-831-2248
MO St. Louis, Midwest 314-569-2240
NJ Cherry Hill, Landy 609-424-4660
NM Los Lunas, Dyma 505-865-6700
NY NYC, Midwest 212-473-6262
NY So. Glens Falls, N.E. Broadcast Labs 518-793-2181
NC Charlotte, Midwest 704-399-6336
PA Philadelphia, Pierce Phelps 215-879-7236
PA Pittsburgh, Midwest 412-364-6780
TN Nashville, Midwest 615-255-2801
TX Dallas, Midwest 214-929-6400
TX Houston, MZB/Gray 713-782-8611
VA Richmond, Midwest 804-426-8434
WA Tacoma, Broadcast Supp. West 800-426-8434
WI Milwaukee, Roscor 414-527-4200
Can Toronto, Allied Broadcast 416-731-3697

ESICO/TRITON, Triton Industries Inc., Box 247, Deep River, CT 06417, Tel: 203-526-5361, TELEX: 955439, FAX: 203-526-9524; FSC No.: 54195; *Sls. Mgr.:* Robert W. Mead

E-SQUARED TECHNOLOGY CORP., 4475 Dupont Ct 69, Ventura, CA 93003, Tel: 805-644-9544, FAX: 805-644-9584; Empl.: 19; *Sls. Mgr.:* Larry D. Emery

ESS, INC., 16310 No. Morris Rd., Sonora, CA 95370, Tel: 209-928-4900, FAX: 209-928-1117

ESTERLINE ANGUS INSTRUMENT CORP., Box 24000, Indianapolis, IN 46224, Tel: 317-244-7611, TELEX: 027-419, FAX: 317-247-4749; FSC No.: 72264; Empl.: 200ò; *Sls. Mgr.:* Thurman Teets, NTL. Sls. Mgr.

E-SYSTEMS, Greenville Div., P.O. Box 6056, Greenville, TX 75403-6056, Tel: 903-455-3450, FAX: 903-457-4413; *Sls. Mgr.:* C. L. Byrom

E-SYSTEMS, Melpar Div., 7700 Arlington Blvd., Falls Church, VA 22046, Tel: 703-560-5000, TELEX: 89-9494, TWX: 710-831-9802, FAX: 703-280-4627; Empl.: 2400

E-SYSTEMS, See Memcor-Truohm, Inc.

E-T-A®

FAX: 708-647-7494

E-T-A CIRCUIT BREAKERS, 7400 N. Croname Rd., Chicago, IL 60648, Tel: 708-647-8303; FSC No.: 06402; Empl.: 30; *Sls. Mgr.:* John J. Palsir ..... **B•1361-1364**

Local Sales Offices & Reps

AL	Huntsville, Macro Mktg.	205-883-9630
AZ	Tucson, Clemick & Assoc.	602-749-4003
CA	Los Angeles, Sierra-Pacific Eng.	714-731-3411
CA	San Francisco, Ross Mktg.	408-988-8111
CO	Denver, Candal, Inc.	303-935-7128
CT	East Haven, Eagle Assocs.	203-467-6542
FL	Winter Springs, Sunland Assocs.	407-365-9533
GA	Atlanta, Macro Mktg.	404-662-5580
IN	Ft. Wayne, Needler Sls. Co.	219-447-2123
IN	Indianapolis, Needler Sls. Co.	317-255-8056
KS	Kansas City, Midtec Assoc.	913-541-0505
MA	Boston, Eagle Assocs.	617-444-3446
MI	Grand Haven, Hilltronics, Inc.	616-847-1010
MI	Royal Oak, Hilltronics, Inc.	313-435-0920
MN	Minneapolis, PWC, Inc.	612-934-1409
MO	St. Louis, Midtec Assoc.	314-275-8666
NY	Islandia, Schmitt Inds.	516-582-5888
NY	Rochester, Lamb Comps.	716-272-7720
NC	Raleigh, Godwin Assocs.	919-878-8000
OH	Cleveland, Del Steffen & Assoc.	216-461-8333
OH	Columbus, Del Steffen & Assoc.	419-884-2313
OH	Dayton, Del Steffen & Assoc.	513-293-3145
OR	Portland, Eltech	503-684-3458
PA	Philadelphia, Jacobsen Assoc.	215-674-2937
PA	Pittsburgh, Del Steffen & Assoc.	412-276-7366
TX	Dallas, Delta Comps.	214-287-6333
UT	Salt Lake City, Frank Merchant	801-277-3775
VA	Sterling, Beacon North Inc.	703-478–2480
WA	Seattle, Eltech	206-643-4330
WI	Milwaukee, Star Engineering	414-645-3680

ET&T CORPORATION, 300A Redhill Ave., 5-A03, Costa Mesa, CA 92626, Tel: 714-557-2703, TELEX: 678352; Empl.: 400ô; *Sls. Mgr.:* B.A. Mylar Rao

ETA POWER, See JETA Power Systems

ETI SYSTEMS

FAX: 619-757-2305

ETI SYSTEMS, Polaris Indl. Entprs., 215 Via Del Norte, Oceanside, CA 92054, Tel: 617-757-7770; FSC No.: 952 762672; *Sls. Mgr.:* Bill Tice; *Dist. Mgr.:* Liane Glover ..... **A•2040-2041; B•1256-1260; D•1136**

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AZ	Phoenix, Allied Elctrns.	602-437-9080
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CA	S. San Francisco, Allied Elctrns.	415-952-9599
CA	San Diego	619-279-2550
CA	San Diego, Allied Elctrns.	619-279-2550
CA	Torrance, Allied Elctrns.	213-373-8828
CO	Englewood, Allied Elctrns.	303-790-1664
CT	Cheshire, Allied Elctrns.	203-272-7730
FL	Pompano Beach, Allied Elctrns.	305-978-3008
GA	Atlanta, Motion Elctrns.,Inc.	404-455-8262
GA	Norcross, Allied Elctrns.	404-446-8595
IL	Lisle, Components, Inc.	312-852-7707
IL	Wood Dale, Allied Elctrns.	708-860-0007
MD	Columbia, Allied Elctrns.	301-381-1560
MA	Billerica, Allied Elctrns.	508-667-7921
NY	Mineola, Allied Elctrns.	516-248-2360
NC	Raleigh, Allied Elctrns.	919-876-5845
OK	Tulsa, Allied Elctrns.	918-664-0844
PA	Newton Square, QDI	215-359-1000
PA	Pittsburgh, Allied Elctrns.	412-367-4124
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Humble, Allied Elctrns.	713-446-8005
VA	Virginia Bch., Allied Elctrns.	804-363-8662
WA	Seattle, Allied Elctrns.	206547-2827
WI	New Berlin, Allied Elctrns.	414-796-1280
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FAX: 704-283-7170

ETRI, INC., 1503 Rocky River Rd., North, Monroe, NC 28110, Tel: 704-289-5423; *Sls. Mgr.:* Peter Pignetti ..... **B•1261; C•1615-1620**

Local Sales Offices & Reps

CA	Irvine, Groh Assocs.	714-837-9871
CA	San Diego, Bestronics	619-693-1111
CO	Boulder, Comp. Prods. Sls.	303-530-2800
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
KS	Overland Pk., Spectrum Sls.	913-648-6811
MI	Farmington Hills, Tritech Sls., Inc.	313-553-3370
MI	Kalamazoo, Tritech Sls., Inc.	616-382-5570
MN	Minneapolis, Milt Westlund Assocs.	612-866-5002
MO	Hazelwood, Spectrum Sls.	314-731-5151
NH	Salem, Sls. Engrg. Co.	603-893-5521
NY	Port Washington, Ashtec, Inc.	516-767-0336
OH	Cincinnati, Makin & Assocs., Inc.	513-871-2424
OH	Columbus, Makin & Assocs., Inc.	614-848-5454
OH	Solon, Makin & Assocs., Inc.	216-248-7370
WI	Janesville, Antek/Lincoln Hodges & Assocs.	608-754-4214
Can	Mississauga, Ont., R-Theta	416-890-0221

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AZ	Tempe, Acacia/Deanco	602-894-2874
AZ	Tempe, Harper, S.I.D.	602-967-1464
CA	Alhambra, Harper, S.I.D.	213-979-5090
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Irvine, Acacia/Deanco	714-660-0834
CA	San Diego, Acacia/Deanco	619-565-4365
CA	San Diego, Harper, S.I.D.	619-578-2500
CA	San Jose, Harper, S.I.D.	408-943-9490
CA	Santa Clara, Comp. Ctr., Inc.	408-988-3751
CA	Sunnyvale, Acacia/Deanco	408-745-7200
CO	Lakewood, Acacia/Deanco	303-232-2882
CT	Milford, Jaco Elctrns., Inc.	203-874-0006
CT	Milford, Milgray Elctrns.	203-878-5538
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FL	Winter Park, Milgray Elctrns.	407-647-5747
GA	Norcross, Milgray Elctrns.	404-446-9777
IL	Bensenville, Milgray Elctrns.	312-350-0490
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IL	Palatine, OHM Elctrns.	312-359-5500
IN	Indianapolis, Advent Elctrns.	317-872-4910
KS	Overland Park, Milgray Elctrns.	913-236-8800
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MD	Gaithersburg, MS Elctrns.	301-921-0200
MA	Wilmington, Jaco Elctrns., Inc.	617-273-1860
MA	Wilmington, MilGray Elctrns.	508-657-5900
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MN	Minneapolis, Stark Elctrns.	612-332-1325
NH	Hudson, Bell Inds.	603-882-1133
NJ	Marlton, Milgray Elctrns.	609-983-5010
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NY	Farmingdale, Milgray Elctrns.	516-420-9800
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NY	Rochester, Summit Elctrns.	716-334-8110
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OK	Tulsa, Norvell Elctrns.	918-254-8606
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PA	Montgomeryville, Pyttronics Inds.	215-643-2850
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TX	Dallas, Milgray Elctrns.	214-248-1603
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Irving, Harper, S.I.D.	214-621-0500
UT	Midvale, Bell Inds.	801-255-9611
VA	Charlottesville, Virginia Elctrn. Comps.	804-296-4184
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Can	Vancouver B.C., Intek Elctrns.	604-324-6831

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NJ	Union, Stearns Assoc.	201-686-2980
OH	Aurora, Meta Tech. Sls.	216-562-8772
PA	Mendenhall, Clark H. Bach & Assocs.	215-388-7903
TX	Plano, Digital Elctrn. Sys.	214-423-6056

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IL	Hoffman Estates, Datalink, Inc.	708-822-1244
KS	Overland Park, R Squared	800-937-3478
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MI	ADA, Cranel, Inc.	616-676-2258
MN	Minneapolis, Datalink, Inc.	612-944-3462
NJ	Edison, Total Tec Sys.	908-906-6500
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EVEREST ELECTRONIC EQUIPMENT, INC., 2100 E. Orangewood Avenue, Anaheim, CA 92806, Tel: 714-634-2200; Empl.: 200; *Sls. Mgr.:* Barry Holman; *Dist. Mgr.:* Barry Holman ..... **C•1050**

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IL	Elmhurst, First Rep Co.	312-520-2450
OH	Aurora, Meta Tech. Sls., Inc.	216-562-8772
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EVI, INC., 7138 Columbia Gateway Dr., Columbia, MD 21046, Tel: 301-290-9550, FAX: 301-381-5687; Empl.: 20

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CA Los Gatos, Featherstone Sls. 408-356-3243
CO Denver, AKI Entprs. 303-388-4488
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GA Atlanta, Rakes Engrg. & Mktg. 404-447-6937
IL Schaumburg, Delta Tech. Sls. Corp. ... 312-310-0280
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KS Prairie Village, Clyde Logsdon & Assoc. 913-381-3833
MD Gaithersburg, Deltatronics 301-253-0615
MA Chelmsford, Interstate Sls. Assocs. 617-256-2287
MO St. Louis, Clyde Logsdon & Assocs. ... 314-849-5125
NJ Allenwood, ACI Sls. 201-223-5895
NJ E. Brunswick, Winch Assoc. 201-828-4615
NY Pittsford, James E. Zimmerman Sls. ... 716-381-3186
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OR Portland, SPS Elctrns. 203-243-9343
PA Chestnut Hill, Deltatronics, Inc. 215-248-0294
PA Youngswood, Pro Mark 412-925-1905
PA Youngwood, Pro-Mark 412-925-1905
TX Dallas, Rem Air Comps. 214-234-1069
VA Powhatan, Deltatronics Inc. 703-492-9027
WA Redmond, SPS Elctrns. 206-885-5257
WI Brookfield, Delta Tech. Sls. 414-781-4775

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EXCEL SPECIALTY CORP., 6335 N. Broadway, Chicago, IL 60660, Tel: 312-262-4781, FAX: 312-262-1330; Empl.: 50

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EXIDE CORPORATION, 645 Penn St., Reading, PA 19601, Tel: 215-378-0500, TWX: 510-651-5288, FAX: 215-378-0345; Empl.: 2200

EXPRESS TEST CORP., 1161 D San Antonio Rd., Mountain View, CA 94043, Tel: 415-968-8818, TELEX: 4942091, FAX: 415-968-0649; *Sls. Mgr.:* Frank S. Gavin

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CA Arcadia, E-Z-Hook 818-446-6175

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FAX: 818-443-5594

FABRICAST, 2517 Seaman Ave., P.O. Box 3176, S. El Monte, CA 91733, Tel: 818-443-3247; FSC No.: 13345 ..... **B•1262-1267**

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CA San Jose, Veer Mktg. 408-432-1818, FAX:408-432-1936
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FL Deerfield Bch., Cartwright & Bean 305-429-3400, FAX:305-429-3402
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MA Salem, Forbes Engrg. Sls. 508-744-1693, FAX:508-741-0427

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CO Denver, West Inc. 303-477-8180, FAX:303-477-1134
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FL Tampa, Fasco Inds., Inc. 813-837-3093
GA Marietta, Fasco Inds., Inc. 404-971-2550
IL Naperville, Fasco Inds., Inc. 708-505-9624
IN Noblesville, Fasco Inds., Inc. 317-776-0055
MI Jackson, Fasco Inds., Inc. 517-783-2831
MN Burnsville, Fasco Inds., Inc. 612-894-4750
MO St. Louis, Fasco Inds., Inc. Div. Hdqrs. 314-532-3505
NY Pittsford, Fasco Inds., Inc. 716-546-7500
OH Milford, Fasco Inds., Inc. 513-248-2245
OR Portland, Fasco Inds., Inc. 503-245-1007
PA Montgomeryville, Fasco Inds., Inc. 215-822-6663
TN Nashville, Fasco Inds., Inc. 615-831-0009
TX Plano, Fasco Inds., Inc. 214-881-9557
WI Thiensville, Fasco Inds., Inc. 414-242-2116
Can Cambridge, Ont., Fasco Inds., Inc. 519-740-2822

FASTEK TEST SYSTEMS, Div. of International Fastek Corp., 1198 Joshua Way, Vista, CA 92083, Tel: 619-598-9990, TELEX: 188912 ATSD UT, FAX: 619-598-9994; *Sls. Mgr.:* Jim Falk, Sls. Mgr./No. Amer.

FASTEX, Illinois Tool Works, 195 Algonquin Rd., Des Plaines, IL 60016, Tel: 312-299-2222, TWX: 910-233-2786; FSC No.: 02768; Empl.: 300; *Sls. Mgr.:* Andy Flis; *Dist. Mgr.:* Denis Singery

FDK AMERICA, INC., Fuji Electrochemical Co., Ltd., 2880 Zanker Rd., Ste. 102, San Jose, CA 95134, Tel: 408-432-8331, FAX: 408-435-7478; *Sls. Mgr.:* Ed Chiiro

F-DYNE ELCTRNS., 449 Howard Ave., Bridgeport, CT 06605, Tel: 203-367-6431, FAX: 203-366-0524; Empl.: 175; *Sls. Mgr.:* Robert Furst

FEDERAL ELECTRONICS, 75 Stamp Farm Rd., Cranston, RI 02921, Tel: 401-944-6200, FAX: 401-946-6280; FSC No.: 69343; Empl.: 150; *Sls. Mgr.:* Timothy Collins

FEI MICROWAVE, INC., Frequency Electronics, Inc., 825 Stewart Dr., Sunnyvale, CA 94086, Tel: 408-732-0880, FAX: 408-733-7434; FSC No.: 21847; Empl.: 375; *Sls. Mgr.:* P. Thesing

FELLER-NEUMAYER US CORP., AFN Div., 72 Veronica Ave./Unit 4, Somerset, NJ 08873, Tel: 908-247-7333, FAX: 908-247-7279; Empl.: 310; *Sls. Mgr.:* Elfie Schwarzinger ..... **C•1752**

FEMA ELCTRNS. CORP., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816, Tel: 908-238-1223, FAX: 908-238-7981; Empl.: 16 to 20; *Sls. Mgr.:* E. Wong; *Dist. Mgr.:* E. Wong ..... **B•1073**

Local Sales Offices & Reps

NY Jericho, Metro Tech. Sls. Corp. 516-935-3330
OH Cincinnati, Stegman Blaine Mktg., Inc. 513-729-1969

FENWAL INC., 400 Main St., Ashland, MA 01721, Tel: 508-881-2000, TELEX: 948421, FAX: 508-881-6729; Empl.: 1000; *Sls. Mgr.:* D. Rieley

FENWAL ELECTRONICS, INC./APD, 450 Fortune Blvd., Milford, MA 01757, Tel: 508-478-6000, TELEX: 299550, FAX: 508-473-6035; Empl.: 450; *Sls. Mgr.:* Don Protopapas; *Dist. Mgr.:* Don Protopapas ..... **B•1845**

Local Sales Offices & Reps

AL Huntsville, Macro Mktg. Assocs., Inc. .. 205-883-9630
AZ Phoenix, Dorton Entprs., Inc. 602-944-2957
CA Cupertino, Codella Mktg. Grp., Inc. 408-257-2561
CA Garden Grove, Elsco Elctrns., Inc. 714-891-4621
CO Denver, Spectrum Mktg. Assocs., Inc. 303-480-9991
CT Southington, The Orion Grp. Inc. 203-621-8371
FL Palm Beach Gardens, Graham Assoc., Inc. 407-622-4049
IL Itasca, Janus Inc. 708-250-9650
IN Greenwood, Valentine & Assocs. 317-888-2260
IN South Bend, Valentine & Assocs. 219-288-7070
IA Cedar Rapids, Dy-Tronix, Inc. 319-377-8275
KS Wichita, Dy-Tronix, Inc. 316-838-0884
MD Gaithersburg, Naudain Assoc. So., Inc. 301-258-5040
MA Peabody, The Orion Grp., Inc. 508-532-6266
MI Royal Oak, Hilltronics, Inc. 313-435-0920
MN So. St. Paul, Northport Engrg., Inc. 612-457-8000
MO Bridgeton, Dy-Tronix, Inc. 314-291-4777
KS Leawood, Dy-Tronix, Inc. 913-339-6333
NY Huntington, CDB Entprs. 516-692-5200
NY Penfield, Upstate Comps. Sls., Inc. 716-381-6070
NC Raleigh, Prime Comps., Inc. 919-850-9866
PA Pittsburgh, Bear Mktg., Inc. 412-531-2002
PA Wynnewood, Metz-Benham Assoc., Inc. 215-896-7300
TX Austin, W. Pat Fralia Co. & Assoc., Inc. 512-835-7911
TX Euless, W. Pat Fralia Co. & Assoc., Inc. 817-267-3577
TX Houston, W. Pat Fralia Co. & Assoc., Inc. 713-772-1572
UT Ogden, Spectrum Mktg. Assocs., Inc. .. 801-972-8552
WA Bellevue, Elctrn. Sources, Inc. 206-451-3500
EXP MA, Milford, Fenwal-Elctrns. 508-478-5255
Can Que., John G. Weiss Co., Ltd. 514-337-5022

Local Distributors

CA Chatsworth, Mil-Comm Distr. 818-998-3111
CA San Jose, Rose Elctrn. Distr. 408-943-0200
CO Denver, Newark-Denver Elctrn. Supp. 303-757-3351
CO Englewood, Indl. Elctrns. Corp. 303-694-9444
FL Clearwater, Newark Elctrns. 813-443-0661
GA Norcross, Newark Elctrns. 404-448-1300
IL Chicago, Newark Elctrns. Corp. 312-784-5100
IN Indianapolis, Bell Inds. 317-875-8200
MD Ellicott City, Newark Elctrns. 301-461-2300
MA Woburn, Newark Elctrns. 617-935-8350
MI Oak Park, Newark Elctrns. 313-967-0600
MN Hopkins, The Joel Co. 612-935-6202
MN Minneapolis, Stark Elec. 612-332-1325
NJ Pennsauken, Newark Elctrns. 609-663-9490
NY Buffalo, Summit Dists. 716-887-2800
NY Huntington, CDB Dev. Corp. 516-692-5200
NY Rochester, Summit Elctrns. 716-334-8110
NY Ronkonkoma, Arrow Elctrns., Inc. 516-467-1000
NC Winston-Salem, Kirkman Elctrns. 919-722-9131
OH Cleveland, Newark Elctrns. 216-391-9330
OK Tulsa, Radio, Inc. 918-587-9123
PA Wynnewood, Metz-Benham Assoc., Inc. 215-896-7300
TX Fort Worth, Patco Supply 817-429-8596
TX Garland, Newark Elctrns. 214-494-5911
UT Salt Lake City, Standard Supp. 801-486-3371
WI Grafton, Lake-View Elctrns. Corp. 414-377-8250
Can Que., John G. Weiss Co., Ltd. 514-337-5022

FERNO-SALESMAKER, Ferno-Washington, Inc., 70 Weil Way, Wilmington, OH 45177, Tel: 513-382-1451, TELEX: 214282, FAX: 513-382-1191; Empl.: 480

FERNWOOD TRANSFORMER CO., Transistor Devices Inc., 560 Independence St., Belvidere, NJ 07823, Tel: 908-475-3207, FAX: 908-475-3242; FSC No.: 3S657; Empl.: 90 ..... **A•2227**

FERRANTI-PACKARD, See F-P Electronics

FERRANTI INTERNATIONAL

Ferranti Venus

FAX: 516-752-7976

FERRANTI VENUS, INC., Ferranti International, 399 Smith St., Farmingdale, NY 11735, Tel: 516-293-4100, TWX: 510-224-6492; Empl.: 450; *Sls. Mgr.:* Herbert Mordkoff ..... **D•1752-1753**

Local Sales Offices & Reps

AZ Scottsdale, Ferranti Venus, Inc. 602-991-9684
MA Chelmsford, B B C 508-937-3400
Can Nepean, Ont., Subtec Ltd. 613-723-7720

Local Distributors

AL Huntsville, W.A. Brown Inst. 205-890-9224
AZ Scottsdale, Ferranti Venus 602-991-9684
CA San Mateo, Halbar North 415-349-4700
CA Westlake Village, Cal Rep 805-371-4586
FL Orlando, W.A. Brown Inst. 407-648-9660
GA Norcross, W.A. Brown Inst. 404-449-7160
MD Annapolis, EES 301-269-6573
MA Chelmsford, B B C 508-937-3400
NC Cary, W.A. Brown, Inst. 919-460-1120
TX Richardson, Barry Sls. 214-234-0255
WA Bellevue, Western Instr. 206-881-5110
Can Nepean, Ont., Subtec, Ltd. 613-723-7720

FERRAZ CORPORATION, 14 Eastmans Rd., Parsippany, NJ 07054, Tel: 201-428-8400, 800-526-9067, TELEX: 136045, FAX: 201-428-0599; Empl.: 100; *Sls. Mgr.:* Douglas L. Bennett; *Dist. Mgr.:* Douglas L. Bennett

FERRETEC INC., 47697 Westinghouse Dr., Fremont, CA 94539-7474, Tel: 415-226-1216, FAX: 415-651-8771; FSC No.: 7W279; Empl.: 65; *Sls. Mgr.:* Desmond G. Killen

FERRITE INTERNATIONAL, 15280 Wadsworth Rd., Wadsworth, IL 60083, Tel: 708-249-4900, FAX: 708-249-4988; Empl.: 60; *Sls. Mgr.:* Theodore H. Beahm

FERRO CORPORATION, Filled & Reinforced Plastics Div., 5001 O'Hara Dr., Evansville, IN 47711, Tel: 812-423-5218, FAX: 812-423-1864; *Sls. Mgr.:* J. C. Vaughn

FERRO CORPORATION, Electronic Glass Department, 4150 East 56th Street, Cleveland, OH 44101, Tel: 216-641-8580, FAX: 216-641-8857; *Sls. Mgr.:* Tack Whang, Bus. Mgr.

FERRO CORPORATION, Electronic Materials Div., 27 Castilian Dr., Santa Barbara, CA 93117-3092, Tel: 805-968-5000, TELEX: 98-0165, FAX: 805-968-8624; *Sls. Mgr.:* William T. Faix, Nat. Sls. Mgr.

FERRO CORPORATION, Frit Division, 4150 East 56th St., Cleveland, OH 44101, Tel: 216-641-8580, TELEX: 98-0165, FAX: 216-641-2049; *Sls. Mgr.:* James Stalder

FERRO CORPORATION, Powder Coatings Div., 4150 East 56th St., Cleveland, OH 44101, Tel: 216-641-8580, TELEX: 98-0165, FAX: 216-641-8596; Empl.: 300 ò

FERRO CORPORATION, Plastic Colorants & Dispersions, 3 Railroad Ave., P.O. Box 603, Stryker, OH 43557, Tel: 419-682-3311, TELEX: 419-682-4924; *Sls. Mgr.:* Robert T. Schneider

FERRO CORPORATION, Transelco Div., P.O. Box 217, Penn Yan, NY 14527-0127, Tel: 315-536-3357, FAX: 315-536-8091; *Sls. Mgr.:* J. F. Arthur/W. Germond

FERRONICS, 45 O'Connor Rd., Fairport, NY 14450, Tel: 716-388-1020, FAX: 716-388-0036; FSC No.: 33062; Empl.: 35; *Sls. Mgr.:* Mark Northrup

Local Sales Offices & Reps

AL Huntsville, L & D 205-837-1469
AZ Tempe, Gassner & Clark 602-968-9037
CA San Diego, Texel 619-576-2162
CA San Jose, Texel/North 408-272-6836
CA Seal Beach, Texel 213-596-9411
CO Denver, West Inc. 303-477-8180
FL Ft. Lauderdale, Hughes Assoc. 305-720-1674
GA Atlanta, L & D 404-395-7079
IL Rolling Meadows, Sumer, Inc. 708-991-8500
IN Indianapolis, John H. Weaver Co. Inc. 317-257-7661
MD Baltimore, Bernard White 301-484-5400
MA Canton, New England Elctrn. Sls. 617-828-4835
MI Birmingham, Forand Sls. 313-644-0087
MN St. Paul, Countryman Assoc. 612-645-9151
NC Raleigh, L & D 919-876-5301
NC Wilmington, L & D 919-256-8110
OH Cleveland, C. J. Voneman Co. 216-226-8000
OR Portland, General Elctrns. 503-297-8500
PA Hatboro, Joe Oberlies Co. 215-675-4226
TX Dallas, Comp. Tech. 214-783-8831
TX El Paso, Alexander Entprs. 915-591-3142
TX Houston, Comp. Tech. 713-961-1262
UT Centerville, West, Inc. 208-888-6227
WA Renton, General Elctrns. 206-864-0969
WI Brookfield, Sumer, Inc. 414-784-6641
Can Don Mills, Ont., R.D. Assocs. 416-444-0959

FERROXCUBE, See Philips Components Discrete Products Division

FIBERGUIDE INDUSTRIES INC., 1 Bay St., Stirling, NJ 07980, Tel: 908-647-6601, FAX: 908-647-8464; Empl.: 80; *Sls. Mgr.:* Sharon Venzke, Ind.

FIBEROPTICS TECHNOLOGY, INC., Quassett Rd., Pomfret, CT 06258, Tel: 203-928-0443, 800-433-5248, FAX: 203-928-7664, 800-543-2558

FIBEROPTIC SYSTEMS, INC., 4680-B E. Los Angeles Ave., Simi Valley, CA 93063, Tel: 805-583-2088, FAX: 805-583-4018; Empl.: 30; *Sls. Mgr.:* Richard Lockett

FIBERTEK INC., P.O. Box 4000, 305 Beasley Dr., Franklin, TN 37065, Tel: 615-794-1400, FAX: 615-790-8289; Empl.: 30

FIBRONICS INTERNATIONAL INC., Communications Way, Independence Park, Hyannis, MA 02601-1892, Tel: 508-778-0700, TELEX: 951297; Empl.: 500; *Sls. Mgr.:* Len Julius; *Dist. Mgr.:* Jim Sproul

FAX: 301-881-0530

FIC CORP., 12216 Parklawn Dr., Rockville, MD 20852, Tel: 301-881-8124, 800-638-6594, TWX: 710-828-9809; FSC No.: 3613; Empl.: 46; *Sls. Mgr.:* Robert E. Frye, V.P.; *Dist. Mgr.:* Robert E. Frye, V.P. ..... **B•1365**

FIDELITY CHEMICAL PRODUCTS CORP., 472 Frelinghuysen Ave., Newark, NJ 07114, Tel: 201-242-4110, FAX: 201-242-5796; Empl.: 55; *Sls. Mgr.:* Michael Aleksinas

FIELDPIECE INSTRUMENTS, 8322 B Artesia, Buena Park, CA 90621, Tel: 714-992-1239, FAX: 714-992-1239; Empl.: 5; *Sls. Mgr.:* Jan Nall; *Dist. Mgr.:* Rey Harju

FAX: 609-599-9508

FIFTH DIMENSION, INC., 801 New York Ave., Trenton, NJ 08638, Tel: 609-393-8350, TWX: 510-681-8412; Empl.: 60; *Sls. Mgr.:* Dick Clawges, Prod. Mgr. ..... **B•1268-1269, 1468-1469, 1696-1697**

Local Sales Offices & Reps

NJ Trenton, Fifth Dimension 609-393-8350

FIL-COIL COMPANY, INC., 800 Axinn Ave., Garden City, NY 11530, Tel: 516-228-9445, TELEX: 960127 SWIFT NYK, FAX: 516-228-9064; FSC No.: 56528; Empl.: 85; *Sls. Mgr.:* William Goldman

FILM MICROELECTRONICS, See General Microcircuits

FILM MICROELECTRONICS INC., 10 B Centennial Drive, Peabody, MA 01960, Tel: 508-532-9913, FAX: 508-532-9954; FSC No.: 27851; Empl.: 101; *Sls. Mgr.:* Karl Cyr

FILTER CONCEPTS INC., 2624 S. Rousselle, Santa Ana, CA 92707, Tel: 714-545-7003, FAX: 714-545-4607; *Sls. Mgr.:* Les Edelberg ..... **A•1620-1623**

BRILL ELECTRONICS

(415) 834-5888

610 E. 10th St., Oakland, CA 94606

FLUKE

(213) 452-8002

1220 Olympic Bl., Santa Monica, CA 90404

FILTER PRODUCTS, Rockwell International, 2990 Airway Ave., Costa Mesa, CA 92626, Tel: 714-641-5311, TELEX: 685532(COLLINS CSMA), FAX: 714-641-5320; FSC No.: 2X491; Empl.: 60; *Sls. Mgr.:* Bob Johnson

FILTRON CO., INC., Sub. of ARX Inc., 148-E Sweet Hollow Rd., Old Bethpage, NY 11804, Tel: 516-752-1144, FAX: 516-752-0905; FSC No.: 81831; Empl.: 90; *Sls. Mgr.:* Richard Michelson ..... **A•1673**

Local Sales Offices & Reps

CA	Felton, Gilland Mtkg.	408-335-3884
CA	La Habra, Cygnus	213-691-2993
CO	Boulder, A. Bissell Co.	303-444-1173
OH	Kettering, J. May Assocs.	513-296-1746
PA	Furlong, Avenir, Inc.	215-348-8290
IL	Palatine, Technical Sls. Assoc.	312-991-6600
MD	Baltimore, Bernard White & Co.	301-484-5400
MA	North Andover, Russet	508-794-4995
NY	E. Syracuse, Matl. Svcs.	315-437-7093
NY	Melville, Carnes Assoc.	516-694-1600
NY	Melville, Carnes Assocs.	516-694-1600
OH	Kettering, J. May Assocs.	513-296-1746
NY	Syracuse, Material Svcs.	315-437-7093
PA	Furlong, Avenir, Inc.	215-348-8290
TX	Bedford, De Armond Ent.	817-267-2048
TX	Bedford, DeArmond Entprs.	817-267-2048
WA	Mercer Island, Eagle Enterprises	206-232-7401

FILTRONICS, INC., 6010 Parretta, Kansas City, MO 64120, Tel: 816-231-7375, FAX: 816-241-0368; FSC No.: 53733; Empl.: 70; *Sls. Mgr.:* Brenda Gabbert

FINISHERS, INC., 517 Aldo Avenue, Santa Clara, CA 94054, Tel: 408-988-0222; Empl.: 10; *Sls. Mgr.:* Denise Firebaugh

THE FIRST ELECTRONICS CORP., 71 Von Hillern St., Boston, MA 02125, Tel: 617-288-2430, FAX: 617-288-0332; FSC No.: 14532; Empl.: 65; *Sls. Mgr.:* Chris Nastopoulos

FISCHER CONNECTORS INCORPORATED

FAX: 805-295-0090

FISCHER CONNECTORS, 28245 Avenue Crocker, Valencia, CA 91355, Tel: 805-295-0600, 1-800-344-0445, TELEX: 499-4182 ..... **C•1365-1371**

Local Sales Offices & Reps

AL	Huntsville, South Design & Mktg.	205-880-3623, FAX:205-880-3624
AZ	Scottsdale, T.C. Elctrnc. Sls., Inc.	602-994-5153, FAX:602-990-8648
CA	Fairfield, Baribeault Assocs.	707-428-6095, FAX:707-428-6099
CA	Mission Viejo, Wayne Champa Assocs.	714-581-3459,FAX:714-581-2432
CA	Moorpark, Interconn Tech. Mktg.	805-523-1582, FAX:805-523-1583
CA	Valencia, Fischer Connectors, Inc.	805-295-0600, FAX:805-295-0090
CO	Golden, J.F. Hurlbut Co.	303-279-7796, FAX:303-278-9909
FL	Indian Harbour Bch., Bill Toy & Assocs.	407-773-5805,FAX:407-773-4961
IN	Greenwood, Valentine & Assocs.	317-888-2260, FAX:317-881-4904
MD	Baltimore, Chesapeake Indl. Mktg.	301-653-0476, FAX:301-653-4675
MA	Newton, M. A. Olson Assocs. Inc.	617-244-4030, FAX:617-244-6572
MI	Madison Heights, Pine Sls., Inc.	313-589-0350, FAX:313-589-3420
MN	Minneapolis, Electro-Tec Assocs.	612-853-0242, FAX:612-854-8601
NJ	Corbin City, Brown Assocs.	609-628-3434, FAX:609-628-4012
NJ	Wayne, G.T. Assocs., Inc.	201-694-6040, FAX:201-694-6493
NY	Unadilla, J.E.F. Assocs.	607-369-9239, FAX:607-369-5056
OH	Cleveland, KT/DEPCO	216-442-6200, FAX:216-461-2101
TX	Irving, Aid Elctrns., Inc.	214-790-4761, FAX:214-790-9792
WA	Redmond, Eclipse Mktg.	206-885-6991, FAX:206-883-9481
Can	Richmond Hill, Ont., Renmark Elctrns. Ltd.	416-881-8844,FAX:416-881-8848

FISHER-BAKER CORP., 3108 Industrial 31st, Fort Pierce, FLA 34957, Tel: 407-466-0750, FAX: 407-466-7679; *Sls. Mgr.:* R. Peck

FISHERCAST, Fisher Gauge Limited, P.O. Box 179, Peterborough, Ontario, Canada K9J 6Y9, Tel: 705-748-9522, FAX: 705-745-8818; Empl.: 180ò; *Sls. Mgr.:* Larry Hatfield

FISHERTECH, Fisher Gauge Limited, 194 Sophia Street, P.O. Box 179, Peterborough, Ontario, Canada K9J 6Y9, Tel: 705-748-9522, TELEX: 06-962838, FAX: 705-748-6312; Empl.: 200ò; *Sls. Mgr.:* Earl Belsey

FISONS INSTRUMENTS, 24911 Stanford Ave., Valencia, CA 91355, Tel: 805-295-0019, TELEX: 4720130, FAX: 805-295-0419; Empl.: 200; *Sls. Mgr.:* Robert Boyd

FITCHBURG COATED PRODUCTS, Technographics, Inc., P.O. Box 1106, Scranton, PA 18501, Tel: 717-347-2035; Empl.: 300

THE FIVE STAR CO., 120 W. Main St., Plantsville, CT 06479, Tel: 203-628-5561, FAX: 203-621-5152; *Sls. Mgr.:* Robert Murphy

FJA INDUSTRIES, P.O. Box 242, Santa Clara, CA 95052, Tel: 408-727-0100, TWX: 910-338-0260; *Sls. Mgr.:* Frank J. Ardezzone

FLANN MICROWAVE INC., Ste. 2200, One Kendall Square, Cambridge, MA 02139, Tel: 1-800-937-3772, FAX: 617-577-8234; *Sls. Mgr.:* Lawrie Lansdell

FLEX-CORE DIV., Morlan & Assocs., Inc., 6625 McVey Blvd., Worthington, OH 43235, Tel: 614-889-6152, FAX: 614-876-8538; Empl.: 10; *Sls. Mgr.:* D. Morlan ..... **A•2228**

MCi
FLEXIBLE FURNITURE DIVISION

FAX: 616-685-9195

FLEXIBLE FURNITURE DIVISION, Metal Components, Inc., 323 Acorn Street, Plainwell, MI 49080, Tel: 616-685-6831; Empl.: 32; *Sls. Mgr.:* Lynn D. Middlebrook ..... **C•1053**

Local Sales Offices & Reps

CA	Rancho Cucamonga, B & E Assocs.	818-282-3224
CO	Westminster, Fine Line Tech.	303-429-3593
MN	Minneapolis, Haldeman-Homme Co.	612-331-4880
NJ	Ringwood, Eastern Scientific Prods.	201-728-7200
OH	Medina, Danco Equip.	216-723-3233
VA	Vienna, Morgan Scientific	703-893-4306

FLEXIBLE TECHNOLOGIES, Arlon, P. O. Box 4305, 199 Amaral St., E. Providence, RI 02914, Tel: 401-434-2340, TELEX: 6972602, FAX: 401-434-2557; Empl.: 65; *Sls. Mgr.:* Herb Howard

For sales offices and reps. in the Northeastern region, call Ron Sencer- 401-434-2340 For sale offices and reps. in California, call Rick Kirchhoff- 714-540-2811 For sales offices and reps. in Michigan, Ohio, and Indiana, call STAFFCO- 216-331-5100 For sales offices and reps in Chicago, Minnesota, and Colorado, call Phil Hansen- 612-942-9902

FLEX-KEY CORPORATION, Emerson Ave., Gloucester, MA 01930, Tel: 508-281-2040, FAX: 508-281-4730; FSC No.: 51163; Empl.: 50; *Sls. Mgr.:* Robert Keane ..... **B•1807**

Local Sales Offices & Reps

AZ	Scottsdale, DGI	602-947-3724
CA	Anaheim, Gabriel	714-666-0660
CA	Los Angeles, Detomasi & Grupp	213-618-0929
CA	Santa Clara, DGI	408-492-9266
CO	Denver, Advent Corp.	303-455-1985
DC	Rockville, Marktron	301-251-8990
IA	Cedar Rapids, Tech. Elctrns. Inc.	319-366-5443
MD	Hunt Valley, Marktron	301-628-1111
MI	Birmingham, Riley-Cotter Sls.	616-264-5744
NY	Huntington, J. A. Keeneth Co.	516-351-7008

FLEX-LINK PRODUCTS, INC., 599 Fourth St., San Fernando, CA 91340, Tel: 818-898-1451, FAX: 818-365-3022; FSC No.: 6Z867; Empl.: 80; *Sls. Mgr.:* Al Wasserzug

FLEXSTAR CORP., 2040 Fortune Dr., No. 101, San Jose, CA 95131-1823, Tel: 408-433-0770, FAX: 408-433-1766; Empl.: 57; *Sls. Mgr.:* Michael Witte, Dir. Sls./Mktg.

FLEXTRONICS INTERNATIONAL, 48001 Fremont Blvd., Fremont, CA 94538, Tel: 510-226-3539, FAX: 510-226-3535; Empl.: 1800

FLUID COMPONENTS, INC., 1755 La Costa Meadows Dr., San Marcos, CA 92069, Tel: 619-744-6950, TELEX: 695092, FAX: 619-744-8095; Empl.: 130; *Sls. Mgr.:* Glen Fishman

JOHN FLUKE MFG. CO., INC., 6920 Seaway Blvd., Everett, Wa 98206, WA 98203, Tel: 206-347-6100, TELEX: 185102, TWX: 810-445-2943, FAX: 206-356-5962; Empl.: 2400; *Sls. Mgr.:* R. Wambolt; *Dist. Mgr.:* R. Mewett ..... **D•1248-1249, 1408-1409**

Local Sales Offices & Reps

AL	Huntsville, John Fluke Mfg. Co., Inc.	205-837-0581
AZ	Phoenix, John Fluke Mfg. Inc.	602-438-8314
CA	Fremont, John Fluke Mfg. Co., Inc.	415-651-5112
CA	Irvine, John Fluke Mfg. Co., Inc.	714-863-9031
CA	San Diego, John Fluke Mfg. Co., Inc.	619-587-4664
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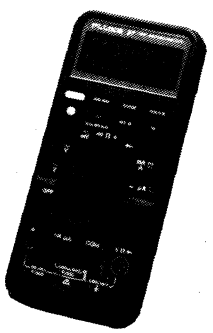

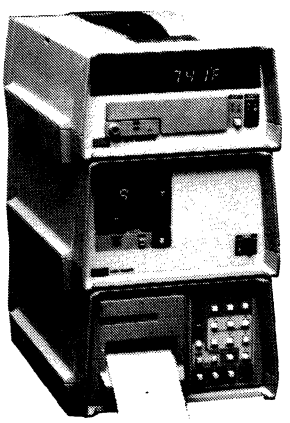

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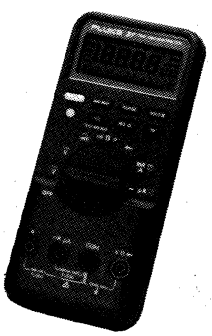

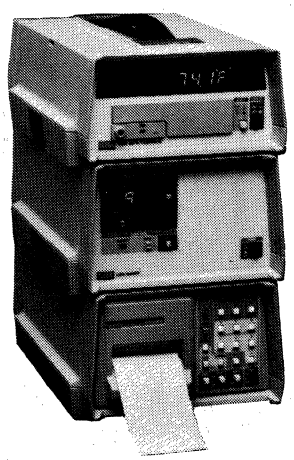

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IL Itasca, Circuit Sls. 708-773-0200, FAX:708-773-2721
MN Minneapolis, Tecteam Sls., Inc. 612-854-6616, FAX:612-854-8031
NJ Vincentown, Andrews Assoc. 609-268-8859, FAX:609-268-1247
NJ Watchung, Dolan Assoc. 908-753-2671, FAX:908-753-2593
OH Cleveland, Tech Sls. Assocs. 216-461-0826, FAX:216-461-5811
OR Lake Oswego, SPS 503-697-7781, FAX:503-697-7764
VA Front Royal, ESL/Eltron Sls. 703-635-8123, FAX:703-635-1933
Can Canada, RFM Electro Sls. Inc. 613-727-1606, FAX:613-727-6909

Local Distributors
MA Sharon, Adcour 617-784-8123,FAX:617-784-5563

FRONTIER ELECTRONICS, 9301-101 Jordan Ave., Chatsworth, CA 91311, Tel: 818-709-9888, FAX: 818-709-9897; Empl.: 350 ..... **A•1206**

FRONT PANEL DEVICES, INC., 2140-5 Pond Rd., Ronkonkoma, NY 11779, Tel: 516-737-3322, FAX: 516-737-3326; Empl.: 20; *Sls. Mgr.:* John B. Powers

L.H. FROST LIMITED, 1130-Eighth Line, Oakville,Ont., Canada L6H 2R4, Tel: 416-844-6681, FAX: 416-844-6895; Empl.: 120; *Sls. Mgr.:* C.M. Webb

FSI/FORK STANDARDS, INC., 668 Western Ave., Lombard, IL 60148-2097, Tel: 708-932-9380, 800-468-6009, FAX: 708-932-0016; FSC No.: 14986; Empl.: 25; *Sls. Mgr.:* Alfredo J. Ramirez

FTS/AUSTRON, P.O. Box 14766, Austin, TX 78761-4766, Tel: 512-251-2341, TWX: 910-874-1356, FAX: 512-251-9685; FSC No.: 24672; Empl.: 100; *Sls. Mgr.:* Ron Myers ..... **A•1371**

Local Sales Offices & Reps
AL Huntsville, Southern Mktg. 205-534-6020
AZ Phoenix, Barnhill Assocs. 602-955-2955
AZ Phoenix, Tech. Mktg. Specs. 602-582-4800
CA Dana Point, FTS/Austron 714-496-0838
CA Irvine, Datum 714-552-3780
CA Long Beach, FTS/Austron 213-425-6951
CA Mtn. View, N.S. Westronics 415-960-1111
CA Santa Clara, Ward-Davis Assocs. 408-245-3700
CO Englewood, Barnhill Assocs. 303-741-3844
CO Grand Junction, Barnhill Assocs. 303-241-0039
CO Littleton, Vic Myers Assocs. Inc. 303-730-7313
FL Longwood, Southern Mktg. 407-682-6317
FL Orlando, COL-INS-CO 407-423-7615
GA Alpharetta, Dataport Technlgs. 404-664-2057
GA Marietta, Southern Mktg. 404-565-0603
GA Norcross, COL-INS-CO 404-925-9815
IL Bloomington, Dataport Technlgs. 309-662-2056
IL Decatur, Dataport Technlgs. 217-423-9948
IL Elk Grove, Loren Green Assoc. 312-593-0282
IL Schaumburg, Dataport Technlgs. 708-892-3411
IN Indianapolis, Dataport Technlgs. 317-841-0759
IA Des Moines, Dataport Technlgs. 515-270-0188
KS Lenexa, Dytec/South Inc. 913-888-0215
KS Wichita, Dytec/South Inc. 316-263-7090
LA Metairie, Data Mktg. 504-833-3655
MD Rockville, Creative Mktg. Assocs. Ltd. 301-251-4100
MA Reading, Scheinfein Assocs. 617-944-2304
MN Edina, Dytec Instrs. 612-831-7169
MN Minneapolis, Dataport Technlgs. 612-546-8817
MO Maryland Heights, Dytec/South Inc. ... 314-739-0665
NE Omaha, Dataport Technlgs. 402-334-1222
NH Concord, Concord Comms. 603-228-8627
NJ Haddonfield, G.L. Williams Assocs. 609-428-6060
NJ Union, Friedman Assocs. 201-964-6200
NM Albuquerque, Barnhill Assocs. 505-299-7658
NM Albuquerque, Vic Myers Assocs. Inc. .. 505-884-6878
NY Frankfort, Kapital Instr. Sls. 315-894-4245
NC Durham, Southern Mktg. 919-479-6034
OH Centerville, Micro Sls. 513-433-8171
OH Dublin, Micro Sls. 614-792-9117
OH North Olmsted, Micro Sls. 216-734-3080
OK Tulsa, Barnhill Assocs. 918-492-5036
OK Tulsa, Data Mktg. 918-494-2711
TX Austin, Barnhill Assocs. 512-343-6448
TX Austin, Data Mktg. 512-338-4701
TX Dallas, Data Mktg. 214-661-0300
TX Houston, Barnhill Assocs. 713-776-2382
TX Houston, Data Mktg. 713-954-5020
TX Richardson, Barnhill Assocs. 214-231-2573
TX San Antonio, Data Mktg. 512-342-3031
UT Orem, Barnhill Assocs. 801-226-1239
UT Salt Lake City, Vic Myers Assocs. Inc. 801-581-1760
VA Reston, Austron 703-471-7963
WA Bellevue, Control Comms. 206-454-9297

FTS AUSTRON DATUM, INC., See Frequency & Time Sys. Inc., Datum Inc.

FTS SYSTEMS, INC., Rte. 209, P.O. Box 158, Stone Ridge, NY 12484, Tel: 914-687-0071, TWX: 510-247-0547, FAX: 914-687-7481; Empl.: 100ò; *Sls. Mgr.:* Brian Adams

FUJI ELECTRIC CORP. OF AMERICA, 515 South Flower St. No. 1660, Los Angeles, CA 90071, Tel: 213-622-4490, FAX: 213-488-9382; Empl.: Yasuko Suzuki; *Sls. Mgr.:* Hisao Ohno; *Dist. Mgr.:* Masanao Deguchi

fujipoly® Inc

FAX: 908-272-2241

FUJIPOLY, INC., 750 Walnut Ave., Cranford, NJ 07016, Tel: 908-272-3850; Empl.: 100 ..... **C•1375-1379, 1676, 1690**

Local Sales Offices & Reps

AZ	Tempe, Electronics Dev. & Sls.	602-438-1547
CA	Conaga Pk., C&W Comp. Sls.	818-700-2684
CA	Mountainview, Frauman Assoc.	415-964-9464
CO	Longmont, Butler Tech. Sls.	303-651-7703
FL	Maitland, E.I.R. Inc.	407-660-9600
IL	Palatine, Technlgy. Sls.	708-991-6600
MN	Eden Prairie, Electronic Innovators Inc.	612-941-0830
NY	Clarence, R.W. Mitscher Co. Inc.	716-759-2350
NC	Raleigh, R. W. Mitscher Co.	919-848-0941
OH	Brecksville, Bill Putich Sls.	216-526-8600
TX	Dallas, Innovative Tech. Sls.	214-699-3485
WA	Bellevue, Quest Mktg. Inc.	206-747-9424
EXP	Israel, Elimec	972-3-9643441
Can	Toronto, Norgay Entprs. Ltd.	416-234-8966

FUJITSU

FAX: 408-432-1318

FUJITSU AMERICA, INC., Computer Products Group, 3055 Orchard Dr., San Jose, CA 95134, Tel: 408-432-1300, TWX: 910-338-2193; *Sls. Mgr.:* Roger Baldelli; *Dist. Mgr.:* Dave Krevanko ..... **D•1091-1096**

Local Sales Offices & Reps

CA	Irvine, Fujitsu America	714-553-1250
CA	San Jose, Fujitsu America	408-452-0890
CA	Sherman Oaks, Fujitsu America	818-905-1985
CO	Golden, Fujitsu America	303-278-8717
FL	Ft. Lauderdale, Fujitsu America	305-771-7705
GA	Marrietta, Fujitsu America	404-953-0130
IL	Itasca, Fujitsu America	312-250-8230
MA	Burlington, Fujitsu America	617-229-6310
MN	Minnetonka, Fujitsu America	612-932-9800
NJ	Manasquan, Fujitsu America	201-223-8222
OR	Lake Oswego, Fujitsu America	503-624-9266
PA	Malvern, Fujitsu America	215-648-3958
TX	Austin, Fujitsu America	512-343-4514
TX	Irving, Fujitsu America	214-650-7701
WA	Kirkland, Fujitsu America	206-828-7450
VA	Vienna, Fujitsu America	703-356-5758

Local Distributors

AZ	Phoenix, Frontier Technlg.	602-998-4438
CA	Carlsbad, Vitek Distribution Grp.	619-431-2500
CA	El Monte, Marshall Inds.	818-459-5500
CA	Garden Grove, Wyle Labs.	714-891-1717
CA	Irvine, Modern Info. Sys.	714-756-8632
CA	San Jose, Law/Cypress Distrbg.	408-297-9800
CA	San Jose, Microland	408-922-0242
CO	Englewood, R-Squared Distrbg.	303-799-9292
IL	Mt. Prospect, PC Dist.	312-288-0700
MN	Eden Prairie, Avnet Computer Technlgs.	612-944-1114
MN	Eden Prairie, Northern Computer Sys.	612-934-8856
MN	Minneaplis, Datalink, Corp.	612-944-3462
NY	Rochester, Cameron Computer	716-427-8190
NY	Westbury, Schweber Elctrns.	516-334-7555
NC	Greenville, Gates/FA	803-234-0736
OH	Cleveland, Pioneer Standard Elec.	216-587-3600
OH	Worthington, Cranel, Inc.	614-433-0045
TX	Plano, Dallas Digital	214-424-2800
VA	Vienna, Decision Syspport Sys.	703-448-0988

FUJITSU

FAX: 408-432-9044

FUJITSU COMPONENT OF AMERICA, INC., Subsidiary of Fujitsu Microelectronics, Inc., 3545 N. First St, San Jose, CA 95135, Tel: 408-922-9000, TWX: 910-338-0190; Empl.: 40; *Sls. Mgr.:* Don Dealtry; *Dist. Mgr.:* Hal Mumma ..... **B•1470-1480, 1808; C•1380-1385**

Local Sales Offices & Reps

AL	Huntsville, C.S.R. Elctrn.	205-533-2444
AZ	Tempe, F.P. Sls.	602-894-5303
CA	Irvine, Balzer-Wolf	714-261-6877
CA	Newport Bch., Infinity Sls.	714-883-0300
CA	San Diego, Earle Assocs., Inc.	619-278-5441
CA	Santa Clara, Norcomp	408-727-7707
CO	Denver, Candal	303-692-8484
CT	Cheshire, Connecticut Applied Technlg.	203-272-6564
FL	Altamonte Springs, Semtronics Assocs.	305-831-8233
FL	Clearwater, Semtronics	813-461-4675
FL	Ft. Lauderdale, Semtronics	305-731-2484
GA	Atlanta, C.S.R. Elctrns.	404-396-3720
IL	Highland Park, Bransky Sls.	708-433-2375
IA	Marion, A.E.M. Inc.	319-377-1129
KS	Lenexa, A.E.M. Inc.	913-888-0022
MD	Towson, Arbotek	301-825-0775
MA	Woburn, Mill-Bern Assocs., Inc.	617-932-3311
MI	Farmington Hills, R.C. Merchant	313-476-4600
MI	St. Joseph, R.C. Merchant	616-983-7378
MN	Burnsville, Electromec Sls., Inc.	612-894-8200
MO	St. Louis, A.E.M. Inc.	314-298-9900
NJ	Fairfield, Tech. Applications & Mktg.	201-575-4130
NJ	Marlton, BGR Assocs.	609-983-1020
NM	Albuquerque, F.P. Sls.	505-345-5553
NY	Rochester, H.C. Johnson Agy.	716-586-0777
NC	Charlotte, C.S.R. Elec.	704-847-5806
NC	Raleigh, C.S.R. Elctrn.	919-878-9200
OH	Columbus, McFadden Sls. Inc.	614-761-3177
OR	Beaverton, L-Squared Ltd.	503-629-8555
PA	Glenshaw, H.C. Johnson Agy.	412-487-1246
TN	Knoxville, C.S.R. Elctrn.	615-689-7911
TX	Carrollton, Tech. Mktg. Inc.	214-387-3605
TX	Houston, Tech. Mktg. Inc.	713-783-4497
TX	Roundrock, Tech Mktg. Inc.	512-244-2291
UT	Salt Lake City, Hendrickson Sls.	801-467-1445
WA	Kirkland, L-Squared Ltd.	206-827-8555
WI	Cedarburg, Bransky Sls.	414-377-6837
Can	British Columbia, Davetek Mktg.	604-430-3680
Can	Ontario, Canadian Mktg. Tech.	416-612-0900

Local Distributors

AL	Huntsville, Marshall Inds.	205-881-9235
AZ	Phoenix, Marshall Inds.	602-496-0290
CA	Agoura Hills, Western Micro	818-707-0377
CA	Buena Pk., Cypress Elctrns.	714-521-5230
CA	Camarillo, Milgray Elctrns.	805-484-4055
CA	Chatsworth, Marshall Inds.	818-407-4150
CA	Costa Mesa, Eric Elctrns.	714-751-1185
CA	El Monte, Marshall Inds.	818-307-6000
CA	Irvine, Kensington Elctrns.	714-588-0575
CA	Irvine, Marshall Inds.	714-458-5394
CA	Irvine, Milgray Elctrns.	714-753-1282
CA	Milpitas, Marshall Inds.	408-942-4600
CA	Orange, Western Micro	714-637-0200
CA	Rancho Cordova, Marshall Inds.	916-635-9700
CA	Sacramento, Integrated Elctrns.	916-363-6030
CA	San Diego, Cypress Elctrns.	619-535-0011
CA	San Diego, Marshall Inds.	619-578-9606
CA	San Diego, Western Micro	619-453-8430
CA	San Jose, Compass Comps.	408-432-7575
CA	San Jose, Eric Elctrns.	408-432-1111
CA	Santa Clara, Cypress Elctrns.	408-980-8400
CA	Saratoga, Western Micro	408-725-1660
CO	Denver, CSIO	303-292-9594
CO	Englewood, Cypress Elctrns.	303-792-5829
CO	Littleton, Indelco	303-795-3431
CO	Thornton, Marshall Inds.	303-451-8444
CT	Milford, Milgray Elctrns.	203-878-5538
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Winter Pk, Milgray Elctrns.	407-647-5747
FL	Altamonte Springs, Marshall Inds.	407-767-8585
FL	Altamonte Springs, Vantage Comps.	407-682-1199
FL	Ft. Lauderdale, Marshall Inds.	407-977-4880
GA	Norcross, Marshall Inds.	404-923-5750
GA	Norcross, Milgray Elctrns.	404-446-9777
IL	Arlington Hgts., Milgray Elctrns.	708-350-0490
IL	Carol Stream, Lectro Comps.	708-690-0520
IL	Chicago, Milgray Elctrns.	708-784-5100
IL	Indianapolis, Marshall Inds.	317-297-0483
IL	Schaumburg, Marshall Inds.	312-490-0755
IL	Wheeling, Hawk Elctrns.	708-459-4030
IN	Indianapolis, Custom Svc. Elctrns.	317-879-9119
IN	Indianapolis, RS Elctrns.	317-253-9065
KS	Lenexa, Marshall Inds.	913-492-3121
KS	Overland Pk., Milgray Elctrns.	913-236-8800
ME	Gray, Longhill Electro	207-657-2183
MD	Columbia, Milgray Elctrns.	301-621-8169
MD	Columbia, Vantage Comps.	301-720-5100
MD	Silver Springs, Marshall Inds.	301-622-1110
MA	Andover, Vantage Comps.	508-687-3900
MA	Burlington, Western Micro	508-273-2800
MA	Hopkinton, Interface Elctrns.	508-435-6858
MA	Middleboro, Glynn Elctrns	508-947-4262
MA	Westwood, Semad Sys.	508-329-7373
MA	Wilmington, Marshall Inds.	617-658-0810
MA	Wilmington, Milgray Elctrns.	617-657-5900
MI	Flint, RS Elctrns.	313-742-5000
MI	Grand Rapids, RS Elctrns.	616-241-3483
MI	Livonia, Marshall Inds.	313-525-5850
MI	Livonia, RS Elctrns.	313-525-1155
MN	Minneapolis, Bergquist Co.	612-835-2322
MN	Plymouth, Marshall Inds.	612-559-2255
MO	Bridgeton, Marshall Inds.	314-291-4650
MO	Maryland Hgts., RS Elctrns.	314-997-7709
NE	Omaha, Radio Equip.	402-341-7700
NJ	Clifton, Vantage Comps.	201-777-4100
NJ	Fairfield, Marshall Inds.	201-882-0169
NJ	Fairfield, Western Micro	201-882-4999
NJ	Marlton, Milgray Elctrns.	609-983-5010
NJ	Mt. Laurel, Marshall Inds.	609-778-8720
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Marshall Inds.	516-273-1515
NY	Johnson City, Marshall Inds.	607-729-4351
NY	Penn Yan, Advacom	716-751-1185
NY	Pittsford, Milgray Elctrns.	716-381-9700
NY	Rochester, Marshall Inds.	716-235-7620
NY	Smithtown, Vantage Comps.	516-543-2000
NC	Charlotte, Control Design Supp.	704-588-4410
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Dayton, Marshall Inds.	513-898-4480
OH	Maumee, RS Elctrns.	419-893-0721
OH	Solon, Marshall Inds.	216-248-1788
OH	Solon, Repco Elctrns.	216-248-8900
OR	Beaverton, Integrated Elctrns.	503-641-1690
OR	Beaverton, Marshall Inds.	503-643-5555
OR	Beaverton, Western Micro	503-629-2082
PA	McKean, Advacom	814-476-7774
PA	Pittsburgh, Marshall Inds.	412-788-0441
TX	Austin, Marshall Inds.	512-837-1991
TX	Carrollton, Marshall Inds.	214-233-5200
TX	Dallas, Milgray Elctrns.	214-248-1603
TX	Dallas, Western Micro	214-416-0103
TX	El Paso, Marshall Inds.	915-593-0706
TX	Houston, Marshall Inds.	713-895-9200
TX	Irving, Cypress Elctrns.	214-255-0065
UT	Salt Lake City, Marshall Inds.	801-266-2428
UT	Salt Lake City, Marshall Inds.	801-485-1551
UT	Salt Lake City, Milgray Elctrns.	801-272-4999
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Bothell, Marshall Inds.	206-486-5747
WA	Redmond, Western Micro	206-881-6737
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Racine, Badger Elctrns.	414-637-1256
WI	Waukesha, Hawk Elctrns.	414-547-4457
WI	Waukesha, Marshall Inds.	414-797-8400
Can	Burnaby, B.C., ITT Multi Comp.	604-291-8866
Can	Burnaby, B.C., Semad Sys.	604-420-9889
Can	Calgary, Future	403-235-5325
Can	Calgary, Alb., Semad Sys.	403-252-5664
Can	Concord, Ont., ITT Multi Comp.	416-736-1144
Can	Downsview, Future Elctrns.	416-638-4771
Can	Edmonton, Future Elctrns.	403-438-2858
Can	Markham, Ont., Matrix Tech.	416-477-4442
Can	Markham, Ont., Semad Sys.	416-475-8500
Can	Ontario, Marshall Inds.	416-458-8046
Can	Ottawa, Future Elctrns.	613-820-8313
Can	Ottawa, Ont., Semad Sys.	613-727-8325
Can	Pointe Claire, Future Elctrns.	514-694-7710
Can	Pointe Claire, Marshall Inds.	514-683-9440
Can	Pointe Claire, Semad Sys.	514-694-0860
Can	Vancouver, Future Elctrns.	604-294-1166
Can	Willowdale, Ont., Milgray Elctrns.	416-756-4481

FUJITSU MICROELECTRONICS INC., Integrated Circuits Division, 3545 North First St., San Jose, CA 95134, Tel: 408-922-9000, TWX: 910-338-0190, FAX: 408-432-9044; Empl.: 1000; *Sls. Mgr.:* Rich Christopher, Sr. VP & GM; *Dist. Mgr.:* Clyde Brewer, Dir. Distr. Sls. ..... **D•1091-1096**

Local Sales Offices & Reps

AL	Huntsville, The Novus Grp.	205-534-0044
AZ	Scottsdale, Aztech Comp. Sls., Inc.	602-991-6300
CA	Cupertino, Fujitsu Microelctrns.	408-996-1600
CA	Irvine, Fujitsu Microelctrns.	714-724-8777
CA	Newport Beach, Infinity Sls., Inc.	714-833-0300
CA	Roseville, Norcomp	916-782-8070
CA	San Diego, Harvey King, Inc.	619-587-9300
CA	Santa Clara, Norcomp	408-727-7707
CO	Boulder, Front Range Mktg.	303-443-4780
CT	Waterbury, Conntech Sls., Inc.	203-754-2823
FL	Altamonte Springs, Semtronic Assocs., Inc.	407-831-8233
FL	Clearwater, Semtronic Assoc., Inc.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assoc., Inc.	305-731-2484

GA Norcoss, Fujitsu Microelctrns. 404-449-8539
GA Norcross, The Novus Grp. 404-263-0320
ID Boise, Cascade Comps. 208-343-9886
IL Itasca, Beta Technlg. 708-256-9586
IL Itasca, Fujitsu Microelctrns. 708-250-8580
IN Carmel, Fred Dorsey & Assocs. 317-844-4842
IA Cedar Rapids, Electromec Sls. 319-362-6413
MD Towson, Arbotek Assocs. 301-825-0775
MA Newton Center, Fujitsu Microelctrns. .. 617-964-7080
MA Woburn, Mil-Bern Assocs. 617-932-3311
MI Grosse Point Park, Greiner Assocs., Inc. 313-499-0188
MN Burnsville, Electromec Sls. 612-894-8200
MN Eagan, Fujitsu Microelctrns. 612-454-0323
NJ Marlton, BGR Assocs. 609-983-1020
NJ Fairfield, Tech Applications & Mktg. ... 201-575-4130
NJ Mt. Laurel, Fujitsu Microelctrns. 609-727-9700
NY Hauppauge, Fujitsu Microelctrns. 516-361-6565
NY Manlius, Quality Comps. 315-682-8885
NY Rochester, Quality Comps. 716-342-7229
NY Buffalo, Quality Comps. 716-837-5430
NC Cary, The Novus Grp. 919-460-7771
OH Morrow, Spectrum ESD 513-899-3260
OH Novelty, Spectrum ESD 216-338-5226
OR Beaverton, L-Squared Ltd. 503-629-8555
OR Lake Oswego, Fujitsu Microelctrns. ... 503-684-4545
TX Carrollton, Technical Mktg., Inc. 214-387-3601
TX Dallas, Fujitsu Microelctrns. 214-233-9394
TX Houston, Technical Mktg., Inc. 713-783-4497
TX Round Rock, Technical Mktg., Inc. 512-244-2291
VA Charlottesville, Arbotek Assocs. 804-971-5736
WA Kirkland, L-Squared Ltd. 206-827-8555
WI Milwaukee, Beta Technlg. 414-543-6609
Intl Guadalajara, Jal., PanAmtek 36-303029
Intl Mexico, D.F., PanAmtek 5-586-8443
PR Hato Rey, Semtronic Assocs. 809-766-0700
Can Ontario, Pipe Thompson Ltd. 613-258-4067
Can Ontario, Pipe Thompson Ltd. 416-236-2355

FURMAN SOUND, INC., 30 Rich St., Greenbrae, CA 94904, Tel: 415-927-1225, TELEX: 425900, FAX: 415-927-4548; FSC No.: 5830; Empl.: 44; *Sls. Mgr.:* Joe Desmond; *Dist. Mgr.:* Joe Desmond

FURNAS ELEC., 1000 Mckee Street, Batavia, IL 60510, Tel: 708-879-6000, TELEX: 72-0458; Empl.: 1,500; *Sls. Mgr.:* Paul P. Welch

FURY PRODUCTS, INC, 4626 Eucalyptus Ave., Chino, CA 91710, Tel: 714-597-7861, FAX: 714-597-2284; FSC No.: CAGE OJTXO; Empl.: 200; *Sls. Mgr.:* Dan Fury

Distributor

FAX: 818-786-8222

FUSES UNLIMITED, D.E.I., 16216 Raymer St., Van Nuys, CA 91406, Tel: 818-786-8111; Empl.: 35; *Dist. Mgr.:* Pat White ..... **B•1366**

FUSION INC., 4658 E. 355th. St., Willoughby, OH 44094, Tel: 216-946-3300, FAX: 216-942-9083; Empl.: 85; *Sls. Mgr.:* Raymond C. Yuhasz

FUTABA CORPORATION OF AMERICA, Electronic Components Div., 711 East State Pkwy., Schaumburg, IL 60173, Tel: 708-884-1444, FAX: 708-884-1635; Empl.: 50; *Sls. Mgr.:* Bill Lichtner; *Dist. Mgr.:* Bill Lichtner

FUTURETECH, 525 Auburn St., Auburndale, MA 02166, Tel: 617-965-3834, TWX: 510-600-6663, FAX: 617-332-4760; Empl.: 2

F. W. CAPACITORS INC., 98 Toledo Rd.Hwy. 301 South, Florence, SC 29504-0636, Tel: 803-662-4728, TELEX: 220 883 TAUR, FAX: 803-667-6142; FSC No.: 58368; Empl.: 15; *Sls. Mgr.:* Joseph A. (Jay) Falcone Jr.

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GALILEO ELECTRO-OPTICS CORP., Galileo Park, P.O. Box 550, Sturbridge, MA 01566, Tel: 508-347-9191, TELEX: 4999014; FSC No.: 28719; Empl.: 450

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NH Merrimack, Callahan Assocs. 603-424-5700
NJ Totowa, Tech Mktg. Assocs. 201-812-0356

FAX: 904-677-3039

GAMMA HIGH VOLTAGE RESCH. INC., 1096 N. U.S. Hwy, No. 1, Ormond Beach, FL 32174, Tel: 904-677-7070; Empl.: 15 ..... **D•1758-1761**

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NY Smithtown, T&K Sls. 516-724-3546
NM Albuquerque, Cleveland Entprs. 505-265-7893

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GARDINER SOLDER CO., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, Tel: 312-847-0100, FAX: 312-847-2314; Empl.: 100; *Sls. Mgr.:* Robert Nesnidal; *Dist. Mgr.:* Robert Nesnidal

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GA Atlanta 404-446-8090
IL Itasca 708-250-0989

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CA San Jose, Rose Elctrns. 408-943-0200
GA Marietta, Engrd. Assemblies 404-951-8935
IL Chicago, Joseph Elctrns. 312-297-4200
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IL Downers Grove, T.D.I. Batteries 708-971-3460
IL Lisle, JaBro Batteries 708-964-9358
MA Boston, Adcour 617-784-8123
MN St. Paul, Shelley-Ragon 800-328-9427
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NC Raleigh, Engrd. Assemblies 800-950-9111
OH Columbus, Promark 614-876-8885
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TX Houston, Kent Elctrns. 713-780-7770
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GAVITT WIRE & CABLE, 20 Central St., Brookfield, MA 01506, Tel: 508-867-6476, FAX: 508-867-5126; Empl.: 75

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GBC, INC., Lamp Division, P.O. Box 2205, Ocean, NJ 07712, Tel: 908-774-8502, FAX: 908-774-8041; Empl.: 25; *Sls. Mgr.:* W. Savage

G.C. INDUSTRIES, INC., 8967 Oso Ave., Unit C, Chatsworth, CA 91311, Tel: 818-882-7852, TELEX: 497 4262, TWX: GCINDUI, ESYLNK: 62656449, FAX: 818-709-7341; Empl.: 12; *Sls. Mgr.:* Ramesh Chand; *Dist. Mgr.:* Ramesh Chand

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IN	Fort Wayne, R.O. Whitesell and Assoc.	219-432-5591
IN	Indianapolis, R.O. Whitesell and Assoc.	317-876-9000
IN	Kokomo, R.O. Whitesell	317-457-9127
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MI	Southfield, R.O. Whitesell and Assoc.	313-352-5454
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TX	Brownsville, R.O. Whitesell and Assoc.	512-542-1718
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TX	Houston, Ion Assoc.	713-537-7717
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WI	Milwaukee, KMA Sls.	414-259-1771

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RI	Westerly, Promege Sls.	401-348-1037

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GEC-MARCONI ELECTRONIC SYSTEMS CORP., 164 Totowa Rd., P.O.Box 975, Wayne, NJ 07474-0975, Tel: 201-633-6000, FAX: 201-633-6167; FSC No.: 0D0D0; Empl.: 2030; *Sls. Mgr.:* M. G. Gordon, VP

GECO, 145 Penn St., Millheim, PA 16854, Tel: 814-349-5555, FAX: 814-349-5657; Empl.: 20

GE FANUC AUTOMATION NORTH AMERICA INC., P.O. Box 8106, Charlottesville, VA 22906, Tel: 804-978-5000, 800-648-2001, FAX: 804-978-5205

FAX: 507-263-5987

GEMINI INC., 103 Mensing Way, Cannon Falls, MN 55009, Tel: 507-263-3957, 800-533-3631; *Sls. Mgr.:* Jim Weinel ..... **C•1054-1055**

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FL	Orlando, Gemini Inc.	404-299-3330
IL	Palatine, JRS Assocs.	708-991-6626
IN	Noblesville, R & D Elctrns.	317-849-2026
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KS	Lenexa, Gemini Inc.	913-492-8267
MA	Brookline, Harman Assocs.	617-232-6687
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MN	Cannon Falls, Gemini Inc.	507-263-3957
NY	Endwell, Reagan Compar Inc.	607-754-2171
NC	Kernersville, Wallace ELctrns. Sls.	800-334-3518
OH	Cincinnati, Bob Gilbert & Assocs.	513-574-1932
PA	Plymouth Meeting, Gemini Inc.	215-825-6736
TX	Carrolltown, Multi Line	214-242-9093
TX	Taylor, Gemini, Inc.	512-352-5207
WI	Wauwatosa, Larsen Assocs.	414-258-0529

GEMS SENSORS DIVISION, Div. of IMO Industries Inc., Cowles Rd, Plainville, CT 06062-1198, Tel: 203-677-1311, TELEX: 99-306, FAX: 203-747-4244; FSC No.: 04034; Empl.: 233; *Sls. Mgr.:* M. W. Brown; *Dist. Mgr.:* M. W. Brown

Local Sales Offices & Reps

CA	Sante Fe Springs, IMO Inds. Inc.	213-868-2268
CT	Rocky Hill, IMO Inds. Inc.	203-563-3737
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GENERAL AUTOMATIC CORP., See E-Tron Corp.

GENERAL AUTOMATION, A Div. of 769442 Ont. Ltd., RR No. 4 McMullen Rd., Kemptville, Ont., Canada KOG 1JO, Tel: 613-724-1993, FAX: 613-258-4701; FSC No.: 1429-1592; Empl.: 4-6; *Sls. Mgr.:* Bruce Murison

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FAX: 317-898-2917

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MD	Towson, Arbotek, Inc.	301-825-0775
MA	Framingham, Coakley, Boyd & Abbett	508-820-0800
MA	West Bridgewater, Coakley, Boyd & Abbett	508-559-6700
MI	Royal Oak, Hilltronics, Inc.	313-435-0920
MN	South St. Paul, Northport Engrg.	612-457-8000
MS	Dixie Tech. Mktg.	404-381-5592
MO	St. Louis, Thomas Dowell & Assocs.	314-849-4234
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NY	Fayetteville, Henry G. Ritcher, Inc.	315-637-6713
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OH	Burton, Electronic Comps.,Inc.	216-834-0011
OH	Cleveland, Electronic Comps., Inc.	216-331-5330
OH	Columbus, Electronic Comps.,Inc.	614-231-2318
OH	Dayton, Electronic Comps., Inc.	513-866-3340
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GENERAL ELECTRIC CO., Accessory Equipment Plant, 1285 Boston Ave., Bldg. 25BE, Bridgeport, CT 06602, Tel: 203-382-3023, FAX: 203-382-2739; Empl.: 250; *Sls. Mgr.:* J. M. Collins

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FAX: 516-226-8966

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CA	Palo Alto, RF Assocs. North	415-494-3331
FL	Apopka, Saber Assocs.	800-432-6288
FL	Melbourne, Saber Assocs.	800-432-6288
IL	Mt. Prospect, Cain Forlaw	708-253-3578
MA	Billerica, Microwave Mktg. Specialists	508-667-1440
NJ	West Orange, EF Tech. Sls.	201-731-7203
NY	Plainview, EF Tech. Sls.	516-942-7400
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NC	Clayton, Saber Assocs.	800-327-0853
OH	Worthington, Cain Forlaw	614-436-3004
TX	Dallas, Cain & Co.	214-247-3901

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EXP	Rajajinagar, Banaglore, Elctrns. Continental	366665

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IL	Des Plaines, Marsland Assocs.	312-298-2620
LA	Baton Rouge, Inotek	512-892-2490
MD	Joppa, Please Consult Factory	203-481-5721
MA	Reading, May Technlg.	617-942-7135
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NY	Schenectady, CB Assocs.	201-948-5100
NY	Whitney Point, TAE-REP, Inc.	607-692-3705
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TN	Hixson, Inotek	512-892-2490
TX	Austin, Inotek	512-892-2490
TX	Plano, Qualtech	602-967-4655
VA	Dumfries, Consult Factory	203-481-5721
WA	Seattle, Datacom Assocs.	206-285-2525
WI	New Berlin, Marsland Assocs.	312-298-2620

Components

AZ	Tempe, Qualtech, Inc.	602-967-4655
CA	Saratoga, TESTCO	408-253-1900
CO	Golden, J. F. Hurlbut Co.	303-279-7796
MD	Randallstown, Beacon North, Inc.	703-478-2480
MI	Farmington, W. R. Hummon & Assoc.	313-474-0661
OH	Dayton, RIXAN Assocs.	513-278-4216
TX	Dallas, Blackburn Assocs.	214-750-8927
VA	Sterling, Beacon North, Inc.	703-478-2480

Local Distributors

CA	Saratoga, TESTCO	408-253-1900
OH	Dayton, RIXAN Assocs.	513-278-4216

GENERAL SCANNING RECORDER PRODUCTS DIVISION, 37 Broadway, Arlington, MA 02174, Tel: 617-641-2702, TELEX: 212838, FAX: 617-648-4906; *Sls. Mgr.:* Donald Follansbee ..... **D•1419**

GENERAL SECURITY INC., 16 Newtown Plaza, Plainview, NY 11803, Tel: 516-753-0700, ESYLNK: 800-572-8989, FAX: 516-753-0839; Empl.: 10; *Sls. Mgr.:* J.N. Benjamin

GENERAL SEMICONDUCTOR IND., INC., Square D Company, 2001 W. 10th Place, Tempe, AZ 85281, Tel: 602-968-3101, FAX: 602-966-6396; FSC No.: 24444;19500; Empl.: 591; *Sls. Mgr.:* William Hennigan; *Dist. Mgr.:* Christopher Dingley

GENERAL TECHNOLOGY CORP., 6816 Washington Avenue, NE, Albuquerque, NM 87109, Tel: 505-345-5591, FAX: 505-344-3227; Empl.: 150; *Sls. Mgr.:* Ralph H. Anderson

GENERAL TRANSISTOR CORP., GTC, 216 W. Florence Av., Inglewood, CA 90301, Tel: 213-673-8422, FAX: 213-672-2905; FSC No.: 04662; Empl.: 66

GENERAL VIBRATIONS MFG. CO., 422 North Main St., Manchester, CT 06040, Tel: 203-646-0090, FAX: 203-643-8913; Empl.: 4

GENERAL WIRE PRODUCTS, INC., 425 Shrewsbury Street, Worcester, MA 01604, Tel: 617-752-8260, FAX: 617-753-2173; FSC No.: 5F262; Empl.: 58; *Sls. Mgr.:* Thomas P. Andrews, Jr.

GENICOM®

FAX: 703-949-1416

GENICOM CORP., 1 Genicom Dr., Waynesboro, VA 22980, Tel: 703-949-1471, TWX: 710-839-0407; FSC No.: 01526; Empl.: 3000; *Sls. Mgr.:* G.F. Peltier ..... **B•1012-1014, 1482-1485**

Local Sales Offices & Reps

CA	Santa Ana, Genicom Corp.	714-549-5101
CT	Suffield, Genicom Corp.	203-668-6530
FL	Bonita Springs, Genicom, Corp.	813-947-5622
VA	Waynesboro, Genicom Corp.	703-949-1666

Local Distributors

CA	San Jose, JACO/Distel Inc.	408-432-9290
CA	Santa Ana, Norstan	800-854-8344
CA	Tustin, JACO/Distel Inc.	714-258-9003
CA	Westlake Village, JACO/Distel Inc.	800-824-0151
FL	Boca Raton, JACO/QC	407-241-7950
FL	Orlando, T & T Prods., Inc.	305-857-2282
GA	Norcross, JACO/QC	404-449-9508
MD	Baltimore, Elctrn. Comp. Sls.	301-728-2772
MA	Columbia, JACO Elctrns. Inc.	301-995-6620
MA	Tewksbury, JACO Elctrns. Inc.	508-640-0010
NY	Hauppauge, JACO/Elctrns. Inc.	516-273-5500
NC	Charlotte, Electronics Mktg. Corp.	704-394-6195
NC	Raleigh, JACO/QC	919-876-7767
OH	Cleveland, Electronics Mktg. Corp.	216-442-3441
OH	Columbus, Electronics Mktg. Corp.	614-299-4161
OH	Dayton, Elctrns Mktg. Corp.	513-278-5745
OH	Highland Heights, Electronics Mktg. Corp.	216-442-3441
TX	Addison, JACO/QC	214-733-4300
TX	Austin, JACO/QC	512-835-0220
TX	Dallas, Associated Aircraft Supp. Co.	214-331-4381
TX	Sugarland, JACO/QC	713-240-2255
WA	Redmond, Pan Pacific Elctrns., Inc.	206-881-7252

FAX: 619-661-5120

GENISCO ELECTRONICS CORPORATION, 1657 Pacific Rim Court, San Diego, CA 92173, Tel: 619-661-5100; FSC No.: 07294; Empl.: 100; *Sls. Mgr.:* Dick Gurena ..... **A•1624-1625, 1677; B•1153**

Local Sales Offices & Reps

AL	Birmingham, Electro-South Inc.	205-822-5713
AL	Huntsville, EMA	205-830-4030
AZ	Phoenix, Mayco	602-867-3076
CA	Claremont, Cook Entprs.	714-626-3997
CA	San Jose, Kottmeier Assoc. Inc.	408-371-8700
CA	Sunnyvale, DJM Elctrns.	408-749-8936
CA	Valencia, DJM Elctrns.	805-254-2677
CA	Vista, DJM Elctrns.	619-726-1266
CO	Englewood, R.A. Mays Co.	303-761-9447
GA	Roswell, E M A	404-992-7240
KS	Lenexa, Midtech Assoc.	913-541-0505
MD	Baltimore, Eastern Comps.	301-788-7050
NH	Brookline, EMC Sls.	603-672-4455
NM	Mayco	505-299-4002
NY	Roslyn Hgts., November Elctrn. Sls.	516-621-6378
OH	Dayton, Jay Engrg.	513-253-2151
PA	W. Conshohocken, Eastern Comps.	215-825-8610
WA	Bellevue, Underwood-Hanify Inc.	206-643-1793

GENISCO TECHNOLOGY CORP., 14930 E. Alondra Blvd., La Mirada, CA 90638, Tel: 714-523-7001, TWX: 910-346-6773, FAX: 714-522-1058; FSC No.: 07249; Empl.: 450; *Sls. Mgr.:* Rita Deidrich

GENISCO TECHNOLOGY CORP., 14930 E. Alondra Blvd., La Mirada, CA 90638, Tel: 714-523-7001, TWX: 910-346-6773, FAX: 714-522-1058; FSC No.: 07294; Empl.: 380

GENNUM CORPORATION, Linear Technology Inc., P.O. Box 489, Sta. A, Burlington, ON, Canada L7R 3Y3, Tel: 800-263-9353, 416-632-2996, TELEX: 061-8525, FAX: 416-632-2055; Empl.: 180; *Sls. Mgr.:* C. Marshall/I. H. Scott

GENROCO, INC., 205 Kettle Moraine Drive North, Slinger, WI 53086-9407, Tel: 414-644-8700, TELEX: 158279420, FAX: 414-644-6667; *Sls. Mgr.:* Donald D. Woelz; *Dist. Mgr.:* Barbara Pick

GENSTAR RENTAL ELECTRONICS, INC., 6307 De Soto Ave., Suite J, Woodland Hills, CA 91367, Tel: 800-331-3440 (in CA), 800-227-8409, FAX: 818-715-9249

GENTRON CORPORATION, 7345 E. Acoma, Ste. 101, Scottsdale, AZ 85260, Tel: 602-443-1288, FAX: 602-443-1408; Empl.: 50; *Sls. Mgr.:* Rick Heinz; *Dist. Mgr.:* Rick Heinz

GEOPHYSICAL SURVEY SYSTEMS, INC., 13 Klein Dr., North Salem, NH 03073-0097, Tel: 603-893-1109, FAX: 603-889-3984; FSC No.: 02-0278634; Empl.: 50; *Sls. Mgr.:* J. V. Rosetta, Jr.

GEORATOR CORP., Box 70, Manassas, VA 22110-0070, Tel: 800-523-9938, FAX: 703-368-1078; FSC No.: 91723; *Sls. Mgr.:* Jay Gormley ..... **D•2195-2198**

FAX: 308-235-2609

GEORGE RISK INDUSTRIES, INC., 802 S. Elm St., Kimball, NE 69145, Tel: 308-235-4645; FSC No.: 24229; Empl.: 135; *Sls. Mgr.:* Mohammed A. Ghani; *Dist. Mgr.:* Mohammed A. Ghani ..... **B•1809**

Local Sales Offices & Reps

OR	Portland, Adapt Elctrns.	503-297-2151
AZ	Phoenix, J. F. Hurlbut Co.	602-997-7285
VA	Alexandria, Tech-Reps, Inc.	703-370-2600
CA	Sunnyvale, W.W. Posey Co.	408-746-0771
Can	Toronto, Reptech Elctrns. & Design	416-863-9510
FL	Deerfield Beach, Newell-Hynes Assocs.	305-429-3207
IL	Wheaton, CS Tech. Sls.	708-653-8126
MA	Lexington, Jodan Technig.	617-863-8898
MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
MN	Eden Prairie, O'Reilly Assocs.	612-941-6480
MO	St. Charles, Buckman & Assocs.	314-946-6201
NY	Huntington Station, Morgan Elctrns.	516-549-5180
CA	Orange, VR Elctrns.	714-532-3730
PA	Horsham, Jacobsen Assocs.	215-674-2937
TX	Dallas, Barry Sls.	214-234-0255
GA	Deluth, Stelmack Comps.	404-441-7927
CO	Golden, J. F. Hurlbut Co.	303-279-7796

GERMANIUM POWER DEVICES, Box 3065, Shawsheen Village Sta., Andover, MA 01810-3065, Tel: 508-475-5982, TELEX: 94-7150, FAX: 508-470-1512; FSC No.: 53399; Empl.: 100; *Sls. Mgr.:* R. W. Kassiotis

GETTYS, an AEG Company, 2701 N. Green Bay Rd., Racine, WI 53404, Tel: 414-637-6591, TELEX: 201-309, FAX: 414-637-8400; Empl.: 173; *Sls. Mgr.:* Thomas J. Joyal, VP of Mktg./sls.

GETTYSBURG TRANSFORMER CORPORATION, 1380 Old Harrisburg Rd., P.O. Box 4356, Gettysburg, PA 17325, Tel: 717-334-2191, FAX: 717-334-4961; Empl.: 65; *Sls. Mgr.:* Charles A. Ritter

GEYER SYSTEMS, See GSI Corp.

GFC POWER LTD., 95 Curtis Drive, Guelph, CAN N1K 1E1, Tel: 519-763-3051, FAX: 519-822-9537; Empl.: 80; *Sls. Mgr.:* David Oliver; *Dist. Mgr.:* David Oliver

GGB INDUSTRIES, INC., Picoprobe Division, PO Box 10958, Naples, FL 33941, Tel: 813-643-4400, TELEX: 136692 GGB, FAX: 813-643-4403; *Sls. Mgr.:* Greg Boll

GHIELMETTI, INC., 30961 West Aguora Rd., Ste. 309, Westlake Village, CA 91361, Tel: 800-228-1097, FAX: 818-707-1754; Empl.: 4; *Sls. Mgr.:* Rick Odorfer

GIANNINI INSTITUTE, 51-555 Madison St., Indio, CA 92201, Tel: 619-347-2833, FAX: 619-342-4006; FSC No.: 24727; Empl.: 10; *Sls. Mgr.:* John Phillips

GIBSON/EGAN, See Textool Test & Interconnect Prods. Dept., 3M, Electronic Prods. Div.

GIC THERMODYNAMICS, 2611 Parmenter, Royal Oak, MI 48073, Tel: 313-280-1648, FAX: 313-280-0998; Empl.: 20; *Sls. Mgr.:* Denny Desmond

GIDDINGS & LEWIS-NEXES AUTOMATION, Giddings & Lewis, Inc., 666 S. Military Rd., P.O. Box 1658, Fond du Lac, WI 54936-1658, Tel: 414-921-7100, TELEX: 26-2722, TWX: 910-275-1100; Empl.: 175

Gilway Technical Lamp

FAX: 617-938-5867

GILWAY TECHNICAL LAMP, 800 W. Cummings Pk., Woburn, MA 01801, Tel: 617-935-4442; FSC No.: 3T059; Empl.: 17; *Sls. Mgr.:* Clark Benjamin III; *Dist. Mgr.:* Erin Hurley ..... **B•1155-1163**

GIMIX, INC., 3223 Arnold Lane, Northbrook, IL 60062-2406, Tel: 708-559-0909, FAX: 708-559-0942; Empl.: 14; *Sls. Mgr.:* Robert Phillips

GLAR-BAN, A MARK IV COMPANY, 199 Wales Ave., Tonawanda, NY 14150, Tel: 716-694-5076, FAX: 716-694-4662; FSC No.: 22973; Empl.: 50; *Sls. Mgr.:* Robert G. Mencer, Jr.

GLASGAL COMMUNICATIONS, INC., 151 Veterans Dr., Northvale, NJ 07647, Tel: 201-768-8082, FAX: 201-768-2947; Empl.: 130; *Sls. Mgr.:* Ingemar Sjunnemark

GLASSMAN EUROPE LIMITED, Studio 4 Intec 2 Wade Rd., Basingstoke, Hampshire RG24 0NE, Tel: (0256) 810808, FAX: (0256) 810815; Empl.: 60; *Sls. Mgr.:* J. Ellis

FAX: 908-534-5672

GLASSMAN HIGH VOLTAGE INC., P.O. Box 551, Salem Indl. Pk., Rte. 22 (East), Whitehouse Sta., NJ 08889, Tel: 908-534-9007, TWX: 710-480-2839; Empl.: 60; *Sls. Mgr.:* John R. Belden ..... **D•1762-1773**

GLASSMAN JAPAN HIGH VOLTAGE LTD., Tiara Bldg. 1-17, Tiara 1-Chome, Miyamae-Ky, Kawasaki 213 Japan, Tel: (044) 877-4546, FAX: (044) 877-3395

GLATZER INDUSTRIES CORP., 15 River St., New Rochelle, NY 10801, Tel: 914-576-2700, FAX: 914-576-7075; Empl.: 25; *Sls. Mgr.:* Patricia M. Wyllie

GLENAIR INC., 1211 Air Way, Glendale, CA 91201-2497, Tel: 818-247-6000, TELEX: 67-3485, TWX: 910-437-2066, FAX: 818-500-9912; FSC No.: 06324; Empl.: 485; *Sls. Mgr.:* Ronald E. Platz

GLENMARC MANUFACTURING INC., 970 Woodlands Pkwy., Vernon Hills, IL 60061, Tel: 708-634-6080, FAX: 708-634-9527; Empl.: 13; *Sls. Mgr.:* David Greenwood

GLEN MILLS INC., 203 Brookdale St., Maywood, NJ 07607, Tel: 201-845-4665, TELEX: 134 656, FAX: 201-487-8469; Empl.: 11; *Sls. Mgr.:* Stanley I. Goldberg

GLENRO, INC., 39 McBride Ave., Paterson, NJ 07501-1715, Tel: 201-279-5900, 800-922-0106, FAX: 201-279-9103; Empl.: 50; *Sls. Mgr.:* Sterling Pitt

GLOBAL COMPONENTS & CONTROLS, 1 Main Street Ste. 210, Eatontown, NJ 07724, Tel: 201-389-1470, FAX: 201-389-8781; Empl.: 4; *Sls. Mgr.:* John M. Chapski

GLOBAL SPECIALTIES, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509, Tel: 203-624-3103, FAX: 203-468-0060; Empl.: 50; *Sls. Mgr.:* Rachael Fernicola; *Dist. Mgr.:* Rachael Fernicola

Local Distributors

CA	El Monte, Marshall Inds.	818-459-8310
FL	Ft. Lauderdale, Southeastern Elctrn.	305-563-4131
IN	Indianapolis, Meunier Elctrns.	317-635-3511
MA	N. Andover, Contact East	508-682-2000
NY	Hauppauge, Fordham Radio	516-435-8080
SC	Greenville, EMSCO	813-233-4121
TX	Ft. Worth, Allied Elctrn.	817-336-5401
TX	Irving, Specialized Prods.	214-550-1923
WA	Seattle, Radar Elctrns.	206-282-2511
Can	Willowdale, Ont., Electro Sonic	416-494-1666

GLOBE BATTERY DIV., See Johnson Controls, Globe Battery Div.

GLOBE MOTORS, 2275 Stanley Avenue, Dayton, OH 45404, Tel: 513-228-3171, TELEX: 288-224, TWX: 810-459-1642, FAX: 513-229-8531; Empl.: 580; *Dist. Mgr.:* Derek Keegan

GLOBE UNION, See Johnson Controls, Globe Battery Div.

GlobTek

FAX: 201-861-0740

GLOBTEK, INC., 7700 Marine Rd., N. Bergen, NJ 07047, Tel: 201-861-0246, TELEX: 755579; Empl.: 20; *Sls. Mgr.:* Eugene Goldberg; *Dist. Mgr.:* Tom Devaney ... **A•2229; B•1367; C•1386, 1754; D•1775**

Local Sales Offices & Reps

CA	Arcadia/San Diego, HMC Inc.	818-447-0958
CA	San Jose, Silicon Valley Sls.	408-432-1967
CO	Denver, C-Tech	303-451-7100
CT	Ridgefield, Harbor Elctrns.	203-438-9625
IL	Alsip, M & E Comps.	708-396-0700
IA	Cedar Rapids, Technical Elctrns.	319-366-5443
MD	Lisbon, S. K. MacDonald	301-982-1088
MA	Topsfield, Whitehead Assoc. Inc.	508-887-8050
MN	Golden Valley, Highland Elctrns.	612-546-2123
MO	St. Louis, MPC Mktg.	314-652-0139
TX	Dallas, Comp. Technlg.	214-783-8837
TX	Dallas, Exel Tech	214-239-3935
Can	St. Laurent, Que., Componetics	514-331-9930

Glowlite

FAX: 405-238-3029

GLOLITE SALES LTD/GLOWLITE DIV., PO Box 688 Hwy 77 South, Pauls Valley, OK 73075, Tel: 405-238-5541, 800-654-3662; Empl.: 77; *Sls. Mgr.:* John Crego; *Dist. Mgr.:* Stan Ferrell ..... **B•1154, 1811**

Local Sales Offices & Reps

AZ	Peoria, SEM of Arizona	602-486-1191
AR	Little Rock, Doby Assocs.	501-221-0326
CA	Laguna Hills, Jack Fitch Assocs.	714-951-0196
IL	Berkeley, ESA Tech. Mktg.	708-544-0120
IN	Indianapolis, Schank Elctrn. Mktg.	317-842-6204
KS	Kansas City, E.P.I. Inc.	816-523-8911
MD	Randallstown, Chesapeake Indl. Mktg.	301-653-0476
MA	Tyngsboro, Comptech	508-649-3030
MI	Farmington Hills, Schank Elctrn. Mktg.	313-626-2551
MN	Hopkins, Pathway Sls. Inc.	612-933-8267
MS	Jackson, Doby Assocs.	601-981-1138
MO	St. Louis, E.P.I. Inc.	314-962-1411
NM	Albuquerque, Sytech Mktg. Sys.	505-266-7951
NY	Hauppauge, Aurora-Schmitt Assocs.	516-434-1313
NC	Raleigh, Vantage Mktg.	919-870-7123
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
SC	Greenville, Vantage Mktg.	803-268-2186
TX	Hurst, El-Tec Sls.	817-268-2896
UT	Salt Lake City, Butterworth Mktg.	801-969-5566
Can	Aurora, Ont., JRL Assocs.	416-727-1452

Local Distributors

AL	Huntsville, Resistor Cap Elctrn.	205-883-4270
AR	Little Rock, Carlton Bates	501-562-9100
IL	Chicago, Kennedy-Webster Elctrns.	312-876-1612
IL	Chicago, Leeds Electro Comps.	312-625-3800
IL	Schaumburg, QPS Elctrns.	312-884-6620
LA	Shreveport, Carlton Bates	318-636-9975
MD	Columbia, SHP Elctrns.	301-290-8770
MA	Winchester, Webb Dist.	617-729-5800
MN	Plymouth, Leeds Electro Comps.	612-557-1277
MO	Richland, ATR Lighting	314-765-5219
MO	Spingfield, Carlton Bates	417-862-1699
NY	Setauket, KC Electrn. Dist.	516-689-2200
OH	Cleveland, Advacom Elctrns.	216-826-3300
OH	Columbus, Advacom Elctrns.	614-833-9550
OK	Oklahoma City, Carlton Bates	405-681-4446
OK	Tulsa, Carlton Bates	918-250-1626
PA	Lancaster, Advacom Elctrns.	717-741-9277
PA	McKean, Advacom Elctrns.	814-476-7774
TN	Memhpis, Carlton Bates	901-365-3539
TN	Nashville, Carlton Bates	615-244-3562
TX	Austin, Carlton Bates	512-458-1175
TX	Ft. Worth, Carlton Bates	817-831-0395
TX	Ft. Worth, Tandy Nat. Pts.	817-870-5600
WI	Grafton, Lakeview Elctrns.	414-377-8250
WI	Milwaukee, Badger Sls.	414-281-1330

GME SYSTEMS, INC., 12300 Perry Highway, Pittsburgh, PA 15090, Tel: 412-935-0440, FAX: 412-935-9640; Empl.: 7; *Sls. Mgr.:* Bjorn Karlstrom

GML CHIP COMPONENTS LIMITED, Hig, Phasell, Block 2 Flat 16 Baghlingampally, Hyderabad A.P., India 500 044, Tel: (91) 842-60106, 61593, TELEX: 0425-2105 GML IN, FAX: (91) 842-61484; Empl.: 50

GM NAMEPLATE, INC., 2040 15th Ave. West, Seattle, WA 98119, Tel: 206-284-2200, FAX: 206-284-3705; Empl.: 350; *Sls. Mgr.:* Gerry Gallagher

GMR CO., 804 Main St., Venice, CA 90291, Tel: 213-399-1490, TELEX: 499 2468; Empl.: 93; *Sls. Mgr.:* Harvey Mushman

GN NATIONAL ELECTRIC INC., 20639 Lycoming St, Unit B-1, Walnut, CA 91789, Tel: 714-598-1919, 714-598-1337, 800-321-1266, FAX: 714-594-7938; Empl.: 7; *Sls. Mgr.:* John Huang; *Dist. Mgr.:* Kathy Yang

GPE

FAX: 714-993-6023

GOLDEN PACIFIC ELECTRONICS, INC, 560 S. Melrose St, Placentia, CA 92670, Tel: 714-993-6970; Empl.: 15; *Sls. Mgr.:* James Au; *Dist. Mgr.:* James Au ..... **D•1032-1035, 1776-1777**

Local Sales Offices & Reps

CA	Garden Grove, ELSCO Elctrns	714-891-4621
CA	Norwalk, Ed Rivers Assocs.	213-868-1471
CA	San Jose, Applied Eltcrns Mktg	408-441-9610
CO	Longmont, Butler Tech. Sls.	303-651-7703
IL	Arlington Heights, M.J. Peterson & Assocs.	708-577-8200
NJ	Wayne, Breen Assocs	201-696-8683
NY	Elbridge, Northeastern Elctrns., Inc.	315-689-2143
OR	Beaverton, Core II Mktg	503-641-0877

GOLDEN POWER SYSTEMS, INC., 2125-B Madera Rd, Simi Valley, CA 93065, Tel: 805-582-4400, FAX: 805-582-3230; *Sls. Mgr.:* Ron Jones

GOLDSTAR PRECISION CO. LTD., Lucky Goldstar, 13013 E. 166th St, Cerritos, CA 90701, Tel: 213-404-0101, TELEX: 910-583-5719, FAX: 213-926-0849; Empl.: 12; *Sls. Mgr.:* Reginald Bale; *Dist. Mgr.:* Reginald Bale

GOOD-ALL ELECTRIC, INC., 3725 Canal Drive, Fort Collins, CO 80524, Tel: 303-484-3080, 800-826-7891, TWX: 910-930-9015, FAX: 303-484-8649; FSC No.: 22096; Empl.: 135; *Sls. Mgr.:* Sandi K. Salvhus

GORDON BRUSH MFG. CO., INC., 2150 Sacramento St, Los Angeles, CA 90021-1786, Tel: 213-627-6889, FAX: 213-623-4397; FSC No.: 17987; Empl.: 35

GORDON CO.:WATLOW, 5710 Kenosha St, Richmond, IL 60071, Tel: 815-678-2211, TELEX: 72-2427, FAX: 815-678-3961; Empl.: 300

GORDON INSTRUMENTS, INC., 3645 California Rd, Orchard Park, NY 14127, Tel: 716-662-5353, 1-800-333-2672, FAX: 716-662-7839; Empl.: 20; *Sls. Mgr.:* John Savage

GORDON, L., PACKAGING, 1050 S. Paca St, Baltimore, MD 21230, Tel: 301-539-6537, FAX: 301-625-7510; Empl.: 150

GORDON PRODUCTS, 67 Del Mar Dr., Brookfield, CT 06804, Tel: 203-775-4501, FAX: 203-775-1162; Empl.: 45; *Sls. Mgr.:* Leon Najman; *Dist. Mgr.:* Leon Najman

GORDOS

FAX: 501-636-2305

GORDOS, A Flint Industries Company, 1000 N. Second St, Rogers, AR 72756, Tel: 501-636-5000 ..... **A•1725; B•1486-1488; D•1170-1173**

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Mktg. Assoc. Inc.	205-880-8050
CA	Costa Mesa, Jim Pancake	714-751-6760
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CA	Tustin, Schoenbachler-Dobson	714-544-1888
CO	Arvada, Gemini Elctrns.	303-428-5600
FL	Deerfield Bch., Florida Comps., Inc.	305-429-1758
FL	Tampa, Florida Comps., Inc.	813-873-3622
GA	Atlanta, Elctrn. Mktg. Assoc.	404-448-1215
IL	Schaumberg, Martan, Inc.	708-303-5660
IN	Indianapolis, Hy-Tek Sls. Co.	317-887-2564
MA	Burlington, Anacon Sls. Assocs.	617-272-9080
MI	Troy, Pyramid Integrated Control Sys.	313-528-8040
MN	Eden Prairie, Busch Elctrns.	612-934-7922
NM	Albuquerque, Syntech	505-266-7051
NJ	Budd Lake, Guido Assocs.	201-347-4643
AR	Rogers, Bill Wilberg	800-643-3500
NC	Raleigh, Elctrn. Mktg. Assocs., Inc.	919-847-8800
OH	Centerville (Dayton), Omega Sls., Inc.	513-434-5507
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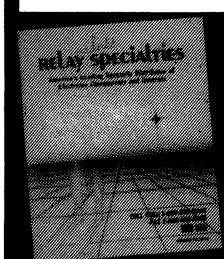

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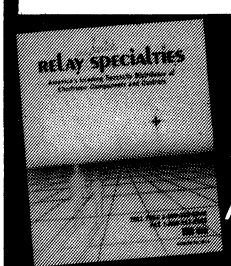
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GA	Norcross, Electramark	404-446-7915
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HAMMOND MANUFACTURING CO., 1690 Walden Ave., Buffalo, NY 14225, Tel: 716-894-5710; Empl.: 1,450; *Sls. Mgr.:* Ray Shatzel ..... **C•1058**

Local Sales Offices & Reps

AZ	Scottsdale, Mahaffey & Assocs.	602-991-9790
CA	N. Hollywood, Bassett Sls. Corp.	818-766-2117
CA	San Carlos, Hickey Indl. Sls.	415-594-9978
CO	Boulder, The Stratford Grp.	303-530-3194
FL	Tampa, SRT Mktg.	813-884-4805
GA	Atlanta, Millar Elctrns.	404-634-3350
IL	Highland Park, Bransky Sls.	312-433-2375
MD	Sykesville, DJC Elctrn. Sls.	301-795-7020
MA	N. Scituate, W. A. Hendrickson Co.	617-545-0652
MI	Southfield, Component Assocs.	313-355-4110
MN	Golden Valley, Ambassador Inds. Mktg.	612-542-8437
MO	St. Louis, Kathrinus, Kelly & Baumhauer	314-647-2400
NY	Bellmore, Selectra Sls.	516-221-7865
NY	Manhasset, Win-Cor Elctrn. Sls.	516-627-9474
NY	Victor, Net Sls.	716-924-1844
NC	Raleigh, Millar Elctrns.	919-828-8840
OH	Cincinnati, Frank E. Kahsar Sls.	513-922-3133
PA	Philadelphia, DJC Elctrn. Sls.	215-334-4533
TX	Dallas, J. Y. Schoonmaker Co., Inc.	214-349-1650

Local Distributors

AL	Birmingham, ACK, Inc.	205-322-0588
AL	Birmingham, Forbes Dist.	205-251-4104
AZ	Phoenix, Electronic Parts Co.	602-277-7281
AZ	Tucson, Southwest Sls.	602-628-1613
AR	Ft. Smith, Carlton Bates	501-646-8201
AR	Little Rock, Carlton Bates	501-562-9100
CA	Chatsworth, Poco Sls.	818-700-8727
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	Milpitas, Zack Elctrns.	408-942-5432
CA	Redwood City, H.D.B.	415-368-1388
CA	San Diego, Western Radio Elec.	619-268-4400
CA	San Jose, Con. Parts, Inc.	408-435-1200
CA	San Jose, Quement Elctrns.	408-998-5900
CA	San Rafael, Elctrns. Plus	415-457-0466
CA	Santa Ana, ITT Multicomponents	714-727-4001
CO	Denver, Fistell Elctrns.	303-629-1312
CT	Bridge Port, Park Distrbg.	203-366-7200
CT	Danbury, Pilgrim Elec.	203-792-7274
CT	Hartford, Hatry Elec.	203-527-1881
CT	New London, Jan Elctrn. Supp.	203-442-4386
CT	Norwalk, Cobra	203-847-6442
CT	Stratford, Hatry Elec.	203-375-5866
CT	Wallingford, Midstate Elec.	203-265-9900
DE	Wilmington, Whlsl. Elctrns.	302-652-3222
FL	Orlando, EMSCO	407-849-6060
FL	Tampa, EMSCO	813-253-2684
GA	Atlanta, Ack, Inc.	404-351-6340
GA	Norcross, Whitehead Elctrns.	404-923-6667
GA	Norcross, Wholesale Inds. Elec.	404-447-8431
IL	Bensenville, Magnuson Elctrns.	708-595-7575
IL	Chicago, Newark Elec.	312-784-5100
IL	Joliet, Mainline Elec.	815-436-3900
IL	Niles, Joseph Elec.	708-312-297-4200
IL	Wheeling, Hawk Elec.	708-459-4030
IN	Carmel, Altex Elctrns.	317-848-1323
IN	Indianapolis, Advent Elec.	317-872-4910
IN	Indianapolis, Mar Elec.	317-633-6699
IA	Cedar Rapids, Dee Elec.	319-365-7551
KY	Louisville, Peerless Elctrns.	502-637-7674
LA	New Orleans, W. B. Allen Supp.	504-525-8222
MD	Aberdeen, Harco Elctrns.	301-838-7990
MD	Beltsville, Mark Elctrns.	301-595-5040
MD	Gaithersburg, M. S. Elec.	301-921-0200
MA	Haverhill, Spartan Elctrns.	508-373-1200
MA	Lynn, Land Elec. Supp.	617-592-2220
MA	Needham, Y.D.I.	617-449-1005
MA	Wellesley Hills, Target Elctrns. Supp.	617-235-2545
MA	Woburn, Abbott Elec.	617-935-2040
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MN	Minneapolis, Bergquist	612-835-2322
MN	Minneapolis, Tortec Corp.	612-866-3662
MO	Kansas City, Electronic Supp.	816-931-0250
MO	St. Louis, Van Sickle Radio	314-621-5000
NH	Dover, American Radio Corp.	603-335-3118
NJ	Camden, GRS Elctrns.	609-964-8560
NJ	Edison, Brownell Elctrns.	201-287-2037
NJ	Oakland, Relay Specialties	201-337-1000
NJ	Raritan, Masters Elctrn. Supp.	201-725-3533
NM	Albuquerque, Beta Tron Elctrns.	505-821-1122
NY	Buffalo, Genesee Ind. Elec.	716-873-9661
NY	Buffalo, Summit Dist.	716-887-2800
NY	Commack, Spartan Elctrns.	516-499-9500
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Poughkeepsie, Chief Elctrns.	914-471-1300
NY	Rochester, Goldcrest Elec.	716-546-8464
NY	Rochester, Masline Elec.	716-546-5373
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rome, Rome Elec.	315-337-5400
NY	Syracuse, Salina Elec.	315-422-2336
NY	Troy, Trojan Elec.	518-272-4481
NC	Greensboro, Hammond Elec.	919-275-6391
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cleveland, Roberts Elec.	216-238-1711
OH	Columbus, Thompson Elec. Supp.	614-228-6191
OH	Dayton, Stotts Friedman	513-298-5555
OK	Oklahoma City, Radio, Inc.	405-528-2391
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Toledo, International Co.	503-336-2221
PA	Drexel Hill, Kass Elec.	215-449-2300
PA	McKean, Advacom	814-476-7774
PA	Wayne, Peak Elec.	215-293-9000
RI	Pawtucket, Major Elec. Supp.	401-725-7400
SC	Charleston, Wholsale Inds. Elctrns.	803-722-2634
SC	Greenville, EMSCO	803-233-4121
TN	Knoxville, Bondurant Bros.	615-573-9151
TX	Austin, Galtronics	512-837-7470
TX	Corpus Christi, Douglas Elec.	512-883-5103
TX	Dallas, Off-the-Shelf Comps.	214-247-0052
TX	Dallas, Wholesale Elec.	214-969-9400
TX	Ft. Worth, Allied Elec.	817-336-5401
TX	Houston, Electrotex	713-526-3456
TX	Houston, The Altair Co.	713-462-3029
TX	Midland, ESI Supp.	915-694-9657
TX	San Antonio, Altex Elctrns.	512-828-0503
TX	San Antonio, Sherman Elec.	512-224-1001
UT	Salt Lake City, Standard Elec. Supp.	801-486-3371
VA	Annandale, Arcade Elctrns.	703-256-4610
VA	Arlington, Arlington Elctrns.	703-524-2412
VA	Charlottesville, Virginia Elec. Comps.	804-296-4184
VA	Norfolk, Norfolk Wire	804-499-1100
WA	Bellevue, Integrated Elec.	206-455-2727
WI	Mequon, Taylor Elec.	414-241-4321
WI	Oshkosh, Elctrn. Inds.	414-235-8930
WI	Racine, Badger Elctrn. Supp.	414-637-1256

HANCOCK ELECTRONICS CORP., 75 Terry Drive, Hingham, MA 02043, Tel: 617-740-4190, FAX: 617-740-4192; FSC No.: 66851; Empl.: 8; *Sls. Mgr.:* Robert H. Sturdy

HAND HELD PRODUCTS, INC., 8008 Corporate Center Dr., Charlotte, NC 28226, Tel: 704-541-1380, TWX: 810-621-0380 PROTECH, FAX: 704-541-1333; *Sls. Mgr.:* Jim Trautwein; *Dist. Mgr.:* Jim Trautwein

H & L INSTRUMENTS, 1440 Rollins Road, Burlingame, CA 94010, Tel: 415-342-7850, FAX: 415-347-1065; Empl.: 7; *Sls. Mgr.:* Jenifer H. Landman

HANDY & HARMAN ELCTRN. MATLS. CORP., 72 Elm St., N. Attleboro, MA 02760, Tel: 508-695-1401, FAX: 508-695-7565; Empl.: 300; *Sls. Mgr.:* T. Longo

HANKSCRAFT MOTORS, Div. of Gerber Prods. Co., P.O. Box 120, Reedsburg, WI 53959, Tel: 608-524-4341, FAX: 608-524-6779; Empl.: 550

HANOVIA, Canrad, 100 Chestnut St., Newark, NJ 07105, Tel: 201-589-4300, TELEX: 13-8531, FAX: 201-589-4430; Empl.: 250; *Sls. Mgr.:* Dennis M. Priscandaro; *Dist. Mgr.:* Dennis M. Priscandaro

HANSCOM, H. F., CO., INC., 225 Chapman St, Providence, RI 02905, Tel: 401-941-1455, FAX: 401-781-8835; Empl.: 50; *Sls. Mgr.:* John E. Christiansen

HANSEN MANUFACTURING COMPANY, INC., Subsidiary of IMC Magnetics Corp., Box 23, Princeton, IN 47670-0023, Tel: 812-385-3415, FAX: 812-385-3013; Empl.: 400; *Sls. Mgr.:* George A. Gilbert

HANTRONIX

FAX: 408-749-0477

HANTRONIX, INC., Liquid Crystal Display, 250 Santa Ana Ct., Sunnyvale, CA 94086, Tel: 408-736-3191, TELEX: 880165; Empl.: 25; *Sls. Mgr.:* David Kim; *Dist. Mgr.:* Jake B. Yu ..... **B•1078-1079**

Local Sales Offices & Reps

AL	Madison, Benchmark Tech. Sls.	205-464-0033
AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Carlsbad, Zerimar Sls.	619-436-3379
CA	Laguna Hills, 4 Star Elctrn. Sls.	714-583-9781
CA	Los Gatos, Luscombe Engrg. of S.F.	408-370-2020
CO	Longmont, Butler Tech. Sls.	303-651-7703
CT	Bethel, Ray Perron & Co., Inc.	203-798-0261
CT	Farmington, Ray Perron & Co., Inc.	203-673-4825
FL	Melbourne, Synergistic Tech. Sls.	407-242-9661
GA	Norcross, Benchmark Tech. Sls.	404-446-1711
IL	Arlington Heights, Phoenix Elctrn. Sls.	708-394-4422
KS	Prairie Village, Crosslink	913-649-7100
MD	Ellicot City, Technology Sls.	301-461-7802
MA	Needham, Ray Perron & Co., Inc.	617-449-6162
MN	Minneapolis, Technical Comp. Grp.	612-536-9512
MO	St. Louis, Reptronics	314-576-9816
NY	Coram, Sylvester Assocs. Sls. Inc.	516-473-2018
NY	Webster, Impaq Elctrns., Inc.	716-265-0995
NC	Raleigh, Benchmark Tech. Sls.	919-850-0633
OH	Columbus, Scientific Sys.	614-861-0129
OR	Hillsboro, Temco Northwest	503-645-2030
PA	Hatboro, Delta Tech. Sls.	215-957-0600
TX	Austin, RAm Elctrn. Sls., Inc.	512-345-2982
TX	Plano, RAM Elctrn. Sls. Inc.	214-424-4455
WA	Birch Bay, Temco Northwest	206-371-0423
WA	Bothell, Temco Northwest	206-481-6150
WA	Spokane, Temco Northwest	509-927-9392

Local Distributors

CA	Industry, Ital Elctrns Sls.	818-968-8515
CA	Mission Viejo, Opto Plus	714-380-8654
CA	San Jose, Spectra Elctrn. Inc.	408-452-1590
CO	Littleton, Displays Plus	303-730-7333
IL	Schaumburg, QPS Elctrns., Inc.	708-884-6620
NJ	Rockaway, Tonar Inds., Inc.	201-586-9000
TX	Austin, Omni Pro Elctrns.	512-794-9200
TX	Dallas, Omni Pro Elctrns.	214-233-0500
WI	New Berlin, Classic Comps.	414-786-5300
Can	Nippean, Ont., Carsten Elctrns. Ltd.	613-726-9250
Can	Scottsborough, Ont., Carsten Elctrn. Ltd.	416-495-9999

HARBOUR IND. (CANADA) LTD., 1365 Industriel Blvd, Farnham, Quebec, Canada J2N 2X3, Tel: 514-293-5304, FAX: 514-293-2421; Empl.: 31; *Sls. Mgr.:* Marc Longpre

HARDIGG

FAX: 413-665-4801

HARDIGG INDS., INC., 393 N. Main St. P.O. Box 201, South Deerfield, MA 01373, Tel: 413-665-2163; FSC No.: 11214; Empl.: 200; *Sls. Mgr.:* Stanley J. Morgan ..... **C•1059-1061**

HARDMAN INC. A HARCROS CHEMICAL GROUP COMPANY, 600 Cortlandt St., Belleville, NJ 07109, Tel: 201-751-3000, FAX: 201-751-8407; Empl.: 85

HAROWE SERVO CONTROLS, INC.:A FASCO CO., 110 Westtown Rd. P.O. Box 547, West Chester, PA 19380, Tel: 215-692-2700, TELEX: 685-1176; FSC No.: 06989; Empl.: 300; *Sls. Mgr.:* Clayton A. Walters

HARREL, INC., 16 Fitch St, E. Norwalk, CT 06855, Tel: 203-866-2573; *Sls. Mgr.:* Richard Decew

HARRIS CORP., Dracon Div., 809 Calle Plano, Camarillo, CA 93012, Tel: 805-987-9511, TELEX: 182327; Empl.: 350; *Sls. Mgr.:* Tom Erdmann; *Dist. Mgr.:* Keith Boutillier

HARRIS MICROWAVE SEMICONDUCTOR, Harris Semiconductor, 1530 McCarthy Blvd, Milpitas, CA 95035, Tel: 408-433-2222, TWX: 910-338-2247, FAX: 408-432-3268; *Sls. Mgr.:* Vic Kovacevic

HARRIS SEMICONDUCTOR, Box 883, Melbourne, FL 32902, Tel: 305-724-7400, TWX: 510-959-6259; FSC No.: 34371; Empl.: 2300; *Sls. Mgr.:* Gary Pinelli; *Dist. Mgr.:* George Giozinski

HARTING ELEKTRONIK, INC., 2155 Stonington Ave., Ste. 212, Hoffman Estates, IL 60195, Tel: 708-519-7700, FAX: 708-519-9771; Empl.: 15; *Sls. Mgr.:* Donald G. Blummer

HARTLEY PRODUCTS, 1200 N. 23rd St, Ste. 105, Wilmington, NC 28405, Tel: 919-763-7422, FAX: 919-763-7422; *Sls. Mgr.:* R. Schmetterer

HARWIL, 1548 17th St, Santa Monica, CA 90404, Tel: 213-829-2310, FAX: 213-829-2259; Empl.: 10

HASCO COMPONENTS INTERNATIONAL CO., 247-40 Jericho Tpke., Bellrose Village, NY 11001, Tel: 516-328-9292, FAX: 516-326-9125; Empl.: 30; *Sls. Mgr.:* Tab Hauser; *Dist. Mgr.:* Christa Mundelos ..... **B•1494-1500, 1707**

Local Sales Offices & Reps

AL	Huntsville, Over & Over	205-837-7105
AL	Huntsville, Rick Burns Assocs.	800-852-5050
AK	Anchorage, Hasco Comps.	800-852-5050
AZ	Phoenix, Sanford Sls.	602-957-3570
AZ	Phoenix, Sanford Sls.	800-852-5050
CA	Irvine, Groh Assocs.	714-837-9871
CA	Los Angeles, RD&D	800-852-5050
CA	San Francisco, Silicon Valley	800-852-5050
CT	Hartford, Gallagher Assoc.	800-852-5050
GA	Atlanta, Rick Burns Assoc.	800-852-5050
IL	Chicago, Rendell Sls.	312-852-5050
KS	Kansas City, Logsden Assoc.	800-852-5050
LA	New Orleans, TANE	800-852-5050
MA	Framingham, Gallagher	800-852-5050
MO	Kansas City, Logsdan	800-852-5050
NM	Albuquerque, Sanford	800-852-5050
NY	Port Washington, Ashtec	800-852-5050
NY	Rochester, Andres	800-852-5050
NC	Raleigh, Rick Burns Assoc.	800-852-5050
OH	Cleveland	800-852-5050
TX	Dallas, Sls. Assoc.	800-852-5050
VA	Charlottesville, Pacesetter	800-852-5050
WA	Seattle, Jensen Sls.	800-852-5050
WI	Milwaukee, Rendell Sls.	800-852-5050

HATHAWAY CORPORATION:MOTION CONTROL DIV., 10837 E. Marshall, Tulsa, OK 74116, Tel: 918-438-7800, FAX: 918-438-7629; Empl.: 80; *Sls. Mgr.:* David Richards

Local Sales Offices & Reps

CA	Los Angeles, Hathaway: Motion Control Div.	213-398-5369
MA	Boston, Hathaway:Motion Control Div.	617-469-5054

HAUMAN, INC., 2031 Ringwood Avenue, San Jose, CA 95131, Tel: 408-434-0888, TELEX: 510-101-2820, TWX: 408-434-9832; *Sls. Mgr.:* Willis Yeh ..... **D•1782-1783**

Local Sales Offices & Reps

AL	Huntsville, B & C Instruments, Inc.	205-883-6530
CA	Canoga Pk., RAG Elctrns., Inc.	818-998-6500
CA	San Diego, Instr. Engrs.	619-268-8344
CO	Broomfield, Instr. Repair Labs.	303-469-5375
CT	Newtown, Connecticut Cal Labs	203-270-1263
FL	Tampa, Tampa Instrmn.	813-623-3979
GA	Norcross, Allied Elctrns.	404-446-8595
IN	Indianapolis, Loren Green	317-293-9827
MN	Minneapolis, Tonka Tech. Labs.	612-593-1770
NY	Great Neck, Instr. Mart	516-487-7430
NY	Mineola, Allied Elctrns.	516-248-2360
NC	Raleigh, Allied Elctrns.	919-876-5845
OR	Portland, Westcon Inc.	503-283-0132
PA	New Hope, John Bell	215-862-3762
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Garland, Tucker Elctrns.	214-348-8800
WA	Bellevue, Vetco	206-869-7025

Local Distributors

AK	Anchorage, Alaska Elctrnc. Supp.	907-563-3774
MD	Columbia, Allied Elctrns.	301-381-1560
PA	Pittsburgh, Allied Elctrns.	412-367-4124
WA	Seattle, Allied Elctrns.	206-547-2827

HAVERLY SYSTEMS, INC., 12 Hinchman Ave., Box 919, Denville, NJ 07834, Tel: 201-627-1424, FAX: 201-625-2296; Empl.: 33; *Sls. Mgr.:* Ken Spencer

HAYDON SWITCH & INSTRUMENT, 1500 Meriden Rd., P.O. Box 3329, Waterbury, CT 06705, Tel: 203-756-7441, TELEX: 643852-HSIINTLWBY, FAX: 203-756-8724; FSC No.: 02005; Empl.: 100

HAYES INSTRUMENT SERVICE INC., 530 Boston Rd., Billercia, MA 01821, Tel: 508-663-4800, FAX: 508-663-3812; Empl.: 45; *Sls. Mgr.:* Alan Brown; *Dist. Mgr.:* Alan Brown

HBM, INC., 19 Bartlett Street, Marlboro, MA 01752, Tel: 508-624-4500, FAX: 508-485-7480; Empl.: 200; *Sls. Mgr.:* Robert Gray

HBS EQUIPMENT CORPORATION, 3000 Supply Ave., Los Angeles, CA 90040, Tel: 213-726-3033, FAX: 213-888-9982; Empl.: 60; *Sls. Mgr.:* Mark Pedersen

HC Power, inc.

FAX: 714-261-6584

HC POWER INC., 17032 Armstrong Ave., Irvine, CA 92714-5716, Tel: 714-261-2200; FSC No.: 0D6P8; *Sls. Mgr.:* Jack Graham ..... **D•1784-1785**

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
AZ	Phoenix, Morrison & Fern	602-296-8181
CA	Laguna Hills, Electro Venture	714-581-9244
CA	Santa Clara, Electro Venture	408-727-1553
CA	Woodland Hills, Electro Venture	818-884-6574
CO	Englewood, Taylor Mktg.	303-850-0207
CO	Littleton, Taylor Mktg.	303-850-0207
FL	Largo, Graham Assoc.	813-539-6779
FL	Melbourne, Graham Assoc.	407-773-6631
FL	Orlando, Graham Assoc.	407-299-1001
FL	Palm Beach Gardens, Graham Assoc.	407-622-4049
FL	Winter Garden, Graham Assoc.	407-656-9369
IL	Barrington, Omni	708-381-9087
IN	Indianapolis, JC Hofstetter	317-897-7914
IA	Des Moines, The Beams Co.	515-255-1148
KS	Shawnee Mission, The Beams Co.	913-631-0300
MD	Hunt Valley, Eagle Sls. Corp.	301-666-3930
MA	Franklin, OEM Mktg. & Sls.	508-528-4983
MN	Minneapolis, Electro-Serv	612-338-3475
MO	St. Louis, The Beams Co.	314-434-8448
NH	Salem, OEM Mktg. & Sls.	603-893-0009
NC	Winston-Salem, Murcota	919-722-9445
OH	Dayton, JC Hofstetter	513-296-1010
OH	Medina, JC Hofstetter	216-725-4477
OR	Portland, Power Factor Assocs.	503-233-6969
PA	Pittsburg, JC Hofstetter	412-356-2305
TX	Dallas, Dynamark	214-437-3333
UT	Ogden, Taylor Mktg.	801-546-9570
NY	Spring Valley, Powertronics	914-735-3775
Can	Lachine, Digidyne	514-631-1891
Can	Napean, Digidyne	613-727-5632
Can	Toronto, Digidyne	416-674-0444

HDR POWER SYSTEMS, INC., 4242 Reynolds Dr., Hilliard, OH 43026, Tel: 614-771-5500, FAX: 614-771-7219; Empl.: 90; *Sls. Mgr.:* Harlan W. Bates

HDS INC., 12310 Pinecrest Rd., Reston, VA 22091, Tel: 703-620-6200, TELEX: 64585, FAX: 703-620-3169; Empl.: 120

H D SYSTEMS, INC., 89 Cabot Court, Hauppauge, NY 11788, Tel: 516-231-6630, FAX: 516-231-6803; Empl.: 5; *Sls. Mgr.:* Tetsuo Ikuta

HEADWAY RESEARCH, INC., 3713 Forest La., Garland, TX 75042, Tel: 214-272-5431, FAX: 214-272-7817; Empl.: 45

HEATH CO., Hilltop Road, St. Joseph, MI 49085, Tel: 616-982-3200, TELEX: 72-9421; Empl.: 2000

HEAT SYSTEM, INC., 1938 New Hwy., Farmingdale, NY 11735, Tel: 516-694-9555, TELEX: 825-339; Empl.: 35; *Sls. Mgr.:* Irwin Leibson

HEDRICH USA, INC., 684 N. Spence Ave., Goldsboro, NC 27534, Tel: 919-751-1144, FAX: 919-751-0215

HEEGER, INC., 6400 Fleet St., City of Commerce, CA 90040, Tel: 213-728-5108, 728-4729, 728-6913, FAX: 213-728-4740; Empl.: 10; *Sls. Mgr.:* Robert A. Heeger

HEI CORPORATION, P.O. Box 88806, Carol Stream, IL 60188, Tel: 708-665-5500, FAX: 708-665-5769; Empl.: 20

HEIDENHAIN CORP., 115 Commerce Dr., Schaumberg, IL 60173, Tel: 708-490-1191, FAX: 708-490-3931; Empl.: 72; *Sls. Mgr.:* Thomas Wyatt; *Dist. Mgr.:* Rick Glos

HEI, INC., Hybrid Electronics Div., 1495 Steiger Lake Ln., Victoria, MN 55386, Tel: 612-443-2500, ESYLNK: 62940281, FAX: 612-443-2668; Empl.: 200; *Sls. Mgr.:* Leonard Klun ..... **A•1726**

Local Sales Offices & Reps

MN Victoria, HEI Inc. 612-443-2500

HEI, INC., Optoelectronics Div., 1495 Steiger Lake La.,P.O.Box 5000, Victoria, MN 55386, Tel: 612-443-2500, TWX: 510-601-7785, ESYLNK: 62940281, FAX: 612-443-2668; Empl.: 150; *Sls. Mgr.:* Dale Nordquist

HEINEMANN ELECTRIC CO., 2630 Brunswick Pike, Alt. Rte. 1, P.O. Box 6800, Lawrenceville, NJ 08648-0800, Tel: 609-882-4800, TELEX: 843431; FSC No.: 74193; Empl.: 350 ..... **B•1368-1371**

Local Sales Offices & Reps

AZ Phoenix, O'Donnell Assocs. SW 602-944-9542
CA San Diego, O'Donnell Assocs., Inc. 619-578-1645
CA San Jose, O'Donnell Assocs. No. 408-456-2950
CA Torrance, O'Donnell Assocs., Inc. 213-539-9664
CO Englewood, CompuTech Mktg. 303-773-3981
FL Oviedo, Conley & Assocs. 407-365-3283
FL Wellington, Conley & Assocs., Inc. 407-790-3926
GA Duluth, Dixie Mktg. 404-381-5592
IL Northbrook, D. Dolin Sls. 708-498-6770
IN Ft. Wayne, O.H. Bromberg & Assocs. .. 219-456-6010
IA Hiawatha, Ard Sls. Co. 319-393-6392
KY Alexandria, O.H. Bromberg & Assoc. .. 606-635-3063
KY Louisville, O.H. Bromberg & Assocs. .. 502-456-1498
MD Upperco, Imagitron Sls. Co., Inc. 301-374-5600
MA Southboro, Sullivan Tech. Sls. 617-485-2215
MI Southfield, L. H. Dickelman Co. 313-353-8210
MN Minneapolis, Furber Sls. Co., Inc. 612-881-3620
MO Kansas City, Hill & Co. 816-361-1669
MO St. Louis, Hill & Co. 314-432-1136
NJ Ridgewood, Ballou, Inc. 201-444-6990
NM Albuquerque, O'Donnell Assocs. SW .. 505-889-4522
NY Farmington, R. M. Scanlon & Assocs. 716-924-7450
NY Syracuse, R.M. Scanlon & Assoc., Inc. 315-463-7682
NC Charlotte, J. Rudisill Assocs. 704-377-6901
OH Cleveland, Brown Elect. Prod. 216-331-2072
OH Dayton, KW Elctrn. Sls. 513-890-2150
OH Dayton, O. H. Bromberg & Assocs. 513-434-8788
FL Wellington, Conley & Assoc., Inc. 305-790-3926
NJ Lawrenceville, DVS Co. 609-896-1112
PA Pittsburgh, KW Electrn. Sls. 412-366-9396
TX Dallas, Glidden Electro Equip. 214-341-0610
TX Houston, Glidden Electro Equip. 713-681-1415
WI Milwaukee, Key Entpr. 414-762-2323

Local Distributors

AL Montgomery, Southern Controls 205-277-5030
CA Chatsworth, POCO Sls. 818-700-8727
CA Inglewood, Newark Elctrns. 213-671-7066
CA Los Angeles, Master Distrs. 213-452-1229
CA Oakland, Brill Elctrns. 415-834-5888
CA San Carlos, Campbell & George 415-594-1994
CA Santa Clara, Cypress Elctrns. 408-980-8400
CA Van Nuys, Fuses, Unltd. 818-786-8111
CO Aurora, Jet Elctrns. 303-364-1000
CO Denver, CSID Inc. 303-292-9594
CO Denver, Newark Elctrns. 303-757-3351
CT Hartford, L. E. Whelan Co. 203-296-5000
CT Wallingford, Green Shaw Co. 203-265-3333
FL Oviedo, Dixie Sls. 407-365-5211
GA Atlanta, Georgia Control Cen. 404-876-8833
IL Chicago, Newark Elctrns. 312-784-5100
IL Morton Grove, Nedco Elctrns. 312-967-0500
IL Northbrook, Classic Comps. Supp. 312-272-9650
IN Indianapolis, Bell Inds. 317-875-8200
KS Edwardville, C. Tennant & Sons 913-441-1801
MD Columbia, DK Elctrns., Inc. 301-995-1950
MD Crofton, Custom Marine Svcs. 301-793-3955
MA Needham, Power Electro Supp. 617-444-6866
MA Newton, Green Shaw Co. 617-969-8900
MA Woburn, Apparatus Svc. 617-933-5999
MI Oak Pk., Newark Elctrns. 313-967-1570
MI Southfield, Michigan Lectrols Corp. ... 313-353-1350
MN Minneapolis, Newark Elctrns. 612-331-6350
MO Maryland Heights, Lcomp, Inc. 314-291-6200
NH Hudson, Bell Inds. 508-474-8880
NJ Lawrenceville, Riverside Comps. Supp. 609-896-1611
NY Johnson City, Help Elctrns., Inc. 607-729-3528
NY Ronkonkoma, Arrow Elctrns. 516-467-1000
NY Roslyn, I/O Corp. of NY 516-625-1040
NY Whitestone, Power Electro Supp. Co. 212-767-1447
NC Charlotte, Motionex Inc. 704-377-1555
NC Raleigh, Greene-Shaw Co. 919-954-7138
OH Cleveland, I/O Corp. of Cleveland 216-642-7300
OH Dayton, Duellman Elec. 513-461-8000
OH Dayton, Stotts Friedman Co. 513-298-5555
PA Pittsburgh, Circuit Breakers, Inc. 412-366-9542
OH Shandon, Cartessa Corp. 513-738-4477
OH Valley View, Newark Elctrns. 216-447-8860
OR Portland, Taylor Elec. 503-233-5321
PA Conshohocken, I/O Corp. of Phila. 215-825-4610
PA Erie, REM Elctrns. 814-453-5626
PA West Chester, West Chester Elec. & Electrn. 215-696-7500
TN Chattanooga, Techni-Tronics, Inc. 615-332-2119
TX Dallas, Geeco Sls. Co. 214-341-2626
TX Garland, Newark Elctrns. 214-494-5911
TX Houston, Newark Elctrns. 713-782-4800
VA Ashland, Hanover Controls & Supp. Corp. 804-550-2449
VA Charlottesville, Va. Elctrn. Comps. 804-296-4184
WA Seattle, H. C. Campbell Co. 206-433-1900
WI Milwaukee, Hunt Co. 414-383-1781

HEITZ, KARL, INC., P.O. Box 427, Woodside, NY 11377, Tel: 718-565-0004, FAX: 718-565-2582; Empl.: 15

HELICAL PRODS. CO., INC., Box 1069, Santa Maria, CA 93456-1069, Tel: 805-928-3851, FAX: 805-928-2369; FSC No.: 13201; Empl.: 85; *Sls. Mgr.:* John Ricker

HELM INSTRUMENT CO., INC., 1387 Dussel Drive, Maumee, OH 43537, Tel: 419-893-4356, FAX: 419-893-1371; Empl.: 55; *Sls. Mgr.:* M. Wilhelm; *Dist. Mgr.:* N. Phillips

HELWIG CARBON PRODUCTS, INC., 8900 W. Tower Ave., Milwaukee, WI 53224, Tel: 414-354-2411, FAX: 414-354-2421; FSC No.: SIC 3624; Empl.: 280; *Sls. Mgr.:* John E. Koenitzer

HERBERT PRODS. INC., 180 Linden Ave., Westbury, NY 11590-0384, Tel: 516-334-6500, TWX: 510-222-5963, FAX: 516-334-6538; Empl.: 94; *Sls. Mgr.:* B. J. Simmons

HERGA INC. HERGA ELECTRIC LIMITED, 602 Brandywine Parkway, West Chester, PA 19380, Tel: 215-430-1970, FAX: 215-430-7785; Empl.: 5

HERITAGE METAL FINISHING INC., 800 S. Market St. P.O. Box 446, Elizabethtown, PA 17022, Tel: 717-367-1561, FAX: 717-367-2474; Empl.: 43; *Sls. Mgr.:* Terry L. Rinesmith ..... **D•2235**

Local Sales Offices & Reps

PA Elizabethtown, Heritage Metal Finishing Inc. 717-367-1561

HERMETIC SEAL CORP., 4232 Temple City Blvd., Rosemead, CA 91770, Tel: 213-283-0411, TWX: 910-587-3352, FAX: 818-443-6610; FSC No.: 04820; Empl.: 200

HERMETIC SWITCH, Box 1325, Hwy. 92, Chickasha, OK 73018, Tel: 405-224-4046, TELEX: 796125 Hermetic CKSA, FAX: 405-224-9423; FSC No.: 65623; Empl.: 150; *Sls. Mgr.:* R. Helms, Kim Baker .... **B•1708, 1904-1905**

Local Sales Offices & Reps

CA Arcadia, V. Gott & Assocs. 818-445-9729
CA San Diego, V. Gott & Assocs. 619-489-0893
GA Atlanta, Electro Technlg. Prods. 404-262-1522
IL Lemont, Trend-Tronics, Inc. 708-972-1166
KS Lenexa, Midtec Assocs. 913-541-0505
MA Canton, New England Elctrn. Sls. 617-828-4835
MN Minneapolis, Peterson Sls. & Assocs. 612-835-5281
MO St. Louis, Midtec Assocs. 314-275-8666
NY Oceanside, Current Inds. 516-678-3895
OR Beaverton, LD Elctrns. 503-684-8221
PA Furlong, Avenir 215-348-8290
TX Austin, R. F. Kimball Co. 512-443-5284
TX Houston, R. F. Kimball Co. 713-890-8810
TX Richardson, R. F. Kimball Co. 214-231-3447
WA Snohomish, LD Elctrns. 206-568-0511
WA Spokane, LD Elctrns. 509-922-4883

Local Distributors

TX Ft.Worth, Allied Elctrns. Inc. 817-595-3500

HERSEY MEASUREMENT CO., A Miller Industries Co., P.O. Box 4585, Spartanburg, SC 29305, Tel: 803-574-8960, 1-800-845-2102, FAX: 803-578-7308; Empl.: 80; *Sls. Mgr.:* Don McLellan

HERSTAL AUTOMATION LTD., 3171 W. Twelve Mile, Berkley, MI 48072, Tel: 313-548-2001, FAX: 313-548-2010; Empl.: 14; *Sls. Mgr.:* Randall M. Elliott

HERTNER DIV.:EXIDE CORP., 12690 Elmwood Ave., Cleveland, OH 44111, Tel: 216-252-4242, FAX: 216-941-4330; FSC No.: 28398; Empl.: 100; *Sls. Mgr.:* R.C. Wright

HERTZ FILTER, 3 Aerial Way, Syosset, NY 11791, Tel: 516-822-4770; Empl.: 22

HEURISTICS INCORPORATED, 9845 Horn Rd., Ste. 170, Sacramento, CA 95827, Tel: 916-369-6606, TELEX: 4940010, FAX: 916-369-6175; Empl.: 70; *Sls. Mgr.:* Mike McMann, Genl. Mgr.

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1026 6th Avenue, Oakland, CA 94606

800-452-4844 (x2130)

HEWLETT-PACKARD CO., 19310 Pruneridge Ave. Customer Information Ctr., Cupertino, CA 95014, Tel: 800-752-0900; Empl.: 91,000 ..... **D•1786-1787**

Local Sales Offices & Reps

AL	Birmingham	205-988-0547
AL	Huntsville	205-830-2000
AK	Anchorage	907-563-8855
AZ	Phoenix	602-273-8000
AZ	Tucson	602-573-7400
AR	Little Rock, Hewlett-Packard Co.	501-225-7178
CA	Calabasas	818-880-3400
CA	Carson	213-834-6312
CA	Foster City	415-378-8400
CA	Fresno	209-252-9652
CA	Fullerton	714-999-6700
CA	Goleta	805-685-6100
CA	Irvine	714-472-3000
CA	Los Angeles	213-337-8000
CA	Mountain View	415-694-2000
CA	N. Hollywood	818-509-2300
CA	Pleasanton	415-460-0282
CA	Sacramento	916-929-7222
CA	San Diego	619-279-3200
CA	San Francisco	415-882-6800
CA	Santa Clara	408-988-7000
CA	Santa Rosa	707-578-8888
CA	Ventura	805-658-6898
CO	Boulder	303-938-3065
CO	Englewood	303-649-5000
CT	Darien	203-656-0040
CT	Glastonbury	203-633-8100
FL	Ft. Lauderdale	305-938-9800
FL	Jacksonville	904-296-0252
FL	Melbourne	407-729-0704
FL	Orlando	407-859-2900
FL	Pensacola	904-476-8422
FL	Tampa	813-884-3282
GA	Atlanta	404-955-1500
GA	Norcross	404-448-1894
HI	Honolulu	808-526-1555
ID	Boise	208-323-2700
IL	Bloomington	309-662-9411
IL	Chicago	312-930-0010
IL	Naperville	708-505-8800
IL	Rolling Meadows	708-255-9800
IN	Carmel	317-844-4100
IN	Ft. Wayne	219-482-4283
IA	Cedar Rapids	319-393-0606
IA	West Des Moines	515-224-1435
KS	Wichita	316-636-4040
KY	Louisville	502-426-0100
LA	St. Rose	504-467-4100
MD	Baltimore	301-644-5800
MD	Rockville	301-948-6370
MA	Andover	508-682-1500
MA	Burlington	617-270-7000
MI	Flint	313-733-6556
MI	Grand Rapids	616-957-1970
MI	Novi	313-349-9200
MI	Troy	313-362-5180
MN	St. Paul	612-644-1100
MO	Kansas City	816-737-0071
MO	St. Louis	314-542-1500
MT	Billings	406-259-5615
NE	Omaha	402-493-0300
NV	Las Vegas	702-792-3900
NJ	Paramus	201-599-5000
NJ	Piscataway	201-562-6100
NM	Albuquerque	505-823-6100
NM	Los Alamos	505-662-6700
NY	Albany	518-458-1550
NY	Amherst	716-689-3003
NY	Fairport	716-223-9950
NY	Liverpool	315-451-1820
NY	Manhattan	212-971-0800
NY	Melville	516-753-0555
NY	Purchase	914-935-6300
NY	Wappinger Falls	914-298-9125
NC	Cary	919-467-6600
NC	Charlotte	704-527-8780
NC	Greensboro	919-665-1800
OH	Akron	216-666-7771
OH	Cincinnati	513-891-9870
OH	Dayton	513-433-2223
OH	Strongsville	216-243-7300
OH	Toledo	419-242-2200
OH	Westerville	614-891-3344
OK	Oklahoma City	405-946-9499
OK	Tulsa	918-481-6700
OR	Wilsonville	503-682-8000
PA	Harrisburg	717-657-5900
PA	Pittsburgh	412-782-0400
PA	Valley Forge	215-666-9000
SC	Columbia	803-732-0400
SC	Greenville	803-232-8002
TN	Knoxville	615-966-4747
TN	Memphis	901-763-4747
TN	Nashville	615-255-1271
TX	Austin	512-346-3855
TX	Corpus Christi	512-289-8271
TX	El Paso	915-833-4400
TX	Houston	713-776-6400
TX	Irvine	214-869-3377
TX	McAllen	512-630-3030
TX	Richardson	214-231-6101
TX	San Antonio	512-494-9336
UT	Salt Lake City	801-974-1700
VA	Chesapeake	804-424-7105
VA	Falls Church	703-204-2100
VA	Glen Allen	804-747-7750
VA	Roanoke	703-774-3444
WA	Bellevue	206-643-4000
WA	Spokane	509-922-7000
WV	Charleston	304-925-0492
WI	Brookfield	414-792-8800
Can	Burlington, Ont.	416-335-8644
Can	Calgary, Alberta	403-235-3100
Can	Dartmouth, Nova Scotia	902-468-4725
Can	Edmonton, Alberta	403-486-6666
Can	Kirkland, Que.	514-697-4232
Can	London, Ont.	519-686-9181
Can	Markham	410-479-1770
Can	Mississauga, Ont.	416-678-9430
Can	Ottawa, Ont.	613-820-6483
Can	Quebec City, Que.	418-648-0726
Can	Richmond, B.C.	604-270-2277
Can	Saskatoon, Saskatche	306-242-3702
Can	St. John's	709-754-0763
Can	Winnipeg, Manitoba	204-694-2777

HEXACON ELECTRIC CO., 161 W. Clay Ave., Roselle Park, NJ 07204, Tel: 908-245-6200, TELEX: 13-8812, FAX: 908-245-6176; Empl.: 150; *Sls. Mgr.:* Robert L. Miller

FAX: 908-245-3238

HEYCO MOLDED PRODUCTS, INC., Box 160, Kenilworth, NJ 07033, Tel: 908-245-0033, 800-526-4182; FSC No.: 28520; Empl.: 135 ..... **C•1758**

Local Distributors

CA	Garden Grove, HW Eckhardt	800-221-8761
CA	Hayward, Arow Fasteners	800-227-2901
CA	Riverside, Elctrns. Supp.	714-787-9220
CA	San Jose, Pro Fasteners	408-943-9177
IL	Shaumberg, Engrd. Fasteners	312-980-4082
IN	Elkhart, La Vanture Prods. Co.	219-264-0658
MD	Baltimore, Jandorf Elec. & Mfg.	301-358-5550
MA	Newton, In-Stock Prods.	617-964-6200
MN	St. Paul, Arden Fasteners	612-483-6681
MO	St. Louis, Engrd. Fastener Co.	314-434-2888
NY	Amityville, Yorkville Inds. Inc.	516-225-2100
OK	Oklahoma City, Wesco	405-232-5521
TN	Nashville, Arden Fasteners	615-889-7043
TX	Houston, Rainbow	713-957-0500
WI	Waukesha, Cable Comps.	800-558-4388

HEYCO STAMPED PRODUCTS, See Cabletest International.

HH CONTROLS CO., INC., 16 Frost St., Arlington, MA 02174, Tel: 617-646-2626; Empl.: 13

HIBBING ELECTRONICS CORP., 3125 E. 14th St., Hibbing, MN 55746, Tel: 218-263-8971, FAX: 218-263-8970; Empl.: 440; *Sls. Mgr.:* Michael Walsh

HICKOK ELECTRICAL INSTRUMENT COMPANY, 10514 Dupont Ave., Cleveland, OH 44108, Tel: 216-541-8060, FAX: 216-761-9879; FSC No.: 28569; Empl.: 230; *Sls. Mgr.:* Bob Fiorille

HICO HORIZONS INTL. CO., See Maxon Precision Motors

HI-G COMPANY SUB. OF NYTRONICS, See Stuthers-Dunn, Inc. and Hi-G Co., Inc., Sub. of Nytronics.

HIGH ENERGY, Inductotherm Industries, Lower Valley Rd., Parkesburg, PA 19365, Tel: 215-593-2800, TELEX: 759888, FAX: 215-593-2985; FSC No.: 21052; Empl.: 50; *Sls. Mgr.:* Joseph F. Quinn

HIGHLAND TECHNOLOGY, INC., 320 Judah Street, San Francisco, CA 94122, Tel: 415-753-5814, FAX: 415-753-3301; Empl.: 8; *Sls. Mgr.:* Hugh Callahan

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HIGH REL BURN-IN, Riverside Assoc. Inc., 1710 Ringwood Ave., San Jose, CA 95131, Tel: 408-437-5900, FAX: 408-437-1418; FSC No.: 4Y548; Empl.: 30; *Sls. Mgr.:* Judy King

HIGH TECHNOLOGY SENSORS, INC., 262 E. Hornbeam Dr., Longwood, FL 32779, Tel: 407-884-7722; Empl.: 7; *Sls. Mgr.:* R. M. Mindock

HIGH VOLTAGE SYSTEMS, INC., P.O. Box 649, Chappaqua, NY 10514, Tel: 914-238-9057, FAX: 914-238-9057; Empl.: 15; *Sls. Mgr.:* Vincent A. Gianguzzi

HVT

FAX: 914-968-0347

HIGH VOLTAGE TECHNOLOGY INC., 71 Alexander St., Yonkers, NY 10701, Tel: 914-423-6636; Empl.: 12; *Sls. Mgr.:* Edith Schmelzer ..... **D•1788-1791**

Local Sales Offices & Reps

CA	El Cajon, Atronix Technlg. Inc.	619-444-1501
CA	Solvang, Atronix Technlg. Inc.	805-686-4366
NJ	Hillside, Irwin Brill	201-677-0653
NM	Albuquerque, IMEC	505-883-9010

Local Distributors

Intl	Yokohama, Japan, Hivic Inc.	044-64-3294
Can	Ontario, QPL Elctrns.	416-674-8858

HILEVEL TECHNOLOGY, 31 Technology Drive, Irvine, CA 92718, Tel: 714-727-2100, TELEX: 655316, FAX: 714-727-2101; Empl.: 82; *Sls. Mgr.:* Dan Riordan

HILTON INDUSTRIES, INC., Subsidiary of Core Industries, 1177 Cattlemen Road, Sarasota, FL 34232, Tel: 813-371-2600, FAX: 813-371-7750; Empl.: 137; *Sls. Mgr.:* Larry Copenhaver; *Dist. Mgr.:* Larry Copenhaver

Hipotronics

FAX: 914-279-2467

HIPOTRONICS INC., Rte. 22, P.O. Drawer A, Brewster, NY 10509, Tel: 914-279-8091, TELEX: 425476, TWX: 710-574-2420; FSC No.: 25284; Empl.: 245; *Sls. Mgr.:* Robert Schlesinger ..... **A•2230-2233; D•1254-1257, 1792-1793, 2200-2201**

Local Sales Offices & Reps

AL	Birmingham, Spader & Assocs.	205-979-5500
AZ	Litchfield Pk., S.W. Elctrl. Sls.	602-935-7292
CA	San Diego, RDX Corp.	619-581-0077
CA	San Dimas, RDX Corp.	714-599-0985
CA	Sunnyvale, RDX Corp.	408-734-4500
CO	Parker, Equal Elec. Inc.	303-841-8982
CT	Branford, Abbott Allison Co.	203-481-0405
FL	Daytona Bch. Shores, W. Rihm Assocs.	904-761-7130
GA	Atlanta, Productive Technlg.	404-939-7027
HI	Honolulu, B. F. Wittenberg	808-696-5538
IL	Hawthorne Woods, Ryan & Assocs.	708-438-2905
MO	St. Louis, Fitzgerald Sls. Co.	314-862-1660
MN	Minnetonka, Lee-Noonan Co.	612-938-1112
NJ	Union, Friedman Assocs., Inc.	201-964-6200
NM	Albuquerque, Brytec Sls. Inc.	505-884-1123
NY	Le Roy, Hasgo Power Equip.	716-768-8500
OH	Vermilion, Robert S. Howley	216-967-8787
PA	Downingtown, Kenn Ebert-Hipotronics	215-269-5898
UT	Salt Lake City, Riter Engrg. Co.	801-973-9063
WA	Redmond, Gore Elec. Co.	206-883-4505
PR	Santurce, Mario R. Franceschini Inc.	809-725-7080
Can	Burnaby, B.C., C. D. Nova	604-430-5612
Can	Halifax, N.S., D. C. Keddy Ltd.	902-453-1711
Can	Quebec, J46 1L9, Tremcour Elctrn.,Inc.	514-522-7757
Can	Weston, Ont., U-Tek Svcs. & Supp.	416-747-1879

HI-Q CRYSTALS, Hybrids International Ltd., 311 N. Lindenwood Dr., Olathe, KS 66062, Tel: 913-764-4544, TWX: 910-743-0029, FAX: 913-764-6400; Empl.: 20; *Sls. Mgr.:* Abdul Ghafoor ..... **A•1372**

HIRAM JONES

HIRAM JONES ELECTRONICS, 11607 Vanowen St., No. Hollywood, CA 91605, Tel: 213-875-0213; FSC No.: 04867; Empl.: 8 ..... **C•1388-1392**

Local Distributors

TX	Houston, Lenert Co.	713-225-1465

HRS

FAX: 805-522-3217

HIROSE ELECTRIC U.S.A., INC. (HRS), Div. of Hirose Electric Co. Ltd. (Japan), 2685-C Park Center Drive, Simi Valley, CA 93065, Tel: 805-522-7958; Empl.: 70 ..... **C•1394-1397**

RICHARD HIRSCHMANN OF AMERICA INC., Industrial Row, P.O. Box 229, Riverdale, NJ 07457, Tel: 201-835-5002, FAX: 201-835-8354; *Sls. Mgr.:* C. Patten ..... **C•1398**

Local Distributors

CA	San Diego, Instr. Engrs.	619-268-8344
CT	Bridgeport, Park Distrs.	203-366-7200
IL	Bensenville, Magnuson Elctrns.	312-595-7575
IN	Indianapolis, Magnuson Elctrns.	317-247-5108
MA	Canton, EPC Elctrns., Inc.	617-821-2111
NJ	Union, Meridian Supp. Co.	201-687-6220
NY	Bohemia, Key Comps., Inc.	516-567-7500
NY	Mamaroneck, Rye Inds., Inc.	914-698-0080
OH	Highland Hgts., Major Electronix, Inc.	216-461-2100
SC	Spartanburg, Harley's Whisle. Elctrns.	803-585-4860
TX	Richardson, Centurion Mktg.	214-783-6762

HISONIC, INC., 310 North Marion, P.O. Box 1130, Olathe, KS 66061, Tel: 913-782-0012, FAX: 913-782-0562; FSC No.: 11402; Empl.: 185; *Sls. Mgr.:* Jack O. Cooper III ..... **A•2234**

Local Sales Offices & Reps

AL	Huntsville, MacKay, Smith & Assocs.	205-539-8000
AZ	Scottsdale, Arcom Sls., Inc.	602-947-5745
FL	Ft. Lauderdale, MacKay, Smith & Assocs.	305-467-3888
FL	Orlando, MacKay, Smith & Assocs.	407-277-1513
FL	St. Petersburg, MacKay, Smith & Assocs.	813-530-1873
GA	Atlanta, MacKay, Smith & Assocs.	404-496-9913
KS	Shawnee Mission, Florence & Meyer	913-722-5210
MO	St. Louis, Florence & Meyer	913-722-5210
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
NC	Raleigh, MacKay, Smith & Assocs.	919-847-2277
TX	Austin, Aid Elctrns.	512-836-6724
TX	Irving, AID Elctrns.	214-259-4761

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HITACHI AMERICA, LTD., Electron Tube Division, 300 N. Martindale Rd., Ste. 600, Schaumburg, IL 60173, Tel: 708-517-1144; Empl.: 50; *Sls. Mgr.:* Tim Patton; *Dist. Mgr.:* Katherine Behm ..... **B•1080-1083**

Local Sales Offices & Reps

AL	Huntsville, Technlg. Mktg. Assoc.	205-883-7893
AZ	Mesa, System Sls. of Arizona	602-464-9989
CA	Irvine, Quadrep	714-527-4222
CA	San Jose, Quadrep	408-432-3300
CO	Parker, Parker Webster	303-841-4888
CT	Wallingford, Technlg. Sls., Inc.	203-269-8853
FL	Orlando, Technlg. Mktg. Assoc.	407-857-3760
GA	Atlanta, Technlg. Mktg. Assoc.	404-446-3565
IL	Chicago, Sumer Inc.	312-991-8500
IN	Indianapolis, Elctrn. Sls. & Engrg.	317-849-4260
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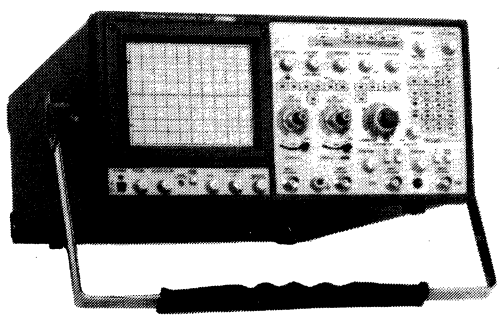

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MI	Plymouth, Jay Mktg.	313-459-1200
MN	Bloomington, Tek Rep Inc.	612-832-0277
NJ	Teaneck, Strategic Sls., Inc.	201-833-0099
NM	Albuquerque, System Sls. of AZ	505-889-2901
NY	Fairport, Technlg. Sls., Inc.	716-223-7500
NC	Raleigh, Robert Elctrn. Sls.	919-878-4465
OH	Dayton, Thompson & Assocs.	513-435-7733
OK	Tulsa, West & Assocs.	918-665-3465
OR	Portland, Crown Elctrns.	503-620-8320
PA	Willow Grove, Technlg. Sls., Inc.	215-784-0170
TX	Richardson, West & Assocs.	214-680-2800
UT	Murray, Parker Webster	801-266-9939
WA	Bellevue, Crown Elctrns.	206-453-5100
WI	Brookfield, Sumer, Inc.	414-784-6641
Can	Mississuaga, Ont., Longman Sls.	416-670-8100
	Local Distributors	
AL	Huntsville, Marshall	205-881-9235
AZ	Phoenix, Marshall	602-496-0290
AZ	Phoenix, Sterling	602-268-2121
CA	Angora Hills, Western Micro	818-707-0377
CA	Chatsworth, Marshall	818-407-4100
CA	Irvine, ITT	714-727-4001
CA	Irvine, Marshall	714-458-5301
CA	Irvine, Western Micro	714-637-0200
CA	Sacramento, IEC	916-424-5297
CA	San Diego, Marshall	619-578-9600
CA	San Jose, IEC	408-435-1000
CA	San Jose, ITT	408-453-1404
CA	San Jose, Marshall	408-942-4600
CA	Saratoga, Western Micro	408-725-1660
CO	Denver, IEC	303-292-6121
CO	Denver, Marshall	303-451-8383
CO	Englewood, Sterling	303-792-3939
CT	Milford, Milgray	203-878-5538
CT	Wallingford, Cronin	203-265-3134
CT	Wallingford, Marshall	203-265-3822
FL	Deerfield Beach, Vantage	305-429-1001
FL	Ft. Lauderdale, Marshall	305-977-4880
FL	Ft. Lauderdale, Reptron	305-735-1112
FL	Orlando, Marshall	407-767-8585
FL	Orlando, Milgray	407-647-5747
FL	Tampa, Reptron	813-855-4656
GA	Atlanta, Marshall	404-923-5750
GA	Atlanta, Milgray	404-446-9777
GA	Norcross, Reptron	404-446-1300
IL	Arlington Hgts., Milgray	312-253-1212
IL	Chicago, Marshall	312-490-0155
IL	Hoffman Estates, IEC	312-843-2040
IL	Schaumburg, Reptron	312-882-1700
IN	Indianapolis, Marshall	317-297-0483
KS	Kansas City, Marshall	913-492-3121
KS	Kansas City, Milgray	913-236-8800
KS	Kansas City, Sterling	913-492-5406
MD	Baltimore, Resco	301-529-0500
MD	Columbia, Milgray	301-995-6169
MD	Columbia, Vantage	301-720-5100
MD	Silver Springs, Marshall	301-622-1118
MA	Boston, Western Micro	508-273-2800
MA	Needham, Cronin	617-449-5000
MA	New England, Milgray	508-657-5900
MA	Wilmington, Marshall	508-658-0810
MI	Livonia, Marshall	313-525-5850
MI	Livonia, Reptron	313-525-2700
MN	Minneapolis, Marshall	612-559-2211
MN	Minneapolis, Sterling	612-831-2666
MN	Minnetonka, Reptron	612-938-0000
MO	St. Louis, Marshall	314-291-4650
NJ	Clifton, Vantage	201-777-4100
NJ	Mt. Laurel, Marshall	609-234-9100
NJ	N. New Jersey, Marshall	201-882-0320
NJ	Parsippany, Milgray	201-335-1766
NJ	S. Plainfield, Sterling	201-769-7000
NM	Albuquerque, Sterling	505-884-1900
NY	Binghamton, Marshall	607-798-1611
NY	Farmingdale, Milgray	516-420-9800
NY	Long Island, Marshall	516-273-2424
NY	Rochester, Marshall	716-235-7620
NY	Rochester, Milgray	716-235-0830
NY	Smithtown, Vantage	516-543-2000
NC	Raleigh, Marshall	919-878-9882
OH	Dayton, Marshall	513-898-4480
OH	Solon, Marshall	216-248-1788
OH	Worthington, Reptron	614-436-6675
OK	Tulsa, Sterling	918-663-2410
OR	Beaverton, IEC	503-641-1690
OR	Beaverton, Western Micro	503-629-2087
OR	Portland, Marshall	503-644-5050
TX	Austin, Marshall	512-837-1991
TX	Austin, Sterling	512-836-1341
TX	Dallas, Marshall	214-233-5200
TX	Dallas, Sterling	214-243-1600
TX	Houston, Marshall	713-895-9200
TX	Houston, Sterling	713-627-9800
UT	No. Salt Lake City, IEC	801-298-1869
UT	Salt Lake City, Marshall	801-485-1551
UT	Salt Lake City, Milgray	801-272-4999
VA	Richmond, Sterling	804-226-2190
VA	Washington/ Baltimore, Sterling	703-742-8400
WA	Bellevue, IEC	303-292-5537
WA	Redmond, Western Micro	206-881-6737
WA	Seattle, Marshall	206-747-9100
WI	Milwaukee, Marsh	414-475-6000
WI	Waukesha, Marshall	414-797-8400
Can	Alberta, ITT	403-251-5888
Can	Alberta, ITT	403-451-4001
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Can	British Columbia, Space Elctrns.	604-294-1167
Can	Manitoba, ITT	204-786-8401
Can	New Brunswick, ITT	506-857-8011
Can	Ontario, ITT	613-226-7406
Can	Ontario, ITT	416-736-1148
Can	Ontario, Space Elctrns.	416-638-4771
Can	Ontario, Space Elctrns.	613-820-8313
Can	Prince Edward Island, ITT	902-465-2350
Can	Quebec, ITT	514-335-7697
Can	Quebec, Space Elctrns.	514-697-8676
Can	Saskatchewan, ITT	306-933-2888

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AZ	Scottsdale, Electro Mktg.	602-991-0110,
CO	Denver, Calvert Controls	303-428-4852
CT	Guilford, Motion Controls Assocs.	203-457-1874,
CT	Ridgefield, Manning & Assocs., Inc.	203-438-5027
ID	Boise, Calvert Controls	208-343-3964
IL	Addison, Hedge Assocs., Inc.	312-543-0888
LA	Metairie, RAPCO Assocs., Inc.	504-887-9500,
MA	Hopedale, Motion Controls Assocs.	508-478-0736
NY	Syracuse, Lachut Elctrl. Sls.	315-458-6486,
NC	Charlotte, Servicon Sls. Corp.	704-588-1035
OR	Eugene, Calvert Controls	503-683-2018
OR	Portland, Calvert Controls	503-236-1358
PA	Fort Washington, Hostvedt-Pavoni, Inc.	215-643-5757
PA	Pittsburgh, Greye Glass Assocs.	412-366-6664
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WA	Seattle, Calvert Controls	206-251-6135
WA	Spokane, Calvert Controls	509-244-3601
WA	Tacoma, Calvert Controls, Inc.	206-383-1130
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	Local Sales Offices & Reps	
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CO	Denver, Barnhill Assocs.	303-792-9500
NM	Albuquerque, Barnhill Assocs.	505-299-7658
OK	Tulsa, Barnhill Assocs.	918-492-5036
TX	Houston, Barnhill Assocs.	713-266-2666
UT	Salt Lake City, Barnhill Assocs.	801-226-1239

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HONEYWELL INFORMATION SYSTEMS, 200 Smith St., MS 440, Waltham, MA 02154, Tel: 617-895-6000

HONEYWELL MICROSWITCH DIV., 830 E. Arapaho Dr., Richardson, TX 75081, Tel: 214-470-4271, TELEX: 73-0890, FAX: 214-470-4417; Empl.: 300; *Sls. Mgr.:* Doug Rasmussen; *Dist. Mgr.:* Dave Kimbrough

HOOSIER MAGNETICS, INC., 6545 W. Central Ave. Rm.203, Toledo, OH 43617, Tel: 419-841-7173, FAX: 419-841-7359; FSC No.: 3160; Empl.: 90

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HOPPER ELECTRONICS, 1943 West North Lane 9, Phoenix, AZ 85021, Tel: 602-870-3093; Empl.: 10 ..... **D•1175**

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HOUSTON INSTRUMENT, AMETEK, Inc., 8500 Cameron Rd., Austin, TX 78753, Tel: 512-835-0900, TWX: 910-874-2022; Empl.: 450; *Dist. Mgr.:* Rod Schaffner

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HUDSON TOOL & DIE CO., 18 Malvern St., Newark, NJ 07105, Tel: 201-589-1800, TWX: 710-995-4445, FAX: 201-589-8570; FSC No.: 02875; Empl.: 300

HUGHES AIRCRAFT CO., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714, Tel: 714-660-5701, FAX: 714-660-5825; FSC No.: 53669; *Sls. Mgr.:* Terry Jarnigan

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HUGHES AIRCRAFT CO., Industrial Products Division, 2051 Palomar Airport Rd., Carlsbad, CA 92009, Tel: 619-931-3000, FAX: 619-931-3334

HUGHES ELECTRONICS PRODUCTS CORP., 34467 Industrial Rd., Livonia, MI 48150, Tel: 313-427-8310, FAX: 313-427-2282; Empl.: 20; *Sls. Mgr.:* Richard L. Smith

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HUGIN INDUSTRIES INC., 745 Distel Dr., Los Altos, CA 94022, Tel: 415-961-2950, FAX: 415-961-6431; Empl.: 6; *Sls. Mgr.:* Peter Hugin

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HUMISEAL DIV., CHASE Corporation, 26-60 BQE West, Woodside, NY 11377, Tel: 718-932-0800, TWX: 710-582-2141, FAX: 718-932-4345; FSC No.: 99109;46058; Empl.: 150; *Sls. Mgr.:* William G. Lott

HUMPHREY, INC., 9212 Balboa Ave., San Diego, CA 92123, Tel: 619-565-6631, TWX: 910-335-2001, FAX: 619-565-6873; Empl.: 278

HUNTINGTON ELECTRIC INC., P.O. Box 366, Dept. EEM 87, Huntington, IN 46750, Tel: 219-356-0778, FAX: 219-356-7891; *Sls. Mgr.:* Michael Khorshid

HUNTSVILLE MICROSYSTEMS, INC., 3322 South Memorial Pkwy., Huntsville, AL 35801, Tel: 205-881-6005, TWX: 510-600-8258, FAX: 205-882-6701; Empl.: 30; *Sls. Mgr.:* Kay Keller

HURRICANE ELECTRONICS LAB, P.O. Box 1280, Hurricane, UT 84737, Tel: 801-635-2003, FAX: 801-635-2495; FSC No.: 64109; Empl.: 35; *Sls. Mgr.:* C. R. Reeve

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FAX: 812-386-7504

HURST MANUFACTURING DIV., Box 326, Princeton, IN 47670, Tel: 812-385-2564; Empl.: 200; *Sls. Mgr.:* Don Morrow ..... **B•1272-1275**

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CA	Fullerton, Emerson Motor Div.	714-992-4330
CA	Los Angeles, Sierra Ind'l. Engrg. Co.	213-624-3123
IL	Chicago, Golten Assocs.	708-512-0093
IN	Indianapolis, Emerson Motor Div.	317-842-1342
MD	Glen Arm, Hodgins Assoc.	301-592-7047
MA	Lexington, Hathaway Elctrns.	617-861-7010
MI	Grand Rapids, Emerson Motor Div.	616-942-9500
MN	Wayzata, Cardinal Sls. Co.	612-475-0042
NJ	Sussex, Carbone Assocs.	201-875-1882
NM	Phoenix, Sierra Ind. Eng.	602-272-0084
NY	Rochester, Agma Sls. Assocs.	716-381-5840
NY	Syracuse, Agma Sls. Assocs.	716-381-5840
NC	Charlotte, Cartwright & Bean, Inc.	704-536-0303
OH	Canton, Emerson Elec. Co.	216-492-4119
OK	Edmond, Emerson Motor Div.	405-340-8228
GA	Norcross, Cartwright & Bean, Inc.	404-368-0160
TX	Arlington, Emerson Motor Div.	213-380-2670
WA	Seattle, Northmar	206-524-5170
WI	Milwaukee, Badgerep Inc.	414-241-9200
EXP	NY, Freeport, Minthorne Int'l.	516-546-4700
Can	Burlington, Ont., White Radio Ltd.	416-632-6894

HUTRONIX, INC., 2400 S. 34th Place, Tucson, AZ 85726, Tel: 602-790-5348, FAX: 602-790-8836; FSC No.: 70206; Empl.: 119

HV COMPONENT ASSOCIATES INC., P O Box 2484, Farmingdale, NJ 07727, Tel: 908-938-4499, FAX: 908-938-4451; Empl.: 20; *Sls. Mgr.:* Dennis R. Dean

HYBRICON CORPORATION, 12 Willow Road, Ayer, MA 01432, Tel: 508-772-5422, TWX: 710-347-0654, FAX: 508-772-2963; Empl.: 74; *Sls. Mgr.:* Janis K. Parker

HYBRID DESIGNS, INC., 666 W. Baker, Costa Mesa, CA 92626, Tel: 714-557-9933, FAX: 714-557-0322; FSC No.: 16450; Empl.: 65; *Sls. Mgr.:* Bob Soberman

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Local Sales Offices & Reps

AZ	Phoenix, Wadsworth/Pacific	602-994-4840
CA	Santa Ana, Silicon Coast Assocs., Inc.	714-544-1131
CO	Ft. Collins, Rep Sales	303-226-1504
IL	Downers Grove, Rockford Controls Co.	708-960-2046
MA	Needham Hgts., Vanguard Elctrns.	617-449-5578
MN	Burnsville, Xerotex Technlgs. Corp.	612-894-5007
NJ	Cherry Hill, Metz-Benham-Assocs., Inc.	603-424-0404
NY	Hartsdale, Spectrum Sls. Inc.	914-472-8600
PA	Wynnewood, Metz-Benham-Assocs., Inc.	215-896-7300
TX	Austin, Design Mktg. & Assoc.	512-263-9151
TX	Dallas, Design Mktg. & Assoc.	214-480-8151
TX	Houston, Design Mktg. & Assoc.	713-550-3318

HY-CAL ENGINEERING, 9650 Telstar Ave., El Monte, CA 91731, Tel: 818-444-4000, FAX: 818-444-1314; FSC No.: 12199; Empl.: 145; *Sls. Mgr.:* D. Z. Chapman

HYCOMP, INC., 165 Cedar Hill St., Marlborough, MA 01752, Tel: 508-485-6300, TWX: 710-347-0385, FAX: 508-481-1547; FSC No.: 34707; Empl.: 65; *Sls. Mgr.:* David Petros

HYDRO-GEN PRODUCTS INC., P.O. Box 1517, Fort Collins, CO 80522-1517, Tel: 800-779-0126, FAX: 303-498-0528; Empl.: 25; *Sls. Mgr.:* Derek Bobo; *Dist. Mgr.:* Derek Bobo

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HY MEG CORP., 854 Westgate, Addison, IL 60005, Tel: 708-543-9250, FAX: 708-543-9260; Empl.: 24; *Sls. Mgr.:* Vincent Cupidro ..... **A•1916-1918**

Local Sales Offices & Reps

CA	La Habra, Cygnus	213-691-2993
CA	Mountain View, Westech	415-961-1422
NY	Ronkonkoma, Koelber & Mack	516-585-9686
WI	Cedarburg, American Microelectronics	414-375-4339

HYPERLOGIC CORPORATION, 2411 E. Valley Pkwy. 294, Escondido, CA 92027, Tel: 619-746-2765, FAX: 619-746-4089; Empl.: 2

HYPERTRONICS CORP., 16 Brent Dr., Hudson, MA 01749, Tel: 508-568-0451, 800-225-9228, FAX: 508-568-0680; FSC No.: 50541; Empl.: 145; *Sls. Mgr.:* E. Dalrymple

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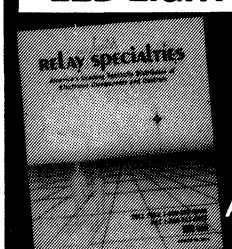

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HY-TEC INDUSTRIES, Div. of Topo Industries, Inc., P.O. Box 91, Shoreham, NY 11786, Tel: 516-924-8686; *Sls. Mgr.:* Tom Poole

HYTEK MICROSYSTEMS, INC., 400 Hot Springs Rd., Carson City, NV 89706, Tel: 702-883-0820, FAX: 702-883-0827; FSC No.: 0ANM4; Empl.: 60; *Sls. Mgr.:* Jon Presnell

ICC, INC., 1144 W. Grove Ave., Orange, CA 92665, Tel: 714-998-8310, TELEX: 4992245ICCUSA, FAX: 714-998-5910; Empl.: 25

ICI ADVANCED MATERIALS, 475 Creamery Way, Exton, PA 19341, Tel: 215-363-4500, TELEX: 4973041, TWX: 510-668-6728, FAX: 215-363-4749; *Sls. Mgr.:* William Shaker

ICI INC., 1901 Petra La., Placentia, CA 92670, Tel: 714-579-7575, FAX: 714-579-3127; Empl.: 8

IC MASTER, 645 Stewart Ave., Garden City, NY 11530, Tel: 516-227-1300, FAX: 516-227-1901

ICO-RALLY CORPORATION, 2575 E. Bayshore Rd., Palo Alto, CA 94303, Tel: 415-856-9900, FAX: 415-856-8378; FSC No.: 51705; Empl.: 45; *Dist. Mgr.:* Barbara Enad/Doug Frait

ICS ELECTRONICS CORP., 744 S. Hillview Dr., Milpitas, CA 95035-5545, Tel: 408-263-5500, FAX: 408-263-5896; FSC No.: 58558; Empl.: 20; *Sls. Mgr.:* Thomas D. Curfman; *Dist. Mgr.:* Thomas D. Curfman

IC SENSORS, INC., 1701 McCarthy Blvd., Milpitas, CA 95035, Tel: 408-432-1800, FAX: 408-434-6687; Empl.: 150; *Sls. Mgr.:* Greg Hayes

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FAX: 213-690-1352

IDEA, INC., 1300 Pioneer St., Ste. B, Brea, CA 92621, Tel: 213-697-4332; *Dist. Mgr.:* Margina D. Dennis ..... **B•1086-1087, 1164-1165**

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FL	Davie, America's Res. Co.	305-473-2550
FL	Jacksonville, America's Res. Co.	904-733-3822
FL	Orlando, America's Res. Co.	407-330-3155
IL	Chicago, MGA, Inc.	312-775-1151
IN	Indianapolis, MGA, Inc.	317-846-5788
IA	Cedar Rapids, Tech. Elect., Inc.	319-366-5443
MI	Flint, MGA, Inc.	313-732-3922
MI	Southfield, MGA, Inc.	313-358-4151
NH	Amherst, Bennetron	603-880-7008
TX	Dallas, Tycom Sls. Co.	214-960-7368
VA	Midlothian, Pacesetter Comp. Sls.	804-744-1337
WI	Milwaukee, MGA,Inc.	414-546-4466
WI	Oregon, MGA, Inc.	608-835-5540
Can	Kanata, Ont., Canadian Mktg. Technlgs.	613-591-9555
Can	Mississauga, Ont., Canadian Mktg. Technlgs.	416-612-0900
Can	Pt. Claire, Que., Canadian Mktg. Technlgs.	514-694-6088

Local Distributors

CA	Anaheim Hills, Bulbtronics-West	714-693-0533
CA	Buena Park, Ford Elctrns., Inc.	714-521-8080
CA	Mission Viejo, Opto Plus ò	714-380-8654
CA	San Jose, Rose Elctrn. Distrbg.	408-943-0360
CT	Wallingford, GRS-Midan Elctrns., Inc.	203-265-2077
FL	Davie, Arco Dist., Inc.	305-473-2550
FL	Delray Beach, Fastbolt Florida Corp.	407-272-3100
FL	Melbourne, GRS-Rome Elctrns.	407-242-8151
IL	Addison, Belford Elctrns., Inc.	708-691-1100
IL	Chicago, Leeds Electro Comps.	312-625-3800
IL	Schaumburg, QPS Elctrns., Inc.	708-884-6620
MD	Columbia, GRS Elctrns.	301-995-6744
MN	Plymouth, Leeds Electro Comp.	612-557-1277
NJ	Camden, GRS Elctrns.	609-964-8500
NY	Farmingdale, Bulbtronics	516-249-2272
OR	Beaverton, Rose Elctrn. Distrbg. Co.	503-629-9288
PA	Reading, GRS Elctrns.	215-375-4477
TX	Richardson, Component Technlg. Corp.	214-437-2211
Can	Calgary, Alb., Memco Corp.	403-258-3399
Can	Concord, Ont., Trade Elct. Supp., Ltd.	416-661-7111
Can	Nepean, Ont., Carsten Elctrns.	613-726-9250
Can	Scarborough, Ont., Carsten Elctrns. Ltd.	416-495-7705
Can	St. Laurent, Que., Carsten Elctrns.	514-334-8321
Can	St. Laurent, Que., ZEI Electronicsm Inc.	514-342-6211
Can	Surrey, B.C., Memco Corp.	604-590-1553

IDEAL INDUSTRIES, 4450 Becker Pl, Sycamore, IL 60178, Tel: 815-895-5181, TWX: 910-639-0613; Empl.: 700; *Sls. Mgr.:* Bob Bukowsky

IDEAL PRECISION METER, 214 Franklin St., Brooklyn, NY 11222, Tel: 212-383-6904, TWX: 710-584-2160; FSC No.: 11707;10304-41; Empl.: 150; *Sls. Mgr.:* T. Bell

IDEAL TAPE CO., American Biltrite Inc., 1400 Middlesex St., Lowell, MA 01851, Tel: 508-458-6833, FAX: 508-458-0302; *Sls. Mgr.:* Sharon Walker

IDEASSOCIATES, INC., 29 Dunham Rd., Billerica, MA 01821, Tel: 508-663-6878, TELEX: 4979780, FAX: 508-663-8851; Empl.: 1500; *Sls. Mgr.:* Nora Feldman Gildea, VP Sls. & Mktg.

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AL	Birmingham, Bryco Co.	205-672-9760
AZ	Phoenix, Western Automation	602-265-2788
CA	Laguna Hills, Western Automation	714-859-6988
CA	Sunnyvale, Idec Corp.	408-747-0550
CO	Lakewood, T.M.M.I.	303-232-1516
FL	West Palm Beach, Boggs & Assocs.	407-478-8062
FL	Oldmar, Boggs & Assocs.	813-855-1812
IL	Schaumburg, Idec Corporation	312-882-7887
IL	South Barrington, Bu-Nell Engrg.	312-551-9000
IN	Indianapolis, Liberty Sls.	317-888-8396
KS	Overland Park, TMW	913-383-1818
MA	Norwood, Hyland Assocs.	617-762-0345
MI	Farmington, Schiller- McBride Assoc.	313-553-0100
MN	Minnetonka, S. J. Collins & Assocs.	612-933-7661
MO	St. Louis, TMW Co.	314-664-4005
NM	Albuquerque, T.M.M.I.	505-298-6893
NY	Patchogue, Optimum Sls. Co.	516-758-0644
NY	Syracuse, Lachut Elctrl. Sls. Inc.	315-458-6480
NC	Kernersville, Heritage Sls. Assocs.	919-996-4374
OH	Cincinnati, James Murray & Assocs.	513-574-8500
OH	Cleveland, Matthew Haley Co.	216-892-1820
OH	Perrysburg, Matthew Haley Co.	419-874-0488
OK	Tulsa, Don Plummer Sls. Co.	918-835-0979
OR	Portland, SPS Elctrns.	503-297-6919
PA	Cuddy, Brown-Yates Elec.Equip. Co.	412-221-4200
PA	Philadelphia, Fite-Walker, Inc.	215-233-2100
SC	Taylors, Heritage Sls. Assocs.	803-292-1723
TN	Knoxville, Tubbs Agy.	615-577-0689
TN	Memphis, Winstead Tech. Svcs.	901-372-4550
TX	Dallas, SW Mktg. Assocs.	214-341-8631
TX	Houston, SW Mktg. Assocs.	713-537-8166
UT	Salt Lake City, T.M.M.I.	801-487-7676
VA	Alexandria, T.D.I.	703-971-8982
VA	Richmond, Dunnington & Assocs.	804-282-8383
WA	Redmond, SPS Elctrns.	206-323-4140
WI	Appleton, Bu-Nell Engrg.	414-733-4242
WI	Waukesha, Bu-Nell Engrg.	414-784-0994

IDENTATRONICS, INC., 425 Lively Blvd., Elk Grove, IL 60007, Tel: 708-437-2654, 1-800-323-5403, TELEX: 754319 CARD UD, FAX: 708-437-2660; *Sls. Mgr.:* Gregg Powell

IEC ELECTRONICS CORP., 105 Norton St., Newark, NY 14513, Tel: 315-331-7742, FAX: 315-331-3547; Empl.: 600; *Sls. Mgr.:* Frank Montabana; *Dist. Mgr.:* Frank Montabana

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AL	Huntsville, Electramark, Inc.	205-830-4400
AZ	Mesa, Electro Craft, Inc.	602-752-8710
FL	Altamonte Sp., Electramark, Inc.	407-830-0844
IL	Arlington Hgts., Dytec/ Central	708-394-3380
CA	Fountain Valley, Bager Elctrns.	714-957-3367
IN	Indianapolis, Dytec/Central	317-297-5988

MA Wakefield, Wood Sls. 617-245-8300
NJ Neptune, Motoreps of N.Y., Inc. 201-774-1220
NY Rochester, H. C. Johnson Agy. 716-482-0740
MI Benton Harbor, McNabb & Assocs. ... 616-925-2166
NC Raleigh, CSR Elctrns. 919-878-9200
GA Norcross, Electramark, Inc. 404-446-7915
OH Dublin, Electronic Sls. & Technlg., Inc. 614-792-7887
TX Cedar Park, Rice Entprs. 512-331-1148
TX Lewisville, Rice Entprs. 214-436-6062
Can Arthur, Ont., Calbrooke Mktg. 519-848-3810

IEE (INDUSTRIAL ELECTRONIC ENGINEERS), 7740 Lemona Ave., Van Nuys, CA 91405, Tel: 818-787-0311, FAX: 818-781-9795; Empl.: 425; *Sls. Mgr.:* R. Nisar ..... **B•1088-1089, 1814**

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AL Huntsville, TMA Technlg. Mktg. Assocs. 205-883-7893,FAX:205-882-6162
AZ Phoenix, Howe & Howe Sls., Inc. 602-264-7971, FAX:602-263-8914
CA Brea, Masco Elctrns., Inc. 714-529-0866, FAX:714-529-7855
CA Campbell, LCO Tech. Sls. 408-378-9900, FAX:408-370-0447
CA Carlsbad, Zerimar Sls; Inc. 619-436-3379
CA Los Angeles, Masco Elctrns., Inc. 714-529-0866
CA San Jose, Amasco 408-262-1500
CA Santa Ana, Masco Elctrns., Inc. 714-836-7870, FAX:714-836-7870
CA Woodland Hills, Varigon, Inc. 818-594-5080
CO Lakewood, Cristee-Meade Co. 303-232-0287, FAX:303-232-0323
CT North Haven, Kitchen & Kutchin, Inc. 203-239-0212,FAX:203-234-9108
FL Deerfield, TMA Tech. Mktg. Assocs. 305-427-1090, FAX:305-427-1626
FL Largo, TMA Technlg. Mktg. Assocs. 813-531-4405, FAX:813-545-8617
FL Orlando, TMA Tech. Mktg. Assocs. 407-857-3760, FAX:407-857-6412
GA Norcross, TMA Tech. Mktg. Assocs. 404-446-3565, FAX:404-446-0569
GA Norcross, TMA Technlg. Mktg. Assocs. 404-446-3565,FAX:404-446-0569
IL Arlington Hgts., Phoenix Elctrn. Sls. 708-394-4422, FAX:708-394-5834
IL Highland Park, Bransky Sls. 708-433-2375, FAX:708-433-2377
IN Indianapolis, Wilson Tech. Sls. 317-872-2513, FAX:317-872-0664
KS Lenexa, Midtec 913-541-0505,FAX:913-541-1729
MA Burlington, Kitchen & Kutchin, Inc. 617-229-2660, FAX:617-273-5895
MI Southfield, L. H. Dickelman Co. 313-353-8210, FAX:313-353-1433
MN Burnsville, 2M Sales, Inc. 612-890-7774, FAX:612-894-9342
MO St. Louis, Midtec 314-275-8666,FAX:314-275-8859
NY Endicott, Advanced Comps. Comp. Inc. 607-785-3191
NY Endwell, Advanced Comps. Corp. Inc. 607-785-9471
NY Manhasset, Win-Cor elctrn. Sls. 516-627-9474
NY N. Syracuse, Advanced Comps. Corp., Inc. 315-699-2671,FAX:315-699-4611
NY Rochester, Advanced Comps. Corp. Inc. 716-544-7017
NY Scottsville, Advanced Comps. Corp. Inc. 716-889-1429
NC Raleigh, DHR Mktg., Inc. 919-829-1970, FAX:919-829-1906
OH Richfield, Geotronix, Inc. 216-659-6100, FAX:216-659-3435
OH Trotwood, Geotronix, Inc. 513-854-5939, FAX:513-837-0537
OR Beaverton, Olson Tech. Sls. Corp. 503-643-9488, FAX:503-626-1985
PA Allison Pk., Geotronix, Inc. 412-487-1770, FAX:412-487-1331
PA Norristown, RJI 215-631-1414,FAX:215-631-1640
SC Greenville, DHR Mktg., Inc. 803-235-3594, FAX:803-271-8712
TX Dallas, MGR Elctrns., Inc. 214-238-5246, 800-356-7231
UT Salt Lake City, R2 Mktg., Inc. 801-595-0631
VA Springfield, Pantech 703-451-5700, FAX:703-451-5949
WA Bellevue, Olson Tech. Sls. Corp. 206-883-7792, FAX:206-883-9478
WI Cedarburg, Bransky Sls. 414-377-6837, FAX:414-377-6837

IEH CORP., 109 Prince St., New York, NY 10012, Tel: 212-677-1881, TWX: 710-581-4338, FAX: 212-674-1048; FSC No.: 97913; Empl.: 250; *Sls. Mgr.:* Louis Roberts; *Dist. Mgr.:* Louis Roberts

IEI-ISKARA ELECTRONICS INC., INC, See Iskara Electronics, Inc.

IERC, 135 W. Magnolia Blvd., Burbank, CA 91502, Tel: 213-849-2481, TWX: 910-498-2206, ESYLNK: 62951515, FAX: 818-848-8872; FSC No.: 98978; Empl.: 97; *Sls. Mgr.:* Dan Ketchum; *Dist. Mgr.:* Ken McPherson

FAX: 516-334-5988

IET LABS, INC., 534 Main St., Westbury, NY 11590, Tel: 516-334-5959; FSC No.: 62015; *Sls. Mgr.:* Sam Sheena ..... **D•1206, 1258-1265**

IFR SYS. INC., 10200 W. York St., Wichita, KS 67215, Tel: 316-522-4981, TWX: 910-741-6952, FAX: 316-524-2623; Empl.: 700; *Sls. Mgr.:* T. Dideum

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ILC DATA DEVICE CORP., 105 Wilbur Pl., Bohemia, NY 11716-2482, Tel: 516-567-5600; FSC No.: 19645; Empl.: 700; *Sls. Mgr.:* J. P. Sheahan; *Dist. Mgr.:* Marshall Lacoff ..... **D•1176-1177**

Local Sales Offices & Reps

AL Huntsville, Montgomery Mktg. 205-830-0498
AZ Scottsdale, Fred Board Assocs. 602-994-9388
AZ Tuscon, Fred Board Assocs. 602-299-1508
CA Fallbrook, Gary Chilcote & Assocs. ... 619-728-7678
CA Garden Grove, ILC Data Dvcs. Corp. .. 714-895-9777
CA San Jose, ILC Data Dvcs. Corp. 408-236-3260
CA Woodland Hills, ILC Data Dvcs. Corp. 818-992-1772
CO Englewood, Quorum 3 Sls. Grp. 303-799-8100
CT Canton Center, Dynamic Sls. of New Eng. 203-693-6567
FL Cassleberry, Perrott Assocs. 407-830-0094
FL Clearwater Beach, Perrott Assocs. 813-530-5779
GA Norcross, Montgomery Mktg., Inc. 404-447-6124
IL Itasca, Janus, Inc. 708-250-9650
IN Carmel, Giesting & Assocs. 317-844-5222
KS Lenexa, Dytec/South 913-888-0215
KS Wichita, Dytec South, Inc. 316-263-7090
MD Frederick, ILC Data Dvc. Corp. 301-898-3121
MA Burlington, Dynamic Sls. of New Eng. 617-272-5676
MI Comstock Pk., Giesting & Assocs. 616-784-9437
MI Livonia, Giesting & Assocs. 313-478-8106
MN Eden Prairie, Comprehensive Tech. ... 612-941-7181
MO Maryland Hgts., Dytec/South 314-739-0665
NJ Mt.Laurel, Paragon Sls. & Mktg. 609-778-1190
NJ Totowa, ILC Data Dvcs. Corp. 201-785-1734
NM Albuquerque, Nelco Electronix 505-292-1399
NY E. Rochester, Tri Tech Elctrns., Inc. ... 716-385-6500
NY Endwell, Tri Tech Elctrns., Inc. 607-754-1094
NY Fayetteville, Tri-Tech Elctrns, Inc. ... 315-446-2881
NY Fishkill, Tri Tech Elctrns., Inc. 914-897-5611
MD Glen Burnie, Macrotech Assocs. 301-766-1111
NC Cary, Montgomery Mktg., Inc. 919-467-6319
NC Raleigh, Montgomery Mktg; Inc. 919-851-0010
OH Cincinnati, Giesting & Assocs. 513-385-1105
OH Dayton, Lionel Fedotin 513-275-9345
OH Euclid, Giesting & Assocs. 216-261-9705
OR Portland, Venture Elctrns. 503-624-0617
PA Harrisburg, Paragon Sls. & Mktg. 717-657-2063
PA Pittsburgh, Giesting & Assocs. 412-828-3553
TX Austin, Bonser-Philhower Sls. 512-346-9186
TX Houston, Bonser-Philhower Sls. 713-782-4144
TX Richardson, Bonser-Philhower Sls. 214-234-8438
UT Salt Lake City, Quorum 3 Sls. Grp. 801-943-9227
VT Graniteville, Dynamic Sls. of New Eng. 802-476-4223
VA Sterling, ILC Data Dvcs. Corp. 703-450-7900
WA Bellevue, Venture Elctrns. 206-454-4594
WI Waukesha, Janus, Inc. 414-542-7575
Can Ontario, Cantec Rep., Inc. 613-725-3704
Can Ontario, Cantec Rep., Inc. 416-791-5922
Can Quebec, Cantec Rep., Inc. 514-696-6750

ILC TECHNOLOGY, INC., 399 Java Dr., Sunnyvale, CA 94089, Tel: 408-745-7900, FAX: 408-744-0829; *Sls. Mgr.:* Lynn Reiter

ILLINOIS CAPACITOR, INC.

FAX: 708-673-2850

ILLINOIS CAPACITOR, INC., 3757 W. Touhy Ave., Lincolnwood, IL 60645, Tel: 708-675-1760; Empl.: 35; *Sls. Mgr.:* George Wundsan ..... **A•1066-1069**

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AZ Chandler, Lindberg Co. 602-786-9115, FAX:602-786-4546
AR Little Rock, Doby Assocs., Inc. 501-221-7510, FAX:501-221-7510
CA Anaheim, WestRep 714-527-2822, FAX:714-527-3868
CA San Diego, Westrep 619-566-6580, FAX:619-566-3126
CA San Jose, Arnold Tech. Sls., Inc. 408-954-0400, FAX:408-954-1440
CO Denver, Lindberg Co. 303-758-9033, FAX:303-758-5863
CT Bristol, Techng. Prods. Grp. 203-585-1643, FAX:203-585-1643
FL Coral Springs, H.H.P. Assocs., Inc. 305-753-8389, FAX:305-753-8472
FL Palm Bay, H.H.P. Assocs; Inc. 407-951-9236, FAX:407-951-1135
FL Tampa, H.H.P. Assocs, Inc. 813-988-0561
FL Tarpon Springs, HHP & Assocs. 813-973-6099, FAX:813-937-5374
FL Winter Park, H.H.P. Assocs., Inc. 407-740-0320, FAX:407-740-0319
IN Greenwood, Valentine & Assocs. 317-888-2260, FAX:317-881-4904
IN Kokomo, Valentine & Assocs. 317-452-7390, FAX:317-452-7757
IN South Bend, Valentine & Assocs. 219-288-7070, FAX:219-233-1779
IA Marion, AEM, Inc. 319-377-1129, FAX:319-377-1539
KS Lenexa, AEM Inc. 913-888-0022, FAX:913-888-0136
MA Brookline, Technology Prods. Grp. 617-731-0858, FAX:617-734-1429
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WA Seattle, Radar Elec. 206-282-2511
WA Spokane, Radar Elec. 509-747-3053
WI Milwaukee, Marsh Elctrns. 414-475-6000

INDUSTRIAL DIELECTRICS, INC., P.O. Box 357, Noblesville, IN 46060, Tel: 317-773-1766, FAX: 317-773-3877; Empl.: 250; *Sls. Mgr.:* Tom Merrell; *Dist. Mgr.:* Tom Merrell

FAX: 703-731-0847

INDUSTRIAL DRIVES, A Kollmorgen Div., 201 Rock Rd., Radford, VA 24141, Tel: 703-639-2495; FSC No.: 11384; Empl.: 343; *Sls. Mgr.:* Robert White, Jr. ..... **B•1276-1277**

Local Sales Offices & Reps

CA Laguna Hills, Industrial Drives 714-581-3626
CA Laguna Hills, Western Automation 714-859-6988
CA Milpitas, Maxim Elctrn. Sls. 408-946-6001
CO Longmont, Piper Sls. Co. 303-443-5337
CT Madison, Tedicko, Inc. 203-644-4330
FL Sarasota, Indl. Apparatus Co. 813-377-2482
GA Atlanta, Industrial Apparatus Co. 404-875-8086
IL Arlington Hgts., Industrial Drives 708-981-1433
IN Indianapolis, J.N. Fauver Co. 317-872-3060
MD Annapolis, Homersmith, Inc. 301-269-6493
MA Topsfield, Whitehead Assocs. 508-887-8050
MI Madison Hgts., J.N. Fauver Co. 313-585-5252
MN New Brighton, The Mackubin Grp. 612-636-5533
MO St. Charles, Drives Plus, Inc. 314-441-7765
NJ Ridgewood, Brundage Assocs. 201-445-3897
NJ Williamstown, Homersmith, Inc. 609-629-0606
NY E. Rochester, A&D Devices 716-385-2778

Industrial Devices, Inc.

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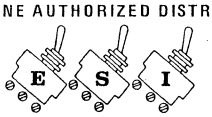

ELECTRIC SWITCHES

INCORPORATED

2478 Fletcher Dr, Los Angeles, California 90039-2897

213-660-1310 800-421-8855

FAX• 213-660-5130

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NC Charlotte, Jake Rudisill Assocs., Inc. .. 704-377-6901
OH Chargin Falls, The Kilroy Corp. 216-543-3370
PA Media, Homersmith, Inc. 215-543-2434
TX Dallas, Kruvand Assocs,Inc. 214-437-3355
UT Salt Lake City, Piper Sls. 801-466-9336
VA Radford, The Hatfield Co. 703-639-5471
WA Bellevue, Thorson Co. N.W. 206-455-9180
WI Pewaukee, Indl. Drives 414-691-7399

Local Distributors

AZ Phoenix, Air-Draulics Co. 602-254-8414
CA Anaheim, Minarik Elec. Co. 714-994-2251
CO Denver, Warren Fluid Power 303-377-2736
DE New Castle, J.C. Bennington Co. 302-322-3700
IL Chicago, Kelburn Engrg. Co. 312-775-8383
IN Indianapolis, J. N. Fauver Co. 317-872-3060
MI Flint, J. N. Fauver Co. 313-235-2501
MI Kentwood, J. N. Fauver Co. 616-957-5177
MI Madison Heights, J. N. Fauver Co. 313-585-5252
MI Saginaw, J. N. Fauver Co. 517-753-0474
MO St. Charles, Direct Elec. Co. 314-949-1164
NY Elmira, Wehle Elec. Co., Inc. 607-733-6646, 800-272-6900
OH Cincinatti, J. N. Fauver Co. 513-247-9900
OH Dayton, J. N. Fauver Co. 513-236-3554
OH Hilliard, J. N. Fauver Co. 614-777-2225
OH Northwood, J. N. Fauver Co. 419-666-3404
OH Stow, J. N. Fauver Co. 216-923-8855
TX Dallas, Cates Drives & Controls 214-960-1961
Can Oldcastle (Windsor), Ont., J. N. Fauver Co. 519-737-6925

INDUSTRIAL ELECTRONICS CORP., 24175 Gibson Drive, Warren, MI 48089, Tel: 313-759-4450, FAX: 313-759-1589; Empl.: 30; *Sls. Mgr.:* Allen A. Russell

INDUSTRIAL INDEXING SYSTEMS, INC., 626 Fishers Run, Victor, NY 14564, Tel: 716-924-9181, FAX: 716-924-2169; Empl.: 40; *Sls. Mgr.:* Andrew Kohn

INDUSTRIAL SERVICE TECHNOLOGY, 3286 Kentland Ct. SE, Grand Rapids, MI 49548, Tel: 616-247-1033; Empl.: 13; *Sls. Mgr.:* Julie A. Corby

Powertron

FAX: 516-883-7155

INDUSTRIAL TEST EQUIPMENT CO., Inc., 21 Yennicock Ave., Port Washington, NY 11050, Tel: 516-883-1700; FSC No.: 99074; *Sls. Mgr.:* Jay Monroe ..... **D•1266, 2204-2207**

INDUSTRIAL TIMER CO., 30 Industrial Park Rd., P.O. Box 307, Centerbrook, CT 06705, Tel: 203-767-7130, FAX: 203-767-9137; Empl.: 55; *Sls. Mgr.:* Ann Fraser Carroll

INERTIAL MOTORS, 280 N. Broad St., Doylestown, PA 18901, Tel: 215-345-1010, TELEX: 83-1633, FAX: 215-345-0111; Empl.: 14; *Sls. Mgr.:* Joanne Dorr

INFICON LEYBOLD-HERAEUS, INC., See Leybold Inficon, Inc.

INFINETICS INC., Friskem Div., 201 Vandever Ave., Wilmington, DE 19802, Tel: 302-658-2471, FAX: 302-658-2475; *Sls. Mgr.:* M. Schwartz

INFODEX
DISPLAY SYSTEMS TECHNOLOGIES

FAX: 203-879-4944(x230)

INFODEX, INC., 10 Venus Dr., Wolcott, CT 06716, Tel: 203-879-4944; FSC No.: 09087; Empl.: 42; *Sls. Mgr.:* Robert Vance ..... **B•1016-1017, 1090**

Local Sales Offices & Reps

MA Medfield, Nortech Engrg. Sls. 508-359-6063

INFO-LITE CORP., See Dio-Rey and Crosspoint

INFOMETRIX, 2200 Sixth Ave. No. 833, Seattle, WA 98121, Tel: 206-441-4696, FAX: 206-441-0841; Empl.: 10; *Sls. Mgr.:* Paul Bailey

INFOPRINT, INC., Micro Electronic Business, Inc., 4315 N. Elston Ave., Chicago, IL 60641, Tel: 312-539-6045, FAX: 312-539-6645 ..... **D•1097**

INFORMATION CONTROL CORP., 9610 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-8520, TWX: 910-328-7234, FAX: 203-368-3747; Empl.: 50

INFORMATION TRANSFER INC., Box 357, Bloomfield, NY 14469, Tel: 716-657-7074, FAX: 716-657-7432; FSC No.: 55137; Empl.: 50; *Sls. Mgr.:* John Dillman ..... **D•1180-1181**

Local Sales Offices & Reps

AZ Chandler, VIC Myers Assocs. 602-345-6449
CA Montrose, Luscombe Engrg. 818-249-9000
CA San Diego, Luscombe Engrg. 619-292-4337
CO Denver, VIC Myers Assocs. 303-730-7313
CA Sunnyvale, Westech 408-735-8647
FL Winter Park, Wade H. Boggs, Inc. 407-647-2226
NM Albuquerque, VIC Myers Assocs. 505-884-6878
TX El Paso, VIC Myers Assocs. 505-884-6878
WA Bellevue, Tasco 206-453-1414

INFRANOR, 45E Great Hill Road, Naugatuck, CT 06770, Tel: 203-729-8258, 800-BE-SERVO, FAX: 203-729-6969; Empl.: 11 ..... **B•1279**

Local Sales Offices & Reps

IL Arlington Hgts., Infranor Inc. 312-870-0818
OH Columbiana, Infranor Inc. 216-482-9286

INFRARED INDUSTRIES, INC., 12151 Research Parkway, Orlando, FL 32826, Tel: 407-282-7700, FAX: 407-273-9046; Empl.: 50

ING. F. P. KOGL, Weissenwolffstr.14, 4221 Steyregg, Steyregg, Austria, Tel: 732-640-591-0, FAX: 732-640-592-5; Empl.: 8; *Sls. Mgr.:* Ing. Franz Peter Kogl; *Dist. Mgr.:* Mrs. Michaela Eibl

INJECTORALL ELECTRONICS (WOMAN OWNED), 110 Keyland Court, Bohemia, NY 11716, Tel: 516-563-3388, FAX: 516-563-3389 ..... **C•1147**

Local Distributors

AL Birmingham, ACK Radio Supp. 205-322-0588
AZ Tucson, Electronic City 602-622-1173
CA San Luis Obispo, Midstate Elctrns. Supp. 805-543-2770
CA San Rafael, Elctrns. Plus 415-457-0466
CA Sunnyvale, Halted Specialties 408-732-1573
IL Lombard, NyTron Elctrns. 312-691-8900
IN Evansville, Tri-State Supp. Co. 812-423-4257
IA Cedar Rapids, Iowa Radio Supp. Co. .. 800-332-5296
KY Louisville, P.I. Burkes 502-589-3960
MD Rockville, Capitol Radio Whlsrs. 301-881-2270
MA Needham, Y.D.I. 617-449-1005
MI Canton, The Elctrn. Connection 313-595-6655
NY Lindenhurst, RNJ Elctrns. 516-226-2700
NY Long Island City, Typeco 718-706-6666
NY Richmond Hill, Anchor 212-846-2420
NC Charlotte, Slayton Elctrns. 704-375-6600
OK Oklahoma City, Radio Supp., Inc. 405-332-6127
OR Beaverton, Norvac 503-644-1025
SC Charleston, Wholesale Indl. Elctrns. ... 803-722-2634
TX Fort Worth, Sweico 817-335-6521
VA Roanoke, H. C. Baker 703-344-9209

INLAND MOTOR
KOLLMORGEN CORPORATION

FAX: 602-458-2161

INLAND MOTOR, Kollmorgen Corp., 4020 E. Inland Rd., Sierra Vista, AZ 85635, Tel: 602-459-1150, TWX: 910-973-9869; FSC No.: 11384; Empl.: 580 ... **B•1280-1282**

Local Sales Offices & Reps

FL Deerfield Beach, Technlg. Mktg. Assocs. 305-427-1090
IA Grimes, Drives Plus 515-986-3991
PA Media, Homersmith, Inc. 215-543-2434
FL Orlando, Technlg. Mktg. Assocs. 407-857-3760
AZ Sierra Vista, Inland Motor 602-459-1150
MD Annapolis, Homersmith, Inc. 301-269-6493
MI Farmington Hills, Carter, McCormic & Peirce, Inc. 313-477-7700
FL Largo, Technlg. Mktg. Assocs. 813-531-4405
KS Kansas City, Drives Plus 913-268-5410
MN New Brighton, Motion Technlgs., Inc. .. 612-631-3069
NJ Williamstown, Homersmith, Inc. 609-629-0606
MO St. Charles, Drives Plus 313-441-7765
OH Medina, Cygnus Inc. 216-725-1663
PA Downingtown, Homersmith, Inc. 215-269-3637
TX Richardson, Barger Engrg., Inc. 214-349-6171

Specialty/Instrument/Industrial Drive Group

AL Huntsville, Technology Mktg. Assocs. 205-882-6162
AZ Tempe, Thor Engrg. 602-438-8494
CA Alhambra, Thorson Co. of Southern CA 818-281-2280
CA Goleta, Thorson Co. of Southern CA .. 805-964-8751
CA La Jolla, Thorson Co. of San Diego ... 619-292-8525
CA Mtn. View, Thorson West 415-964-9300
CA Signal Hill, Thorson Co. of Southern CA 213-595-0361
CO Englewood, Thorson Rocky Mt., Inc. .. 303-799-3435
GA Norcross, Technlg. Mktg. Assocs. 404-446-3565
IA Cedar Rapids, Carlson Elctrn. Sls. 319-378-1450
IL Elk Grove Vl, Carlson Elctrn. Sls. 708-956-8240
IN Indianapolis, Precision Elctrns. 317-842-3740
MA Needham Hgts., Vanguard Elctrns. Corp. 617-449-5578
NJ Wayne, SHL Assocs., Inc. 201-790-1714
NY E. Rochester, A & D Dvcs. 716-385-2778
NC Jamestown, Homersmith, Inc. 919-337-3370
OR Beaverton, Thorson Co. Northwest ... 503-644-5900
UT Salt Lake City, Thorson Rocky Mt., Inc. 801-973-7969
WA Bellevue, Thorson Co. Northwest 206-455-9180
WI Milwaukee, Carlson Elctrn. Sls. 414-476-2790

INMARK CORP., 4 Byington Pl, Norwalk, CT 06854, Tel: 203-866-8474, FAX: 203-866-0918; *Sls. Mgr.:* Roger Hibbert

INMOS CORP., P.O. Box 16000, Colorado Springs, CO 80935, Tel: 719-630-4000 (ext 4357), FAX: 719-630-4325; Empl.: 120; *Sls. Mgr.:* Richard Riker; *Dist. Mgr.:* David Bowers

INNOVATEK MICROSYSTEMS, INC., Smithfield Rd., R1 Box 104, Millerton, NY 12546-9720, Tel: 914-373-9003; Empl.: 8; *Sls. Mgr.:* Paul F. Fitts

INNOVATIVE ELECTRONICS, INC., Dynatech Corporation, 10110 USA Today Way, Miramar, FL 33025, Tel: 305-432-0300, FAX: 305-432-0705; Empl.: 40; *Sls. Mgr.:* Marshall Roper

INNOVUS, 1756 Junction Ave., Ste. E, San Jose, CA 95112, Tel: 408-436-7790, FAX: 408-436-8185; Empl.: 15

INRECO, See Ransco Industries

INRESCO, INC., 2411 Atlantic Avenue, Manasquan, NJ 08736, Tel: 908-223-6330, FAX: 908-223-2571; Empl.: 16

INSERVO, INC., 128 Commerce Drive, Box 110, LaGrange, OH 44050, Tel: 1-216-355-5102, FAX: 1-216-355-5342; Empl.: 70; *Sls. Mgr.:* Sandra Affolter

INSTANT BOARD CIRCUITS GRP., 20 A Pamaron Way, Novato, CA 94949, Tel: 415-883-1717, FAX: 415-883-2626; Empl.: 13

INSTRULAB, P.O. B. 98, Dayton, OH 45404, Tel: 513-223-2241; Empl.: 22; *Sls. Mgr.:* Fred Pummill

INSTRUM, MDH Industries, Inc., 426 W. Duarte Rd., Monrovia, CA 91016, Tel: 818-303-4210, TELEX: 182910, FAX: 818-357-8863; *Sls. Mgr.:* Craig Rahn

ICS

FAX: 708-543-6244

INSTRUMENTATION & CONTROL SYS., ICS.Inc., 520 Interstate Rd, Addison, IL 60101, Tel: 708-543-6200, TELEX: 271503 ICS UR; Empl.: 30; *Sls. Mgr.:* Harold Miller ..... **B•1504-1505; D•2208-2209**

Local Distributors

FL Largo, Allied Elctrns. 813-541-4660
IL Chicago, Leeds Electro Comps. 312-625-3800
IN Indianapolis, Advent Elctrns. 317-872-4910
IN Indianapolis, Allied Elctrns. 317-875-0448
MA Norwood, Allied Elctrns. 617-255-0361
MN Eden Prairie, Allied Elctrns. 612-829-7554
NJ Audubon, Universal Elctrn. Supp. ... 1-800-327-3529
NJ Mt. Laurel, Allied Elctrns. 609-234-7769
NY Fairport, Allied Elctrns. 716-425-3850
OH Solon, Allied Elctrns. 216-248-4200

PA Pittsburgh, Allied Elctrns. 412-367-4124
WI Green Bay, Power/Mation 414-496-0944

Local Sales Offices & Reps

Timer Representatives
CA Arcadia, HMC, Inc. 818-447-0958

UPS Representatives
TX Houston, Gettys-Eads-Adair 713-827-7155
AL Huntsville, Allied Elctrns. 205-721-3500
CA Canoga Park, C & A Elctrns. 818-340-6022
CA Fremont, Allied Elctrns. 415-770-0590
CA Tustin, Allied Elctrns. 213-860-0090
CO Englewood, Allied Elctrns. 303-790-1664
FL Pompano Bch., Allied Elctrns. 305-978-3008
GA Duluth, Allied Elctrns. 404-497-9544
GA Roswell, Henderson Ind. Equip. 404-552-0185
IL Berwyn, B-B & W, Inc. 312-749-1710
IL Rockford, Power/Mation 515-397-0510
IL Rosemont, Advent Elctrns. 312-297-6200
IA Cedar Rapids, Advent Elctrns. 319-363-0221
IL Wood Dale, Allied Elctrns. 708-860-0007
MD Columbia, Allied Elctrns. 301-381-1560
MI Farmington Hills, Advent Elctrns. 313-447-1650
MN St. Paul, Powermation 612-645-0781
NY Hauppauge, N & L Instrs. 516-234-9797
NY Mineola, Allied Elctrns. 516-248-2360
NC Raleigh, Allied Elctrns. 800-638-1381
OH Chagrin Falls, Comm-Omni 216-543-1328
OH Warren, REM Elctrn. Supp. Co., Inc. ... 216-373-1300
TX Brownsville, Garden Indl. Grp. 512-546-1612
TX Dallas, Wofford Elctrns. 214-320-0294
TX Ft. Worth, Allied Elctrns. 817-336-5401, 214-265-9341
TX Ft. Worth, Allied Export Svcs. 817-336-5401
WA Seattle, Allied Elctrns. 206-547-2827
WI Fond du Lac, Fedco Elctrns. 414-922-6490
WI Waukesha, Powermation 414-542-2868

INSTRUMENTATION MEAS. LAB., See Lockheed Electronics Co., Inc.

INSTRUMENTATION SERVICES, INC., 957 Winnetka Ave. N., Minneapolis, MN 55427, Tel: 612-544-8916, FAX: 612-544-4887; Empl.: 30; *Sls. Mgr.:* G. Ryan

INSTRUMENT DESIGN ENGINEERING ASSOCS., INC., See IDEA, Inc.

INSTRUMENTED SENSOR TECHNOLOGY, INC., 1305 S. Cedar St., Lansing, MI 48910, Tel: 517-371-1980, TELEX: 517-371-1244; Empl.: 10

INSTRUMENT ENCLOSURES, 9767 Glenoaks Blvd., Sun Valley, CA 91352, Tel: 818-768-4622, FAX: 818-767-4988; FSC No.: 62012; Empl.: 35; *Sls. Mgr.:* Guy Crutchfield

INSTRUMENT RESEARCH CO., Box 40207, Santa Barbara, CA 93103, Tel: 805-962-8336; Empl.: 6

INSTRUMENT RESISTOR CO., See INRESCO/Instr. Resistor

INSTRUMENTS, INC., 7263 Engineer Rd., Ste. G, San Diego, CA 92111, Tel: 619-571-1111, FAX: 619-571-0188; FSC No.: 34563; Empl.: 28; *Sls. Mgr.:* Ken Kalbfell

INSTRUMENTS & CONTROLS DIV., See Technology Systems Div., KRUG Intl.

FAX: 516-467-8558

INSTRUMENTS FOR INDUSTRY, INC., 731 Union Parkway, Ronkonkoma, NY 11779, Tel: 516-467-8400; Empl.: 25 ..... **D•1012**

Local Sales Offices & Reps

AL Eva, Barr Elctrn. Instrs. 205-796-7533
AZ Mesa, DJM Elctrns. 602-820-4030
CA Valencia, DJM Elctrns. 805-254-2677
CO Englewood, R.A. Mayes Co. 303-761-9447
FL Barr Elctrns. 407-723-4109
IA Hiawatha, EIR Co. 319-395-4500
KS Lenexa, KJS Mktg. 913-962-1795
MD Beltsville, Applied Engrg. 301-595-5393
MO Leasburg, KJS Mktg. 314-245-6579
NH Hudson, EMC Sls., Inc. 603-672-4455
NJ N. Plainfield, Brady Co. 201-755-7900
NM Albuquerque, Mesa Tech. Corp. 505-883-8833
NC Winston-Salem, Scientific Dvcs. S.E. .. 919-859-0868
PA Sewickley, Teplitz/Byrne Assocs. 412-741-3628
TX Richardson, Scientific Dvcs. 214-231-8106
WA Seattle, Del Black Assocs. 206-788-6131
Can Nepean, Ont., Multilek, Inc. 613-226-2365

INSTRUMENT SOCIETY OF AMERICA, P.O. Box 12277, Research Triangle Park, NC 27709, Tel: 919-549-8411, TELEX: 802-540, FAX: 919-549-8288; Empl.: 102

Instrument Specialties Co., Inc.

FAX: 717-424-6213

INSTRUMENT SPECIALTIES CO. HEADQUARTERS, P.O. Box A, Delaware Water Gap, PA 18327-0136, Tel: 717-424-8510, TWX: 510-671-4526; Empl.: 300; *Sls. Mgr.:* John Blazejewski ..... **B•1018; C•1691-1697**

Local Sales Offices & Reps

AZ Phoenix, O'Donnell Assocs. 602-944-9542
CA San Jose, O'Donnell Assocs. 408-456-2950
CA Torrance, O'Donnell Assocs. 213-539-9664
CO Englewood, D. M. Harthun Assocs., Inc. 303-792-5050
FL Boca Raton, Kinetic Sls., Inc. 407-368-7373
ID Boise, Temco Northwest 208-345-2051
KS Wichita, Thunderbird Tech. Sls. 316-636-5018
MN St. Paul, Arkco Sls. 612-777-7454
MO Maryland Heights, Thunderbird Tech. Sls. 314-298-8940
NM Albuquerque, O'Donnell Assocs. S.W. 505-889-4522
OR Hillsboro, Temco Northwest 503-645-2030
TX Dallas, J. M. Spell 214-620-0040
WA Bothell, Temco Northwest 503-645-2030
WA Spokane, Temco Northwest 509-927-9392
Can Pickering, Ont, A. C. Simmonds & Sons, Ltd. 416-839-8041

INSTRUMENT SPECIALTIES CO., Western Div., 505 Porter Way, Placentia, CA 92670, Tel: 714-579-7100, FAX: 714-579-7105; Empl.: 25; *Sls. Mgr.:* William Oliver; *Dist. Mgr.:* Phil Strong

INSULATON COMPONENTS ASSOCIATES, INC., P.O. Box 4849, Downey, CA 90241, Tel: 213-861-7268, FAX: 213-861-7265

INSULCAST, Permagile Inds. Inc., 101 Commercial St., Plainview, NY 11803, Tel: 516-349-1100, TELEX: 221720 PERM UR, FAX: 516-349-1156; FSC No.: 13549; *Sls. Mgr.:* William P. Flaim, Natl. Sls. Mgr.

INTAQ®

FAX: 206-284-3705

INTAQ KEY PANELS, GM Nameplate, Inc., 2040 15th Ave. W., Seattle, WA 98119, Tel: 206-284-5475; FSC No.: 9905; Empl.: 350; *Sls. Mgr.:* Alan Burk ..... **B•1815**

Local Sales Offices & Reps

AZ Tempe, Elctrn. Dev./Sls. 602-438-1547
AL Huntsville, JWL Assocs. 205-883-1712
CA San Diego, Omni 619-268-9606
CA San Jose, G M California 408-435-1666
CA Irvine, Balzer-Wolf Assoc. 714-261-6877
CO Englewood, Delltron 303-741-2122
FL St. Petersburg, Gulfport & Tech. Sls. .. 813-573-3910
HI Honolulu, Menehune Unlimited 808-737-3472
ID Eagle, GM/West 208-939-7202
IL Elgin, BK/Custom Engrd. Pts. 708-741-8556
IN Zionsville, WK/Custom Engrd. Pts. 317-873-5626
MI Southfield, E&A Inds., Inc. 313-647-0330
MN Burnsville, Electromec Sls., Inc. 612-894-8200
MO St. Louis, Halpin D. Burke & Son 314-968-2727
NH Mt. Vernon, GM/Northeast 603-673-9737
NJ Pitman, Colrud Corp. 609-589-5866
NJ West Caldwell, Grimm, Siegel & Assoc. 201-575-9300
NC Charlotte, JWL Assocs. 704-541-5750
OH Akron, Augnat Assocs. 216-239-2499
OR Portland, GM-Portland 503-223-9879
PA Pittsburgh, Allied Entprs. 412-788-2992
TX Irving, EDS Southwest 214-929-8140
VA Reston, Colrud Corp. 703-904-0240
WA Seattle, GM Nameplate Seattle 206-284-2200
Can Richmond,B.C., Enerlev Sls. Ltd. 604-273-0882
Can Scarborough, Ont., Banks Elctrns. Ltd. 416-292-5152

INTEC CONTROLS CORP., 55 West St., Walpole, MA 02081, Tel: 508-660-1221, FAX: 508-660-2374; Empl.: 25; *Sls. Mgr.:* Bruce Manthey; *Dist. Mgr.:* Bruce Manthey

INTEGRATED CIRCUITS INC. (ICI), See Interpoint

INTEGRATED DEVICE TECHNOLOGY, INC., 3236 Scott Blvd., Santa Clara, CA 95054-3090, Tel: 408-727-6116, TWX: 910-338-2070, FAX: 408-492-8674; FSC No.: 61772; Empl.: 2090; *Sls. Mgr.:* Joe Zabkar (VP); *Dist. Mgr.:* Bill Franciscovich

INTEGRATED ENGINEERING SOFTWARE, 347-435 Ellice Ave., Winnipeg, Man., Canada R3B 1Y6, Tel: 204-942-5636, FAX: 204-944-8010; Empl.: 10; *Sls. Mgr.:* Bennetta Benson

INTEGRATED MICROWAVE

FAX: 619-755-8679

INTEGRATED MICROWAVE, 3422 Tripp Ct., San Diego, CA 92121-1009, Tel: 619-259-2600; FSC No.: 60656; Empl.: 75; *Sls. Mgr.:* Jeff Beard ... **A•1678-1679**

Local Sales Offices & Reps

AZ Tempe, Cain Technology 602-966-4322
CA Mountain View, Disman Bakner 415-969-3010
CA Orange, Cain Technology 714-997-7311
CA Van Nuys, Cain Technology 818-904-9392
FL Satellite Beach, BWS Microwave Mktg. 407-773-6170
MD Burtonsville, Mid-Atlantic Microwave Sales 301-725-3955
MA Chelmsford, Matrix Sales 508-459-4000
NJ Paramus, El-Tech Sales 916-463-2664
NY E. Syracuse, Em-Tech Assocs. 315-437-6410
PA Ft. Washington, Beta Sales 215-643-6650

INTEGRATED POWER DESIGNS, INC., 9c Princess Rd., Lawrenceville, NJ 08648, Tel: 609-896-2122, FAX: 609-895-1738; Empl.: 18; *Sls. Mgr.:* Steven Thompson

INTEGRATED TECHNOLOGIES SOLUTIONS INC., 402 Chestnut Lane, East Meadow, NY 11554, Tel: 516-481-0857, FAX: 516-292-3115; Empl.: 8; *Sls. Mgr.:* M. Lieber ..... **D•1267**

Local Sales Offices & Reps

CA Chino, Deltatec Intl. Inc. 714-551-8546

INTEGRITY TECHNOLOGY CORP., 1400 Coleman Ave., Ste. E15, Santa Clara, CA 95050, Tel: 408-262-8640, TELEX: 697-2396, ESYLNK: MCI Mail:209837, FAX: 408-262-1680; Empl.: 247; *Sls. Mgr.:* Larry Young

Local Sales Offices & Reps

CA Santa Clara, Integrity Techng. Co. 408-262-8640
CO Littleton, GLX, Inc. 303-771-3230
FL Clearwater, H.E. Johnson & Assocs. .. 813-447-7529
MA Agawam, Hi-Q Mktg. 413-789-4683
NY Wading River, Niktronics 516-929-4671

INTEK, INC., 751 Intek Way, Westerville, OH 43081, Tel: 614-895-0301, FAX: 614-895-0319; FSC No.: 6680; *Sls. Mgr.:* Robert Curry

INTELCO, 8 Craig Road, Acton, MA 01720, Tel: 508-264-4485, TELEX: 62923380, FAX: 508-264-9677; Empl.: 35

INTELLIGENCE POWER TECHNOLOGY, 829 Flynn Rd., Camarillo, CA 93012, Tel: 805-484-4441, FAX: 805-987-0271; Empl.: 22; *Sls. Mgr.:* K. Iwan

INTELLIGENT INSTRUMENTATION/BURR-BROWN, 1141 W. Grant Road,MS 131, Tucson, AZ 85705, Tel: 602-624-2434, FAX: 602-623-8965; *Sls. Mgr.:* Bill McGovern ..... **D•1637-1639**

INTELLIGENT INTERFACES, INC., P.O. Box 1486, Stone Mountain, GA 30086, Tel: 404-381-9891, 1-800-842-0888; FSC No.: OA4H9; Empl.: 3; *Sls. Mgr.:* Robert E. Jarvis

INTELLUTION, INC., 315 Norwood Park South, Norwood, MA 02062, Tel: 617-769-8878, TELEX: 940-103, FAX: 617-769-1990; *Sls. Mgr.:* Jeff Cassis; *Dist. Mgr.:* Jeff Cassis

INTEPRO SYSTEMS INC., Six Fortune Dr., Billerica, MA 01821, Tel: 508-663-7555, FAX: 508-663-7558; Empl.: 50; *Sls. Mgr.:* Mike O'Connor; *Dist. Mgr.:* Mike O'Connor

INTERACTION SYSTEMS INC., 86 Coolidge Ave., Watertown, MA 02172, Tel: 617-923-6001, FAX: 617-923-2112 ..... **D•1098**

INTERACTIVE CIRCUITS SYSTEMS LTD., 5430 Canotek Rd., Gloucester,Ont., Canada K1J 9G2, Tel: 613-749-9241, 1-800-267-9794, FAX: 613-749-9461; Empl.: 20

INTERACTIVE COMPUTER PRODUCTS, INC., 23482 Peralta, unit C, Laguna Hills, CA 92653, Tel: 714-770-5332; Empl.: 20; *Sls. Mgr.:* Pat Cooper

INTERCONNECT DEVICES, INC., 5101 Richland Ave., Kansas City, KS 66106, Tel: 913-342-5544, TELEX: 286767 IDIKC UR, FAX: 913-342-7043; Empl.: 150; *Sls. Mgr.:* Donna McKinney, Cathy Snead; *Dist. Mgr.:* Carol Narr

Distributor

FAX: 714-447-3976

INTERCONNECT SPECIALTIES, INC., Tel: 800-752-4777, 714-773-0411, TELEX: 910 321 0310

..... 613, 620, 633, 714, 718, 724, 752, 791, 813, 816

INTERELECTRONICS CORP., Interelectronics Park, 550 U.S. Rte. 303, Congers, NY 10920, Tel: 914-EL8-8000; Empl.: 82; *Sls. Mgr.:* M. H. Pintell; *Dist. Mgr.:* G. Sherwood ..... **D•1797**

INTERFACE, INC., 7401 E. Butherus Dr., Scottsdale, AZ 85260, Tel: 602-948-5555, TELEX: 825-882, FAX: 602-948-1924; FSC No.: 32311; Empl.: 85; *Sls. Mgr.:* Irv Wilson

FAX: 617-986-8932

INTERFACE ENGINEERING INC., 300 Centre St., Holbrook, MA 02343, Tel: 617-986-2600, TELEX: 249-545; FSC No.: 14352; Empl.: 25; *Sls. Mgr.:* Thomas Scanlon ..... **D•1182-1183**

Local Sales Offices & Reps

NY	Great Neck, Industron Assoc.	516-487-2620
VA	Herndon, Gans & Pugh Assocs., Inc.	703-709-0305

Local Distributors

VA	Arlington, Gans & Pugh Assocs., Inc.	

INTERFACE PRODUCTS, INC., 4630 North Ave., Oceanside, CA 92056, Tel: 619-945-0230, FAX: 619-945-0239; FSC No.: 55300; Empl.: 75; *Sls. Mgr.:* William Lang

INTERFACE TECHNOLOGY, Dynatech Corp., 2100 E. Alosta Ave., Glendora, CA 91740, Tel: 818-914-2741, TELEX: 4945489, FAX: 818-335-8346

INTERFAN
ONE OF THE PURDY GROUP OF COMPANIES

FAX: 415-340-1670

INTERFAN, William J. Purdy Co., 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-347-1203; Empl.: 12; *Sls. Mgr.:* F. L. Nelson ..... **C•1626-1629**

Local Sales Offices & Reps

AZ	Glendale, Knight Co.	602-433-2166
CA	Anaheim, Impact Elctrns., Inc.	714-533-1351,
CA	Burbank, Darco	818-504-2425
CA	Burlingame, William J. Purdy Co.	415-347-7701
CO	Englewood, William J. Purdy Co., Assocs.	303-790-2211
FL	Lighthouse Pt., Jack Krutek & Assocs.	305-783-2501
IL	Mt. Prospect, The Dombrow Co.	708-253-3326
IN	Indianapolis, John Sukup, Inc.	317-253-5501
MD	Monkton, Imagitron Sls. Co.	301-374-5600
MI	Royal Oak, Hilltronics Inc.	313-435-0920
MN	St. Paul, Proud Inds., Inc.	612-646-9428
MO	Bridgeton, AEM, Inc.	314-298-9900
NY	Hempstead, Kahgan Brody Assocs.	516-538-2300
NY	E. Syracuse, R.M. Scanlon & Assocs.	315-463-7682
OH	Cleveland, Marlow Assocs. Inc.	216-831-8232
OR	Beaverton, Pacific Mktg. Specialists	503-641-9373
PA	Pittsburgh, Marlow Assocs. Inc.	412-343-5050
TX	Bedford, El-Tec Sls., Inc.	817-268-2896
WA	Redmond, Pacific Mktg. Specialists	206-882-3144
Can	Lachine, Que., Bytewide Mktg.	514-636-4121

INTERGRAPH CORP., Advanced Processor Division, 2400 Geng Rd., Palo Alto, CA 94303, Tel: 415-494-8800, FAX: 415-856-9224; *Sls. Mgr.:* James Pierce; *Dist. Mgr.:* James Pierce, Sls. Rep. Mgr.

INTERLOGIC INDUSTRIES, 85 Marcus Dr., Melville, NY 11747-4294, Tel: 516-420-8111, FAX: 516-420-8007; Empl.: 46; *Sls. Mgr.:* Bert Freifeld

INTERLOOP, 706 Charcot Ave., San Jose, CA 95131, Tel: 408-922-0520, FAX: 408-922-0545; Empl.: 3

INTER-MARKET, 1946 Lehigh Ave., Glenview, IL 60025, Tel: 708-729-5330, FAX: 708-729-4849; FSC No.: 34165; Empl.: 10; *Sls. Mgr.:* Phil Gardanier

INTERMATIC, Intermatic Plaza, Spring Grove, IL 60081, Tel: 815-675-2321, TELEX: 25-265, FAX: 815-675-2112; Empl.: 1000

INTERMETRICS MICROSYSTEMS SOFTWARE, INC., 733 Concord Ave., Cambridge, MA 02138, Tel: 617-661-1840, 800-356-3594, FAX: 617-661-0072; Empl.: 6000; *Sls. Mgr.:* Burr Tupper

INTER METRO INDUSTRIES CORP., North Washington St., Wilkes-Barre, PA 18705, Tel: 717-825-2741, TELEX: 831-833, FAX: 717-823-0250

INTERNATIONAL COMPONENTS CORP., 105 Maxess Rd., Melville, NY 11747, Tel: 516-293-1500, TELEX: 221576, FAX: 516-293-4983; Empl.: 100; *Sls. Mgr.:* Ken Reed ..... **D•1037-1039**

Local Sales Offices & Reps

AL	Huntsville, Hughes Assocs.	205-533-9108
AR	Mabelville, Erickson Sls.	501-455-0618
CA	Burbank, Darco	818-504-2425
CO	Littleton, Romulus Elctrns.	303-770-4888
FL	Tamarac, Hughes Assocs.	305-720-1674
GA	Atlanta, Hughes Assocs.	404-662-1587
IL	Arlington Heights, MJ Petersen	708-577-8200
IA	Cedar Rapids, Delltron Co.	319-393-0075
LA	Chalmette, Erickson Sls. Inc.	504-271-1976
MA	Framingham, Stone Comp. Sls.	508-875-3226
MA	Long Meadow, Stone Comp. Sls.	413-567-1019
MS	Corinth, Hughes Assocs.	601-287-2915
MO	Florissant, Delltron Co.	314-839-0033
MO	Kansas City, Delltron Co.	816-436-6445
NJ	Pennsuakem, ArJay Tech.	609-662-0285
NY	Melville, ICC	516-293-1500
NC	Charlotte, Hughes Assocs.	919-467-7029
OH	Cincinnati, Bob Gilbert Assocs.	513-574-1932
OR	Portland, Adapt E2	503-297-2151
TN	Knoxville, Hughes Assocs.	615-558-0283
TX	Dallas, Erickson Sls. Inc.	214-739-5833
WA	Bellevue, Adapt E2	206-637-0302
PR	Hato Rey, Casanova Indl. Sls. Corp.	809-753-8674

Local Distributors

CA	Canoga Park, Myco Vickers	213-340-2025
CA	Redwood City, Hi-Cor	415-365-5087
CA	San Diego, Tauber Elctrns. Corp.	619-274-7242
CA	Sunnyvale, Penstock Microwave Dist.	408-727-1200
CT	Bridgeport, Park Distr.	203-366-7200
CT	East Haven, JV Elctrns.	203-469-2321
FL	Ft. Lauderdale, Bros. Elctrns.	305-561-6700
FL	Ft. Lauderdale, National Resistor Co.	305-772-4500
GA	Norcross, Applied Power, Inc.	404-263-0421
IL	Bensenville, Voyager Elctrns. Corp.	312-860-1300
IL	Wheeling, Hawk Elctrns., Inc.	708-459-4030
IN	Indianapolis, RM Elctrns.	317-291-7110
IA	Cedar Rapids, Dee Elctrns.	319-365-7551
MA	Chelmsford, Shelly Ragon	508-250-9666
MA	Sharon, Adcour Passive Comps.	617-784-8123
MI	Grand Rapids, R M Elctrns.	616-531-9300
MI	Southfield, R M Elctrns.	313-262-1582
MN	Eden Prarie, Cassidy Elctrns.	612-944-0100
MN	Fridley, Voyager Elctrns. Corp.	612-571-7766
MN	Minneapolis, Cassidy Elctrns.	612-835-7746
MN	New Brighton, Chris Elctrns.	612-631-2647
MO	St. Louis, Beckwith Elctrns.	314-343-6463
NJ	Bellmaur, Mid-Atlantic Elctrns.	609-931-5303
NJ	Clifton, Vantage Comps.	201-667-1840
NJ	Rockaway, Tonar Inds.	201-586-9000
NJ	Sparta, Instruments & Equip.	201-729-4293
NY	Commack, Vantage Comps. Corp.	516-543-2000
PA	Philadelphia, Mur'Tronics	215-632-4330
TN	Hixson, Techni-Tronics	615-842-0514
TX	Dallas, Wholesale Elctrns.	214-969-9400
TX	Fort Worth, Allied Elctrns.	817-336-7414
TX	Ft. Worth, C & W Supp. Co.	817-831-0395
WA	Seattle, Vesco	206-575-3607

INTERNATIONAL CONFIGURATIONS, INC., P. O. Box 3374, Enfield, CT 06082, Tel: 203-749-6380, TELEX: 643067, FAX: 203-749-2985; FSC No.: 62484; Empl.: 4; *Sls. Mgr.:* Ov. L. Baldwin

INTERNATIONAL CONVERTER CORP., 770-101 Wooten Road, Colorado Springs, CO 80915, Tel: 719-570-6900, FAX: 719-570-6180; Empl.: 9; *Sls. Mgr.:* Matt Breneman

INTERNATIONAL CRYSTAL MFG., 10 N. Lee, P.O. Box 26330, Oklahoma City, OK 73126, Tel: 504-236-3741, 1-800-426-9825, FAX: 405-235-1904,1-800-322-9426; Empl.: 120; *Sls. Mgr.:* Sheri Smith; *Dist. Mgr.:* Sheri Smith, Sls. Mgr.

INTERNATIONAL DATA AQUISTION & CONTROL, INC., Box 397, Rte. 101 The Meeting Place, Amherst, NH 03031, Tel: 603-673-0765, FAX: 603-673-0767; Empl.: 7; *Sls. Mgr.:* Gene Calvano; *Dist. Mgr.:* Gerry Klein

INTERNATIONAL DIGITAL ELECTRONICS, 160 W. Santa Clara St., Ste. 800, San Jose, CA 95113, Tel: 408-283-1010 (ext 107), FAX: 408-283-0344; Empl.: 2; *Sls. Mgr.:* Masanori Kotani

INTERNATIONAL DIODE, 229 Cleveland Ave., Harrison, NJ 07029, Tel: 201-482-6518, FAX: 201-482-4958; Empl.: 9; *Sls. Mgr.:* Lee Toong

INTERNATIONAL ELECTRO MAGNETICS, INC., 350 N. Eric Dr., Palatine, IL 60067, Tel: 708-358-4622, TELEX: 4932869 IEM UI; Empl.: 6; *Sls. Mgr.:* T. Pretto ..... **D•1036**

INTERNATIONAL EYELETS, INC., 5674 El Camino Real No. L, Carlsbad, CA 92008-9812, Tel: 619-931-1446, 1-800-333-9353, FAX: 619-931-8667; FSC No.: 5325; Empl.: 5; *Sls. Mgr.:* Sally Dalrymple

INTERNATIONAL INSTRUMENTATION, INC., 2282 Townsgate Rd., Westlake Vlg., CA 91361, Tel: 805-495-7673, FAX: 805-379-0701; Empl.: 32; *Dist. Mgr.:* John Mesenbring

INTERNATIONAL INSTRUMENTS, A PRIME TECHNOLOGY COMPANY, Twin Lakes Rd, P.O. Box 185, N. Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092, FAX: 203-481-8937; Empl.: 150; *Dist. Mgr.:* Keith MacDowall ..... **D•1350-1351**

Local Sales Offices & Reps

CO	Golden, J. F. Hurlbut Co.	303-279-7796
CT	N. Branford, II Consult Factory	203-481-5721
FL	Lakeland, Munday Sls., Co.	813-858-5606
KS	Olathe, Tech. Sls. Assoc.	913-829-2800
MO	Ferguson, Tech. Sls. Assocs.	314-725-5361
OH	Westlake, Advanced Tech. Assocs.	216-835-5050
PA	Malvern, Stitzer Assocs.	215-644-5500

Local Distributors

CA	Los Angeles, E.I.L. Instrs., Inc.	213-685-7020
CA	Palo Alto, Metermaster	415-960-8500
CA	San Diego, Metermaster	619-560-4841
CA	Sunnyvale, E.I.L. Instrs.	408-245-4320
CO	Denver, E.I.L. Instrs., Inc.	303-534-4160
CO	Denver, Metermaster Instr. Corp.	303-722-5766
CT	Middletown, E.I.L. Instrs., Inc.	203-346-6646
FL	Palm Bay, E.I.L. Instrs., Inc.	407-725-8300
GA	Kennesaw, CMI Metermaster	404-425-8902
IL	Bridgeview, E.I.L. Instrs., Inc.	312-430-2292
IL	Glendale Heights, CMI Metermaster	312-351-4554
IN	Indianapolis, E.I.L. Instrs., Inc.	317-545-1373
KY	Louisville, E.I.L. Instrs., Inc.	502-454-3420
LA	New Orleans, Industrial Instr. Works	504-733-8355
MD	Sparks, E.I.L. Instrs.	301-771-4800
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	Southbridge, CMI-Metermaster	508-765-1676
MI	Ferndale, Ram Meter Inc.	313-398-6767
MN	Minneapolis, Process Meas. Co.	612-544-4035
NJ	Pensauken, E.I.L. Instrs., Inc.	609-488-0474
NY	Clarence, E.I.L. Instrs.	716-634-8500
NY	Hauppauge, E.I.L. Instrs., Inc.	516-231-6333
NY	Long Island City, Metermod Instr. Corp.	718-726-4850

NY Rochester, E.I.L. Instrs. 716-586-8251
NC Charlotte, E.I.L. Instrs. 704-376-2237
OH Cleveland, Process Measurement Corp. 216-587-3600
OH Dayton, E.I.L. Instrs., Inc. 513-435-2134
PA Pittsburgh, E.I.L. Instrs. 412-823-2255
TX Dallas, E.I.L. Instrs., Inc. 214-357-0297
TX Garland, CMI Metermaster 214-271-5671
TX Houston, CMI Metermaster 713-644-1631
TX Houston, E.I.L. Instrs., Inc. 713-271-3100
VA Norfolk, E.I.L. Instrs., Inc. 804-855-9553
VA Springfield, E.I.L. Instrs., Inc. 703-569-2611
WA Redmond, E.I.L. Instrs., Inc. 206-882-3222
Can Longueuil, Que., E.I.L. Instrs. 514-651-4844
Can Mississauga, Toronto, E.I.L. Instrs. 416-624-6660
Can Toronto, Ont., Versatile Measuring Instrs. 416-239-8161
AZ Tempe, CMI Metermaster 603-431-0880

INTERNATIONAL LIGHT, 17 Graf Rd., Newburyport, MA 01950-4092, Tel: 508-465-5923, TELEX: 94-7135, FAX: 508-462-0759; Empl.: 19; *Sls. Mgr.:* Bob Angelo; *Dist. Mgr.:* Bob Angelo

INTERNATIONAL MACHINE & TOOL CORP., 115 Maple St., Warwick, RI 02888, Tel: 401-467-6905, FAX: 401-467-5885; Empl.: 35; *Sls. Mgr.:* Peter S. Piscopio

Since 1974
INTERNATIONAL MANUFACTURING SERVICES, INC
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FAX: 401-683-5571

INTERNATIONAL MANUFACTURING SERVICES, 50 Schoolhouse La., Portsmouth, RI 02871-2418, Tel: 401-683-9700; FSC No.: 45177; Empl.: 25; *Sls. Mgr.:* Scott H. Marston ..... **A•1922**

Local Sales Offices & Reps

MA Attleboro, Antex-Overseas Sls. 617-222-5221
PA Downingtown, Grasso Tech. Sls. 215-458-8967

INTERNATIONAL MICROELECTRONICS, P.O. Box 170415, Arlington, TX 76003, Tel: 817-561-2244, FAX: 817-561-5824

INTERNATIONAL MICROSYSTEMS, 521 Valley Way, Milpitas, CA 95035, Tel: 408-942-1001, FAX: 408-942-1051; Empl.: 10; *Sls. Mgr.:* Peter Schade

INTERNATIONAL MICROTRONICS, 4016 E. Tennessee St., Tucson, AZ 85714, Tel: 602-748-7900, FAX: 602-790-2808; Empl.: 16; *Sls. Mgr.:* Otto H. Fest, Jr. ..... **D•1352-1357**

Local Distributors

CA Santa Ana, Tech-Ser, Inc. 408-496-1004
CA Torrance, Tech-Ser, Inc. 213-370-7200
CO Aurora, R&R Instrmn. 303-340-8728
IL Chicago, Data Elctrns. 312-283-0300
MA Waltham, Calibron/Burton Instr. 617-894-6440
MO Manchester, Universal Precision Instr. 314-394-4693
NY Rochester, Masline Elctrns. 716-546-5373
OR Portland, Hydraulic Instrmn. Svcs. 503-643-5648
TX Dallas, Textrol Inc. 214-637-6262
WA Redmond, Hydraulic Instrmn. Svcs. 206-867-5437

INTERNATIONAL POLARIZER, INC., 320 Elm Street, Marlborough, MA 01752, Tel: 508-481-7495, TELEX: 601 6454, FAX: 508-481-0222; Empl.: 8; *Sls. Mgr.:* Donald Rickert

INTERNATIONAL POWER DC POWER SUPPLIES, INC., 355 N. Lantana, Ste. 710, Camarillo, CA 93010, Tel: 805-987-7900, FAX: 805-388-2686; Empl.: 25; *Sls. Mgr.:* Jose M. Covarrubias; *Dist. Mgr.:* Jose M. Covarrubias ..... **D•1779-1781**

Local Sales Offices & Reps

AZ Phoenix, Howe & Howe Sls., Inc. 602-264-7971
CA El Cajon, Atronix/Marble 619-444-1501
CA Gilroy, Mouser Elctrns. 800-346-6873
CA Mission Viejo, Atronix/Marble 714-858-9009
CA San Diego, Zerimar Sales 619-436-3379
CA Santa Clara, Gagner-Toomey Assocs. 408-244-2200
CA So. CA, Elkins & Assocs. 818-597-1075
CA Solvang, Atronix/Marble 805-686-4366
FL Land O Lakes, A.J. Power Source 813-996-2583
GA Atlanta, AJ's Power Source 404-441-7927
IL Wheeling, Ed Joyner & Co. 708-520-1200
IN Evansville, Evansville Supply 812-424-7541
IA Cedar Rapids, Advanced Tech. Sls. 319-393-8280
KS Olathe, Advanced Tech. Sls. 913-782-8702
ME Portland, The MacInnis Co. 800-544-1014
MD Randallstown, Beacon North, Inc. 703-478-2480
MA Boston, The MacInnis Co. 617-762-8090
MI Livonia, Electro-Mktg. 313-421-7590
MI Muskegon, Electro-Mktg. 616-798-1912
MN Minneapolis, Clay Rep Co. 612-861-2191
MO Bridgeton, Advanced Tech. Sls. 314-291-5003
MO St. Louis, Advanced Tech. Sls. 314-878-2921
NV Las Vegas, Sandy's Elctrn. Supp. 702-383-8353
NH Manchester, The MacInnis Co. 800-544-1014
NH Windham, The MacInnis Co. 800-544-1014
NJ E. Rutherford, A-A Elec., Inc. 201-777-5477
NJ Ft. Lee, Neptune Elctrns. Co. 201-461-2789
NJ Randolph, Mouser Elctrns. 800-346-6873
NM Mouser Elctrns. 800-346-6873
NY E. Syracuse, Advanced Comps. Corp. 315-437-6700
NY Glen Head, Livera-Polk Assocs. 516-759-9300
NY Penn Yan, Advacom Technlg., Inc. 315-536-2221
NY Plainview, Neptune Elctrns. Co. 516-349-1600
NY Troy, Trojan Elctrn. Supp. 518-274-4481
NC Raleigh, Overton Assocs. 919-781-7004
OH Cleveland, Major Elctrns. Corp. 216-461-2100
OH Dayton, Electro-Mktg. 513-890-8322
OH N. Royalton, Electro-Mktg. 216-582-0075
OK AID Elctrns., Inc. 800-669-4761
OK Oklahoma City, RSC Elctrns. 405-631-7729
OR Clackamas, Platt Elec. Supp. 503-655-3504
OR Hillsboro, Turn-A-Round Sls. 503-640-4641
OR Medford, Platt Elec. Supp. 503-772-1414
OR Portland, 04 Controls 503-659-7891
OR Portland Metro, Platt Elec. Supp. 503-224-1919
OR Tualatin, Platt Elec. Supp. 503-684-2087
PA McKean, Advacom, Inc. 814-476-7774
PA N. Versailles, CMD Elctrns. 412-678-6020
PA Pittsburgh, Electro-Mktg. 412-823-5400
RI Mouser Elctrns. 800-346-6873
RI Providence, The MacInnis Co. 800-544-1014
SC Mouser Elctrns. 800-346-6873
SC Seneca, Overton Assocs. 803-638-7101
SD Mouser Elctrns. 800-346-6873
TN Mouser Elctrns. 800-346-6873
TN New Tazewell, Overton Assocs. 615-626-6009
TX Austin, AID Elctrns., Inc. 800-669-4761
TX Austin, RSC Elctrns. 512-834-1415
TX Austin, Wofford Elctrns. 512-339-1131
TX Dallas, Wofford Elctrns. 214-320-0294
TX Houston, AID Elctrns., Inc. 800-669-4761
TX Houston, Wofford Elctrns. 713-847-3583
TX Irving, AID Elctrns., Inc. 800-669-4761
TX Mansfield, Mouser Elctrns. 800-346-6873
TX Richardson, RSC Elctrns. 214-644-3444
UT Ogden, Taylor Mktg. 801-546-9570
UT Salt Lake City, Standard Supp. Co. 801-486-3371
VT Mouser Elctrns. 800-346-6873
VT Burlington, The MacInnis Co. 800-544-1014
VA Sterling, Beacon North, Inc. 703-478-2480
VA Sterling, ICE Comps. 703-478-2677
WA Longview, Platt Elec. Supp. 206-423-4800
WA Seattle, H.D. Campbell 206-433-1900
WA Seattle, PLatt Elec. Supp. 206-624-4083
WA Vancouver, Platt Elec. Supp. 206-699-4833
WV Mouser Elctrns. 800-346-6873
WI Cedarburg, A-A Elec., Inc. 414-377-8000
WI Green Bay, A-A Elec., Inc. 414-499-6000
WI N. Wisconsin, Clay Rep Co. 612-861-2191
WI S. Wisconsin, Ed Joyner and Co. 708-520-1200
WY Mouser Elctrns. 800-346-6873
Can Surrey, B.C., Enerlec Sls. 604-273-0882
Can Surrey, B.C., Enerlec Sls., Ltd. 604-888-1667

Local Distributors

CA Canoga Pk., Sandy's Elctrn. Supp. 818-346-0510
CA Costa Mesa, Marvac Dow Elctrns. 714-650-2001
CA Fullerton, Orvac Elctrns. 714-871-1020
CA Gilroy, Mouser Elctrns. 800-346-6873
CA Long Beach, Mag-Trol 213-435-3451
CA N. Hollywood, Sandy's Elctrn. Supp. 818-765-8585
CA Pasadena, Marvac Dow Elctrns. 818-793-1195
CA San Jose, Sierra West 408-945-1050
CA San Jose, Spectra Elctrns. 408-452-1590
CA Santa Clara, Manco 408-496-6611
CA Santee, Mouser Elctrns. 800-346-6873
CA Simi Valley, Pace Elctrns., Inc. 805-522-7394
CA Thousand Oaks, Pace Elctrns. 805-497-7515
CA Vista, Pacific Phoinix, Inc. 619-598-3955
CO Mouser Elctrns. 800-346-6873
CT Wallingford, Cronin Elctrns., Inc. 203-265-3134
DE Mouser Elctrns. 800-346-6873
FL Lakeland, A-A Electric, Inc. 813-665-6941
FL Oldsmar, Applied Power, Inc. 813-854-4004
GA Atlanta, A-A Electric, Inc. 404-449-8670
GA Norcross, A-A Elec., Inc. 404-449-8670
GA Norcross, Applied Power, Inc. 404-263-0421
HI Mouser Elctrns. 800-346-6873
ID Mouser Elctrns. 800-346-6873
ID Boise, Platt Elec. Supp. 208-376-5643
ID Idaho Falls, Platt Elec. Supp. 208-524-6171
ID Pocatello, Platt Elec. Supp. 208-233-2002
ID Twin Falls, Platt Elec. Supp. 208-734-5413
IL Champaign, Klaus Radio 217-356-1896
IL Geneva, Melvin Elctrns. 708-232-7300
IL Mt. Prospect, Feed Control 708-253-3898
IL Peoria, Klaus Radio 309-691-4840
IN Evansville, Evansville Supp. Co. 812-424-7541
IA Mouser Elctrns. 800-346-6873
KS Olathe, Tradewise 913-782-8702
KS Wichita, RSC Elctrns. 316-267-5213
KY Mouser Elctrns. 800-346-6873
LA Mouser Elctrns. 800-346-6873
ME Mouser Elctrns. 800-346-6873
MD Gaithersburg, Axis Elctrns. 301-840-9640
MA Needham, Cronin Elctrns., Inc. 617-449-5000
MA Wilmington, North Star Elctrns. 508-657-5155
MI Brighton, Applied Power, Inc. 313-227-3604
MN Eden Praire, Braas Co. 612-937-8902
MN N. St. Paul, Edison Controls 612-770-5122
MS Mouser Elctrns. 800-346-6873
MO Kansas City, Richland Automation 816-241-2000
MT Mouser Elctrns. 800-346-6873
NE Omaha, Automation Elec. 402-331-2255
NV Elko, Platt Elec. Supp. 702-753-7553
NV Las Vegas, Sandy's Elctrn. Supp. 702-383-8353
NH Manchester, Cronin Elctrns., Inc. 603-624-0105
NH Windham, Orion Inds., Inc. 603-437-4446
NJ E. Rutherford, A-A Electric, Inc. 201-777-5477
NJ Randolph, Mouser Elctrns. 800-346-6873
NY Canandaigua, Advacom Technlgy., Inc. 716-396-9050
NY Glen Head, Livera Polk Assocs. 516-759-9300
NY Penn Yan, Advacom Technlg., Inc. 315-536-2221
NY Troy, Trojan Elctrn. Supp. 518-274-4481
NC Mouser Elctrns. 800-346-6873
ND Mouser Elctrns. 800-346-6873
OH Cleveland, Major Elctrns. Corp. 216-461-2100
OR Beaverton, Platt Elec. Supp. 503-641-6121
OR Clackamas, Platt Elec. Supp. 503-655-3504
OR Eugene, Platt Elec. Supp. 503-485-7528
OR Medford, Platt Elec. Supp. 503-772-1414
OR Portland, 04 Controls 503-659-7891
OR Portland Metro, Platt Elec. Supp. 503-224-1919
OR Salem, Platt Elec. Supp. 503-581-7012
OR Tualatin, Platt Elec. Supp. 503-684-2087
PA McKean, Advacom, Inc. 814-476-7774
PA N. Versailles, CMD Elctrns. 412-678-6020
TX Mansfield, Mouser Elctrns. 800-346-6873
UT Salt Lake City, Platt Elec. Supp. 801-974-5733
UT Salt Lake City, Standard Supp. Co. 801-486-3371
VA Sterling, ICE Comps., Inc. 703-478-2677
WA Bellevue, Platt Elec. Supp. 206-885-4124
WA Longview, Platt Elec. Supp. 206-423-4800
WA Seattle, H.D. Campbell 206-433-1900
WA Seattle, Platt Elec. Supp. 206-624-4083
WA Vancouver, Platt Elec. Supp. 206-699-4833
WA Yakima, Platt Elec. Supp. 509-452-6444
WI Cedarburg, A-A Electric, Inc. 414-377-8000
WI Green Bay, A-A Electric, Inc. 414-499-6000

IPD

FAX: 617-782-7416

INTERNATIONAL POWER DEVICES INC., 155 N. Beacon St., Brighton, MA 02135, Tel: 617-782-3331; Empl.: 96; *Sls. Mgr.:* Aileen Liu, G/M; *Dist. Mgr.:* Russell Mitnik ..... **D•1799-1805**

Local Sales Offices & Reps

AL Huntsville, Macro Mktg. 205-883-9630
AZ Chandler, ELEC-COM 602-893-2930
CA Los Angeles, Power Partners 213-215-0800
CA San Diego, Power Partners 619-560-0099
CA San Ramon, Tech. Consits. 415-830-0829
CA Santa Barbara, Power Partners 805-966-3309
CO Franktown, MRC 303-660-8750
CO Littleton, MRC 303-794-4684
FL Maitland, Hawkins Fredrickson Assocs. 407-831-2474
FL Pompano Beach, Hawkins Frederickson Assoc. 305-979-0330
FL Tampa, Hawkins Frederickson Assoc. 813-651-1063
GA Norcross, Macro Mktg. 404-662-5580
IL Chicago, M. Gottlieb Assocs. 312-775-8620
IA Cedar Rapids, Lorenz Sls. 319-377-4666
MA Arlington, Interstate Sls. Assoc. 617-646-3914
MA Bolton, Future Electronics., Corp. 508-366-2400
MA Chelmsford, Interstate Sls. Assoc. 508-256-2287
MI Ann Arbor, Augnat Assocs. 313-668-3134
MN Minneapolis, Robert W. Marshall Corp. 612-929-0457

MN Minneapolis, Scott Elctrn. Sls. 612-929-2985
NJ Glen Gardner, Daner-Hayes 800-225-8760
NJ Haddonfield, Sunday O'Brien 609-429-4013
NY Massapequa, Daner-Hayes 800-225-8760
NY Rochester, Indl. Tech. Sls. 716-872-1628
NY Smithtown, T & K Sls. 516-724-3456
NC Raleigh, C-Tech Sls. 919-782-8100
OH Akron, Augnat Assocs. 216-273-1211
OH Dayton, Augnat Assocs. 513-298-1507
OR Beaverton, Future Elctrns., Corp. 503-645-9545
OR Beaverton, Pacific Mktg. Specialists Inc. 503-641-9373
TX Dallas, Seaton Corp. 214-980-9860
TX Houston, Seaton Corp. 713-731-2649
VA Richmond, Glasscock Assocs. 804-798-2125
Can Kanata, Ont., Canadian Mktg. Techlgs. 613-591-9555
Can Mississauga, Ont., Canadian Mktg. Techlgs. 416-612-0900
Can Pointe Claire, Que., Canadian Mktg. Techlgs. 514-694-6088

Local Distributors

AL Huntsville, Future Elctrns., Corp. 205-830-2322
AZ Phoenix, Bell Inds. 602-966-7800
AZ Phoenix, Future Elctrns., Corp. 602-968-7140
CA Agoura Hills, Bell Industries 818-879-6501
CA Anaheim, Computech Elctrns. 714-939-9113
CA Chatsworth, Future Elctrns., Corp. 818-772-6240
CA Huntsville, Future Elctrns. 205-830-2322
CA Irvine, Future Elctrns., Corp. 714-250-4141
CA Los Angeles, Bell Inds. 213-826-6778
CA Milpitas, Computech Elctrns. 408-945-9100
CA Sacramento, Bell Inds. 916-652-0414
CA San Diego, Bell Inds. 619-268-1277
CA San Diego, Future Elctrns., Corp. 619-278-5020
CA San Jose, Future Elctrns., Corp. 408-434-1122
CA Sunnyvale, Bell Inds. 408-734-8570
CO Denver, Bell Inds. 303-424-1985
CO Denver, Future Elctrns., Corp. 303-421-0123
CT Bethel, Future Elctrns., Corp. 203-743-9594
FL Altamonte Springs, Bell Inds. 407-339-0078
FL Altamonte Springs, Future Elctrns., Corp. 407-767-8414
FL Clearwater, Future Elctrncs. 813-530-1222
FL Clearwater, Future Elctrns., Corp. 813-530-1222
FL Oldsmar, Applied Power 813-854-4004
GA Atlanta, Future Elctrns., Corp. 404-441-7676
GA Norcross, Applied Power, Inc. 404-263-0421
GA Norcross, Bell Inds. 404-662-0923
IL Chicago, Future Electronics 708-882-1255
IL Elk Grove Village, Bell Inds. 708-640-1910
IN Fort Wayne, Bell Inds. 219-423-3422
IN Indianapolis, Bell Inds. 317-875-8200
IA Cedar Rapids, Bell Inds. 319-365-4877
MD Columbia, Future Elctrns., Corp. 301-290-0600
MD Gaithersburg, Axis Elctrns. 301-840-9640
MD Jessup, Bell Inds. 301-953-2566
MA Andover, Bell Inds. 508-474-8880
MA Bolton, Future Electronics 508-779-3000
MI Brighton, Applied Power, Inc. 313-227-3604
MI Detroit, Future Elctrns., Corp. 313-261-5270
MI Livonia, L.W.C. Distributors 313-464-7700
MI Wixom, Bell Inds. 313-347-6633
MN Eden Prairie, Future Elctrns., Corp. 612-944-2200
MO St. Louis, Future Elctrns., Corp. 314-469-6805
NH Londonderry, Orion Inds. 603-437-3260
NJ Fairfield, Future Elctrns., Corp. 201-227-4346
NJ Lodi, TRC Elctrns. 201-779-8282
NM Albuquerque, Bell Inds. 505-292-2700
NY Long Island, Future Elctrns., Corp. 516-234-4000
NY Rochester, Future Elctrns., Corp. 716-272-1120
NY Syracuse, Future Elctrns., Corp. 315-451-2371
NC Charlotte, Future Elctrns., Corp. 704-529-5500
NC Raleigh, Future Elctrns., Corp. 919-790-7111
OH Dayton, Bell Inds. 513-435-8660
OR Beaverton, Future Elctrns., Corp. 503-645-9454
OR Lake Oswego, Bell Inds. 503-635-6500
PA Allentown, TRC Elctrns. 215-391-8977
PA Philadelphia, Future Elctrns., Corp. 609-778-7600
TX Dallas, Bell Inds. 214-690-0466
TX Dallas, Future Elctrns., Corp. 214-437-2437
TX Dallas, Seaton Elctrns. 214-980-9860
TX Houston, Future Elctrns., Corp. 713-556-8696
TX Houston, Seaton Elctrns. 713-731-2649
UT Midvale, Bell Inds. 801-255-9611
UT Salt Lake City, Future Elctrns., Corp. 801-972-8489
WA Redmond, Future Elctrns., Corp. 206-881-8199
WI Waukesha, Bell Inds. 414-547-8879
WI Waukesha, Future Elctrns., Corp. 414-786-1884
Can Calgary, Alb., Future Elctrns., Corp. 403-250-5550
Can Edmonton, Alb., Future Elctrns., Corp. 403-438-2858
Can Mississauga, Future Electronics 416-612-9200
Can Montreal, Que., Future Elctrns. Corp. 514-694-7710
Can Ottawa, Ont., Future Elctrns., Corp. 613-820-8313
Can Quebec City, Que., Future Elctrns., Corp. 418-682-8092
Can Vancouver, B.C., Future Elctrns., Corp. 604-294-1166
OR Beaverton, Future Elctrns., Corp. 503-645-9545

INTERNATIONAL POWER MACHINES, 2975 Miller Park North, Garland, TX 75042, Tel: 800-527-1208, TELEX: 163592 IPM POWER DAL, FAX: 214-494-2690; *Sls. Mgr.:* Barry Papermaster, VP Mktg. & Sls.

International Power Sources, Inc.

FAX: 508-879-8669

INTERNATIONAL POWER SOURCES, INC., 200 Butterfield Dr., Ashland, MA 01721, Tel: 508-881-7434 ..... **D•1807-1809**

Local Sales Offices & Reps

AL Huntsville, Murcota 205-539-8476
AZ Scottsdale, Power Up Elctrns. 602-955-1105
CA Laguna Hills, Electro Venture South .. 714-581-9244
CA Los Altos Hills, H B Mktg. 415-941-4080
FL Palm Beach Gardens, Graham Assocs., Inc. 407-622-4049
IL Arlington Hgts., Phoenix Elctrn. Sls. ... 708-394-4422
KS Olathe, Tech. Sls. Assocs. 913-829-2800
MD Hunt Valley, Eagle Sls. Corp. 301-666-3930
MA Franklin, OEM Mktg. & Sls. 508-528-4983
MN Edina, Engineering Prods. Assoc., Inc. 612-835-9022
MO St. Louis, Tech. Sls. Assocs. 314-521-2044
NH Salem, OEM Mktg. & Sls. 603-893-0009
NY Jericho, J-Square Mktg. 516-935-3200
NC Winston-Salem, Murcota 919-722-9445
OH Cincinnati, KCH Co. 513-931-1686
PA Montgomeryville, Eastern Sci. Mktg. 215-368-4570
TX Richardson, Jim D. Gray & Assocs. ... 214-699-9976
UT Ogden, Taylor Mktg. 801-456-9570
WI Brookfield, McMahon Sls., Inc. 414-782-3335

Local Distributors

CA Redwood City, HdB Elctrns. 415-368-1388
GA Norcross, Applied Power, Inc. 404-263-0421
MI Brighton, Applied Power, Inc. 313-227-3604
NH Londonderry, Orion Inds., Inc. 603-437-4446
TX Stafford, Southwest Elctrns. 713-240-4000

International IOR Rectifier

FAX: 213-772-9028

INTERNATIONAL RECTIFIER CORP., 233 Kansas St., El Segundo, CA 90245, Tel: 213-772-2000; Empl.: 2400; *Sls. Mgr.:* Don Prescott; *Dist. Mgr.:* Shawn Fogarty ..... **B•1507**

Local Sales Offices & Reps

AL Huntsville, Montgomery Mktg., Inc. 205-830-0498
AZ Phoenix, Sun State Tech. Sls. 602-220-0595
CA Chatsworth, First Rep 818-718-6155
CA Mtn. View, Brooks Tech. Grp. 415-960-3880
CA San Diego, Harvey King, Inc. 619-587-9300
CA Tarzana, Power Comp. Sls. 818-881-9111
CO Englewood, Thorson Rocky Mountain, Inc. 303-799-3435
CT Fairfield, N.R.G. Ltd., Inc. 203-384-1112
FL Altamonte Springs, Lawrence Assocs., Inc. 407-339-3855
FL Kissimmee, Intl. Rectifier 407-933-2383
GA Norcross, Montgomery Mktg., Inc. 404-447-6124
IL Palatine, International Rectifier 312-397-0002
IL Rolling Meadows, Phase II Mktg., Inc. 708-806-1330
KY Carmel, Tech. Mktg. Corp. 317-844-8462
IN Ft. Wayne, Tech. Mktg. Corp. 219-432-5553
IA Cedar Rapids, Hitec Central, Inc. 319-396-3228
KY Louisville, Technlg. Mktg. Corp. 502-893-1377
MO Independence, Hitec Central, Inc. 816-796-6684
MA Burlington, AD/Nova Sls., Inc. 617-270-9600
MI Farmington Hills, Luebbe Sls. 313-489-8828
MN Edina, Mel Foster Tech. Sls. 612-941-9790
MO Bridgeton, Hitec Central, Inc. 314-291-5920
NJ Pallisades Park, International Rectifier 201-943-4554
NJ W. Caldwell, Tech. Mktg. Grp. 201-226-3300
NM Albuquerque, Reptronix Ltd. 505-292-1718
NY E. Syracuse, Nycom, Inc. 315-437-8343
NY Fishkill, Intl. Rectifier 914-896-4262
NY Melville, Tech. Mktg. Grp. 516-351-8833
NC Cary, Montgomery Mktg., Inc. 919-467-6319
NC Greensboro, Intl. Rectifier 919-299-4762
NC Raleigh, Montgomery Mktg., Inc. 919-851-0010
OH Cincinnati, Luebbe Sls. Co: 513-530-0600
OH Dayton, Luebbe Sls. Co. 513-294-0426
OH Northfield, Intl. Rectifier 216-467-0852
OH Westlake, Luebbe Sls. Co. 216-899-0071
OR Beaverton, Electra Tech. Sls., Inc. 503-643-5074
PA Broomal, L. D. Lowery, Inc. 215-356-5300
PA Pittsburgh, Luebbe Sls. Co. 412-364-0490
TX Austin, BP Sls. 512-346-9186
TX Houston, BP Sls. 713-782-4144
TX Richardson, BP Sls. 214-234-8438
UT Salt Lake City, Thorson Rocky Mtn., Inc. 801-973-7679
WA Kirkland, Electra Tech. Sls., Inc. 206-821-7442
WI Brookfield, International Rectifier 414-784-2480
WI Wauwatosa, Phase II Mktg., Inc. 414-771-9986

INTERNATIONAL RESISTIVE COMPANY, P.O. Box 1860, Boone, NC 28607, Tel: 704-264-8861, TELEX: 46-9902, FAX: 704-264-8865; Empl.: 1700; *Dist. Mgr.:* Larry J. Johnston

INTERNATIONAL RESOURCE SVCS., 7792 N.W. 72nd Ave., Miami, FL 33166, Tel: 305-884-2924, FAX: 305-885-3127; Empl.: 5; *Sls. Mgr.:* Richard L. Winn

FAX: 402-694-6180

INTERNATIONAL SENSOR SYSTEMS, INC., Aurora Industrial Pk., Box 345, Aurora, NE 68818, Tel: 402-694-6111; Empl.: 45; *Sls. Mgr.:* Wayne Roblee ..... **A•1730-1731**

Local Sales Offices & Reps

CA Mission Viejo, EAB Assocs. Inc 714-859-7701
MD Baldwin, Quarterback Sls. Inc. 301-764-9400
MA Scituate, Olsen Tech Sls. Inc. 617-545-5101
MN Minneapolis, Stoss Assocs., Inc. 612-925-2757
MO Jefferson City, Williams Assocs. Co. .. 314-893-2459
NE Omaha, IONEB 402-895-4431
NJ Collingswood, Resource Partnerships, Inc. 609-869-3170
NY Liverpool, Syronics, Inc. 315-451-0968
NC Raleigh, Raycom, Inc. 912-266-9827
OH Cincinnati, Applied Data Mgt. 513-579-8108
TN McMinnville, B & D Mktg. 615-473-7155
WA Bothell, Evergreen Mktg. Grp. 206-485-8063

INTERNATIONAL SENSOR TECHNOLOGY, 17771 Fitch St., Irvine, CA 92714, Tel: 714-863-9999, FAX: 714-474-7417; *Sls. Mgr.:* Jack McCann

INTERNATIONAL TECHNOLOGIES, INC., 68 Albany Rd., Warwick, RI 02888, Tel: 401-781-5595, FAX: 401-467-5885; Empl.: 15; *Sls. Mgr.:* R.W. Elsdoerfer

INTERNATIONAL TELECOMMUNICATIONS COMPONENTS, INC., 94 B East Jefryn Blvd., Deer Park, NY 11729, Tel: 516-243-1444, FAX: 516-595-9160; FSC No.: 0E6J8; Empl.: 15; *Sls. Mgr.:* Rick Walter

INTERNATIONAL TRANSDUCER CORP., Channel Technologies, Inc., 869 Ward Dr., Santa Barbara, CA 93111, Tel: 805-683-2575, TELEX: 658 495, FAX: 805-967-8199; FSC No.: ID 532; Empl.: 65; *Sls. Mgr.:* Christine M. Bashforth

INTEROPTICS

FAX: 415-340-1670

INTEROPTICS, Purdy Group, 770 Airport Blvd, Burlingame, CA 94010, Tel: 415-347-7727, TELEX: 677-1439 (PURDY UW); Empl.: 35 ..... **B•1217**

Local Sales Offices & Reps

AZ Mesa, McDonald-Kerr Tech. Assoc. ... 602-833-7734
CA Poway, William Steffens Assoc. 619-487-1115
CA Sunnyvale, Pass Assocs. 408-735-9040
FL Boca Raton, Beacon Elctrns. 407-997-5740
FL Clearwater, Beacon Elctrns 813-796-2378

FL	Longwood, Beacon Elctrns.	407-332-1940
MA	Mendon, DMA Mktg.	508-473-9456
MN	Edina, Dytec Instrs., Inc.	612-831-7169
NJ	Passaic, Lightcomm Sls. Assocs.	201-778-6540
NY	New York, Lightcomm Sls. Assocs.	212-254-3211
NC	Fayetteville, Zim-Tek	919-488-4101
OH	Cleveland, Marlow Assocs.	216-831-8232
TX	Dallas, Allied Comps., Inc.	214-238-0408
OR	Beaverton, Pacific Mktg. Specialists	503-641-9373
TX	Austin, Allied Comps., Inc.	512-331-4494
TX	Hurst, Allied Comps., Inc.	817-589-0456
VA	Richmond, EME IV, Inc.	804-360-5049
VA	Williamsburg, EME IV, Inc.	804-253-0171
WA	Redmond, Pacific Mktg. Specialists	206-882-3144

interpoint

FAX: 206-882-1990

INTERPOINT CORPORATION, 10301 Willows Roads, P.O. Box 97005, Redmond, WA 98073-9705, Tel: 206-882-3100; FSC No.: 50821; Empl.: 450; *Sls. Mgr.:* D.T. Baughman, VP of Sls. .... **A•1732-1733; D•1810-1820**

Local Sales Offices & Reps

AL	Huntsville, Novus Grp.	205-534-0044
AZ	Tempe, Gassner & Clark	602-968-9037
TX	Irving, Kite Elctrn. Sls.	214-986-0321
CA	San Diego, Varigon San Diego	619-576-0100
CA	Woodland Hills, Varigon Inc.	818-594-5080
CO	Parker, Tech. Mktg. Assocs.	303-841-3435
FL	Lighthouse Point, Krutek & Assocs.	305-783-2501
GA	Norcross, Novus Grp.	404-263-0320
IN	Ft. Wayne, Corrao Marsh Inc.	219-482-2725
IN	Greenfield, Corrao Marsh Inc.	317-462-6568
CA	Mountain View, Weseloh-Swanson	415-961-0565
FL	Maitland, Jack Krutek & Assoc.	407-628-4837
MD	Owings Mills, Neal Deoul Assocs.	301-363-4311
MA	Wakefield, Howard C. Jappe Co.	617-245-9359
MN	Minneapolis, Intertec	612-921-8443
KS	Lenexa, Midwest Tech. Sls.	913-888-5100
MD	Marriotsville, Neal Deoul Assoc.	301-795-5775
NJ	Flanders, K & R Engrg. Sls.	201-584-5235, 800-631-9362
NY	E. Syracuse, Advanced Comps. Corp.	315-699-2671
NC	Cary, Novus Grp.	919-460-7771
OH	Mayfield Village, Arthur H. Baier Co.	216-461-6161
PA	Pipersville, Yax Assocs.	215-766-2100
TX	Houston, Kite Electrn. Sls.	713-738-5258
Can	Calgary, Alb., Cana Rep. Grp. Inc.	403-243-5148
Can	Montreal, Que., Cana Rep Grp. Inc.	514-276-4477
Can	Surrey, BC, Cana Rep Grp. Inc.	604-589-8595
Can	Willowdale, Ont., Cana Rep. Grp. Inc.	416-250-6683

Local Distributors

IA	Cedar Rapids, Midwest Tech. Sls.	319-393-5115
KS	Goddard, Midwest Tech. Sls.	316-794-8565
MO	Earth City, Midwest Tech. Sls.	314-298-8787
UT	Salt Lake City, Technology Mktg. Assoc.	801-943-5609

INTERSWITCH, Wm. J. Purdy Co., 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-347-8217, TELEX: 677-1439, FAX: 415-340-1670; FSC No.: (Purdy UW); Empl.: 32; *Sls. Mgr.:* Clarence Bruce ..... **B•1817**

Local Sales Offices & Reps

CA	Burlingame, Interswitch	415-347-8217
CA	Burbank, Darco	818-504-2425
CA	Burlingame, William J. Purdy Co.	415-347-7701
CO	Englewood, William J. Purdy Co.	303-790-2211
IL	Addison, Hedge Assocs., Inc.	708-543-0888
IN	Indianapolis, John Sukup Inc.	317-253-5501
MA	Framingham, Gallagher Assocs., Inc.	508-626-2346
MI	Royal Oak, Hilltronics, Inc.	313-435-0920
MN	Minneapolis, Hei-Lite Sls., Inc.	612-550-0506
NY	Victor, Net Sls., Inc.	716-924-1844
OH	Cleveland, Marlow Assocs.	216-861-8232
OH	Dayton, Marlow Assocs.	513-274-9666
OR	Beaverton, Pacific Mktg.	503-641-9373
PA	Ambler, W.R. Hartmaier Assocs.	215-643-6691
TX	Dallas, Elcom Mktg.	214-241-2166
TX	Houston, Elcom Mktg.	713-350-8064
WA	Redmond, Pacific Mktg.	206-882-3144
NJ	Leonia, Peter E. Schmitt Co., Inc.	201-944-2806

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
CA	Costa Mesa, Powell Elctrns.	714-754-1717
CA	Fremont, Allied Elctrns.	415-770-0590
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Sunnyvale, Penstock	408-730-0300
CA	Tustin, Allied Elctrns.	714-669-4190
CO	Denver, Integrated Elctrns.	303-292-6121
FL	Ft. Lauderdale, Powell Elctrns.	305-484-8377
GA	Norcross, Allied Elctrns.	404-446-8595
IL	Chicago, Federal Screw Prods.	312-478-5744
IL	Elgin, Allied Elctrns.	312-697-8200
MD	Columbia, Powell Elctrns.	301-621-8080
MA	Lynn, Land Elctrn. Co.	617-592-2220
MA	Westborough, Powell Elctrns.	617-366-6100
MA	Wilmington, Allied Elctrns.	617-942-0150
MN	Minneapolis, Bergquist	612-835-2322
NJ	Englewood, Powell Elctrns.	201-894-0800
NJ	Mt. Laurel, Allied Elctrns.	609-234-7769
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Rochester, Allied Elctrns.	716-244-9440
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Raleigh, Allied Elctrns.	919-876-5845
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Pittsburgh, Allied Elctrns.	412-367-4124
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Irving, Powell	214-550-0547
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Seattle, Allied Elctrns.	206-547-2827
WI	Milwaukee, Taylor Elec. Co.	414-241-4321
Can	Don Mills, Ont., Saynor Varah	416-445-0723

INTER-TECHNICAL GROUP INC., WIMA Div., 2269 Saw Mill River Rd., Ste. 400, P.O. Box 217, Elmsford, NY 10523, Tel: 914-347-2474, FAX: 914-347-7230; Empl.: 17; *Sls. Mgr.:* Gary M. Fey; *Dist. Mgr.:* Andrew E. Dvorscak ..... **A•1071-1073**

Local Sales Offices & Reps

AL	Huntsville, J. R. Assocs.	205-830-2130
AZ	Phoenix, Saguaro Sls.	602-861-1856
CA	Campbell, Shur Sls.	408-374-5577
CO	Arvada, ArrowHead/CSI Sls. Corp.	303-423-5556
FL	Clearwater, Electrocraft, Inc.	813-573-2277
GA	Conyers, J.R. Assocs.	404-760-1815
MA	Millis, Selmark Assocs., Inc.	508-376-2914
MI	Detroit, Qualitron	313-534-1511
MN	Minneapolis, Holmgren Assocs.	612-786-7641
NY	Rochester, BKT Assocs., Inc.	716-461-9880
NY	Smithtown, T & K Sls.	516-724-3456
NC	Greensboro, Arthur, Harris and Assoc., Inc.	919-275-3030
OR	Beaverton, Harry Levinson Co.	503-690-1312
OH	Columbus, Tom Mulligan Co.	614-457-2242
TN	Chattanooga, J. R. Assocs.	615-977-0711
TX	Houston, Barry Sls., Inc.	713-784-5860
TX	Richardson, Barry Sls, Inc.	214-234-0255
UT	Midvale, Arrowhead/CSI Sls. Corp.	303-423-5556
VA	Richmond, Glasscock Assocs.	804-740-0063
WA	Seattle, Harry Levinson Co.	206-382-1300

Local Distributors

CA	San Jose, Shelly-Ragon, Inc.	408-432-0600
CA	Sunnyvale, Capsco Sls., Inc.	408-734-3020
CT	Bridgeport, Park Distrs. Inc.	203-366-7200
CT	Wallingford, Midstate Elctrns.	203-265-9900
FL	Melbourne, Pridmore Corp.	407-727-2491
CO	Englewood, Indelco, Inc.	303-694-9444
IL	Rosemont, Advent Elctrns., Inc.	312-297-6200
IN	Indianapolis, Advent Elctrns., Inc.	317-872-4910
IA	Cedar Rapids, Advent Elctrns., Inc.	319-363-0221
MA	Ashland, March Elctrns.	508-881-6715
MN	New Brighton, Chris Elctrns. Distr.	612-631-2647
NJ	East Brunswick, Brothers Elctrns., Inc.	201-238-2200
NM	Albuquerque, Betatron Elctrns.	505-821-1122
NY	Bohemia, March Elctrns.	516-563-6000
NY	Penn Yan, Advacom Technlg., Inc.	315-536-2221
OH	Englewood, Argent Inds., Inc.	513-836-8633
PA	Exton, VSH Elctrns.	215-363-2250
PA	North Versailles, CMD Elctrns., Inc.	412-678-6020
TX	McKinney, Prime Distrbg. Co.	214-231-0170
WA	Seattle, Kam Elctrns. Div.	206-382-1300

INTRA-COMPUTER, 87-46 Van Wyck Expwy., Jamacia, NY 11418, Tel: 718-297-5500, FAX: 718-297-5518; Empl.: 9; *Sls. Mgr.:* Art Yaglian

INTRONICS, INC., 150 Dan Rd., Canton, MA 02021, Tel: 617-828-4992, FAX: 617-828-5050; Empl.: 75

ION PHYSICS CO., 11 Industrial Way, Atkinson, NH 03811, Tel: 603-893-6687, FAX: 603-893-6729

IPAC GRP., 3047 Indl. Blvd., Bethel Pk., PA 15102, Tel: 412-831-9200, TWX: 510-697-3935, FAX: 412-831-9580; Empl.: 50; *Sls. Mgr.:* Joseph Gill

IPM, INC., Elnik Systems, 3 Edison Place, Fairfield, NJ 07004, Tel: 201-882-8033, FAX: 201-882-8037; Empl.: 8; *Sls. Mgr.:* Claus J. Joens

IRONICS INCORPORATED, 798 Cascadilla St., Ithaca, NY 14850, Tel: 607-277-4060, TELEX: 705-742; *Sls. Mgr.:* R. Chris Martens

IR SCIENTIFIC, Box 110, Carlisle, MA 01741, Tel: 508-667-7110; Empl.: 10

ISC CARDION ELECTRONICS, INC., Long Island Expwy., Woodbury, NY 11797, Tel: 516-921-7300, TELEX: 221683 CARD, TWX: 510-221-2179, FAX: 516-921-7330; FSC No.: 12909; Empl.: 450; *Sls. Mgr.:* F. J. Gareffa

ISC DATACOM, ISC Defense & Space, 1288 Reamwood Ave., Sunnyvale, CA 94089, Tel: 408-747-0300, FAX: 408-747-1873; FSC No.: 74444; Empl.: 35; *Sls. Mgr.:* C. Frank

ISC MAGNETICS DIV., See Aeroflex Labs., Inc., Magnetic Prods. Div.

ISKRA ELECTRONICS, INC., 155 Dupont St., Plainview, NY 11803, Tel: 516-349-0222, TELEX: 221527, FAX: 516-349-7642; *Sls. Mgr.:* Debbie Gremito ..... **A•1075, 1923, 2095**

Local Sales Offices & Reps

IL	Cary, Bob Burns & Assocs.	708-516-3322
NM	Albuquerque, FP Sls.	505-345-5553
IN	Indianapolis, Insul Reps.	317-251-1994
LA	Hammond, Design Mktg. of LA, Inc.	504-542-1115
AZ	Tempe, F P Sls.	602-894-5303
NJ	Medford, CEF Assocs.	609-953-8945
GA	Alpharetta, R A Sls.	404-442-6749
NY	North Port, R. P. Luce & Co.	516-754-5064
NC	New Bern, R A Sls.	919-244-2672
OH	Mentor, Sales Plus	216-942-7811
SC	Easley, R A Sls.	803-859-1859
TN	Knoxville, Insul Reps	615-691-7586
UT	Salt Lake City, Sage Assoc.	801-467-5451

Local Distributors

MA	Billerica, Baldwin Comps. Ctr.	508-667-6710
NJ	Westwood, Seacor	201-666-5600
NY	Ronkonkoma, Baldwin Comps.	516-588-5700

FAX: 516-937-3840

ISL PRODUCTS INT'L, LTD., 235 Robbins La., Ste. 270, Syosset, NY 11791-6093, Tel: 516-937-3475, TELEX: 503242; Empl.: 10; *Sls. Mgr.:* Ken Kawaller ..... **A•1734, 2042, 2237; C•1399, 1759**

Local Sales Offices & Reps

IN	Indianapolis, C.C. Electro Sales	317-255-1508
MN	St. Paul, Countryman Assoc.	612-645-9151

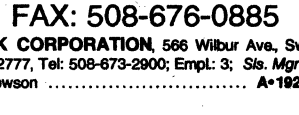
ISOCOM INC., 274 E. Hamilton Ave., Ste.E, Campbell, CA 95008, Tel: 408-370-2212, FAX: 408-370-2309; *Sls. Mgr.:* Stephen Parry; *Dist. Mgr.:* Glenda Rees

ISOLATION PRODUCTS, INC., 157 San Lazaro Ave., Sunnyvale, CA 94086, Tel: 408-730-4672; Empl.: 5

ISOREG CORP., 410 Great Rd., P.O. Box 486, Littleton, MA 01460, Tel: 508-486-9483, FAX: 508-486-3539; FSC No.: 7Y052; Empl.: 75; *Sls. Mgr.:* Paul Foss; *Dist. Mgr.:* Paul Foss

FAX: 508-676-0885

ISOTEK CORPORATION, 566 Wilbur Ave., Swansea, MA 02777, Tel: 508-673-2900; Empl.: 3; *Sls. Mgr.:* Steve Mathewson ..... **A•1925-1927**



FAX: 804-977-1849

ISOTEMP RESEARCH, INC., P.O. Box 3389, Charlottesville, VA 22903, Tel: 804-295-3101; FSC No.: 031785; Empl.: 58 ..... **A•1376-1377**

Local Sales Offices & Reps

CA	Fremont, Wm. Parks & Assocs.	415-796-0875
CA	San Diego, Qualtronics	619-695-0118
IL	Woodridge, Trend-Tronics	312-985-0626
NC	Raleigh, Godwin Assocs.	919-847-3006

ISOTRONICS, INC., Industrial Park, New Bedford, MA 02745, Tel: 508-998-2000, TWX: 710-344-1961; *Sls. Mgr.:* Jeffrey Lang

ITEK ENCODER, See BEI Motion System/ITEK Encoder Div.

ITHACO, INC., Meas. & Control Instrs. Div., 735 W. Clinton St., P.O. Box 6437, Ithaca, NY 14851-6437, Tel: 607-272-7640, TWX: 510-255-9307, FAX: 607-272-4550; Empl.: 100; *Sls. Mgr.:* E. W. Seymour

ITL CIRCUITS, 90 Don Park Road, Markham, Ontario, Canada L3R 1C4, Tel: 416-475-6658, 416-492-9307, FAX: 416-475-5097; FSC No.: FSCM 38747; Empl.: 95; *Sls. Mgr.:* Derk Wissink

ITRONIC-FUCHS CORP., P.O. Box 543, Buford, GA 30518, Tel: 404-945-3844, FAX: 404-945-7766; Empl.: 2; *Sls. Mgr.:* Michael Wegner; *Dist. Mgr.:* Michael Wegner

ITT CANNON, 666 E. Dyer Road, Santa Ana, CA 92705-5684, Tel: 714-557-4700, TELEX: 75-3917, TWX: 910-997-0523; FSC No.: 71468;Multiple; Empl.: 1500; *Sls. Mgr.:* Richard Torson; *Dist. Mgr.:* Richard Torson

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FAX: 714-727-2109

ITT COMPONENTS, ITT Corporation, 5 Jenner St., Irvine, CA 92718, Tel: 714-727-3001, TELEX: 681-389, TWX: 910-595-1744; FSC No.: 61725; Empl.: 20; *Dist. Mgr.:* M. Pommier ..... **A•2096-2097; B•1508-1515**

Local Sales Offices & Reps

AL	Huntsville, JWL	205-883-1712
AZ	Phoenix, Hartland	602-492-0012
CA	Burbank, Darco	818-504-2425
CA	San Diego, Varigon	619-576-0100
CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Englewood, Romulus Elctrns.	303-770-4888
CT	Guilford, Data Mark, Inc.	203-453-0575
FL	Pompano Bch., Bolton Assocs.	305-975-7245
FL	St. Petersburg, Bolton	813-864-2294
GA	Atlanta, JWL	404-320-7643
IL	Inverness, Heartland Tech. Sls.	708-358-6622
IN	Ft. Wayne, M/S Sls.	219-436-3023
IN	Indianapolis, M/S	317-881-0110
KS	Wichita, Thunderbird Tech. Sls.	316-684-3941
MD	Lutherville, DGR	301-583-1360
MA	Sudbury, KSA of New England	508-443-5881
MI	Brighton, Elctrn. Sources Inc.	313-227-3598
MN	Minnetonka, Neotech	612-935-7930
MO	Maryland Hgts., Thunderbird Tech. Sls.	314-298-8940
NJ	Mt. Laurel, Wyck Mktg.	609-727-1070
NM	Albuquerque, Syntech	505-266-7951
NY	Manhasset, Win Cor Elctrns.	516-627-9474
NY	Victor, Net Sls. Co.	716-924-1844
NC	Charlotte, JWL & Assocs.	704-541-5750

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NC	Raleigh, JWL	919-787-4826
OH	Centerville, Omega Sls.	513-434-5507
OH	Cleveland, Omega Sls.	216-360-9400
OK	Tulsa, Milco	918-582-9411
TX	Plano, Milco Mktg.	214-578-1996
WA	Redmond, EMG	206-882-0962
WA	Vancouver, EMG	206-254-4572
WI	Brookfield, Heartland	414-792-0920

Local Distributors

AL	Huntsville, Time	205-721-1133
AL	Mobile, Control Design Supp.	205-666-6693
AZ	Tempe, Control Design Supp.	602-829-7981
AZ	Tempe, Richey Impact Elctrns.	800-421-7258
AZ	Tempe, Time	602-967-2000
AR	Maumelle, Control Design Supp.	501-851-3137
CA	Anaheim, Control Design Supp.	714-821-1516
CA	Chatsworth, Time	818-998-7200
CA	Garden Grove, Richey Impact Elctrns.	714-895-0060
CA	Irvine, Integrated Elctrns.	714-837-9960
CA	Irvine, ITT Multi Comps.	714-727-4001
CA	Oakland, Brill	415-834-5888
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Diego, Richey Impact Elctrns.	619-271-4511
CA	San Diego, Time	619-586-0129
CA	San Jose, Integrated Elctrns.	408-263-1100
CA	San Jose, ITT Multicomps.	408-279-0685
CA	San Jose, Richey Impact Elctrns.	408-432-7100
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Capsco Sls.	408-734-3020
CA	Sunnyvale, Time	408-734-9888
CA	Torrance, Time	213-320-0880
CA	Tustin, Time	714-669-0100
CO	Denver, Control Design Supp.	303-296-1822
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, NEP Elctrns.	303-799-9898
CO	Englewood, Time	303-721-8882
CO	Westminster, ITT Multicomponents	303-451-8740
CT	Cheshire, Time	203-271-3200
CT	East Haven, J.V. Elctrns.	203-469-2321
CT	New Haven, Greene Shaw Co.	203-397-0710
CT	Wallingford, Control Design Supp.	203-269-9955
FL	Almonte Spgs., Control Design Supp.	305-788-3220
FL	Davie, ARCO Distrs.	305-473-2550
FL	Ft. Lauderdale, Time	305-484-1778
FL	Melbourne, Greene Shaw	407-951-3636
FL	Orlando, Time	407-841-6565
FL	Pompano Bch., Control Design Supp.	305-782-1311
GA	Norcross, Time	404-368-0969
GA	Stone Mountain, Control Design Supp.	404-979-3500
IL	Chicago, Leeds Electro Comps.	312-825-3800
IL	Chicago, NEP Elctrns.	708-595-8500
IL	Hoffman Estates, Integrated Elctrns.	312-843-2040
IL	Schaumberg, Time	708-303-3000
IL	Schaumburg, Control Design Supp.	708-307-8900
IN	Indianapolis, Control Design Supp.	317-788-4559
IN	Indianapolis, CSE	317-879-9119
IN	Indianapolis, Mar Elctrns.	317-633-6699
IA	Marion, Control Design Supp.	319-373-2923
KS	Kansas City, Control Design Supp.	913-362-4248
MD	Beltsville, RESCO-Washington	301-937-9100
MD	Columbia, Time	301-964-3090
MD	Jessup, TREEKO Sls.	301-470-3300
MD	White Marsh, Resco	301-529-0500
MA	Canton, Richey Impact Elctrns.	617-821-1500
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Peabody, Time	508-532-9900
MA	Woburn, Control Design Supp.	617-932-9404
MI	Farmington Hills, Control Design Supp.	313-473-0220
MI	Livonia, Key Elctrns.	313-489-5455
MN	Edina, Time	612-943-2433
MN	Minneapolis, Control Design Supp.	612-721-1628
MN	St. Paul, Shelley-Ragon	612-642-2828
MO	Kansas City, Control Design Supp.	913-362-4248
MO	Manchester, Time	314-391-6444
MO	St. Louis, Control Design Supp.	314-426-3150
NV	Las Vegas, Kiesub Elctrns.	702-733-3888
NJ	Marlton, Time	609-596-6700
NJ	Oakland, Relay Specialties	201-337-1000
NJ	Rockaway, Tonar Inds.	201-586-9000
NJ	W. Berlin, GCI	609-768-6767
NJ	Wayne, Time	201-785-8250
NM	Albuquerque, Betatron Elctrns.	505-344-2381
NM	Albuquerque, Harrison/Intl.	505-291-9951
NY	E. Syracuse, Time	315-432-0355
NY	Hauppauge, Time	516-273-0100
NY	Rochester, Masline	716-546-5373
NC	Charlotte, Control Design Supp.	704-588-4410
NC	Raleigh, Greene-Shaw	919-954-7138
NC	Raleigh, Resco	919-781-5700
NC	Raleigh, Time	919-847-9650
OH	Cincinnati, Schuster	513-489-1400
OH	Cleveland, Schuster	216-425-8134
OH	Columbus, Time	614-794-3301
OK	Tulsa, Altair Co.	918-252-5781
OR	Beaverton, Integrated Elctrns.	503-641-1690
OR	Portland, Time	503-684-3780
PA	Malverne, Control Design Supp.	215-296-0150
TX	Austin, Time	512-346-7346
TX	Carrollton, LCD	214-245-0600
TX	El Paso, Harrison/Intl.	915-598-3406
TX	Houston, Control Design Supp.	713-868-4018
TX	Houston, Harrison Elctrns.	713-879-2727
TX	Richardson, Time	214-644-4644
UT	Nephi, Control Design Supp.	801-623-2908
UT	W. Salt Lake, Integrated	801-298-1869
UT	W. Valley, Time	801-973-8494
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Kent, Control Design Supp.	206-251-6323
WA	Redmond, Time	206-882-1600
WA	Seattle, Radar	206-282-2511
WA	Seattle, Richey Impact Elctrns.	206-575-1910
WI	New Berlin, Control Design Supp.	414-784-1015
WI	New Berlin, NEP Elctrns.	414-785-9100

ITT CONOFLOW, ITT Fluid Technology Corp., Route 78, St. George, SC 29477, Tel: 803-563-9281, TELEX: 4945706, FAX: 803-563-2131; *Sls. Mgr.:* Thomas Floro

ITT GILFILLAN, ITT Defense Inc., 7821 Orion Ave., P.O. Box 7713, Van Nuys, CA 91409, Tel: 818-988-2600, TELEX: 651421, TWX: 910-495-1787; FSC No.: 24930; Empl.: 1250; *Sls. Mgr.:* Nick Riley, VP

ITT HIGBIE BAYLOCK, 3000 University Drive, Auburn Hills, MI 48321-7016, Tel: 313-340-3000, FAX: 313-340-3707; Empl.: 1500; *Sls. Mgr.:* R.M. Davie VP Sls.

ITT POWERSYSTEMS CORP., Box 688, Galion, OH 44833-0688, Tel: 419-468-5200, TELEX: 4972923, FAX: 419-468-3235; Empl.: 450; *Sls. Mgr.:* C. Searles; *Dist. Mgr.:* G. Ardolino

ITT SCHADOW, 8081 Wallace Rd., Eden Prairie, MN 55344, Tel: 612-934-4400, TELEX: 29-0556, TWX: 910-576-2469, FAX: 612-934-9121; Empl.: 115; *Sls. Mgr.:* Darrell Wilk; *Dist. Mgr.:* Scott Mork

ITT SEALECTRO, INC., 585 East Main St., New Britian, CT 06051, Tel: 203-223-2700, TELEX: 71-425-501, FAX: 203-225-2781; FSC No.: 98291; Empl.: 350; *Sls. Mgr.:* Ray Champi; *Dist. Mgr.:* Karen Muratori

ITW FASTEX DISTRIBUTOR BUSINESS, 226 Gerry Dr., Wood Dale, IL 60191-1150, Tel: 708-350-8200, FAX: 708-595-2141; *Sls. Mgr.:* S. Blank,B. Casey, R. Grega, B. Vanbebber

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ITW PAKTRON, Div. of Illinois Tool Works, P.O. Box 4539, 1205 McConville Rd., Lynchburg, VA 24502, Tel: 804-239-6941; FSC No.: 19396; *Sls. Mgr.:* Richard Slocum ..... **A•1076-1077**

Local Sales Offices & Reps

AL	Huntsville, ACM, Inc.	205-881-5493
AZ	Paradise Valley, Astrocom Mktg.	602-991-6646
CA	Playa-del-Ray, Corcoran Assoc.	213-823-4589
CA	Santa Clara, Synelect Mktg.	408-244-9900
CO	Parker, High Plains Mktg.	303-841-6464
FL	Cassel Berry, Dyne-A-Mark	407-831-2822
FL	Clearwater, Dyne-A-Mark	813-441-4702
FL	Ft. Lauderdale, Dyne-A-Mark	305-771-6501
GA	Norcross, ACM, Inc.	404-448-7025
IL	Rolling Meadows, Weisser Assoc.	312-392-5556
IN	Indianapolis, Central Regional Off.	317-257-3704
IN	Indianapolis, Leslie M. Devoe	317-842-3245
IA	West Des Moines, SPS Assocs., Ltd.	515-225-0607
KS	Olathe, SPS Assocs., Ltd.	913-764-4460
MD	Annapolis, Parogem Inc.	301-269-1898
MA	Randolph, Hatch Assocs.	617-963-3306
MI	Oak Pk., A. Blumenberg Assocs. Inc.	313-968-3230
MN	Hopkins, Forsythe Assoc.	612-933-8267
MO	Earth City, SPS Assocs., Ltd.	314-291-0520
NE	Panama, SPS Assocs.	402-788-2536
NY	E. Rochester, L-Mar Assocs., Inc.	716-681-9100
NY	Poughkeepsie, L-Mar Assoc. Inc.	914-462-8025
NC	Raleigh, C-Tech	919-782-8100
OH	Solon, J R Thornberry Co. Inc.	216-248-4995
TX	Austin, Electra Reps, Inc.	512-339-1163
TX	Dallas, Electra Reps, Inc.	214-248-3852
VA	Lynchburg, Paktron Div.	804-239-6941
WA	Bellevue, Caruso & Co.	206-455-8811

WI Hartland, Selective Sls. Inc. 414-367-1133
Can Markham, Ont., Avotronics 416-475-2024
Can Pointe Claire, Que., Avotronics 514-697-2135

Local Distributors

AZ Phoenix, Future Elctrns. 602-272-7951
CA Chatsworth, Future Elctrns. 818-772-6240
CA Irvine, Future Elctrns. 714-250-4141
CA San Diego, Future Elctrns. 619-278-5020
CA San Jose, Future Elctrns. 408-434-1122
CA Van Nuys, E.W. Elctrns. 818-782-9020
CO Westminster, Future Elctrns., Inc. 303-650-0123
CT Bethel, Future Elctrns. 203-743-9594
FL Altamonte Springs, Future Elctrns., Inc. 305-767-8414
FL Clearwater, Future Elctrns., Inc. 813-578-2770
FL Ft. Lauderdale, N R C Elctrns. 305-772-4500
GA Augusta, Dixie Elctrns., Inc. 404-722-2055
GA Norcross, Future Elctrns., Inc. 404-441-7676
IL Elk Grove Village, Bell Inds. 312-640-1910
IL Schaumburg, Future Elctrns. 312-882-1255
IN Indianapolis, Advent Elctrns. 317-872-4910
IN Indianapolis, Custom Svcs. Elec. 317-879-9119
IA Cedar Rapids, Dee Elctrns. 319-365-7551
MD Columbia, Future Elctrns. 301-290-0600
MD Jessup, Treeko Sls. 301-470-3300
MD Spencerville, U.S. Elctrns. 301-384-3300
MA Billerica, Mayer Elctrns. 508-667-6900
MA Westboro, Future Elctrns. 617-366-2400
MI Livonia, Future Elctrns. 313-261-5270
MN Eden Prairie, Future Elctrns. 612-944-2200
MN Eitzen, Capacitor Assocs. 507-495-3306
MN St. Paul, Gopher Elctrns. 612-483-3322
MO St. Charles, Finnigan Elctrns. 314-946-6201
NJ Bellmaur, Mid Atlantic Elctrns. 609-931-5303
NJ E. Hanover, State Elctrns. 201-887-2550
NJ Fairfield, Future Elctrns. 201-227-4346
NJ Mt. Laurel, Future Elctrns. 609-778-7600
NY Farmingdale, Pride Elctrns. 516-293-4020
NY Hauppauge, Broadline Elctrns. 516-231-4100
NY Hauppauge, Future Elctrns. Inc. 516-234-4000
NY Liverpool, Future Elctrns. 315-451-2371
NY Rochester, Future Elctrns. 716-272-1120
NY Rochester, Simcona Elctrns. 716-328-3230
NC Charlotte, Dixie Elctrns. 704-377-5413
NC Charlotte, Elctrn. Mktg. Corp. 704-394-6195
NC Charlotte, Future Elctrns. 704-529-5500
NC Greensboro, Golden Elctrns. 919-294-4653
NC Winston-Salem, Dixie Elctrns. 919-724-5961
OH Columbus, Elctrn. Mktg. Corp. 614-299-4161
OH Dayton, Elctrn. Mktg. Corp. 513-439-4711
OH Highland Heights, Elctrn. Mktg. Corp. 216-442-3441
OK Tulsa, Altair Co. 918-252-5781
OR Beaverton, Future Elctrns. 503-646-9454
PA McKean, Advacom, Inc. 814-476-7774
SC Columbia, Dixie Elctrns., Inc. 803-779-5332
SC Greenville, Dixie Elctrns., Inc. 803-297-1435
SC N. Charleston, Dixie Elctrns. 803-552-2671
TN Gray, Dixie Elctrns., Inc. 615-477-3838
TN Knoxville, Dixie Elctrns., Inc. 615-938-4131
TX Austin, Altair Co. 512-837-4970
TX Houston, Altair Co. 713-462-3029
TX Richardson, Altair Co. 214-231-5166
TX Richardson, Future Elctrns., Inc. 214-437-2437
UT Salt Lake City, Future Elctrns. Inc. 801-972-8489
WA Redmond, Future Elctrns., Inc. 206-881-8199
WI Mequon, Taylor Elec. 414-241-4321
WI Racine, Badger Elctrns. Co. Inc. 414-637-1256
WI Waukesha, Bell Inds. 414-547-8879
EXP Bucks, Eng., C & CD Ltd. 494-882-848
Can Calgary, Alberta, Future Elctrns. 403-235-5325
Can Downsview, Ont., Future Elctrns. 416-638-4771
Can Edmonton, Future Elctrns. 403-438-2858
Can Ottawa, Ont., Future Elctrns. 613-820-8313
Can Point Claire, Que., Future Elctrns. 514-694-7710
Can St. Foy, Que., Future Elctrns. 418-682-8092
Can Vancouver, B.C., Future Elctrns. 604-294-1166
Can Winnipeg, Manitoba, Future Elctrns. 204-786-7711

ITW Switches

FAX: 312-545-4450

ITW SWITCHES, Illinois Tool Works, 6615 W. Irving Park Rd., Chicago, IL 60634, Tel: 312-282-4040, TELEX: 275226; Empl.: 500; *Dist. Mgr.:* P. Smentek ..... **B•1712-1721**

Local Sales Offices & Reps

AL Huntsville, Electro Mech 205-880-0592
AZ Glendale, The Knight Co. 602-433-2166
CA Los Angeles, The Knight Co. 213-670-2833
CA Santa Clara, Westrep 408-988-8833
CO Parker, High Plains Mktg. 303-841-6464
CT Clinton, Selmark Assoc. 203-573-9088
FL Altamonte Springs, Semtronics 407-831-8233
GA Atlanta, Electro Mech. 404-447-6478
IL Downer's Cove, Golten Assoc. 708-512-0093
IA Cedar Rapids, R. F. Welch Co. 319-362-6824
KS Kansas City, BC Elctrns. 913-342-1211
MD Baltimore, MicroComp 301-644-5700
MA Millis, Selmark Assoc. 508-376-2914
MI Grand Rapids, Urban & Assoc. 616-245-0511
MN Minneapolis, Comstrand 612-788-9234
MO St. Louis, BC Elctrns. 314-521-6683
NJ Red Bank, Varrelman-Gorman Co. 201-219-0088
NY E. Syracuse, Fountain, Young & Co. 315-437-7733
NC Raleigh, Electro Mech 919-790-9300
OH Medina, Rockford Controls 216-725-3705
PA Oreland, Precision Mktg. 215-233-9233
TX Dallas, Electra Reps. 214-248-3852

IVEK CORP., Fairbanks Rd., N. Springfield, VT 05150, Tel: 802-886-2238, FAX: 802-886-8274; Empl.: 15; *Sls. Mgr.:* Mark Tanny; *Dist. Mgr.:* Frank Nobile

IVO

FAX: 908-542-2938

IVO INDUSTRIES, INC., 201 Industrial Way W., Eatontown, NJ 07724, Tel: 908-542-5151, 800-932-0489; Empl.: 10; *Sls. Mgr.:* Daniel Vannote ..... **B•1091, 1722-1723, 1906-1907**

IXYS CORP., 2355 Zanker Rd., San Jose, CA 95131-1109, Tel: 408-435-1900, TELEX: 384928IXYSSNJ UD, FAX: 408-435-0670; FSC No.: 408-435-1033; Empl.: 100; *Sls. Mgr.:* Kent Paris

JAE
JAE Electronics, Inc.

FAX: 714-753-2699

JAE ELECTRONICS INC., 142 Technology Drive, Irvine, CA 92718, Tel: 714-753-2600; Empl.: 3400 (Worldwide); *Sls. Mgr.:* David Shaff, Dir. Field Sls.; *Dist. Mgr.:* Paul Parkinson ..... **B•1724-1725; C•1400-1403**

Local Sales Offices & Reps

AL Huntsville, Glen White Assocs. 205-882-6751
CA Newport Beach, Camda, Inc. 714-553-9228
CA San Diego, Camda, Inc. 619-726-9844
CA Santa Clara, Pinnacle Sls. 408-249-7400
CA Studio City, Camda, Inc. 818-762-9261
CO Littleton, Con-Tek Mktg. 303-973-8490
FL Clearwater, Glen White Assocs. 813-938-7557
FL Deerfield Beach, Glen White Assocs. 305-570-8545
FL Ft. Lauderdale, JAE Elctrns. 305-563-3484, 800-248-0737
FL Satellite Bch., Glen White Assocs. 407-773-3514
GA Norcross, Glen White Assocs. 404-441-1447
IN Ft. Wayne, Frank J. Campisano Co. 219-486-6443
IN Indianapolis, Campisano Co. 319-577-0319
MD Baltimore, Glen White Assocs. 301-321-7235
MA Harvard, Cycle Sls. 508-456-6868
NJ Matawan, Shepard & Assocs. 908- 254-5757
NY Pittsford, Franklin Sls. Corp. 716-248-8251
NC Charlotte, Glen White Assocs. 704-875-3777
NC Raleigh, Glen White Assocs. 919-848-1931
OH Cincinnati, Frank J. Campisano Co. 513-574-7111
OH Columbus, Frank J. Campisano Co. 614-876-5404
OH Mentor, Frank J. Campisano 216-975-9300
TX Plano, Jae Elctrns. 214-881-1183
TX Plano, RAM 214-424-4455
OR Portland, Venture Elctrns. 503-624-0617
PA Coraopolis, Frank J. Campisano Co. 412-264-5151
RI Cranston, Jae Elctrns. 401-946-0210
PA West Chester, TCA Inc. 215-692-6853
TX Austin, RAM 512-250-5082
TN Gray, Glen White Assocs. 615-477-8850
TX Houston, RAM 713-580-7394
TX Houston, RAM 713-955-0768
VA Lynchburg, Glen White Assocs. 804-385-6110
WA Bellevue, Venture Elctrns. 206-454-4594

Local Distributors

AZ Scottsdale, Cypress Elctrns. 602-949-0802
CA Buena Pk., Cypress Elctrns. 213-404-0445, 714-521-5230
CA San Diego, Cypress Elctrns. 619-535-0011
CA Santa Clara, Compass Elctrns. 408-432-7575
CA Santa Clara, Cypress Elctrns. 408-980-2500
CO Englewood, Cypress Elctrns. 303-792-5829
GA Atlanta, Satori 404-242-0606
MA Middleboro, Glynn Elctrns. 508-947-4262
MN Eden Prairie, Cypress Elctrns. 612-934-2104
NH Manchester, Glynn Elctrns. 603-622-8131
NY Deer Pk, Ramtronix Inc. 516-242-4700
OH Akron, Aesco Elctrns. 216-762-8818
OH Columbus, Aesco Elctrns. 614-882-6762
OR Beaverton, Cypress Elctrns. 503-223-8900
PA Bristol, AIM Elctrns. 215-785-3500
TX Dallas, Satori 214-518-1946
TX Dallas, Cypress Elctrns. 214-225-0065
WA Bothell, Cypress Elctrns. 206-483-1144

JAICO PRODUCTS, Jaidinger Mfg. Co., Inc., 1921 W. Hubbard St., Chicago, IL 60622, Tel: 312-421-1090, FAX: 312-421-1165; Empl.: 35; *Sls. Mgr.:* John S. Jaidinger

JAMES ELECTRONICS, 4050 N. Rockwell, Chicago, IL 60618, Tel: 312-463-6500, FAX: 312-465-1504; Empl.: 220; *Sls. Mgr.:* Vincent Kennedy

Janco
AN ESOP CORP.

FAX: 818-842-3396

JANCO CORP., Box 3038-Glenoaks Sta., Burbank, CA 91508, Tel: 818-846-1800, TWX: 910-498-2701; FSC No.: 91812; Empl.: 185; *Sls. Mgr.:* Maurice Goldwater ..... **B•1726-1727**

Local Sales Offices & Reps

AZ Mesa, Sys. Sls. of AZ. Inc. 602-464-9989
CA San Diego & So. California, Gabriel & Assoc. 714-666-0660
CA San Jose, Ruppert Sls. & Engrg. 408-998-8717
CO Aurora, Key Specs. 303-690-6106
FL Orlando, MacKay, Smith & Assocs. 305-423-4353
GA Atlanta, MacKay, Smith & Assocs. 404-449-7444
IL Addison, Vikeland Sls. 708-832-8425
IN Greenwood, Aktron Corp. 317-888-2260
KS Wichita, Dy-Tronix Inc. 316-838-2645
MD Ellicott, Tech. Sls. Inc. 800-225-4335
MA Swansea, Eastrep Co. 617-672-0788
MN St. Paul, Cahill, Schmitz & Cahill 612-646-7217
MO Bridgeton, Dy-Tronix Inc. 314-291-4777
NJ Cherry Hill, Quality Comps. 609-428-6266
NY Fairport, TAC Sls. Inc. 716-377-2250
NC Charlotte, MacKay, Smith & Assocs. 704-372-1188
OH Columbus, Tom Mulligan Company 614-457-2242
TX Irving, Trice Mktg. Corp. 214-255-1877
WA Seattle, Norwest 206-827-9562

Local Distributors

CA Burbank, Merit Comp. Supp. 818-842-7607
CA Westlake Village, Tech-Cable Prods. 818-991-4697

JAN

FAX: 718-784-0796

JAN HARDWARE MFG. CO., P.O. Box 1199, Melville, NY 11747, Tel: 718-361-0800; FSC No.: 99813; Empl.: 35; *Sls. Mgr.:* Irwin E. Wasserman ..... **C•1585-1590**

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Local Sales Offices & Reps

CA	San Diego, James E. Fitch & Assocs.	213-946-8062
CA	Santa Fe Springs, James E. Fitch & Assoc.	213-945-2624
MD	Gaithersburg, Naudain Assocs. South.	301-258-5040
MA	Brookline, Harman Assoc., Inc.	617-232-6687
MA	Lee, Harman Assoc., Inc.	413-243-1158
NJ	Marlton, Naudain Assoc.	609-983-5300
TX	Richardson, AGM Sls. Co.	214-644-1475

JEMA

FAX: 708-251-3738

JAPAN ELECTRONIC MANUFACTURERS AGENCY, INC., 1000 Skokie Blvd., Wilmette, IL 60091, Tel: 708-251-3600; Empl.: 10; *Sls. Mgr.:* James Schafen; *Dist. Mgr.:* Chris Gantz **D•1022-1023, 1040-1041, 1268-1269**

JAPANESE PRODUCTS CORP., 7 Westchester Plaza, Elmsford, NY 10523, Tel: 914-592-8880, TELEX: 516929 ANS BACK ENFD, FAX: 914-592-7001; Empl.: 8; *Sls. Mgr.:* Don Cassalia

JARO COMPONENTS, INC., 1225 Broken Sound Pkwy., Boca Raton, FL 33431, Tel: 305-771-7000, FAX: 305-772-8899; Empl.: 30; *Sls. Mgr.:* Floyd Burwell; *Dist. Mgr.:* Floyd Burwell

J.A.W. INDUSTRIES, INC., 1750-A Costner Dr., Warrington, PA 18976, Tel: 215-343-8990, FAX: 215-343-8942; Empl.: 20; *Sls. Mgr.:* J. McLaughlin; *Dist. Mgr.:* J. McLaughlin

JAYCO PLASTICS OF CALIFORNIA, INC., 507 W. Blueridge Ave., Orange, CA 92665, Tel: 714-974-1701, TELEX: 678401, FAX: 714-998-4954; Empl.: 33 **B•1818-1819**

Local Sales Offices & Reps

AZ	Tempe, ETS	602-921-7122
CA	Los Angeles, Satori Elec.	213-214-1791
CA	San Diego, Coastal Elctrn. Sls.	619-459-4148
CA	Sunnyvale, Pass Assocs.	408-735-9040
CO	Boulder, Stratford Grp.	303-530-3194
GA	Atlanta, Satori Elec.	404-242-0606
IL	Berkeley, ESA	708-544-0120
NM	Albuquerque, ETS	800-424-2540
NY	New York, Breen Assocs.	201-696-8683
NC	Raleigh, Pinnacle Mktg.	919-878-4658
OR	Portland, D.A. Sullivan Co.	503-292-2448
TX	Dallas, Satori Elec.	214-518-1946

JAYCOR, P.O. Box 85154, San Diego, CA 92186, Tel: 619-453-6580, FAX: 619-535-9763; FSC No.: 3M687; Empl.: 800; *Sls. Mgr.:* Steven Lutjens

JB ELECTRONIC TRANSFORMERS, 2300 W. Armitage Ave., Chicago, IL 60647, Tel: 312-342-0080, FAX: 312-342-9098; FSC No.: 11700; Empl.: 150

jbm

FAX: 603-623-0446

JBM ELECTRONICS, INC., 1 Commerce Drive, Bedford, NH 03110-6802, Tel: 603-623-0222; FSC No.: 62694; Empl.: Approx. 50; *Sls. Mgr.:* Susan Bennett **A•1572-1577, 2238-2239**

Local Sales Offices & Reps

AL	Huntsville, BCI, Inc.	205-539-4411
AZ	Tucson, Clemick & Assocs.	602-749-4003
CA	San Diego, Quattro Sls.	619-581-3093
CA	Santa Clara, Westrep	408-988-8833, FAX:408-988-3186
FL	Miramar, Dan-Tech Sls.	305-963-6142
GA	Chamblee, BCI, Inc.	404-455-0405
IL	Arlington Hgts., Davix Intl. Ltd.	414-255-1600, FAX:414-255-1863
MD	Kensington, Koebert Assocs.	301-493-8924
MA	Needham Hgts., Kanan Technlgs.	617-449-7400
MN	St. Paul, Proud Assocs.	612-646-9428
NY	Pittsford, Franklin Sls. Corp.	716-248-8251
NY	Roslyn Hgts., November Elctrn. Sls.	516-621-6378
NC	Charlotte, Quantum Mktg.	704-523-8822
NC	Raleigh, Quantum Mktg.	919-846-5728
PA	Glenside, Koebert Assocs.	215-887-2310
TX	Austin, Texoma Sls.	512-441-1771
TX	Freeport, Texoma Sls.	409-233-3192
TX	Houston, Texoma Sls.	713-462-1432
TX	Richardson, Texoma Sls.	214-238-8127
WV	Inwood, Koebert Assocs.	304-229-8401
Can	Mississauga, Ont., Indigo Electronics	416-670-0284

J-B-T INSTRUMENTS, INC., Box 1818, New Haven, CT 06508-1818, Tel: 203-776-1111, FAX: 203-624-8142; Empl.: 25; *Sls. Mgr.:* Lillian Sharron

JC SYSTEMS, INC., 11175 Flintkote Ave., San Diego, CA 92121, Tel: 619-453-9980, FAX: 619-453-2115; Empl.: 20; *Sls. Mgr.:* Ralph Aniunas

JDK CONTROLS, INC., 2630 Lavery Ct., Suite F, Newbury Park, CA 91320-1593, Tel: 805-499-7779, FAX: 805-499-0990; Empl.: 40; *Sls. Mgr.:* Reece Kendall **A•2043**

Local Sales Offices & Reps

NJ	Matawan, Tim Reilly Assocs.	908-566-4555

JEFFERS ELECTRONICS, Grand Plaza, 945 Grand Ave., Nogales, AZ 85621, Tel: 602-281-4925, TELEX: 165036, FAX: 602-281-2930; FSC No.: 59474; Empl.: 400; *Sls. Mgr.:* Ken Shobert; *Dist. Mgr.:* Steve Morris

W. S. JENKS & SON, 1933 Montana Ave. NE, Washington, DC 20002, Tel: 202-529-6020, 800-673-8199, FAX: 202-832-3411

JENNINGS
HIGH VOLTAGE COMPONENTS

FAX: 408-286-1789

JENNINGS, 970 McLaughlin Ave., San Jose, CA 95122-2696, Tel: 408-292-4025, TELEX: 34-6311, TWX: 910-338-0159; FSC No.: 73905; Empl.: 350; *Sls. Mgr.:* E. V. Valehrach **A•1079; B•1516-1519; D•1274**

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens	205-883-0445
AZ	Phoenix, Crown Systems	602-274-3180
CA	Encino, King-Way Assocs.	818-788-4124
CA	San Jose, H. W. Assocs.	408-996-9940
CO	Denver, Lindberg Co.	303-758-9033
FL	Deerfield Beach, Brandel-Stephens	305-427-8558
FL	Orlando, Brandel-Stephens	305-425-3202
GA	Atlanta, Brandel-Stephens	404-261-7579
IL	Arlington Hgts., Berndt Assocs.	312-632-0900
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Shawnee Mission, Lowell-Kangas & Assoc.	913-631-3515
MD	Hunt Valley, Marktron	301-628-1111
MD	Rockville, Marktron	301-251-8990
MA	Haverhill, L.K. Assocs.	617-373-1313
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	St. Louis, Lowell-Kangas & Assoc.	314-821-4050
NJ	Flanders, K&R Engrg. Sls.	201-584-5235
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Kingston, Leonard D. Allen, Inc.	914-338-7588
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
NC	Greensboro, Brandel-Stephens	919-274-6952
OH	Centerville, Bear Mktg., Inc.	513-436-2061
OH	Richfield, Bear Mktg., Inc.	216-659-3131
PA	Huntingdon Valley, Omega Elctrns.	215-947-4135
PA	Pittsburgh, Bear Mktg., Inc.	412-531-2002
TX	Houston, Barry Sales	713-784-5860
TX	Richardson, Barry Sales	214-234-0255
UT	Salt Lake City, Lindberg Co.	801-277-2643
WI	Milwaukee, Berndt Assocs.	414-545-8400

Local Distributors

CA	Carlsbad, Surcom Assocs.	619-438-4420
IL	La Fox, Richardson Elctrns., Ltd.	312-456-0600
TN	Bristol, Kintronics	615-878-3141

JENSEN TOOLS, INC., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85044, Tel: 602-968-6241, FAX: 800-366-9662; Empl.: 250; *Sls. Mgr.:* Bill Frost

JEROME INDUSTRIES CORP., 730 E. Division St., Elizabeth, NJ 07201, Tel: 908-353-5700, FAX: 908-353-1021; Empl.: 150; *Sls. Mgr.:* Anthony Di Girolamo **A•2241; D•1822-1825**

JERSEY SPECIALTY CO., See JSC Wire & Cable

JETA
POWER SYSTEMS, INC

FAX: 213-426-2417

JETA POWER SYSTEMS, INC., 2675 Junipero, Signal Hill, CA 90806, Tel: 213-427-0095; Empl.: 110; *Sls. Mgr.:* Derek Steel **D•1826-1827**

Local Sales Offices & Reps

AL	Huntsville, R.O. Whitesell & Assoc.	205-883-5110
AZ	Phoenix, ISBS	602-971-6250
CA	Los Alamitos, Power Specialists, Inc.	213-594-9418
CO	Arvada, Arrowhead/CSI Sls., Inc.	303-423-5597
CT	Vernon, George Urban & Assocs.	203-647-3991
FL	Boca Raton, S. Atlantic Comp. Sls.	407-391-1034
FL	Orlando, S. Atlantic Comp. Sls.	407-857-3650
FL	Winterhaven, S. Atlantic Comp. Sls.	813-324-0953
GA	Atlanta, R. O. Whitesell & Assocs.	404-449-9190
IL	Elmhurst, UTRONIX	708-834-1100
IN	Indianapolis, R. O. Whitesell	317-359-9283
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Dover, George Urban & Assocs.	617-329-4068
MN	Edina, Engrg. Prods. Assocs.	612-835-9022
NH	Londonderry, George Urban Assoc.	603-437-3622
NY	Fairport, Hi-Tec Sls.	716-223-5922
NY	Yonkers, Sonkin Assocs.	914-968-8282
NC	Fuguay-Varina, R.O. Whitesell & Assoc.	919-552-1122
NC	Greensboro, R.O. Whitesell & Assocs.	919-273-1945
OH	Cincinnati, R.O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R.O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R.O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R.O. Whitesell & Assocs.	513-298-9546
PA	Allentown, TRC Elctrns.	215-391-8977
PA	Pittsburgh, R. O. Whitesell	412-963-6161
TN	Knoxville, R.O. Whitesell & Assocs.	205-883-5150
TX	Dallas, Sunbelt Comps.	214-248-8000
UT	Midvale, Arrowhead/CSI Sls.	801-561-5688
WA	Vancouver, Northwest Comp. Sls.	206-695-1331
WA	Kirkland, N.W. Comp. Sls.	206-828-2104
Can	Montreal, Empro Sls.	514-341-6420

JETTRON PRODUCTS INC., P.O. Box 337, E. Hanover, NJ 07936, Tel: 201-887-0571, FAX: 201-887-4182; FSC No.: 04435; Empl.: 30; *Sls. Mgr.:* Ben Latawiec **C•1404-1405**

Local Sales Offices & Reps

CA	El Cajon, A-Tronics	619-444-1501
NY	New York, Eltron Export Co.	212-944-7635

JEWELL ELECTRICAL INSTRUMENTS, 850 Perimeter Rd., Manchester, NH 03103, Tel: 603-669-6400, FAX: 603-669-5962; Empl.: 175; *Sls. Mgr.:* Andrew Roeper; *Dist. Mgr.:* Andrew Roeper

JFD ELCTRNS., See Murata Erie No. Amer., Inc.

JF MICROSYSTEMS, 3641 Frontier Road, Pasco, WA 99301-9619, Tel: 509-297-4294, 800-532-2737; Empl.: 2; *Sls. Mgr.:* Jim Follansbee

JFW INDUSTRIES, INC., 5134 Commerce Sq. Dr., Indianapolis, IN 46237, Tel: 317-887-1340, FAX: 317-881-6790; FSC No.: 61162; Empl.: 87; *Sls. Mgr.:* Carrie Glover

JH

FAX: 213-328-0057

JH AMERICA, INC., JI-HAW Group, 20809 Higgins Court, Torrance, CA 90501, Tel: 213-328-0051 **C•1406-1407, 1760-1763**

Local Sales Offices & Reps

CA	Sunnyvale, Logan Sls.	408-732-6020
CA	Ventura, R D Sls.	805-650-0112
MN	St. Paul, Johnson Co.	612-641-1878
NC	Kernersville, Wallace Elctrn. Sls.	919-996-2742

Local Distributors

AZ	Tempe, Comtel Corp.	602-829-9471
CA	Anaheim, Deco Elctrns.	714-630-8252
CA	San Diego, Deco Elctrns.	619-693-1595
FL	Orlando, Computel	407-682-3957
NJ	Kennilworth, Computel	201-241-5400
NC	Charlotte, Computel	704-376-4414

JKL COMPONENTS CORPORATION

FAX: 818-897-3056

JKL COMPONENTS CORPORATION, 13343 Paxton St., Pacoima, CA 91331-2376, Tel: 818-896-0019; FSC No.: 55335; Empl.: 35; *Sls. Mgr.:* Ernie Soares; *Dist. Mgr.:* Bob Brandt ..... **B•1169**

Local Sales Offices & Reps

AL	Huntsville, Taylor-Stone Inc.	205-830-9322
CA	San Diego, Lawsco	619-755-0200
IL	Cary, Bob Burns & Assocs.	708-516-3322
NY	Henrietta, CMJ, Inc.	716-334-3277
IN	Indianapolis, Apex-Tec, Inc.	317-842-5559
MI	Farmington Hills, Clark Sls.	313-553-0610
MN	Bloomington, Murnco	612-854-4161
OH	Cincinnati, Clark Sls. Co.	513-922-7555
OH	Painsville, Clark Sls. Co.	216-247-7848
PA	Philadelphia, Check Assoc.	215-487-3007
TX	Irving, Kite Elec. Sls.	214-986-0321

Local Distributors

AL	Huntsville, Powell Elec.	205-539-2731
CA	San Diego, Richie/Impact Sls.	619-271-4511
AZ	Phoenix, Capital Elctrns.	602-252-5897
CA	Garden Grove, Richey Western	714-895-0060
CA	Gardena, Cal. Switch & Signal	213-770-2330
CA	San Diego, Richie/Impact Sls.	619-271-4511
CA	Santa Clara, Richey/Western Elec.	408-727-7411
CA	Sunnyvale, Target Elec.	415-961-1170
CT	Wallingford, Sager Elec.	203-265-4600
FL	Ft. Lauderdale, Powell Elec.	305-484-8377
GA	Norcross, Specialty Distrbg. Co.	404-446-3190
IL	Wheeling, Hawk Elec.	312-459-4030
IN	Indianapolis, Meunier Elctrns.	317-635-3511
KS	Lenexa, Amer. Elec. & Cable	913-469-0099
MD	Kensington, Marine Air Supp.	301-949-1353
MD	Rockville, M S Elctrns.	301-340-6400
MA	Hingham, Sager Elec.	617-749-6700
MA	Westborough, Powell Elec.	617-366-6100
MI	Livonia, LWC Distrs.	313-464-7700
MN	Minneapolis, Bergquist Co.	612-835-2322
MO	Richland, ATR Ent.	314-765-5219
MN	Fridley, Voyager Elec.	612-571-7766
NJ	Clifton, Vantage Comps.	201-777-4100
NM	Albuquerque, Walker Elec. Supply	505-883-2992
NY	Apalachin, Rogan Elec.	607-625-2949
NY	Bohemia, Genelco	516-589-0909
NH	Salem, Sager Elec.	603-898-1348
NC	Greensboro, Hammond	919-275-6391
OH	Cincinnati, Schuster Elec.	216-425-8134
OK	Oklahoma City, Radio Supp. Inc.	405-232-6127
PA	Bristol, Aim Elec.	215-785-3500
PA	Philadelphia, Powell Elec.	215-365-1900
TN	Chattanooga, Specialty Distr. Co.	615-624-1040
OH	Yellow Springs, Electro-Shield	513-767-1054
TX	Ft. Worth, T & S. Supp.	817-248-4781
WA	Greenacres, Mica Co.	509-928-1720
WA	Seattle, Radar Elec. Co.	206-282-2511
WI	Oshkosh, Electronic Inds.	414-235-8930
Can	Quebec, Future Elec.	514-694-7710

JMJ TECHNICAL PRODS., 50 Wheeler Point Rd., Newark, NJ 07105, Tel: 201-589-4257, FAX: 201-762-9334; Empl.: 8; *Sls. Mgr.:* Kevin Kolenut ..... **C•1591**

JMK INCORPORATED

FAX: 603-886-4115

JMK, INC., 15 Caldwell Dr., Amherst, NH 03031, Tel: 603-886-4100; Empl.: 200; *Sls. Mgr.:* J. Kennedy ..... **A•1626-1627**

Local Sales Offices & Reps

CA	Santa Clara, Cummings & Assocs.	408-247-8656
MN	St. Paul, Arkco Sls.	612-777-7454

JMR ELECTRONICS, 1525 Blondell Ave., Bronx, NY 10461, Tel: 212-597-6050, FAX: 212-597-6137; Empl.: 50

JM TRANSFORMER CO., INC., 112 Florida St, Farmingdale, NY 11735, Tel: 516-293-0475, FAX: 516-293-3923; Empl.: 18; *Sls. Mgr.:* J. Millman ..... **A•2242-2247**

JOBMASTER CORP., 9010 Liberty Rd., Randallstown, MD 21133-0207, Tel: 410-655-1400, FAX: 410-521-5461; Empl.: 16 ..... **A•1285**

JOHANSON DIELECTRICS, INC., 2220 Screenland Dr., Burbank, CA 91505, Tel: 818-848-4465, TWX: 910-498-2735, FAX: 818-841-7261; Empl.: 300 ..... **A•1081**

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
AZ	Tempe, Reptronix, Inc.	602-345-4580
AZ	Tucson, Compass Mktg. & Sls.	602-293-1220
CA	Costa Mesa, Richland Tech. Sls.	714-722-9881
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assocs.	303-426-0890
CT	Waterbury, Compak Inc.	203-753-6431
FL	Ft. Lauderdale, VG Sales Co.	305-938-4333
FL	Altamonte Springs, VG Sales Co.	407-831-8688
FL	Largo, VG Sales Co.	813-536-7787
IL	Lisle, WG Controls	708-963-5954
IN	Indianapolis, M & L Elctrns.	317-359-4742
KS	Lenexa, Midtec Assocs.	913-541-0505
MD	Columbia, PSA South	301-730-0359
MA	Hudson, Compak Inc.	508-568-0331
CT	Wethersfield, Compac Sls.	203-563-4784
MI	Ypsilanti, Techrep, Inc.	313-572-1950
MN	St. Paul, Cahill, Schmitz & Cahill, Inc.	612-646-7217
MO	St. Louis, Midtec Assocs.	314-275-8666
NM	Albuquerque, Reptronix, Inc.	505-292-1718
NY	East Rochester, L-Mar Assocs.	716-381-9100
NY	Huntington, Compar New York Inc.	516-423-5660
NC	Winston-Salem, Murcota	919-722-9445
OH	Westlake, Baehr Greenleaf Assocs.	216-892-1770
PA	Trevose, PSA, Inc.	215-245-0513
PA	Warrendale, Baehr-Greenleaf Assocs.	412-934-3088
TX	Dallas, C & J Assocs.	214-539-0140
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Oakton, PSA South	703-281-1806
WA	Seattle, Northmar, Inc.	206-524-5170

Local Distributors

AZ	Tempe, Bell Inds.	602-966-7800
CA	Los Alamitos, SEMI DICE	213-594-4631
CA	San Diego, Bell Industries	619-268-1277
CA	Santa Clara, SEMI DICE	408-980-9777
CA	Yorba Linda, Corona Elctrns.	714-283-8185
CO	Denver, Newark Elctrns.	303-757-8531
CT	Bloomfield, Newark Elctrns.	203-243-1731
FL	Orlando, Newark Elctrns.	407-896-8350
IL	Chicago, Newark	312-784-5100
IN	Indianapolis, Bell Inds.	317-875-8200
MD	Columbia, Jaco Elctrns.	301-995-6620
MA	South Easton, Semi Dice	508-238-8344
MA	Tewksbury, Jaco Elctrns.	508-640-0010
MI	Jackson, Newark Elctrns.	601-956-8300
MN	Minneapolis, Newark Elctrns.	612-331-6350
NJ	Fairfield, Micross Comps.	201-227-8007
NY	Mt. Vernon, ASAP Elctrns.	914-699-2727
OR	Lake Oswego, Bell Industries	503-635-6500
TX	Allen, Prime Distribution	214-542-7915
WI	Waukesha, Bell Industries	414-547-8879

JOHANSON MANUFACTURING CORPORATION, 400 Rockaway Valley Rd., Boonton, NJ 07005, Tel: 201-334-2676, FAX: 201-334-2954; FSC No.: 91293; Empl.: 200 ..... **A•1080**

Local Sales Offices & Reps

AL	Huntsville, Murcota Corp.	205-539-8476
AZ	Tempe, Reptronix, Ltd.	602-345-4580
CA	Escondido, Knight Co.	619-743-5136
CA	Los Angeles, Knight Co.	213-670-2833
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assoc., Mt. States	303-426-0890
CT	Wetherfield, Compak, Inc.	203-563-4784
FL	Ft. Lauderdale, Vg Sls.	305-938-4333
FL	Largo, Vg Sls.	813-536-7787
FL	Pompano Beach, Vg Sls.	305-971-0900
IL	Lisle, W.G. Controls	708-963-5954
IN	Kokomo, Schillinger Assocs.	317-455-2708
IA	Hiawatha, ARD Sales Co.	319-393-6392
MA	Hudson, Compak, Inc.	617-568-0331
MN	St. Paul, Cahill, Schmirz & Cahill, Inc.	612-646-7217
MO	St. Louis, Midtec Assocs.	314-275-8666
NM	Albuquerque, Reptronix Inc.	505-292-1718
NY	Boonton, Johanson Mfg. Corp.	201-334-2676
NY	Mount Vernon, Friedman-Smith Elctrn. Sls.	914-664-4866
NC	Winston-Salem, Murcota Corp.	919-722-9445
OH	Columbus, Baehr, Greenleaf & Assocs.	614-847-0220
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OH	Westlake, Baehr, Greenleaf & Assoc.	216-842-1770
PA	Evans City, Baehr, Greenleaf & Assocs.	412-776-2151
PA	Trevose, P.S.A.	215-245-0513
TX	Austin, W. Pat Fralia & Assocs.	512-835-7911
TX	Euless, W. Pat Fralia & Assocs.	817-267-3577
TX	Houston, W. Pat Fralia & Assocs.	713-772-1572
UT	Salt Lake City, Straube Assocs., Mt. States	801-263-2640
VA	Oakton, PSA South	703-281-1806
WA	Seattle, Northmar	206-524-5170

Local Distributors

AZ	Tempe, Penstock	800-255-6788
CA	Beverly Hills, Penstock	818-841-8881
CA	Garden Grove, Bell Inds.	714-895-7801
CA	Gardena, Bell Inds.	213-515-1800
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, Penstock	619-225-8600
CA	San Jose, All American Semiconductor	408-287-0190
CA	San Pedro, ASAP Elctrns./West	213-519-8377
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Penstock	408-730-0300
CA	Thousand Oaks, Bell Inds.	213-826-6778
CA	Westlake VL, JACO/Distel, Inc.	805-495-9998
CO	Denver, Penstock	303-973-3010
CO	Wheatridge, Bell Inds.	303-424-1985
FL	Deerfield Bch., Bell Inds.	305-421-1997
FL	Ft. Lauderdale, All American	305-572-7999
FL	Tampa, JACO	813-628-4665
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Elk Grove VL, Bell Inds.	312-640-1910
IL	Palatine, Penstock	708-934-3700
IN	Indianapolis, Bell Inds.	317-634-8202
IN	Indianapolis, Penstock	317-784-3870
MD	Baltimore, Radio Elec. Svc.	301-529-0500
MD	Beltsville, Radio Elec. Svc.	301-937-9100
MA	Seekonk, M-Squared	617-761-5490
MA	Wakefield, All American	617-246-2300
MA	Wilmington, RC/Jaco Elctrns.	617-273-1860
NJ	Fairfield, Penstock	201-808-1414
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Mt. Vernon, ASAP Elctrns.	914-699-2727
NY	Syracuse, Newark Elctrns.	315-437-6611
OH	Dayton, Bell Inds.	513-435-8660
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Philadelphia, PEI-Genesis	215-673-0400
TX	Ft. Worth, PATCO Supplies	817-429-8596
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Bell Inds.	206-747-1515

JOHNSON, E. F., CO., P.O. Box 59089, Minneapolis, MN 55459-0089, Tel: 612-943-5500, FAX: 507-835-6485; Empl.: 1400; *Sls. Mgr.:* Arnie Nicklin

JOHNSON CONTROLS BATTERY GROUP, INC., 900 East Keefe Ave., Milwaukee, WI 53212, Tel: 414-961-6500, FAX: 414-961-6506; Empl.: 250; *Sls. Mgr.:* Daniel E. Ellis, Dir. Sls. & Mktg.

JOHNSON YOKOGAWA CORP., 4 Dart Road, Newnan, GA 30265, Tel: 404-254-0400, FAX: 404-254-0928; Empl.: 700; *Sls. Mgr.:* Chuck Micallef

JOLO INDUSTRIES, INC., 13921 Nautilus Dr., Garden Grove, CA 92643, Tel: 714-554-6840, FAX: 714-554-0306; FSC No.: 30035; Empl.: 20; *Sls. Mgr.:* J.S. Giampiccolo, Jr. ..... **C•1408-1409**

Local Sales Offices & Reps

AZ	Scottsdale, JK & Assocs.	602-990-8804
CA	Los Angeles, Quattro Sls. Assocs.	213-372-4221
CA	Mountain View, Leddy Assocs.	415-969-6313
CA	Orange County, Quattro Sls. Assocs.	800-735-4510
CA	San Diego, Quattro Sls. Assocs.	619-581-3093
CA	San Fernando Valley, Quattro Sls. Assocs.	805-523-2978
FL	Longwood, Mathias Assocs., Inc.	407-682-1700
IL	Chicago, McNulty & Assocs.	312-980-9868
MA	Reading, Lincoln Tech. Sls.	617-944-9594
MI	Sterling Heights, Geotronix, Inc.	313-254-0520
OH	Cleveland, Geotronix Mktg. Assocs.	216-659-6100
OH	Trotwood, Geotronix, Inc.	513-854-5939
OR	Beaverton, Evergreen Mktg. Grp.	503-643-8020
PA	Allison Park, Geotronix, Inc.	412-487-1770
TX	Austin, Barry Sls., Inc.	512-837-3616
TX	Houston, Barry Sls., Inc.	713-784-5860
TX	Richardson, Barry Sls., Inc.	214-234-0255
WA	Seattle, Evergreen Mktg. Grp. Inc.	206-485-8063
Can	Nepean, Ont., Tech-Trad, Inc.	613-727-1272

Local Distributors

FL	Miami, Elec. Equip.	305-526-6060
OH	Richfield, Alpha Distr. Corp.	216-659-7100

JONARD INDUSTRIES CORP., 134 Marbledale Rd., Tuckahoe, NY 10707, Tel: 914-793-0700, TELEX: 996570, TWX: 710-562-0107, FAX: 914-793-4527; Empl.: 65; *Sls. Mgr.:* C. McClory

JONATHAN MANUFACTURING CORP., 1101 So. Acacia Ave., Fullerton, CA 92631, Tel: 714-526-4651, FAX: 714-879-1212; Empl.: 375; *Sls. Mgr.:* Todd Leverich

JONES, HIRAM, ELCTRNS. INC., See Hiram Jones Elctrns. Inc.

JORI RESOURCES, 2128 Knoll Dr., Ventura, CA 93003, Tel: 805-642-2266, FAX: 805-642-5978; Empl.: 4

JOSLYN ELECTRONIC SYSTEMS, P.O. Box 817, Goleta, CA 93116, Tel: 800-752-8068, 805-968-3551, TELEX: 181824, FAX: 805-968-2335; FSC No.: 23663; Empl.: 240; *Sls. Mgr.:* M. Young

JOULE POWER, INC., Joyce Industrial Pk., Summer Rd., Boxborough, MA 01719, Tel: 508-263-9712, FAX: 508-263-9071 ..... **D•1829**

Local Sales Offices & Reps

AL Huntsville, Over & Over 205-837-7105
AZ Scottsdale, Sun Tech Mktg. 602-483-1082
CA San Jose, Silicon Valley Sls. 408-432-1967
FL Altamonte Springs, Over & Over 407-332-1222
GA Norcross, Over & Over 404-449-6205
IL Schaumberg, Victory Sls. 708-490-0300
MA Burlington, Tech Rep. Inc. 617-272-5965
NJ Fairfield, Metrologic Corp. 201-575-5585
NC Raleigh, Over & Over 919-876-7338
OH Chargin Falls, Larry Bennett & Assocs. 216-247-2174
PA Wayne, John Lyons Mktg. 215-687-2277
TX Plano, Aticus 214-964-0663
UT Ogden, Doug Taylor & Assocs. 801-546-9570
VA Alexandria, Tech Reps. Inc. 703-370-2600
WA Edmonds, Power Sources Unlimited .. 206-743-6641
Can Montreal, Que., Solid State Engrg. 514-481-3313

JOVIL MANUFACTURING CO., INC., Precision Rd., Danbury, CT 06810, Tel: 203-792-6700, TELEX: 969634, FAX: 203-790-8645; Empl.: 25; *Sls. Mgr.:* Keith Fredlund

JRW INDUSTRIES, INC., 2312 N Second St., Harrisburg, PA 17110, Tel: 717-236-1418, FAX: 717-236-1895; Empl.: 4; *Sls. Mgr.:* Kevin J. Williams, Sls. Mgr.

JSC WIRE & CABLE, Box 248, Burgess Pl., Wayne, NJ 07474, Tel: 201-694-6200, 1-800-572-9473, FAX: 201-694-8297; Empl.: 40; *Sls. Mgr.:* Richard Wojtovitz

J.S.T. CORP., 1200 Business Ctr. Dr., Ste. 400, Mt. Prospect, IL 60056, Tel: 1-800-292-4243, FAX: 708-803-4918; *Sls. Mgr.:* Ron Lesky; *Dist. Mgr.:* Ron Lesky ..... **C•1411-1421**

Local Sales Offices & Reps

AL Huntsville, Over & Over, Inc. 205-837-7105, FAX:205-837-7305
AZ Scottsdale, Whyle & Assocs. 602-391-0226, FAX:602-391-9498
CA Arcadia, Van Gott & Assocs. 818-445-9728, FAX:818-445-5019
CA Auburn, Ad. Tech. Mktg. 916-888-0788, FAX:916-888-0787
CA Escondido, Van Gott & Assocs. 619-489-0893, FAX:619-489-8167
CA Santa Clara, GMB Tech Sls. 408-496-6181, FAX:408-496-0634
CO Arvada, Arrowhead Sls. Corp. 303-423-5556, FAX:303-423-5598
FL Altamonte Spgs., Over & Over, Inc. 407-322-1222, FAX:407-332-4433
FL Coral Springs, Over & Over, Inc. 305-753-7050, FAX:305-753-0337

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GA Norcross, Over & Over, Inc. 404-449-6205, FAX:404-449-6177
IL Itasca, Circuit Sls. 708-773-0200, FAX:708-773-2721
IN Ft. Wayne, Corrao/Marsh 219-482-2725, FAX:219-484-7491
IN Greenfield, Corrao/Marsh, Inc. 317-462-4446, FAX:317-462-6568
MD Ellicott, AM-Tech Assocs. 301-461-5599, FAX:301-461-5659
MA Norwell, M.J. Sls., Inc. 617-982-8776, FAX:617-878-6707
MA Randolph, The T.M.R. Grp. 617-961-4486, FAX:617-986-4640
MI St. Joseph, Six Sigma 616-429-7788, FAX:616-429-7788
MI Sylvan Lake, Six Sigma 313-332-4900, FAX:313-332-4903
MN St. Paul, Countryman Assoc. Co. 612-645-9151, FAX:612-641-6153
MS Horn Lake, Edward Alan Co. 601-342-4989
MO Florissant, Palatine Engrg. & Sls. Inc. 314-839-0800,FAX:314-839-6023
MO Kansas City, Palatine Engrg. & Sls; Inc. 816-531-7221,FAX:816-531-7443
NJ Madsion, Venture Quest, Inc. 201-377-4922, FAX:201-377-0453
NY Clay, MJ Sls., Inc. 315-699-9596, FAX:315-699-7851
NY W. Babylon, Venture Quest, Inc. 516-491-3120, FAX:516-491-0907
NC Charlotte, Over & Over, Inc. 704-542-9111, FAX:704-542-9937
NC Raleigh, Over & Over 919-876-7338, FAX:919-876-8098
OH Highland Hgts., KT/DEPCO 216-442-6200, FAX:216-461-2101
OH Mentor, Qualtek Elctrns. Corp. 216-951-3300, FAX:216-951-7252
OR Hillsboro, Turn-A-Round Sls. 503-640-4641, FAX:503-640-4640
PA Fort Washington, SMC Inc. 215-628-3394, FAX:215-628-3395
PA Pittsburg, KT/Depco 412-367-1011, FAX:412-367-2153
TX Arlington, T-Tec Sls. 817-429-9151, FAX:817-457-6704
TX Arlington, T-Tec Sls. 817-461-0522, FAX:817-277-8502
TX El Paso, T-Tec Sls. 915-598-1898, FAX:915-598-2485
TX Gilmer, T-Tec Sls. 918-747-8316, FAX:903-734-5316
TX Katy, T-Tec Sales 713-347-2926, FAX:713-347-2088
WA Kirkland, Turn-A-Round Sls. 206-822-4634, FAX:206-828-0633
WI Brookfield, Circuit Sls. 414-784-7773, FAX:414-784-4528
Can Markham, Ont., Avotronics, Ltd. 416-475-2024, FAX:416-475-2019
Can Vancouver, BC, Fairwest Sls. 604-685-1473, FAX:604-681-7712

Local Distributors

AL Birmingham, KSM Elctrns. 205-879-8377, FAX:205-879-8406
AZ Tempe, Elctrn. Hardware 602-967-1691, FAX:602-967-1694
AZ Tucson, SWS Elctrns; Inc. 602-628-1613, FAX:602-628-1921
CA Fremont, Vic/Tal Sls. 415-651-6420, FAX:415-651-8795
CA Fullerton, I.S.I. 714-773-0411,FAX:714-447-3976
CA Huntington Bch., On-Line Elctrns. 714-847-5111, FAX:714-847-4485
CA Irvine, Kensington Elctrns. 714-588-0575, FAX:714-588-0176
CA N. Hollywood, Elctrn. Hardware 818-982-6100, FAX:818-764-1889
CA Norwalk, Myco Elctrns. Supp. 213-404-2053, FAX:213-926-8536
CA San Carlos, Logan Elctrns. 415-594-0700, FAX:415-594-1687
CA San Diego, Mock III 619-693-8230, FAX:619-693-3355
CA San Jose, Spectra Elctrns. 408-452-1590, FAX:408-452-1683
CA Santa Clara, Elctrn. Hardware 408-988-1000, FAX:408-988-4189
CA Santa Clara, Trinty Elctrns. 408-980-9011, FAX:408-980-9014
CA Vista, Elctrn. Hardware 619-231-1307, FAX:619-598-6958
CO Englewood, Indelco 303-795-3431, FAX:303-795-8298
CT Wallingford, Midstate Elctrns. 203-265-9900, FAX:203-269-2374
FL Ft. Lauderdale, KSM Elctrns. 305-971-5900, FAX:305-977-0489
GA Athens, Dixie Elctrns. 404-613-7755, FAX:404-613-7856
GA Atlanta, KSM Elctrns. 404-458-2013, FAX:404-451-0891
GA Augusta, Dixie Elctrns. 404-722-2055, FAX:404-722-0388
IL Addison, Belford Elctrns. 708-691-1100, FAX:708-691-1118
IL Bensenville, Voyager I 708-860-1300, FAX:708-860-1573
IL Glendale Hgts., KSM Elctrns. 708-529-1700, FAX:708-529-3668
IL Palatine, OHM Elctrns. 708-359-5500, FAX:708-359-9686
IN Carmel, Altex Elctrns. 317-848-1323, FAX:317-844-6593
IN Elkhart, Babsco, Inc. 219-293-0631, FAX:219-293-7207
IN Indianapolis, Mar Elctrns. 317-633-6699, FAX:317-633-6687
MD Gaithersburg, Axis Elctrns., Inc. 301-840-9640, FAX:301-840-9299
MA Burlington, QPL Elctrns. Distrs. 617-229-2424, FAX:617-273-5075
MA Franklin, JEM Elctrns. 508-520-3105, FAX:508-520-3109
MI Grand Rapids, S.F. Elctrns. 616-459-0216, FAX:616-459-5601
MI Southfield, Michigan Lectrols Corp. 313-353-1350, FAX:313-353-1433
MI Wyoming, E.C. Elctrns. 616-530-0576, FAX:616-530-8598
MN Fridley, Voyager II 612-571-7766, FAX:612-571-9519
MN New Brighton, Chris Elctrns. 612-631-2647, FAX:612-631-3071
MN Roseville, TLC Distbn. 612-483-2226, FAX:612-481-0287
NE Lincoln, Scott Elctrns. 402-466-8221, FAX:402-466-4187
NE Omaha, Scott Elctrns. 402-734-6750, FAX:402-734-1442
NJ Cherry Hill, Jeta Corp. 609-663-7272, FAX:609-663-1698
NJ Moorestown, Marlac Elctrns. 609-234-4200, FAX:609-234-0672
NJ Woodbridge, Calmm Elctrns. 201-750-4497, FAX:201-750-4212
NM Albuquerque, TMA, Inc. 505-345-8921, FAX:505-344-1113
NY Bohemia, Key Comps., Inc. 516-567-7500, FAX:516-567-2920
NY Hauppauge, Addem Distbg. Div. 516-273-6777, FAX:516-273-7086
NC Charlotte, Dixie Elctrns. 704-377-5413, FAX:704-377-2561
NC Winston-Salem, Dixie Elctrns. 919-724-5961, FAX:919-723-7024
OH South Euclid, Circuit Elec. 216-382-0330, FAX:216-382-4411
OR Aloha, Elctrn. Concepts 503-642-9715, FAX:503-591-8383
OR Beaverton, Micro Power Elctrns. 503-626-7086, FAX:503-643-1556
PA Bristol, Aim Elctrns. 215-785-3500, FAX:215-785-3510
SC Columbia, Dixie Elctrns. 803-779-5332, FAX:803-765-9276
SC Greenville, Dixie Elctrns. 803-297-1430, FAX:803-297-1439
SC N. Charleston, Dixie Elctrns. 803-552-2671, FAX:803-552-2676
TN Gray, Dixie Elctrns. 615-477-2131, FAX:615-477-4407
TN Oak Ridge, Dixie Elctrns. 615-481-3393, FAX:615-481-3397
TN Soddy Daisy, Techni-Tronics 615-332-2119, FAX:615-332-1061
TX Austin, Wofford Elctrns. 512-339-1131, FAX:512-835-7351
TX Dallas, Wofford Elctrns. 214-320-0294:FAX:214-320-2017
TX El Paso, Schick Entprs. 915-772-3283:FAX:915-772-3034
TX Friendswood, Schick Enterprises 713-388-1714
TX Houston, Wofford Elctrns. 713-847-3583, FAX:713-847-4035
TX N. Richland Hills, Swieco Elctrns (Dixie) 817-281-1811,FAX:817-281-1783
WA Redmond, Priebe Elctrns. 206-881-2363, FAX:206-881-0508
Can Burlington, Ont., Alternate Source Comps., Ltd. 416-335-6385,FAX:416-332-1385
Can Concord, Ont., Zierick Canada Corp. ... 416-669-1429, FAX:416-669-5626

Can Markham, Ont., ARMA Elctrns. Sls., Inc. 416-475-1858,FAX:416-475-2019
Can Vancouver, B.C., Brockton Elctrns. Ltd. 604-291-6665,FAX:604-291-6664

JUDCO MFG. INC., P.O. Box 487-E84, 1429 240th St, Harbor City, CA 90710, Tel: 213-534-0959; *Sls. Mgr.:* Kevin Johnson

JUDD WIRE INC., 57 Turnpike Rd., Turners Falls, MA 01376, Tel: 413-863-4357, FAX: 413-863-2305; FSC No.: 3357; Empl.: 148; *Sls. Mgr.:* Jim Paradise ..... **B•1020-1021; C•1764**

Local Sales Offices & Reps

AL	Huntsville, R & G Assocs.	205-880-8020
AZ	Phoenix, O'Donnell Associates	602-944-9542
CA	Los Altos, Ewing Foley	415-941-4525
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Boulder, Stratford Grp.	303-530-3194
FL	Coral Springs, J.P. Jasco & Assocs.	813-371-3814
IL	Arlington Heights, Rozner Sls. Co.	312-577-0067
KS	Overland Pk., Spectrum Sls.	913-648-6811
MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
MA	Marlborough, O.K. Engrg.	617-481-6400
MN	Bloomington, EMT Engineering	612-888-1020
MO	Hazelwood, Spectrum Sls.	314-731-5151
NJ	Haddonfield, M & S Mesa Inc.	609-429-9531
NM	Albuquerque, O'Donnell Assocs.	505-883-1030
NY	Fairport, Senntec Sls.	716-425-3954
OH	Worthington, Simcox Assocs.	614-885-8776
OR	Beaverton, Jas. J. Backer Co.	503-627-0775
TX	Dallas, Stevens Sls. Co.	214-702-0132
WA	Seattle, Jas. J. Backer Co.	206-285-1300

Local Distributors

AL	Madison, Sea Wire & Cable	205-772-9616
CA	Concord, Control Master	415-939-3600
CA	Fountain Valley, Innovative Sys.	714-968-6383
CA	Irvine, Republic Elctrns.	714-855-2222
CA	Menlo Park, Bay Associates	415-321-2990
CA	San Leandro, Anixter	415-352-3100
CA	Torrance, Blake Wire & Cable	213-533-8141
CA	Valencia, Wirenetics Co.	805-257-2400
CO	Colorado Springs, SCI	303-598-6888
CT	East Hartford, E. J. Stephens Co.	203-282-9400
CT	Manchester, I.M.S.	203-649-4415
FL	Altamonte Springs, Royce Elctrns.	305-869-4700
FL	Ft. Lauderdale, Anixter	305-485-4455
FL	Ft. Lauderdale, Pacer Elctrns.	305-462-0902
IL	Brookfield, Conductors Unltd.	312-485-7855
MA	Woburn, Pacer Elctrns.	617-935-8330
MN	Bloomington, K. L. Tannehill	612-881-6700
NH	Amherst, North Country Wire & Cable	603-889-0063
NJ	Dover, Electro Spec.	201-361-6300
NY	Farmingdale, Weico Elctrns.	516-293-0050
MA	Lowell, Anixter	508-459-6400
NY	Rochester, Simcona Elctrn.	716-328-3230
FL	Tampa, Conductors Unlimited	813-248-1620
NC	Raleigh, Wholesale Electric	919-878-9400
OH	Dayton, Astro Inds.	513-429-5900
PA	Montgomeryville, Pyttronic Ind.	215-242-6700
TX	Dallas, Interstate Wire	214-553-1311
WA	Tukwila, Carlyle Inc.	206-251-0700
WI	New Berlin, Indl. Elec. Wire & Cable	414-782-2323

JUDD WIRE INC., 870 Los Vallecitos Blvd., San Marcos, CA 92069, Tel: 619-744-7720, FAX: 619-744-6089; FSC No.: 3357 ..... **B•1020-1021; C•1764**

Refer to Judd Wire, Turners Falls, MA for sales office and distributor information.

JULIE RESEARCH

FAX: 212-691-3320

JULIE RESEARCH LABS., 508 West 26 Street, New York, NY 10001, Tel: 212-633-6625, TWX: 710-581-5138; FSC No.: 07062; Empl.: 35; *Sls. Mgr.:* Pamela Spencer; *Dist. Mgr.:* Pamela Spencer ..... **A•1929; D•1270-1273**

Local Sales Offices & Reps

CA	Fresno, Lion Elctrn. Labs	209-233-9096

JUMO PROCESS CONTROL, INC., 735 Fox Chase, Coatsville, PA 19320, Tel: 215-380-8002, FAX: 215-380-8009; *Sls. Mgr.:* Gunnar Oberg

KAHLE ENGINEERING, 50 S. Center St. Bldg. No. 1, Orange, NJ 07050, Tel: 201-678-2020, FAX: 201-678-0326; Empl.: 50; *Sls. Mgr.:* Daniel Fowler

KSI

FAX: 508-922-8374

KAISER SYSTEMS, INC., 126 Sohier Road, Beverly, MA 01915, Tel: 508-922-9300; FSC No.: IFD78; Empl.: 100; *Sls. Mgr.:* Steve Swech ..... **D•1830-1835**

KALAMAZOO TECHNICAL FURNITURE, See TECLAB

KALGLO ELCTRNS. CO., INC., 6584 Ruch Rd., E. Allen Twp., Bethlehem, PA 18017-9359, Tel: 215-837-0700, TWX: 510-651-2101, FAX: 215-837-7978; FSC No.: 64521; *Sls. Mgr.:* James H. Beidelman

KALMUS & ASSOCS., INC., 2424 S. 25th Ave., Broadview, IL 60153, Tel: 708-343-7004, FAX: 708-343-7016; Empl.: 250; *Sls. Mgr.:* Kent Prather

KAMAN INSTRUMENTATION, 1500 Garden of the Gods, P.O. Box 7463, Colo Springs, CO 80907, Tel: 1-719-599-1892, FAX: 719-599-1823; FSC No.: 21732; Empl.: 200

KAM COMPONENTS, INC., P. O. Box 192-EEM, Nesconset, NY 11767, Tel: 516-585-0666, FAX: 516-585-1580; Empl.: 29; *Sls. Mgr.:* Cheryl Day

K&L MICROWAVE, INC., 408 Coles Circle, Salisbury, MD 21801, Tel: 301-749-2424, FAX: 301-749-5725; FSC No.: 50140; Empl.: 550; *Sls. Mgr.:* Jim Price

K & L OSCILLATEK, A DOVER TECHNOLOGY CO., See Oscillatek, A Dover Technology Co.

K & M ELECTRONICS, 11 Interstate Dr., W. Springfield, MA 01089, Tel: 413-781-1350, FAX: 413-737-0608; FSC No.: 66613; Empl.: 700; *Sls. Mgr.:* James Chase

KAPPA® TECHNOLOGIES INC.

FAX: 908-388-4786

KAPPA TECHNOLOGIES, INC., 1443 Pinewood St., Rahway, NJ 07065, Tel: 908-396-9400, 1-800-223-0603; FSC No.: 20933; Empl.: 175; *Sls. Mgr.:* M. Pearl ..... **A•1578-1588, 1680-1681, 2248-2249; D•1836**

Local Sales Offices & Reps

AZ	Scottsdale, Interstate Marketing	602-244-9050
CA	Woodland Hills, Interstate Marketing	818-883-7606
CO	Wheatridge, Wescom Mktg. Inc.	303-422-8957
MD	Middletown, S.T./Woolard Co., Inc.	301-371-4500
MN	Osseo, Gaffney Sls. Co.	612-425-5484
NJ	Ft. Lee, Neptune Elctrns. Co.	201-461-2789
NY	Cazenovia, S.T./Woolard Co., Inc.	315-655-8145
NY	Plainview, Neptune Elctrns. Co.	516-349-1600
PA	Ft. Washington, SMC, Inc.	215-628-3394
TX	Austin, Gardin-Moore Sls.	512-794-2900
TX	Dallas, Gardin-Moore Sls.	214-985-1193
TX	Houston, Gardin-Moores Sls.	713-496-7651
UT	Salt Lake City, Wescom Mktg. Inc.	801-269-0419
SC	Pickens, S.T./Woolard Co., Inc.	803-878-3830

Local Distributors

CA	Laguna Hills, Jaco/Distel, Inc.	714-837-8966
CA	San Jose, Jaco/Distel, Inc.	408-432-9290
CA	Sherman Oaks, Delay Line Distrs. Inc.	213-283-2058
CA	Westlake, Jaco/Distel, Inc.	805-495-9998
CT	Meriden, Jaco Elctrns., Inc.	203-235-1422
FL	Boca Raton, Jaco/QC	407-241-7950
GA	Norcross, Jaco/QC	404-449-9508
MD	Columbia, Jaco Elctrns., Inc.	301-995-6620
MA	Tewksbury, Jaco Elctrns., Inc.	508-640-0010
NY	Hauppauge, Jaco/Elctrns., Inc.	516-273-5500
NC	Raleigh, Jaco/QC	919-876-7767
OK	Tulsa, Jaco/QC	918-664-8812
TX	Addison, Jaco/QC	214-733-4300
TX	Austin, Jaco/QC	512-835-0220
TX	Sugar Land, Jaco/QC	713-240-2255
WA	Redmond, Jaco/Distel, Inc.	206-881-9700

KATRONIC ELEKTRONIC GES.M.B.H., OrtenburgerstraBe 28, Austria, Tel: 04762-5340, FAX: 534075; Empl.: 74; *Sls. Mgr.:* Herbert Sandner

KAUT & BUX MANUFACTURING CO., 675 Tower Rd., P.O. Box 867, Mundelein, IL 60060, Tel: 708-949-8505, TELEX: 6871289 KBM UN/, FAX: 1-708-949-4250; *Sls. Mgr.:* Heinz Kutschera

KAVLICO CORP., 14501 Los Angeles Ave., Moorpark, CA 93021, Tel: 805-523-2000, TELEX: 65-1481, FAX: 805-523-7125; Empl.: 500; *Dist. Mgr.:* Drew Distin

KAYCEE INDUSTRIES LTD., 32 Ramjibhai Kamani Rd., B.E., Bombay-38, INDIA, Tel: 2615567-68, 2613521-22-23, FAX: (91-22) 2616106; Empl.: 400

KAY ELEMETRICS CORP., 12 Maple Ave., P.O. Box 2025, Pine Brook, NJ 07058-2025, Tel: 201-227-2000, TWX: 710-734-4347; FSC No.: 80138; Empl.: 50; *Sls. Mgr.:* Stephen P. Crump ..... **A•1750**

KAY-RAY/SENSALL, INC., 1400 Business Center Drive, Mt. Prospect, IL 60056, Tel: 708-803-5100; Empl.: 170

KAY-TOWNES, Div. of Alco Industries, Inc., P.O. Box 593, Rome, GA 30161, Tel: 404-291-9871, FAX: 404-235-6851; Empl.: 60; *Sls. Mgr.:* James Joiner; *Dist. Mgr.:* Pauline Petty

KB ELECTRONICS, 73 Wortman Ave., Brooklyn, NY 11207, Tel: 718-257-3300, TWX: 710-584-2308, FAX: 718-257-4740; Empl.: 140; *Sls. Mgr.:* A Bueller

KCK AMERICA INC., Mitsubishi Materials Corporation, 930 Remington Rd., Schaumburg, IL 60173-4516, Tel: 708-884-8688, FAX: 708-884-9327; Empl.: 500; *Sls. Mgr.:* K. G. Such, V.P.

KD COMPONENTS, INC., 2710 S. Main St, Santa Ana, CA 92707, Tel: 714-545-7108, TWX: 910-595-2678, FAX: 714-549-7966; FSC No.: 58421; Empl.: 32; *Sls. Mgr.:* Wayne Devine

KDI/TRIANGLE ELECTRONICS, 60 S. Jefferson Rd., Whippany, NJ 07981, Tel: 201-887-5700, TWX: 710-986-8220; FSC No.: 64537; Empl.: 385

KDS AMERICA, Daishinku Corp., 10901 Granada Ln., Overland Pk, KS 66211, Tel: 913-491-6825, FAX: 913-491-6812; Empl.: 12; *Sls. Mgr.:* Tom Lawrence-East. Reg.; *Dist. Mgr.:* Sara Peterson ..... **A•1379**

Local Sales Offices & Reps

AL	Huntsville, ACM	205-881-5493
AZ	Carefree, Integrated Rep Co., Inc.	602-488-1740
CA	Fountain Valley, Dyna Rep.	619-693-1111
CA	San Diego, Bestronics	714-545-3255
CA	San Jose, QCI Assocs.	408-432-1070
CA	Simi Valley, Dyna Rep.	805-527-0072
CO	Wheatridge, Wescom Mktg., Inc.	303-422-8957
FL	Boynton, D-Assocs.	305-492-8634
FL	Sanford, D-Assocs.	407-321-9594
FL	Tampa, D-Assocs.	407-321-9594
GA	Norcross, ACM	404-448-7025
IL	Itasca, Circuit Sls.	708-773-0200
IN	Fishers, Rathsburg Assoc.	317-577-4500
IA	Cedar Rapids, Barnes Wes Tech. Assoc.	319-393-9790
MA	Scituate, CTC Assocs.	617-848-2077
MI	Farmington Hills, Rathsburg Assocs.	313-489-1500
MN	Chanhassen, Barnes Sls. Assocs.	612-934-2907
NY	Buffalo, Quality Comps.	716-837-5430
NY	Manlius, Quality Comps.	315-682-8885
NY	Smithtown, PAF Assocs.	516-360-0940
NC	Charlotte, Prime Comps., Inc.	704-522-1150
NC	Raleigh, Prime Comps. Inc.	919-850-9866
OH	North Royalton, Rathsburg Assocs.	216-582-9550
OH	Reynoldsburg, Rathsburg Assocs.	614-866-2490
OR	Beaverton, Western Tech. Sls.	503-644-8860
PA	Norristown, DER, Inc.	215-272-4502
TX	Austin, SW Mktg. Assoc., Inc.	512-255-8010
TX	Dallas, SW Mktg. Assoc., Inc.	214-341-8631
TX	Houston, SW Mktg. Assoc.,Inc.	713-537-8166
UT	Salt Lake City, Wescom Mktg., Inc.	801-269-0419
WA	Bellevue, Western Tech. Sls.	206-641-3900
WA	Spokane, Western Tech. Sls.	509-922-7600
WI	Brookfield, Circuit Sls.	414-784-7773
Can	Burnaby, B.C., Vitel Elctrns.	514-636-5951
Can	Kanata, Ont., Vitel Elctrns.	613-592-0090
Can	Lachine, Que., Vitel Elctrns.	514-636-5951
Can	Mississauga, Ont., Vitel Elctrns.	416-676-9720

Local Distributors

AL	Huntsville, Future Electronics	205-830-2322
AL	Huntsville, Reptron	205-722-9500
AZ	Phoenix, Future Electronics	602-968-2140
CA	Chatsworth, Future Elctrns.	818-772-6240
CA	Garden Grove, Natl Elctrns.	714-892-7749
CA	Irvine, Future Elctrns.	714-250-4141
CA	Irvine, ITT Multicomps.	714-727-3001
CA	San Diego, Future Elctrns.	619-278-5020

CA	San Jose, Compass Comps.	408-432-7575
CA	San Jose, Eric Elctrns.	408-432-1111
CA	San Jose, Future Elctrns.	408-434-1122
CA	San Jose, PSC Elctrns.	408-737-1333
CA	Saratoga, Western Micro	408-725-1660
CO	Englewood, NEP Elctrns.	303-799-9898
CO	Westminster, Future Electrns.	303-650-0123
CO	Westminster, ITT Multicomponents	303-451-8740
CT	Bethel, Future Elctrns.	203-743-9594
FL	Altamonte Springs, Future Elctrns.	305-767-8414
FL	Clearwater, Future Elctrns.	813-578-2770
FL	Ft. Lauderdale, Reptron	305-735-1112
FL	Tampa, Reptron	813-854-2351
GA	Norcross, Future Elctrns.	404-441-7676
GA	Norcross, Reptron	404-446-1300
IL	Schaumburg, Future Elctrns.	312-882-1255
IL	Schaumburg, Reptron	708-882-1700
IL	Wood Dale, NEP Elctrns.	708-595-8500
MD	Columbia, Future Elctrns.	301-995-1222
MA	Burlington, Western Micro Technology	617-273-2800
MA	Hopkinton, Interface Electronics	508-436-6858
MA	Westboro, Future Elctronics	617-366-7400
MI	Livonia, Future Elctrns.	313-261-5270
MI	Livonia, Reptron	313-525-2700
MN	Eden Prairie, Future Elctrns.	612-944-2200
MN	Minnetonka, Reptron	612-938-0000
MO	St. Louis, Future Elctrns.	314-469-6805
NJ	Fairfield, Future Elctrns.	201-227-4346
NJ	Mount Laurel, Future Elctrns.	609-778-7600
NY	Liverpool, Future Elctrns.	315-451-2371
NY	Long Island, Future Elctrns.	516-234-4000
NY	Rochester, Future Elctrns.	716-272-1120
NC	Charlotte, Future Elctrns.	704-529-5500
NC	Raleigh, Reptron	919-870-5189
OH	Solon, Reptron	216-349-1415
OH	Worthington, Reptron	813-436-6675
OR	Beaverton, Future Electrns.	503-645-9454
OR	Beaverton, Western Microtechnology	503-629-2082
TX	Austin, Omni Pro	512-794-9200
TX	Dallas, Omni Pro	214-233-0500
TX	Richardson, Future Elctrns.	214-437-2437
UT	Salt Lake City, Future Elctrns.	801-972-8489
UT	Salt Lake City, Western Microtechnology	801-575-7150
WA	Redmond, Future Elctrns.	206-881-8199
WA	Redmond, Western Microtechnology	206-881-6737
WI	Waukesha, Future Elctrns.	414-786-1884
Can	Pointe Claire, Future Elctrns.	514-694-7710

KEDMAN CO., Box 25667, Salt Lake City, UT 84125, Tel: 801-973-9112, FAX: 801-972-2756; Empl.: 100

KEITHLEY INSTRUMENTS

FAX: 216-248-6168

KEITHLEY INSTRS., 28775 Aurora Rd., Cleveland, OH 44139, Tel: 800-552-1115; Empl.: 750; *Sls. Mgr.:* Mike Sciulli ..... **D•1275-1277**

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instrs.	205-830-9224
AZ	Tempe, Aztec Entprs.	602-431-8401
CA	Carson, Tritek Solutions, Inc.	213-515-1590
PA	Huntington Valley, Scientific Reps.	215-322-6500
CO	Denver, Aztec Entrprs.	303-779-5285
FL	Orlando, W. A. Brown Instrs.	407-648-9660
IL	Buffalo Grove, Torkelson	708-520-0710
IN	Indianapolis, Torkelson	317-244-7867
IA	Cedar Rapids, Torkelson	319-373-0200
MA	Reading, Keithley	800-552-1115
MI	Detroit, EQS Sys.	313-455-7920
MN	Minneapolis, Torkelson	612-835-2414
MO	Florissant, Keithley	800-552-1115
NJ	Paramus, Keithley	800-552-1115
NM	Albuquerque, Aztec Entrprs.	505-262-1688
NY	Melville, Keithley	800-552-1115
NY	Syracuse, Labtronics	315-455-7314
NC	Cary, W.A. Brown Instrs., Inc.	919-460-1120
OH	Chesterland, EQS Sys.	216-729-2222
OR	Wilsonville, Syntek	503-682-2750
TX	Austin, Testech	512-338-9246
TX	Houston, Testech	713-893-9661
TX	Richardson, Testech	214-644-5010
VA	Fairfax, Scientific Assocs.	703-385-0600
WA	Bellevue, Syntek	206-462-7700
WI	Waukesha, Torkelson Assocs., Inc.	414-784-7736

KEITHLEY METRABYTE, 440 Myles Standish Blvd., Taunton, MA 02780, Tel: 508-880-3000, TELEX: 503989, FAX: 508-880-0179; FSC No.: 1 FG 11; Empl.: 140; *Sls. Mgr.:* Gary Gross; *Dist. Mgr.:* Gary Gross ..... **D•1184**

Local Sales Offices & Reps

AL	Huntsville, Magaro Assocs.	205-882-0827
AZ	Tempe, Aztec Entprs.	602-431-8401
CA	Orange, X. B. X. Sls.	714-998-8200
CA	San Jose, Nelson Elctrn.	408-437-9300
CO	Denver, Aztec Entprs.	303-779-5285
FL	Orlando, Magaro & Assocs.	407-859-6546
GA	Atlanta, Magaro Assocs.	404-451-8862
IL	Arlington Hts., Berndt Assocs.	708-632-0900
IN	Carmel, Berndt Assocs.	317-844-0114
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	Manchester, Vertec Assoc., Inc.	314-394-6242
NJ	Elmwood Park, L & M Assocs.	201-797-0441
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	Canandaigua, West Technlgs., Inc.	716-394-6355
NC	Greensboro, Magaro Assocs.	919-282-4424
OH	Chesterland, EQS Sys.	216-729-2222
OR	Beaverton, Northwest Test & Meas.	503-645-9000
PA	Huntington Valley, Sci-Rep, Inc.	215-322-6500
RI	Narragansett, Pat Assocs.	401-783-9598
TX	Richardson, Testech, Inc.	214-644-5010
UT	Salt Lake City, Aztec Entprs.	801-467-4675
VA	Fairfax, Sci-Rep, Inc.	703-385-0600
WA	Bellevue, Northwest Test & Meas.	206-881-8857
WI	Milwaukee, Berndt Assocs.	414-545-8400

KEL AM, See Teltec, Inc.

KELLER-PSI, 503 No. 15A Vista Bella, Oceanside, CA 92056, Tel: 619-967-6066, TELEX: 380-948, ESYLNK: 62744770, FAX: 619-967-0563; Empl.: 8; *Sls. Mgr.:* Dick Grove; *Dist. Mgr.:* Dick Grove

KEL CONNECTORS, INC., KEL Corp., 1250 Oakmead Pkwy., No. 105, Sunnyvale, CA 94086, Tel: 408-720-9044, FAX: 408-720-1989; *Sls. Mgr.:* Jim Eilers

Local Distributors

CA	San Carlos, LoDan West	415-592-4600
FL	Largo, LoDan Elctrns.	813-586-2851
IL	Arlington Heights, LoDan Elctrns.	708-398-5311
MN	Eitzen, Capacitor Assocs.	507-495-3306

KELLY AMERICAN, INC., 640 Federal Rd., Brookfield, CT 06804, Tel: 203-775-2590, TELEX: 4750159ELECABUL, FAX: 203-775-9048; *Sls. Mgr.:* Robert Buckley

KELMET, INC., 569 W. Covina Blvd., San Dimas, CA 91773, Tel: 714-599-0954, FAX: 714-599-2835; Empl.: 6; *Sls. Mgr.:* Paul Hodge

KELTEC FLORIDA, INC., MICROWAVE PRO, P.O. Box 2917, Ft. Walton Bch., FL 32549-2917, Tel: 904-244-0043, FAX: 904-243-0103; FSC No.: 09062; Empl.: 350; *Sls. Mgr.:* I. Rampurawala

KELTECH INC., 7508 Hitech Rd., Roanoke, VA 24019, Tel: 703-362-8466, FAX: 703-362-3957; Empl.: 35; *Sls. Mgr.:* William Sinclair, Gen. Mgr.

KELTRON CORPORATION

FAX: 617-899-9602

KELTRON CORP. High Voltage Power Supply Div., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, TELEX: 948197; Empl.: 170; *Sls. Mgr.:* T. Chadurjian ..... **D•1099**

KELTRON CORP., Miniprinter/Security Systems Div., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, TELEX: 948197, FAX: 617-899-9602; FSC No.: 18662; Empl.: 250; *Sls. Mgr.:* Steven P. Sargent ..... **D•1099**

Local Sales Offices & Reps

CA	Canoga Pk., Dolphin Tech Entprs.	818-710-1966
IL	Palatine, Key Entprs.	708-991-2144
MD	Baltimore, Advanced Tech. Sls., Inc.	301-323-3140
NY	Amsterdam, Traxonics	518-843-1445
PA	Oreland, Precision Mktg. Grp.	215-233-9233
WI	South Milwauke, Key Entprs.	414-762-2323

Local Distributors

AL	Decatur, Mgt. Security, Inc.	205-355-3030
CA	San Francisco, SF Fire & Burg.	415-861-0994
DC	District of Columbia, Ellenco Inc.	301-927-4370
FL	Miami, Glanz Technlg., Inc.	305-893-1269
GA	Albany, Tri-L Sys.	912-888-1266
IL	Chicago, Natl. Guardian Alarm	312-775-9600
MA	Georgetown, B & B Engrg.	508-352-6402
MI	Bloomfield Hills, W.E. Healy & Assocs.	313-335-9245
NC	Raleigh, National Security	919-821-1150
OK	Tulsa, Pendergraph, Inc.	918-835-8403
TX	Amarillo, Firehawk Safety Sys.	806-374-9613
WI	Brookfield, John Guetzke & Assocs., Inc.	414-784-5929

KELVIN INDUSTRIES, INC., 14724 Ventura Blvd., No. 1003, Sherman Oaks, CA 91403-3501, Tel: 818-990-1192, FAX: 818-995-6460; FSC No.: 19587; Empl.: 180; *Sls. Mgr.:* R. A. Featherston

KEMET®

FAX: 803-963-6521

KEMET ELECTRONICS CORPORATION, Box 5928, Greenville, SC 29606, Tel: 803-963-6621, TELEX: 57-0496, TWX: 810-287-2536; FSC No.: 31433; Empl.: 6,200; *Sls. Mgr.:* Robert Taylor; *Dist. Mgr.:* Dan Manly ..... **A•1082-1083**

Refer to Kemet, Union Carbide Corp., Elctrns. Div. for sales office information and for distributor listings.

Local Sales Offices & Reps

AL	Huntsville	205-830-1090
AZ	Tempe	602-831-2151
CA	Encino	818-609-7561
CA	Newport Beach	714-640-9320
CA	Santa Clara	408-986-0424
CO	Englewood	303-220-0759
FL	Ft. Lauderdale	407-394-2326
FL	Orlando	407-855-8886
GA	Norcross	404-441-7701
IL		
IL	Schaumburg	708-517-1030
IN	Carmel	317-844-7756
MD	Columbia	301-992-5600
MA	Wakefield	617-245-4646
MI	Farmington Hills	313-489-5850
MN	Edina	612-929-4642
NY	Elmsford	914-347-4390
NY	Liverpool	315-451-0720
NC	Raleigh	919-872-2877
OH	Columbus	614-885-3330
OK	Tulsa	918-664-8592
PA	Exton	215-363-8310
SC	Greenville	803-242-5789
TX	Austin	512-458-3181
TX	Irving	214-556-0009
WA	Kirkland	206-828-4853

Local Distributors

CA	Agoura Hills, Time Elctrns.	818-707-2890
CA	Compton, Harper SID	213-979-5090
CA	Culver City, Hamilton/Avnet Elctrns.	213-558-2100
CA	Los Angeles, Bell Inds.	213-826-6778
CA	Sunnyvale, Capsco Sls., Inc.	408-734-3020
CO	Denver, Integrated Elctrns.	303-292-5537
DE	Wilmington, J.V. Elctrns.	508-657-6523
GA	Gaithersburg, Pioneer Technlgs.	301-921-0660
IL	Chicago, Newark Elctrns.	312-784-5100
NJ	Old Bridge, Arm Bar Inds.	201-679-3377
NM	Albuquerque, Alliance Elctrns.	505-292-3360
NY	Buffalo, Summit Distrs., Inc.	716-887-2800
NY	Central Islip, Semicap Elctrns.	516-582-4400
NY	Hauppauge, L.I., Jaco Elctrns.	516-273-5500
NY	Westbury, Schweber Elctrns.	516-876-4000
NC	Greensboro, Golden Elctrns.	919-294-4653
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cleveland, Pioneer Elctrns.	216-587-3600
TX	Fort Worth, TTI Elctrns.	817-831-8300
Can	Vancouver, B.C., Deskin Sls.	604-324-8343

KEMLON PRODUCTS & DEVELOPMENT COMPANY, 6310 Sidney, Houston, TX 77021, Tel: 713-747-5020, FAX: 713-747-0049; Empl.: 165; *Sls. Mgr.:* Bob Horton

KEMTRON CIRCUITS & ELCTRNS. CORP., 110 S. Long Bch. Rd., Rockville Centre, NY 11570, Tel: 516-766-2772; Empl.: 7; *Sls. Mgr.:* Walter Carlock

KENMAR MANUFACTURING SERVICES, Kenmar Business Groups, Inc., 3020 Barrow Drive, Raleigh, NC 27604, Tel: 919-876-6049, FAX: 919-876-6292; Empl.: 35

M.S. KENNEDY CORP., 8170 Thompson Rd., Cicero, NY 13039, Tel: 315-699-9201, FAX: 315-699-8023; FSC No.: 51651; Empl.: 60; *Sls. Mgr.:* Greg Overend

KENTRON, INC., P.O. Box 142, Cedarburg, WI 53012-0142, Tel: 414-377-3733, FAX: 414-377-3733; *Sls. Mgr.:* Kenneth L. Krolski

KEN-TRON MFG., INC., 610 Industrial Dr., Owensboro, KY 42301, Tel: 502-684-0431, TELEX: 20-4305, FAX: 502-684-0435; Empl.: 100; *Sls. Mgr.:* R. Thompson

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KEPCO, INC., 131-38 Sanford Ave., Flushing, NY 11352, Tel: 718-461-7000, TWX: 710-582-2631; Empl.: 300; *Sls. Mgr.:* Frank Toich ..... **D•1837-1870**

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown, Inc.	205-830-9224
AZ	Phoenix, Aztec Entprs.	602-431-8401
CA	Carson, TRITEK	213-515-1590
CA	San Diego, Earle Assocs., Inc.	619-278-5441
CA	Sunnyvale, N-S Westronics	408-745-1102
CO	Denver, Aztec Entprs.	303-779-5285
CT	Bethel, Ray Perron & Co., Inc.	203-798-0261
CT	Waterbury, R. Perron Co.	203-756-9684
DC	Washington, Eastern Instrmn. Corp.	301-384-8500
FL	Ft. Lauderdale, W. A. Brown Instrs., Inc.	305-581-6444
FL	Melbourne, W. A. Brown Instrs., Inc.	407-723-0766
FL	Orlando, W. A. Brown Instrs., Inc.	407-648-9660
GA	Atlanta, W. A. Brown Instrs., Inc.	404-449-7160
KS	Kansas City, ATECH, Div. of ATA, Inc.	913-268-9644
MD	Baltimore, Eastern Instrmn. Corp.	301-792-7039
MA	Boston, R. Perron Co.	617-449-6162
MI	Plymouth, EQS	313-445-7924
MN	Plymouth, Kepco Inc.	612-559-1128
MO	St. Louis, ATECH, Div. of ATA, Inc.	314-949-9075
NM	Albuquerque, Aztec Entrps.	505-262-1688
NY	Liverpool, NTS Assocs., Inc.	315-451-1091
NC	Cary, W. A. Brown Instrs., Inc.	919-460-1120
OH	Chesterland, EQS	216-729-2222
OK	Tulsa, Airep Elctrns.	918-592-7711
OR	Beaverton, H. Levinson Co.	503-690-1312
TX	Austin, Airep Elctrns.	512-327-0778
TX	Dallas, Airep Elctrns.	214-349-4360
TX	Houston, Airep Elctrns.	713-952-5395
UT	Ogden, Aztec Entprs., Inc.	801-467-4675
WA	Seattle, H. Levinson Co.	206-382-1300
WI	Milwaukee, Star Engineering	414-645-3680
Can	Downsview, Ont., Rayonics	416-736-1600
Can	Ottowa, Ont., Rayonics	613-521-8251
Can	St. Laurent, Que., Rayonics	514-335-0105

KEPRO CIRCUIT SYSTEMS, 630 Axminister Dr., Fenton, MO 63026-2992, Tel: 314-343-1630, FAX: 314-343-0668; FSC No.: 5999; Empl.: 17; *Sls. Mgr.:* Jeff R. Keil; *Dist. Mgr.:* Jeff R. Keil

KEPTEL/ARMIGER, 56 Park Rd., Tinton Falls, NJ 07724, Tel: 800-526-3697, 201-389-8800; Empl.: 300; *Sls. Mgr.:* Kathy Plesnarski; *Dist. Mgr.:* Larry Bucknell

KESSLER-ELLIS PRODS., 120 1st Ave., Atlantic Highlands, NJ 07716, Tel: 201-291-0500, 800-631-2165, TELEX: 13-2496-, FAX: 201-291-8097; FSC No.: 28222; Empl.: 85

KESTER

FAX: 708-390-9338

KESTER SOLDER DIV., Litton Sys., Inc., 515 E. Touhy Ave, Des Plaines, IL 60018, Tel: 708-297-1600; Empl.: 350; *Sls. Mgr.:* Nick Bohun; *Dist. Mgr.:* Carl Voelkel ..... **C•1701**

Local Sales Offices & Reps

CA	Anaheim	714-871-0280
NJ	Newark	201-589-0246

KETEMA
RODAN DIVISION

FAX: 714-630-4131

KETEMA/RODAN DIVISION, 2900 Blue Star St., Anaheim, CA 92806, Tel: 714-630-0081, TWX: 910-591-1684; FSC No.: 15454;DESC-EQP-75-1387; Empl.: 170; *Sls. Mgr.:* Jack H. Moore ..... **B•1846-1848**

Local Sales Offices & Reps

AL	Huntsville, Alpha Mktg.	205-533-0766
AZ	Phoenix, TC Elctrn. Sls., Inc.	602-994-5153
AZ	Scottsdale, TC Elctrn. Sls., Inc.	602-994-5153
CA	Chatsworth, Wes-K/Raltech	818-700-0933
CO	Westminster, Straube Assocs.	303-426-0890
IL	Inverness, Heartland Tech. Mktg.	708-358-6622
IN	Ft. Wayne, Menze Sls. Co.	219-747-5616
KS	Parker, S. W. Assocs., Inc.	913-898-6552
MA	Framingham, Marathon Sls. Ltd.	508-875-3566
MN	Mendota Hgts., G-II Sls.	612-454-3086
MO	St. Louis, Abrams & Assocs.	314-569-0447
NJ	Bellmawr, TAI Corp.	609-933-2600
NY	Melville, Comtronic Assocs.	516-249-0505
NY	Syracuse, Canavan-Scanlon Assocs.	315-437-1271
NC	Charlotte, Arthur, Harris Assocs.	704-542-9338
WI	Brookfield, Heartland Tech. Mktg.	414-792-0920
TX	Houston, R-Squared Elctrns.	713-820-3210
UT	Salt Lake City, Straube Assocs.	801-263-2640
WA	Vancouver, R. Over Sls.	206-695-6179

Local Distributors

AZ	Tempe, Elctrn. Supp.	602-276-1199
CA	Los Alamitos, Permag Pacific Corp.	213-594-6515
CA	Riverside, Elctrn. Supp.	714-543-9214
CA	San Diego, Elctrn. Supp.	619-693-8222
CA	Sunnyvale, Permag Sierra	408-738-1080
CO	Denver, Permag Corp.	303-693-6612
GA	Norcross, Permag S.E. Div.	404-448-4998
IL	Elk Grove Vl, Permag Cen. Div.	312-956-1140
MA	Billerica, Permag N.E. Div.	617-663-7500
MN	Eden Prairie, Permag Minnesota Div.	612-934-4635
NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	Hicksville, Permag Atlantic Div.	516-822-3311
OH	Toledo, Permag Magnetics Div.	419-385-4621
TX	Richardson, Permag S.W. Div.	214-699-1121
WA	Bellevue, Permag N.W. Div.	206-882-2507
Can	Mississauga, Ont., R-Theta, Inc.	416-890-0221

KEWAUNEE SCIENTIFIC CORP., Technical Workstation Div., 901 FM 20, P.O. Box 930, Lockhart, TX 78644, Tel: 512-398-5292, TELEX: 752706, FAX: 512-398-5104; Empl.: 165 (This Location) 800 (Company Wide); *Sls. Mgr.:* Frank Johnson, Dir. Sls./Mktg.

Keystone
CARBON COMPANY

FAX: 814-781-7648

KEYSTONE CARBON, Thermistor Div., 1935 State Street, St. Marys, PA 15857, Tel: 814-781-1591; FSC No.: 75-263; Empl.: 1200; *Sls. Mgr.:* John A. Brock; *Dist. Mgr.:* John A. Brock ..... **B•1849-1851**

Local Sales Offices & Reps

CA	Redwood City, Hickey Inds. Sls.	415-594-9978
CA	San Diego, ProSales	619-571-1133
CT	Wethersfield, L.J. Labant	203-529-0048
GA	Marietta, J.J. Arnold	404-427-1062
IL	Palatine, David J. Brock	708-359-0955
IN	Fort Wayne, R.O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R.O. Whitesell & Assocs.	317-876-9000
IN	Kokomo, R.O. Whitesell & Assocs.	317-457-9127
KS	Shawnee, Benson Engrg.	913-491-4446
MI	Birmingham, Mi, Gregory J. Lukas	313-642-9115
MI	Farmington Hills, J.L. Montgomery Assocs.	313-489-0099
MN	Minneapolis, Dave Marrone	612-566-6573
NY	Rochester, Foster & Wager	716-385-7744
OH	Cincinnati, R.O. Whitesell & Assocs.	513-528-5644
OH	Cleveland, R.O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R.O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R.O. Whitesell & Assocs.	513-298-9546
NC	Cary, J. E. Shea	919-481-2475
PA	Pittsburgh, R.O. Whitesell & Assocs.	412-963-6161
TX	Dallas, Benson Engrg.	214-352-7541
TX	Houston, Benson Engrg.	713-333-3112
EXP	Great Neck NY, Minthorne Int'l.	516-487-0700

Local Distributors

AL	Huntsville, Allied Elctrns.	205-721-3500
AZ	Phoenix, Allied Elctrns.	602-437-9080
AR	Little Rock, Newark Elctrns.	501-225-8130
CA	Torrance, Allied Elctrns.	213-373-8828
CO	Denver, Newark Elctrns.	303-373-4540
CT	Cheshire, Allied Elctrns.	203-272-7730
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
GA	Norcross, Allied Elctrns.	404-446-8595
HI	Aiea, Newark Elctrns.	808-487-8951
ID	Boise, Newark Elctrns.	208-342-4311
IL	Chicago, Newark Elctrns.	312-784-5100
IN	Indianapolis, Allied Elctrns.	317-875-0448
IA	Bettendorf, Newark Elctrns.	319-359-3711
KS	Lenexa, Allied Elctrns.	913-599-6227
KY	Louisville, Allied Elctrns.	502-452-2293
LA	Metairie, Allied Elctrns.	504-885-1195
MD	Columbia, Newark Elctrns.	301-964-4482
MA	Billerica, Allied Elctrns.	508-667-7921
MI	Oak Park, Newark Elctrns.	313-967-0600
MN	Thief River Falls, Digi-Key Corp.	800-344-4539
MS	Jackson, Newark Elctrns.	601-956-3834
MO	Earth City, Allied Elctrns.	314-291-7031
NE	Omaha, Newark Elctrns.	402-392-1221
NH	Nashua, Allied Elctrns.	603-883-3006
NJ	Frenchtown, Sintec	201-996-4093
NM	Albuquerque, Newark Elctrns.	505-883-6181
NY	Fairport, Allied Elctrns.	716-425-3850
NC	Charlotte, Newark Elctrns.	704-535-5650
OH	Solon, Allied Elctrns.	216-248-4200
OK	Tulsa, Newark Elctrns.	918-832-7004
OR	Portland, Allied Elctrns.	503-245-4225
PA	Pittsburgh, Newark Elctrns.	412-343-9090
RI	Cranston, Newark Electrns.	401-943-3340
SC	Greenville, Newark Elctrns.	803-288-9610
TN	Memphis, Allied Elctrns.	901-367-2895
TX	Fort Worth, Allied Elctrns.	817-336-5401
UT	Salt Lake City, Newark Electrns.	801-484-8611
VA	Virginia Beach, Allied Elctrns.	804-363-8662
WA	Seattle, Allied Elctrns.	206-547-2827
WV	Charleston, Newark Elctrns.	304-345-6505
WI	New Berlin, Allied Elctrns.	414-796-1280
Can	Mississauga, Ont., Newark Elctrns.	416-675-8351

KEYSTONE ELECTRONICS CORP., 31-07 20th Rd., Astoria, NY 11105-2017, Tel: 718-956-8900, TELEX: 35-3700, FAX: 718-956-9040; FSC No.: 91833; Empl.: 80; *Sls. Mgr.:* Charles Gold

KEYTEK INSTRUMENT CORP., 260 Fordham Rd., Wilmington, MA 01887, Tel: 508-658-0880, TELEX: 951389 KEYTEK BURL, FAX: 508-657-4803; *Sls. Mgr.:* Michael Hopkins

KEYTEK KEYBOARDS CANADA INC., 16 Mary St., Units 3 & 4, Aurora, Ontario, Canada L4G 3W8, Tel: 416-727-9491, FAX: 416-727-7118; Empl.: 20

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FAX: 818-798-1466

KGS ELECTRONICS, INC., 2029 N. Lincoln Ave., Pasadena, CA 91103, Tel: 818-798-0786; Empl.: 60 ..... **D•1871, 2210**

Local Sales Offices & Reps

NJ	Wayne, BIZ Intl.	201-694-2417
TX	Hurst, McGarrah & Assocs.	817-268-3557

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AZ Chandler, Vic Myers Assocs. 602-345-6449
CA Santa Clara, Alltronics 408-982-9222
CA Torrance, Amasco South 213-781-9494
CO Littleton, Vic Myers Assocs. 303-730-7313
FL Cape Canaveral, Teqspec 407-783-3444
FL Palm Harbor, Teqspec 813-942-6006
HI Honolulu, Honolulu Elctrns. 808-949-5564
IL Elmhurst, Sector Engrg. Sls. 708-530-7850
IN Indianapolis, Sector Engrg. Sls. 317-253-9221
KS Lenexa, Midtec Assocs. 913-541-0505
MD Wheaton, Brimberg Sls. 301-946-2670
MA Billerica, Eastronix 508-670-2400
MI Bloomfield Hills, MacKellar Assoc. Inc. 313-335-4440
MN Minneapolis, Sector Engrg. Sls. 612-378-2123
MO St. Louis, Midtech Assocs. 314-275-8666
NJ Ridgefield Park, Scientific Dvcs. East 201-440-1400
NM Albuquerque, Vic Myers Assocs., Inc. 505-884-6878
NY Rochester, Eastern Sys. 716-292-1460
OH Columbus, MacKellar Assoc. Inc. 614-848-3552

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PA Horsham, PA Scientific Dvcs. 215-956-0700
TX Houston, Scientific Dvcs. SW 713-645-4100
TX Richardson, Scientific Dvcs. SW 214-231-8106, 800-256-6633
UT Salt Lake City, Vic Myers Assoc. Inc. .. 801-581-1760
WA Bellevue, Syntek, Inc. 206-462-7700
WI Milwaukee, Sector Engrg. Sls. 414-352-8280
PR San Juan, David S. Ternent 809-762-2688
Can Burnaby, BC, Interfax Sys., Inc. 604-430-1410
Can Nepean, Ont., Interfax Sys., Inc. 613-726-8888
Can Rexdale, Ont., Interfax Sys., Inc. 416-674-8970
Can St. Laurent, Que., Interfax Sys., Inc. 514-336-0392

KILO INTERNATIONAL, 1952 Billings Ave., Provo, UT 84606, Tel: 714-593-4626, FAX: 714-596-8023; FSC No.: 05129; Empl.: 50; *Sls. Mgr.:* James T. Davis; *Dist. Mgr.:* James T. Davis

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Local Sales Offices & Reps

CA Campbell, Kottmeier Assocs. 408-371-8700
CA La Habra, Cygnus Sls. Engrg. Corp. ... 213-691-2993
FL Orlando, Comp. Design Mktg. 407-240-3903
GA Atlanta, Electro Tech 404-262-1522
IL Elgin, Gassner & Clark, Inc. 312-695-9540
IA Cedar Rapids, Seltec Sls. Corp. 319-364-7660
KS Overland Pk., Spectrum Sls. 913-648-6811
NH Nashua, Bell Controls 603-882-6984
NM Albuquerque, Cleveland Entprs., Inc. .. 505-265-7893
NY Great Neck, Trionic Assocs. 516-466-2300
NY Rochester, Lamb Comp., Inc. 716-323-1250
NC Winston-Salem, DGW, Inc. 919-768-7166
OH Cleveland, Electronic Components, Inc. 216-331-5330
OH Columbus, Electronic Comp., Inc. 614-231-2318
OH Miamisburgh, Electronic Comps., Inc. 513-866-3340
OR Tigard, Components West, Inc. 503-684-1671
TX Dallas, Caton Sls. Co. 214-243-4718
WA Redmond, Components West, Inc. 206-885-5880
Can Brit. Columbia, Macom Agencies, Ltd. 604-271-2661

KINEMETRICS/SYSTEMS, Kinemetrics, Inc., 222 Vista Ave., Pasadena, CA 91107, Tel: 818-795-2220, TELEX: 67-5402, FAX: 818-795-0868; Empl.: 65; *Sls. Mgr.:* Mel Lund

KINEMETRICS/TRUETIME, 3243 Santa Rose Ave, Santa Rosa, CA 95407, Tel: 707-528-1230, TELEX: 176687(TRUETIME SARO), FAX: 707-527-6640; Empl.: 45; *Sls. Mgr.:* R. J. Dielman

KINETICSYSTEMS, 11 Maryknoll Dr., Lockport, IL 60441, Tel: 815-838-0005, TWX: 910-638-2831, FAX: 815-838-4424; Empl.: 135; *Sls. Mgr.:* Norman R. Ellison, Dir. Domestic Sls.

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KINGBRIGHT USA CORP., Kingbright Elec. Co., Ltd., 200 S. Garfield Ave., No. 204, Alhambra, CA 91801, Tel: 818-281-9788, 818-281-9807; Empl.: 3 ..... **B•1170-1172**

Local Sales Offices & Reps

AL Madison, Contact Manufacturer 818-281-9788
AZ Phoenix, C.T. Carlberg Assocs. 602-468-0750
CO Denver, Parker-Webster 303-841-4888
GA Norcross, Benchmark Tech. Sls. 404-446-1711
IL Rolling Hills, Eagle Tech. Sls. 708-991-0700
IA Cedar Rapids, Contact Manufacturer 818-281-9788
MD Gaithersburg, Contact Manufacturer .. 818-281-9788
MO Florissant, Contact Manufacturer 818-281-9788
MO St. Louis, Rush & West Assocs. 314-965-3322
NY Tuckahoe, Disty-Brown Sls. 800-933-4789
NC Raleigh, Benchmark Tech. Sls. 919-850-0633
PA Ft. Washington, Contact Manufacturer 818-281-9788
VA Front Royal, Contact Manufacturer 818-281-9788
WI Colgate, Contact Manufacturer 818-281-9788

Local Distributors

AZ Phoenix, C.T. Carlsberg & Assocs. Inc. 800-888-1408
CA Chatsworth, Passive Comps. Inc. 818-700-8838
CA Los Angeles, Electric Switches Inc. ... 800-252-4640
CA Milpitas, Sierra West 408-945-1050
CA Mission Viejo, Opto Plus, Inc. 714-380-8654
CA San Diego, Southland Comps. Inc. 619-673-3800
CA Santa Maria, Garrett/IEU Inc. 805-922-6383
CA Simi Valley, Tri-Electro Sls., Inc. 805-527-3317
CO Englewood, Computech Mktg. 303-773-3981
CT Norwalk, Cobra Comps., Inc. 203-847-6442
CT Sudbury, KSA of New England 508-443-5881
FL Boca Raton, N.R.C. Elctrns., Inc. 407-241-8600
FL Clearwater, Atlantic Elctrns., Inc. 813-531-5900
FL Clearwater, Source Research Inc. 813-443-7001
FL Pembroke Pines, Munday Sls., Inc. 306-961-9420
IL Cleveland, RK Comp. Sls. Inc. 216-642-9312
IL Rolling Meadows, Eagle Tech. Sls., Inc. 708-991-0700
MD Baltimore, Astrex 800-257-7717
MA W. Springfield, Astrex 800-445-9763
MO St. Louis, Ric-Tronics, Inc. 314-997-4707
MO St. Louis, Rush & West 314-965-3322
NJ Pennsauken, Astrex 800-257-7713
NJ Tenafly, Michelle Assocs. 201-894-8964
NY East Syracuse, ADR Technlgs., Inc. ... 315-437-7087
NY Endwell, Astrex 800-252-8711
NY Endwell, Elctrns., Inc. 607-754-3823
NY Tuckahoe, Disty-Brown Sls. Co. 914-933-4789
NC Raleigh, Benchmark Tech. Sls., Inc. ... 919-850-0633
TX Austin, Wofford Elctrns., Inc. 512-339-1131
TX Carrollton, LCD Elctrns., Inc. 800-245-0342
TX Dallas, Orion Assocs. 214-241-3505
TX Richardson, Ewing Elctrns., Inc. 214-231-6725
WA Bellevue, Luscombe Engrg. 206-223-1541
EXP Los Angeles, Kingbright USA Corp. ... 818-281-9788

KINGS ELECTRONICS CO., INC., 40 Marbledale Rd., Tuckahoe, NY 10707, Tel: 914-793-5000, TELEX: 6818293; Empl.: 550; *Sls. Mgr.:* Fred Pack; *Dist. Mgr.:* Ed Lagarto/F. Dellaiancano

KIPP & ZONEN, Enraf-Nonius, 390 Central Ave., Bohemia, NY 11716, Tel: 516-589-2885, 800-645-1025, FAX: 516-589-2068; Empl.: 25; *Sls. Mgr.:* Wm. Novack; *Dist. Mgr.:* Joe Carlin

KIRKWOOD INDUSTRIES INC., 4855 West 130 St, Cleveland, OH 44135, Tel: 216-267-6200, TELEX: 980630, FAX: 216-362-3804; *Sls. Mgr.:* Tom Bauer

KISTLER INSTRUMENTS CORP., 75 John Glenn Dr., Amherst, NY 14221-2171, Tel: 716-691-5100, FAX: 716-691-5226; Empl.: 67; *Sls. Mgr.:* Mike Murphy

KISTLER-MORSE, P.O. Box 3009, Redmond, WA 98073, Tel: 206-881-8000, FAX: 206-883-4893; *Sls. Mgr.:* Sesh Velamoor

KLC/KARL LAMBRECHT CORP., 4204 N. Lincoln Ave., Chicago, IL 60618, Tel: 312-472-5442, FAX: 312-472-2724; Empl.: 29; *Sls. Mgr.:* Raymond Lambrecht

KLOCKNER MOELLER, 25 Forge Pkwy., Franklin, MA 02038, Tel: 508-520-7080, FAX: 508-520-7084; Empl.: 250; *Sls. Mgr.:* T. Thornton; *Dist. Mgr.:* P. Feruglio

KMC SYSTEMS, INC., 140 Greenwood Ave. (Bldg. 3), Midland Pk., NJ 07432, Tel: 201-447-0007, FAX: 201-447-0014; Empl.: 35; *Sls. Mgr.:* E. Verder

KMS ADVANCED PRODUCTS, INC., 700 KMS Place, P.O. Box 1868, Ann Arbor, MI 48106-1868, Tel: 313-769-1780, FAX: 313-769-8660; Empl.: 150; *Sls. Mgr.:* Al Schalk

KNIGHTFIRE TECHNOLOGY, 2139 University Dr., Ste.211, Coral Springs, FL 33071, Tel: 305-344-3682, FAX: 305-752-4353; FSC No.: FSC 6130; Empl.: 4; *Sls. Mgr.:* Sue Pantelakis

KNOWLEDGEWARE, INC., 3340 Peachtree Rd., N.E., Atlanta, GA 30326, Tel: 404-231-8575, TELEX: 544080; FSC No.: 7030-0003; Empl.: 350; *Sls. Mgr.:* Donald P. Addington

KNOWLES ELECTRONICS, INC., 1151 Maplewood Dr., Itasca, IL 60143, Tel: 708-250-5100, TELEX: 433-0330, FAX: 708-250-0575; *Sls. Mgr.:* W. Jeff Taylor

KNURR USA INC., Knurr A.G., 1890 N. Voyager Ave., Simi Valley, CA 93063, Tel: 805-526-7733, FAX: 805-584-8371; Empl.: 20; *Sls. Mgr.:* Georg Wolf (acting)

FAX: 814-362-8883

KOA SPEER ELECTRONICS, Bolivar Dr., P.O. Box 547, Bradford, PA 16701, Tel: 814-362-5536, TELEX: 91-4404; FSC No.: 09021; Empl.: 3000; *Sls. Mgr.:* L. G. Holzwarth; *Dist. Mgr.:* L. Rice .... **A•1002, 1085, 1834, 1930-1934**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Garden Grove, ELSCO Elctrns.	714-891-4621
Can	Mississauga, Ont., Indigo Elctrns.	416-670-0284
Can	Montreal, Que., Indigo Elctrns.	514-696-6104
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Caltron Comps.	408-980-0181
CO	Boulder, R. G. Entprs.	303-447-9211
CT	Plainville, Northeast Representatives	203-747-2423
FL	Altamonte Springs, APM Assocs.	407-869-6831
FL	Ft. Lauderdale, APM Assocs.	305-978-9941
FL	Tampa, APM Assocs.	813-886-2457
GA	Norcross, Cartwright & Bean	404-368-0160
IL	Arlington Hgts., C. L. Greenslade Sls.	708-593-3450
IN	Fort Wayne, John F. Kilfoil	219-483-6208
KS	Overland Pk., Spectrum Sls.	913-648-6811
LA	Covington, Cartwright & Bean	504-892-1780
MA	Hingham, Northeast Representatives	617-749-8700
MI	Troy, C. B. Jensen & Assocs.	313-643-0506
MN	Edina, Grayden & Flemmer	612-941-1120
MS	Jackson, Cartwright & Bean	601-981-1170
MO	Florissant, Spectrum Sls.	314-921-1313
NH	Mont Vernon, Northeast Representatives	603-880-8199
NJ	Cherry Hill, Metz-Benham Assoc.	609-424-0404
NM	Albuquerque, SynTech	505-266-7951
NY	East Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Endwell, Tri-Tech Elctrns.	607-754-1094
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Fishkill, Tri-Tech Elctrns.	914-897-5611
NY	Great Neck, MOS Assocs.	516-487-3966
NC	Charlotte, Cartwright & Bean	704-536-0303
NC	Raleigh, Cartwright & Bean	919-876-4130
OH	Cincinnati, John F. Kilfoil	513-791-6150
OR	Tigard, Earl & Brown Co.	503-639-2100
PA	Wynnewood, Metz-Benham Assocs.	215-896-7300
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-362-8345
TX	Lewisville, Jim Hughes	214-221-1536
WA	Redmond, Earl & Brown Co.	206-885-5064
PR	San German, Digit-Tech Sls.	809-892-4260
Can	Calgary, Alb., A. Deskin Sls.	403-270-4440
Can	Edmonton, Alb., A. Deskin Sls.	403-466-2106
Can	Kanata, Ont., Indigo Elctrns.	613-831-3107
Can	Transcona, Manit., A. Deskin Sls.	204-224-1321
Can	Vancouver, B.C., A. Deskin Sls.	604-324-8343

Local Distributors

AL	Huntsville, Reptron	205-722-9500
AZ	Ftn. Hill, RCD Inds.	602-483-6412
CA	Santa Ana, TTI	714-641-9393
AZ	Tempe, Shelley- Ragon	602-894-2058
AZ	Tempe, T.T.I.	602-431-1191
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Campbell, Lartronics	408-379-6454
CA	Chatsworth, MIL-Comm Distrs.	818-998-3111
CA	Chatsworth, Shelley-Ragon	818-998-3333
CA	Costa Mesa, Eric Elctrns.	714-751-1185
CA	Fountain Valley, Comps. Ctr.	714-979-0433
CA	Garden Grove, Natl. Elctrns.	714-892-7749
CA	Huntington Beach, SMD, Inc.	714-841-4556
CA	Irvine, KELEX	714-863-1230
CA	Milpitas, T.T.I.	408-946-5577
CA	Mission Hills, T.T.I.	818-891-8885
CA	San Diego, Shelley-Ragon	619-453-7133
CA	San Diego, T.T.I.	619-748-2025
CA	San Jose, Capstone Elctrns.	408-453-9804
CA	San Jose, Eric Elctrns.	408-432-1111
CA	San Jose, Jaco	408-432-9290
CA	San Jose, Shelley Ragon	408-432-0600
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Sunnyvale, SAI	408-745-0800
CA	Tustin, Capstone Elctrns.	714-730-0349
CA	Tustin, Jaco Elctrns.	714-258-9003
CA	Westlake Village, Jaco	805-495-9998
CO	Aurora, Capstone Elctrns.	303-375-1300
CO	Boulder, R. G. Entprs.	303-447-9211
CO	Denver, T.T.I.	303-429-6806
CO	Englewood, Shelly-Ragon Elec. Parts	303-762-0670
CT	Wallingford, Midstate Elctrns.	203-265-9900
CT	Wallingford, T.T.I.	203-284-7474
CT	Wallingford, Utronics	203-265-2724
FL	Boca Raton, Jaco Elctrns.	407-241-7943
FL	Ft. Lauderdale, Reptron Elctrns.	305-735-1112
FL	Orlando, TTI	407-859-1000
FL	Tampa, Reptron	813-855-4656
FL	Tampa, Reptron Elec.	813-854-2351
FL	Tampa, Shelley-Ragon	813-623-6560
FL	W. Palm Beach, Atlantic Elctrns.	407-686-8553
GA	Norcross, Reptron	404-446-1300
GA	Norcross, T.T.I.	404-662-0911
IL	Bensenville, Goold Elctrns.	708-860-7171
IL	Glendale Heights, Shelley-Ragon	708-529-9977
IL	Itasca, Capstone Elctrns.	708-250-0300
IL	Northbrook, Classic Comp. Supp.	708-272-9650
IL	Rosemont, Advent Elctrns.	708-298-4210
IL	Schaumburg, Reptron Elctrns.	708-882-1700
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
IA	Cedar Rapids, Dee Elctrns.	319-365-7551
MD	Baltimore, Radio Elec. Svc. Co.	301-931-8200
MD	Beltsville, Radio Elec. Svc.	301-937-9100
MD	Columbia, Jaco Comps.	301-995-6620
MD	Columbia, T.T.I.	301-995-1331
MA	Billerica, Baldwin Comp. Ctr.	617-667-6710
MA	Chelmsford, Shelly-Ragon	508-250-9666
MA	Norwood, EMTEL Electronics	617-769-9500
MA	Wilmington, Capstone Elctrns.	508-657-5874
MA	Wilmington, North Star Elect.	508-657-5155
MA	Wilmington, T.T.I.	508-658-4700
MI	Ann Arbor, Wedemeyer	313-665-8611
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Livonia, Reptron Elctrns.	313-525-2700
MN	Hibbing, Minn Tech Elctrns.	218-262-5228
MN	Minnetonka, Reptron	612-938-0000
MN	Minnetonka, T.T.I.	612-933-8555
MN	St. Paul, Shelley-Ragon Elctrns.	612-642-2828
MO	Independence, Shelley-Ragon Elctrns.	816-254-3410
MO	St. Louis, Franklin Elctrns.	314-429-3111
NE	Lincoln, Scott Elctrns.	402-466-8221
NV	Las Vegas, Kiesub Corp.	702-733-3888
NH	Nashua, Brevan Elctrns.	603-889-7230
NJ	Mount Laurel, TTI Inc.	609-234-6400
NJ	Mt. Laurel, Capstone Elctrns.	609-727-7800
NJ	Rockaway, Nasco	201-625-7777
NM	Albuquerque, Betatron	505-821-1122
NY	Amherst, Standard Elctrns.	716-691-3801
NY	Buffalo, Summit Distrs.	716-887-2845
NY	Hauppauge, Jaco	516-273-5500
NY	Melville, S.A.I.	516-293-2710
NC	Raleigh, Reptron	919-832-3117
NY	Rochester, Summit Distrs.	716-334-8110
NY	Ronkonkoma, Baldwin Comp. Ctr.	516-588-5700
NY	Ronkonkoma, Prime Comps.	516-737-1730
NY	Ronkonkoma, T.T.I.	516-737-2000
NC	Greensboro, Golden Elctrns.	919-294-4653
NC	Raleigh, Jaco	919-876-7767
NC	Raleigh, Resco-Raleigh	919-781-5700
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Cleveland, Roberts Elect. Corp.	216-238-1711
OH	Columbus, T.T.I.	614-848-5770
OH	Independence, TTI	216-328-9755
OH	Solon, Reptron	216-349-1415
OH	Worthington, Reptron	614-436-6675
OK	Tulsa, Altair Co.	918-252-5781
OR	Beaverton, Murphy Elctrns.	503-642-2001
NC	Raleigh, Capstone Elctrns.	919-954-0600
PA	Erie, Rem Elctrns.	814-453-5626
PA	Harrisburg, Cumberland Elctrns.	717-233-5883
PA	Philadelphia, PEI/Genesis	215-673-0400
PA	Philadelphia, Shap	215-969-3300
PA	Trevose, Sager Electronics	215-464-4336
RI	Pawtucket, Major Edwards	401-725-7400
TX	Addison, Jaco/QC Elctrns.	214-733-4300
TX	Carrollton, Capstone Elctrns.	214-380-9049
TX	Fort Worth, TTI	817-847-6666
TX	Ft. Worth, Carlton Bates	817-831-0395
TX	Ft. Worth, T.T.I.	817-831-8300
TX	Ft. Worth, T.T.I. Inc.	817-595-3100
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
TX	Richardson, Jaco	214-235-9575
WA	Redmond, JACO Electronics	206-881-9700
WA	Redmond, Murphy Elctrns.	206-881-1234
WA	Redmond, Shelley-Ragon	206-883-2220
WA	Redmond, T.T.I.	206-882-0291
WI	Oconomowac, G W Elctrns.	414-567-9445
Can	Calgary, Alb., A. Deskin Sls.	403-270-4440
Can	Edmonton, Alb., A. Deskin Sls.	403-468-3019
Can	Markham, Ontario, Semad	416-475-3922
Can	Transcona, Manit., A. Deskin Sls.	204-224-1321
Can	Vancouver, B.C., A. Deskin Sls.	604-324-8343

KOEP PRECISION STANDARDS, INC., 121 Helen Street, 2nd Fl, South Plainfield, NJ 07080, Tel: 201-757-2220/2277, FAX: 201-757-2332; FSC No.: 57114; Empl.: 4; *Dist. Mgr.:* N/A

KOLIN INDS., Box 300, Pound Ridge, NY 10576, Tel: 914-764-5775, FAX: 914-764-5386; Empl.: 30; *Sls. Mgr.:* J. Kolinsky

KONTES, Kimble Div. of Owens/IL, 1001 Spruce St, Vineland, NJ 08360, Tel: 800-223-7150, TWX: 510-687-8967

KONTRON ELEKTRONIK-US KONTRON ELEKTRONIK GMBH-SUB. BM, 66 Cherry Hill Dr., Beverly, MA 01915, Tel: 508-927-6575, FAX: 508-927-6511; Empl.: 30

KOOLTRONIC, INC., Hamilton Ave., Hopewell, NJ 08525, Tel: 609-466-3400, TELEX: 843345, FAX: 609-466-1114; Empl.: 200; *Sls. Mgr.:* John J. Drages

KOOLTRONIC, INC., 1700 Morse Avenue, Ventura, CA 93003, Tel: 805-642-8521, FAX: 805-658-2901; Empl.: 200

KRAFT DYNATRONIX, INC., 105 Power St., Amery, WI 54001, Tel: 715-268-8118, 800-826-7172, FAX: 715-268-8183; Empl.: 28; *Sls. Mgr.:* R. W. Kappler; *Dist. Mgr.:* R. W. Kappler, Natl. Sls. Mgr.

KRECKMAN, HERB, CO., 27 Spruce Cabin Road, Cresco, PA 18326, Tel: 717-595-2212, FAX: 717-595-2024; Empl.: 4

KR ELECTRONICS, INC., 91 Avenel St., Avenel, NJ 07001, Tel: 908-636-1900, FAX: 908-636-1982; FSC No.: 55259; Empl.: 20; *Sls. Mgr.:* none ..... **A•1682-1683**

Local Sales Offices & Reps

CO	Englewood, Tech. Mktg. Co.	303-770-8994
OH	Kettering, Frank Bold & Assocs.	513-298-6145
TX	Richardson, Jim Wisdom & Assocs., Inc.	214-470-9093

KRENZ ELECTRONIC, INC., 1020 Calle Cordillera Ste.107, San Clemente, CA 92672, Tel: 714-361-2433, FAX: 714-361-2434; Empl.: 75; *Sls. Mgr.:* Alex Schlag, VP

KRISTEL CORPORATION, 833 Industrial Dr., West Chicago, IL 60185, Tel: 708-293-0850, FAX: 708-293-1255; Empl.: 35; *Sls. Mgr.:* Kevin Michael

FAX: 603-624-0634

KRL/BANTRY COMPONENTS, INC., 160 Bouchard St., Manchester, NH 03103, Tel: 603-668-3210; FSC No.: 18235; Empl.: 100; *Sls. Mgr.:* Bert A. Spiller ..... **A•1935-1940**

Local Sales Offices & Reps

TX	Grand Prairie, Claybrook & Assocs.	214-262-1188
CA	Mtn. View, Francisco & Assocs.	415-962-1717
CA	Sepulveda, Gil & Assocs.	818-894-1262
FL	Boca Raton, Sls. Specialists	813-754-1329
IN	Indianapolis, CC Electro Sls.	800-423-7799
NH	Amherst, D. A. Crowley & Assocs.	603-673-7050
NY	Port Washington, Ashtec	516-767-0336
NY	Rochester, H. C. Johnson Agencies	716-586-0777
OH	Akron, Augnat Assocs.	216-273-1211
TX	Dallas, Claybrook & Assocs.	214-690-9881
PA	Wyndmoor, Precision Mktg. Grp.	215-233-9233
TX	Houston, Milco Mktg.	713-723-5003
TX	Richardson, Milco Mktg.	214-738-2716
UT	Salt Lake City, Sage Assocs.	801-467-5451
WA	Seattle, The Harry Levinson Co.	206-382-1300

Local Distributors

MA	Billerica, Baldwin Comps.	617-667-6710
NY	Ronkonkoma, Baldwin Comps. Center	516-588-5700,800-645-5608
PA	Harrisburg, Ad-Tech	717-939-8337

KROHN-HITE CORP., Avon Indl. Pk., Bodwell St., Avon, MA 02322, Tel: 508-580-1660, FAX: 617-583-8989; Empl.: 35 ..... **A•1684; D•1279**

Local Sales Offices & Reps

AL	Huntsville, Gentry Assocs.	205-837-0692
AZ	Phoenix, Odyssey 1	602-246-8846
CA	Huntington Bch., Sci-Dev West	714-840-3501
CA	San Jose, Scientific Devs. West	408-554-0455

CO Englewood, Odyssey 1 303-773-8176
FL Ft. Lauderdale, Gentry Assocs. 305-791-8405
FL Orlando, Gentry Assocs. 305-859-7450
FL Tampa, Gentry Assocs. 813-886-0720
GA Atlanta, Gentry Assocs. 404-998-2828
IL Chicago, Berndt Assocs. 312-283-0713
IN Carmel, Berndt Assocs. 317-844-0114
KS Overland Park, Ramsey Assocs. 913-649-6996
LA Gretna, Gentry Assocs. 504-367-3975
MD Baltimore, Sci-Rep 703-385-0600
MI Detroit, EQS Sys. 313-961-3042
MN Minneapolis, Berndt Assocs. 612-546-2021
MO St. Louis, Ramsey Assocs. 314-878-5042
NJ Englewood, Sci. Devices E. 201-871-3916
NM Albuquerque, Odyssey 1 505-265-6645
NY Syracuse, Labtronics 315-455-7314
OH Chesterland, EQS Sys. 216-729-2222
OH Columbus, EQS Sys. 614-228-3453
WA Bellevue, Sci. Dvcs., N.W. 206-747-5189
PA Pittsburgh, EQS Sys. 216-729-2222
PA Spring House, Scientific Devices East 215-643-3335
SC Columbia, Gentry Assocs. 803-772-6786
TN Knoxville, Gentry Assocs. 615-584-0281
TX Houston, Barnhill Assocs. 713-444-1733
VA Fairfax, Sci-Rep 703-385-0600
WA Bellevue, Sci. Dvcs. N. W. 206-747-5169
WI Milwaukee, Berndt Assocs. 414-545-8400

KRYSTINEL CORP., 126 Pennsylvania Ave., Paterson, NJ 07509, Tel: 201-345-8900, TWX: 710-988-5931, FAX: 201-345-1172; Empl.: 200; *Sls. Mgr.:* William Perkins ,Mgr.Customer Service

KSI, See Kaiser Systems, Inc.

K-SYSTEMS OF TEXAS, INC., 11501 Rojas Dr. Ste. P, El Paso, TX 79936, Tel: 915-598-9769, TELEX: WUI 6502763972, FAX: 915-593-2080; Empl.: 4; *Sls. Mgr.:* J.C. Kates

K-TRONICS, See U. S. Elco Inc. (Under Elco)

K-TWO INDUSTRIES, 4331 Miranda Ave., Palo Alto, CA 94306, Tel: 408-720-9316; Empl.: 5

KULITE SEMICONDUCTOR PRODS., INC., One Willow Tree Rd., Leonia, NJ 07605, Tel: 201-461-0900, TELEX: 685-3296, FAX: 201-461-0990; Empl.: 350

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Local Sales Offices & Reps

AL Huntsville, Jim Springer, Inc. 205-883-4163
AZ Scottsdale, Dave Menegey Assocs. ... 602-994-9519
CA Hollywood, B. J. Wolfe Entprs. 213-877-5518
CA Walnut Creek, Dale-Dahl Assocs. 415-933-9595
CO Boulder, Measurement Cnslts. 303-449-7506
FL Bonita Springs, United Sls. Assocs. ... 813-947-4115
IL Carpentersville, Precision Meas. Prods., Inc. 312-426-4446
MA Brockton, JHL Assocs. 508-580-1703
MI Madison Heights, WKM Assocs. 313-588-2300
MN Minneapolis, Trask Engrg. 612-537-2434
MO St. Louis, Ozark Elctrn. Mktg. 314-423-7200
NJ Glen Gardner, United Sls. Assocs. 813-947-4115
NM Albuquerque, Amonette Entprs. 505-344-4143
NY Fairport, D.H. Brennan 716-223-7935
OH Cleveland, WKM Assocs. 216-524-5930
OH Dayton, WKM Assocs 513-434-7500
PA Doylestown, United Sls. Assocs. 813-947-4115
PA Pittsburgh, WKM Assocs. 412-892-2953
TX Dallas, Seaton Corp. 214-980-9860
UT Centerville, MC 2 801-298-3388
WA Seattle, Brett Assocs. 206-431-8090

KULKA (DIALIGHT CO.), See H.H. Smith, NT-T Inc.

KURZ INSTRUMENTS INC., 2411 Garden Rd., Monterey, CA 93940, Tel: 800-424-7356, TELEX: 172275; FSC No.: 94-24-11681; Empl.: 72; *Sls. Mgr.:* Tom Setliff

K-W MANUFACTURING CO., INC., P. O. Box 508, Prague, OK 74864, Tel: 405-567-2285, TELEX: 4932625, FAX: 405-567-4153; Empl.: 60; *Sls. Mgr.:* Freda Pickard

KYCON CABLE & CONNECTOR, INC., 1772 Little Orchard St., San Jose, CA 95125, Tel: 408-295-1110, FAX: 408-295-8054; Empl.: 9; *Sls. Mgr.:* Wendy Wuerth; *Dist. Mgr.:* Wendy Wuerth ..... **C•1422-1423, 1765**

Local Sales Offices & Reps

AZ Tempe, ACS of Arizona 602-731-9711
CA Aliso Viejo, Pro Assocs. 914-588-2700
CA San Jose, Kycon Cable & Connector, Inc. 408-295-1110
CA San Jose, Kycon Sls. Off. 408-295-1110
FL Clearwater, Dan-Tech Sls. 813-791-4551
FL Miramar, Dan-Tech Sls. 305-963-6142
GA Norcross, Pinnacle Mktg. 404-621-0212
KY Lexington, Protocol Sls. 606-272-4203
MA Sudbury, KSA of New England 508-443-5881
MO Chesterfield, Weisler and Assocs. 314-537-0010
NJ Oakland, Relay Specialties 800-526-5376
NC Raleigh, Pinnacle Mktg. 919-848-0404
OH Twinsburg, Protocol Sls. 216-425-2569
OR Beaverton, Quest Mktg. 503-641-7377
TX Dallas, Weisler and Assocs. 214-437-2386
WA Bellvue, Quest Mktg. 206-747-9424

Local Distributors

MA Ashland, Quality 508-881-6500
NC Raleigh, Resco Raleigh 919-781-5700

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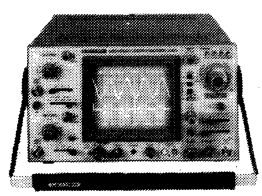

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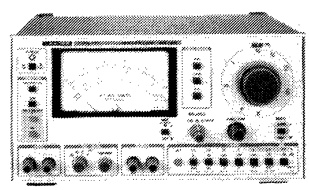

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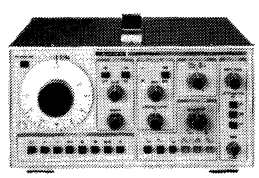

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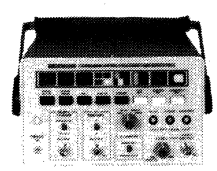

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FAX: 815-344-2730

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CA	Redwood City, TriRep	415-965-1822
CO	Longmont, Butler Tech. Sls.	303-651-7703
IL	Bartlett, Lemvig Assocs.	708-830-2241
IL	McHenry, Mesa Inc.	815-344-2820
KS	Shawnee, McAllister Assocs.	913-262-5500
MA	Framingham, Stone Comps.	617-875-3266
OH	Cleveland, Comp. Specialty	216-442-6200
PA	Bryn Mawr, J J Lyons Mktg.	215-687-2277
SC	Fripp Island, N.P.M. Assocs.	803-838-2691
TX	Cypress, Wessco	214-530-8857

LENOX-FUGLE ELECTRONICS, 100 Sylvania Pl., S. Plainfield, NJ 07080, Tel: 908-756-1164; Empl.: 25; *Sls. Mgr.:* Henry J. Lenox

LENTRONICS, Prism Systems Inc., 7025 Greenwood Street, Burnaby, B.C., Canada V5A 1X7, Tel: 604-421-8733, FAX: 604-421-8707; FSC No.: 5820; Empl.: 250; *Sls. Mgr.:* Mr. Michael Broderick

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LEPCO/LEONARD ELEC. PRODS., 85 Industrial Dr., Brownsville, TX 78521, Tel: 512-546-1625, FAX: 512-546-4112; Empl.: 180; *Sls. Mgr.:* Norma A. Solis

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CA	Los Gatos, Luscombe Engrg.	408-370-2020
CA	Montrose, Luscombe Engrg.	818-249-9000
CA	Tustin, LH Resch., Inc.	800-LH-SALES
CO	Arvada, LH Research, Inc.	303-424-5119
CT	North Haven, Kitchen & Kutchin	203-239-0212
DC	Washington, D.C., Marktron	301-251-8990
FL	Melbourne, Synergistic	407-242-9661
GA	Atlanta, Beacon Elctrns.	404-256-9640
IA	Cedar Rapids, Adv. Tech. Sls.	319-393-8280
KS	Olathe, Adv. Tech. Sls.	913-782-8702
MD	Hunt Valley, Marktron	301-628-1111
MA	Burlington, Kitchen & Kutchin	617-229-2660
MN	Minneapolis, Professional Sls.	612-944-8545
NM	Albuquerque, Luscombe Engrg.	505-888-0333
NY	Melville, Comtronic Assoc.	516-249-0505
NY	Pittsford, Elcom Sls., Inc.	716-385-1400, 315-685-8967
OK	Tulsa, Milco Mktg., Inc.	918-664-2188
OR	Beaverton, Core II Mktg.	503-649-0871
TX	Plano, Milco Mktg., Inc.	214-578-7026,512-335-3203
WA	Seattle, V.M.I.	206-882-2999

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CO	Arvada, Gemini Elctrns.	303-428-5600
CT	Cheshire, The MacInnis Co.	203-272-3797
IL	Lisle, WG Controls, Inc.	708-963-5954
KS	Olathe, Advanced Tech. Sls.	913-782-8702
MA	Norwood, The MacInnis Co.	617-762-8090
MI	Detroit, R. P. Urban & Assocs.	313-535-2355
MI	Grand Rapids, R. P. Urban & Assocs.	616-245-0511
MN	St. Paul, Countryman Assocs.	612-645-9151
MO	St. Louis, Advanced Tech. Sls.	314-878-2921
NJ	Englewood Cliffs, Mason-Esco Inc.	201-569-8868
NY	Hauppauge, Mason-Esco Inc.	516-273-3500
NY	Rochester, BRS Sls. Assocs.	716-586-1522
OH	Dayton, J. C. Hoffsteller Co.	513-296-1010
OH	Medina, J. C. Hoffstetter Co.	216-241-4880
OR	Portland, SPS Elctrns., Inc.	503-297-6919
TX	Dallas, Reese & Assocs.	214-351-0703
UT	Slat Lake City, Gemini Elctrns.	801-278-0201
WA	Redmond, SPS Elctrns., Inc.	206-323-4140

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Can	Brossard, Que., DB Lectro, Inc.	514-672-7029

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CA	Hayward, Electro Comps.	415-783-5800
CA	Los Angeles, Master Distrs.	213-452-1229
CA	San Diego, Shanks & Wright	714-239-0176
CT	E. Hartford, R & S Elctrn. Distrs.	203-528-9901
CT	Fairfield, Indl. Elec.	203-255-9547
FL	Hialeah, Atlas Elec. Supp.	305-885-8941
FL	Miami, Miramar Elec. Sys.	305-871-4072
GA	Rome, Battey Machine	404-291-4141
IL	Elk Grove Village, Elk Grove Elec.	312-956-6350
IN	Marion, Myers Radio Supp.	317-664-7394
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NJ	Linden, Turtle & Hughes	201-574-3600
NJ	Piscataway, Fromm Elec.	209-981-0400
NJ	Secaucus, Franklin & Smith	201-864-0555
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NY	Baldwinsville, Scibetta Distrs.	315-622-3993
NY	Bronx, Smith Elctrns.	212-292-4670
NY	New York, Blan Elctrns.	212-233-6288
OH	Cincinnati, Cincinnati Controls	513-530-0049
OH	Cleveland, Specialized Comp. Sls. Co., Inc.	216-464-0405
OH	Dayton, John A. Becker Co.	513-226-1341
PA	Philadelphia, F & C Sls. Co.	215-228-5656
TX	San Angelo, Gunter Wholesale Co.	915-655-9181

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LINSEIS, INC., P.O. Box 666, Princeton Junction, NJ 08550, Tel: 609-799-6282, 800-RECORDER, FAX: 609-799-7739; *Sls. Mgr.:* Michael Bissell ..... **D•1420**

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CA	Irvine, Quadrep Southern	714-727-4222
CA	San Diego, Quadrep Southern	619-560-8330
CA	San Jose, Quadrep, Inc.	408-432-3300
CO	Lakewood, Candal, Inc.	303-935-7128
CT	Middletown, Gerber Sls.	203-347-3000
FL	Altamonte Spgs., Semtronics Assoc. Inc.	407-831-8233
FL	Clearwater, Semtronics Assoc. Inc.	813-461-4675
FL	Ft. Lauderdale, Semtronics Assoc. Inc.	305-731-2484
GA	Atlanta, Beacon Elctrn. Assoc.	404-256-9640
IL	Itasca, Circuit Sls. Inc.	312-773-0200
IN	Fort Wayne, Corrao Marsh, Inc.	219-482-2725
IN	Greenfield, Corrao Marsh, Inc.	317-462-4446
IA	Cedar Rapids, Hitec Central, Inc.	319-396-3228
MD	Glen Burnie, Third Wave Solutions	301-290-5990
MA	Burlington, Gerber Sls.	617-229-1150
MI	Brighton, AP Assocs.	313-229-6550
MN	Minneapolis, Comstrand	612-788-9234
MO	Bridgeton, Hi-Tec Central	314-731-7243
NJ	Morristown, Andrews & Andrews	201-569-8800
NJ	Totowa, R.O.I. Sls. Co.	201-812-9606
NM	Albuquerque, System Sls. of Az.	505-889-2901
NC	Raleigh, Beacon Elctrn. Assoc.	919-787-0330
OH	Dublin, Sales Plus	614-889-8362
OH	Mentor, Sales Plus	216-942-7811
OR	Portland, Q.R./Crown, Inc.	503-620-8320
PA	Willow Grove, Tech Sales Assoc.	215-784-0170
TN	Knoxville, Beacon Elctrn. Assoc.	615-689-2141
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CA	Irvine, Gravley & Assocs.	714-852-9994
CO	Denver, The Lindberg Co.	303-758-9033
CO	Englewood, Purdy Co. Assoc.	303-790-2211
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MO	St. Louis, T. L. Dowell & Assocs.	314-849-4234
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NC	Raleigh, Cartwright & Bean,Inc.	919-876-4130
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OH	Richfield, Bear Mktg., Inc.	216-659-3131
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PA	Narberth, Bresson Assocs., Inc.	215-664-6460
PA	Pittsburgh, Bear Mktg., Inc.	412-531-2002
TN	Knoxville, Cartwright & Bean, Inc.	615-693-7450
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MA	Sturbridge, Russ Persson	203-871-8900
MI	Stockbridge, Erhart Engrg.	517-851-8770
MN	Prior Lake, Midwest Meridian	612-447-8222
KS	Olathe, Technical Sls. Assoc.	913-829-2800
NY	Mineola, Kahn Assocs.	516-742-1900
TX	Dallas, Blair Engrg.	214-241-5655
OH	Medina, Stress Analysis Svcs.	216-725-7733
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CA	San Diego, Van Gott & Assoc.	714-698-7774
CT	Bloomfield, The Newscott	203-243-8514
CT	Killingsworth, Newscott Co.	203-663-2338
FL	Altamonte Springs, Over & Over, Inc.	407-332-1222
FL	Coral Springs, Over & Over, Inc.	305-753-7050
FL	Tampa, Over & Over, Inc.	813-626-9100
GA	Norcross, Over & Over	404-449-6505
IL	Glenview, Prime Dvcs.	708-729-2550
IN	Columbus, Connect 21	502-426-8955
KS	Olathe, G.M. Brown & Assocs.	913-829-3086
KY	Louisville, Connect 21	502-426-8955
MD	Millerville, Components & Assemblies	301-987-0034
MA	Needham Heights, The Newscott Co.	617-444-1923
MN	Eden Prairie, Electro Mark	612-944-5850
MO	Florissant, G.M. Brown & Assocs.	314-839-3600
NJ	Medford, The McCoy Grp.	609-953-0770
NY	Bohemia, JSA	516-244-2584
NY	Champlain, LMI Connectors, Inc.	518-298-5360
NY	Rochester, Lamb Comps.	716-328-6350
NC	Charlotte, Over & Over, Inc.	704-542-9111
NC	Raleigh, Over & Over, Inc.	919-876-7338
OH	Columbus, McFadden Sls.	614-761-3177
PA	Easton, The McCoy Grp.	215-363-0350
WI	Oak Creek, Prime Dvcs.	414-263-3900
Can	Montreal, Que., Avotronics	514-697-2135
Can	Toronto, Ont., Avotronics	416-475-2019

Local Distributors

AZ	Tempe, Control Design Supp.	602-829-7981
CA	Anaheim, Control Design Supp.	714-821-6173
CA	Fullerton, Interconnect Specs.	714-773-0411
CA	San Carlos, Control Design Supp.	415-592-4806
CA	San Diego, Control Design Supply	619-457-9822
CA	Santa Ana, BDS Elctrns.	714-662-1050
CO	Denver, Control Design Supp.	303-296-1922
CT	Wallingford, Control Design Supp.	203-269-9955
FL	Altamonte, Control Design Supp.	305-788-3220
FL	Pompano Beach, Control Design Supp.	305-782-1311
GA	Stone Mountain, Control Design Supp.	404-979-3500
IL	Chicago, Control Design Supp.	708-307-8944
IL	Chicago, Leeds	312-625-3800
IL	Schaumburg, Control Design Supp.	708-307-8900
IN	Indianapolis, Control Design Supp.	317-788-4559
IA	Marion, Control Design Supp.	319-373-2923
KS	Kansas City, Control Design Supp.	913-362-4248
MD	Gaithersburg, Axis Elctrns.	301-840-9640
MA	Woburn, Control Design Supp.	617-932-9404
MN	Minneapolis, Control Design Supp.	612-721-1628
MO	St. Louis, Control Design Supp.	314-426-3150
NJ	Union, Avanti	201-964-0333
NY	Canandaigua, Advacom	716-396-9050
NY	Whitestone, Power Electro Supp.	718-767-1447
NC	Charlotte, Control Design Supp.	704-588-4410
PA	Malvern, Control Design Supp.	215-296-0150
TX	Arlington, Bell Comp. Sls.	817-461-5303
TX	Austin, Wofford Elctrns.	512-339-1131
TX	Dallas, Control Design Supp.	214-358-1441
TX	Dallas, Wofford Elctrns.	214-320-0294
TX	Houston, Wofford Elctrns., Inc.	713-847-3583
UT	Nephi, Control Design Supp.	801-623-2977

WA Kent, Control Design Supply 206-251-6323
WI New Berlin, Control Design Supp. 414-784-1015
Can Calgary, AB, Memco 403-258-3399
Can Edmonton, AB, Wholesale Electronics 403-451-2180
Can Montreal, Que., Ferrotronic Components 514-341-3450
Can Montreal, Que., Megastar Electronics 514-329-0042
Can Ottawa, Ont., Z.E.I. 613-526-2911
Can St. Laurent, Que., Z.E.I. 514-342-6211
Can Ste-Foy, Que., Z.E.I. 418-681-1262
Can Surrey, B.C., Memco 604-590-1553
Can Toronto, Ont., Z.E.I. 514-674-7220
Can Victoria, B.C., Pacific Coast Electronics 604-385-5111

LMI CONNECTORS INC., 8415 Dalton Rd., Town of Mount Royal, Canada H4T 1V5, Tel: 514-733-8311, FAX: 514-733-8440

LNR COMMUNICATIONS, INC., 180 Marcus Blvd., Hauppauge, NY 11788, Tel: 516-273-7111, TELEX: 221620, TWX: 510-227-9871, FAX: 516-273-7119; FSC No.: 51049; Empl.: 200; *Sls. Mgr.:* F. Kelly, Dir. Mktg.

LOCKHEED SANDERS, INC., EMC Dept., 95 Canal St., Nashua, NH 03061-2004, Tel: 603-885-3602, TELEX: 94-3430, TWX: 710-228-1894, FAX: 603-885-5133; FSC No.: 94117; *Sls. Mgr.:* (EMC) R. Bossart

LOCTITE LUMINESCENT SYS., INC., LocTite Corp., Etna Rd., Lebanon, NH 03766, Tel: 603-448-3444, TELEX: 710-366-0607, FAX: 603-448-3452; Empl.: 200

LOCUS, INC., Box 740, State College, PA 16804, Tel: 814-466-6275, FAX: 814-466-3341; *Sls. Mgr.:* Ellwood E. Brem

LOCUS, Kaman, PO Box 740, State College, PA 16804, Tel: 814-466-6275; *Sls. Mgr.:* Ellwood E. Brem

LOCUS COMPUTING CORP., 9800 La Cienega Blvd., Inglewood, CA 90301-4440, Tel: 213-670-6500, FAX: 213-670-2980; Empl.: 275

LOCUS INC., 1842 Hoffman Street, Madison, WI 53704, Tel: 608-244-0500, FAX: 608-244-0528; Empl.: 18

LODESTONE PACIFIC, 4065 E. La Palma Ave. Bldg. G, Anaheim, CA 92807, Tel: 714-630-1343, FAX: 714-630-8480; FSC No.: QJWU1; Empl.: 11; *Sls. Mgr.:* Mark Soukup ..... **A•1210-1211**

Local Sales Offices & Reps
IL Chicago, Charles Atwater Assoc. 708-668-2303
MA Boston, Anchor Engrg. Corp. 508-898-2724
NY Long Island, Kahgan Brody Assoc. 516-538-2300
PA Easton, Kendon Co. 215-253-3100
VA Roanoke, A.B. Kreger Co. 703-989-4738
Intl Frankfurt, Germany, BFI 06074 4098-0
Intl Hong Kong, P. Leo & Co. Ltd. 5-413655
Intl London, England, Cirkit 0992-444111
Intl Milano, Italy, BFI 2-33100535
Intl Paris, France, BFI 145-330137
Intl Roskilete, Denmark, BFI 488-8289900
Intl Sollenton, Sweden, BFI 488 828 9900

LOGICAL DESIGN GROUP, INC., 6301 Chapel Hill Rd., Raleigh, NC 27607, Tel: 919-851-1101, FAX: 919-851-2844; Empl.: 22; *Sls. Mgr.:* Cam McPhee; *Dist. Mgr.:* Barbara Boyette

LOGICAL DEVICES, INC., 1201 N.W. 65th Place, Fort Lauderdale 33309, Tel: 305-974-0967, FAX: 305-491-6956; *Sls. Mgr.:* Bob Sims

LOGIC BEACH INC., 8033 Pasadena Ave., La Mesa, CA 91941, Tel: 619-698-3300, FAX: 619-469-8604; Empl.: 10; *Sls. Mgr.:* David Parks; *Dist. Mgr.:* David Parks

LOGI COMP ELECTRONICS, INC., 1009 W. Boston Post Rd., Mamaroneck, NY 10543, Tel: 914-698-9332, FAX: 914-698-9456; Empl.: 6

LOGICOMP ELCTRNS., INC., See Pres-Air-Trol Corp.

LOGIC TECHNOLOGY, INC., 1090-B L'Avenida, Mtn. View, CA 94043, Tel: 415-967-1007, FAX: 213-641-4691; FSC No.: 51019; *Sls. Mgr.:* Mel Morgan

LOGIMETRICS, 121-03 Dupont St., Plainview, NY 11803, Tel: 516-349-1700, TELEX: 7608152, FAX: 516-349-8552; FSC No.: 33013; Empl.: 75; *Sls. Mgr.:* Eugene Blum

LOGITEK

THE LOGICAL CHOICE OF THE TECHNICAL MIND

FAX: 516-467-4090

LOGITEK, INC., 101 Christopher St., Ronkonkoma, NY 11779, Tel: 516-467-4200, TWX: 510-224-6253; FSC No.: 15420; Empl.: 75; *Sls. Mgr.:* David Fischer ..... **B•1538-1540; D•1877**

Local Sales Offices & Reps
AL Huntsville, R.O. Whitesell & Assocs. ... 205-883-5110
AZ Scottsdale, Logitek 805-527-4700
CA Campbell, Shur Sls., Inc. 408-374-5577
CO Englewood, Advanced Technlg. Mktg. 303-789-2606
CA Simi Valley, Logitek 805-883-7608
CT Hartford, Dynamic Sls. of New England 203-693-6567
FL Longwood, R. O. Whitesell & Assoc. .. 407-682-6662
GA Norcross, R.O. Whitesell & Assocs. ... 404-449-9190
IN Indianapolis, R.O. Whitesell & Assocs. 317-359-9283
KS Wichita, D&O Engrg. Co. 316-686-2808
KY Pewee Valley, R.O. Whitesell & Assocs. 502-241-1441
MA Burlington, Dynamic Sls. of New England 617-272-5676
MN Brooklyn Center, White Sls. Co. 612-566-8694
MO Southfield, R.O. Whitesell & Assocs. .. 313-559-5454
NY Ronkonkoma, JL Sls. 516-737-2801
NC Greensboro, R.O. Whitesell & Assocs. 919-273-1945
OH Dayton, R.O. Whitesell & Assocs. 513-298-9546
OK D&O Engrg. Co. 316-686-2808
NY Mendon, Tech Mark 716-624-3840
PA Pittsburgh, R.O. Whitesell & Assocs. .. 412-963-6161
TN Nashville, R.O. Whitesell & Assocs. ... 615-352-4760
TX Dallas, D&O Engrg. Co. 214-241-3099
VT Burlington, Dynamic Sls. of New England 802-863-6665
VA Charlottesville, Elctrn. Sources, Inc. ... 804-973-7008
WA Kirkland, Skye-Tek 206-828-2115
Can Lachine, Que., Electrodesign Ltd. 514-636-4838

LONG ISLAND TRANSFORMER & INDUCTOR COMPANY, INC., 882 Wallace Ave., Baldwin, NY 11510, Tel: 516-766-5644; Empl.: 5

LONGSHINE TECHNLG. INC., 2013 N. Capitol Ave., San Jose, CA 95132, Tel: 408-942-1746, FAX: 408-942-1745; Empl.: 300

LORAIN PRODUCTS, Reliance Electric, 1122 F St., Lorain, OH 44052, Tel: 216-288-1122, TELEX: 98-0505, TWX: 196131; Empl.: 1200; *Sls. Mgr.:* T. F. McFadden

LORAL DATA SYSTEMS, P.O. Box 3041, Sarasota, FL 34230, Tel: 813-371-0811, FAX: 813-378-1893; FSC No.: 06141; Empl.: 900; *Sls. Mgr.:* F. V. Bud Hinkel

LORAL DATA SYSTEMS, Data Recorders, P.O. Box 3041, Sarasota, FL 34230, Tel: 813-371-0811, FAX: 813-378-1893; FSC No.: GS-00K-8301-S0078; Empl.: 750; *Sls. Mgr.:* Steve Hoff

LORAL FAIRCHILD, Imaging Sensors, 1801 McCarthy Blvd., Milpitas, CA 95035, Tel: 408-433-2500, TWX: 910-373-2110, FAX: 408-433-2508; *Sls. Mgr.:* Jim Johnson; *Dist. Mgr.:* Jim Johnson

LORAL MICROWAVE-FSI, Semiconductor Div., 16 Maple Rd., Chelmsford, MA 01824, Tel: 508-256-4113/8101, TWX: 710-343-0404, FAX: 508-937-3748; FSC No.: 26629; Empl.: 90; *Sls. Mgr.:* D. Langan

LORAL MICROWAVE NARDA, 435 Moreland Rd., Hauppauge, NY 11788, Tel: 516-231-1700, TWX: 510-221-1867, FAX: 516-231-1711; FSC No.: 99899; Empl.: 400; *Sls. Mgr.:* Robert Nopper

LORAL MICROWAVE-NARDA WEST, 214 Devcon Dr., San Jose, CA 95112-4210, Tel: 408-436-4400, FAX: 408-436-8476; FSC No.: 8F150; Empl.: 200; *Sls. Mgr.:* Leon Becker

LORAL MICROWAVE-WAVECOM, 9036 Winnetka Ave., Northridge, CA 91324, Tel: 818-882-3010, TELEX: 6502408147; FSC No.: 28979; Empl.: 109

LORAL TERRACOM, Sub. of Loral Corp., 9020 Balboa Ave., San Diego, CA 92123, Tel: 619-278-4100, TELEX: TERRACOM A SDG 18-2774, FAX: 619-292-1140; *Sls. Mgr.:* Michael A. Lapadula

LORCH ELECTRONICS:DIV. OF VERNITRON CORP., 2801 - 72nd St., No., St. Petersburg, FL 33710, Tel: 813-347-2181, FAX: 813-347-3881; FSC No.: 29971; Empl.: 50; *Sls. Mgr.:* Carol McCoy ..... **A•1751**

Local Sales Offices & Reps
AZ Phoenix, J.F. Hurlbut 602-952-2079
CA Los Angeles, McDougall/McLaughlin Co. 213-477-8556
CO Golden, J. F. Hurlbut Co. 303-279-7796
KY Ft. Mitchell, G. W. Thelen Co., Inc. 606-341-8181
MO St. Louis, Engrg. Svcs. 314-997-1515
NH Amherst, D.A.Crowley & Assocs., Inc. .. 603-673-7050
NJ W. Orange, E-F Tech. Sls. 201-731-7203
NJ W. Orange, E-F Tech. Sls., Inc. 201-731-7203
NY Liverpool, R & D Assocs. 315-457-0100
NY Plainview, E-F Tech. Sls. 516-942-7400
OH Chagrin Falls, G.W. Thelen Co.,Inc. 216-543-1095
PA Glenside, Koebert Assocs., Inc. 215-887-2310
TX Plano, Zeus Engrg. 214-423-2027
WA Seattle, G. M. Gillett & Assocs. 206-284-3344
EXP NY, Great Neck, Ad. Auriema 516-487-0700
Can La Salle, Que., Electrodesign, Ltd. 514-363-0245

LORLIN TEST SYSTEMS, 8 Lakeside Office Pk. 599 North Ave., Wakefield, MA 01867, Tel: 617-245-9044, FAX: 617-246-5822; Empl.: 45; *Sls. Mgr.:* Paul Pedigo

LORTEC POWER SYSTEMS, INC., 145 Keep Court, Elyria, OH 44035-2214, Tel: 216-327-5050, FAX: 216-327-9628; Empl.: 65; *Sls. Mgr.:* Dale Lamirand

LOVE CONTROLS CORP., 1475 S. Wheeling Rd., Wheeling, IL 60090, Tel: 708-541-3232, TELEX: 297115, FAX: 708-541-7366; FSC No.: 8L919; Empl.: 72; *Sls. Mgr.:* James Nolan; *Dist. Mgr.:* Jim Clark

low key

FAX: 508-281-6321

LOW KEY CORPORATION, Strong Group, 105 Maplewood Ave., P.O. Box 1195, Gloucester, MA 01930, Tel: 508-281-0448; Empl.: 25; *Sls. Mgr.:* Brian Hendricks ..... **B•1820-1821**

Local Sales Offices & Reps
AL Huntsville, MacKay Smith Assocs. 205-539-8005
CO Englewood, Elctrn. Comp. Sls. 303-762-9576
CT Weatherfield, Compak 203-563-4784
FL Orlando, MacKay Smith Assocs. 407-423-4353
GA Tucker, MacKay Smith Assocs. 404-496-9913
IL Skokie, Electro Tech Mktg. 312-676-3151
IN Greenfield, France Entprs. 317-462-6098
MD Baltimore, Hagy Assocs. 301-529-3995
MA Westford, Bucher Assoc. 508-692-7503
NJ Lebanon, F.F. Sylvester Assocs. 201-735-2488
NY Coram, F.F. Sylvester Assocs. 516-473-2018
NC Raleigh, MacKay Smith Assocs. 919-847-2277
PA Newtown Sq., Hagy Assocs. 215-459-0504
UT Salt Lake City, Elctrn. Comp. Sls.

LSI LOGIC CORP., 1551 McCarthy Blvd., Milpitas, CA 95035, Tel: 408-433-8000, TELEX: 172153; *Dist. Mgr.:* John Mucciaro

LTI, INC., 363 St. Paul Blvd., Carol Stream, IL 60188, Tel: 708-668-8886, FAX: 708-668-9480; Empl.: 60; *Sls. Mgr.:* Mike Khetarpal

LTX CORPORATION, LTX Pk. @ University Ave., Westwood, MA 02090, Tel: 617-461-1000, TELEX: 4430108, FAX: 617-326-5895; Empl.: 1,500; *Sls. Mgr.:* Roger Blethen, Sr. V.P. Sls.

LUCAS DEECO CORP., 31047 Genstar Road, Hayward, CA 94544-7831, Tel: 415-471-4700, FAX: 415-489-3500; *Sls. Mgr.:* Bill Lepior, Natl; *Dist. Mgr.:* Brian Frey, Intl.

LUCAS DURALITH CORPORATION, 525 Orange St., Millville, NJ 08332, Tel: 609-825-6900, TWX: 609-825-6345 -; Empl.: 375; *Sls. Mgr.:* Leroy Nopper, V.P. Sls.; *Dist. Mgr.:* Nick Tonkery, Sls. Mgr. ..... **B•1822**

Local Sales Offices & Reps
CA Anaheim, Lucas Duralith-Western Div. 714-776-6700
NH Milford, Lucas Duralith-AKT Div. 603-672-0470
NJ Millville, Lucas Duralith-Eastern Div. .. 609-825-6900

LUCAS EPSCO, INC., 99 South St., Hopkinton, MA 01748-2204, Tel: 508-435-2400, TELEX: 95-1110, FAX: 508-435-2022; FSC No.: 15894; Empl.: 240; *Sls. Mgr.:* John M. Shalhoub

Local Sales Offices & Reps

IA Cedar Rapids, Midwest Tech. Sls., Inc. 319-365-4011
KS Lenexa, Midwest Tech. Sls., Inc. 913-888-5100
MO St. Charles, Midwest Tech. Sls., Inc. 314-441-1012
NY Huntington, CDB Entprs. Inc. 516-692-5200
NY Syracuse, I. A. Holtze 315-479-6641
OH Dayton, R. A. Ehlert Assocs., Inc. 513-253-9197
TX Dallas, Kruvand Assoc., Inc. 214-437-3355

LUCAS LEDEX INC., P.O. Box 427, 801 Scholz Dr., Vandalia, OH 45377-0427, Tel: 513-898-3621, TELEX: 6874241/6874243, FAX: 513-898-8624; FSC No.: 81840; Empl.: 450; *Sls. Mgr.:* T. C. Ristoff ..... **B•1629-1631, 1731, 1915**

Local Sales Offices & Reps

AL Huntsville, DHR Mktg., Inc. 205-722-0440
AZ Scottsdale, Arcom Sls., Inc. 602-947-5745
CA San Diego, Interstate Mktg. Assocs. ... 619-693-3220
CA Saratoga, Testco, Inc. 408-253-1900
CA Woodland Hills, Interstate Mktg. Assocs. 818-883-7606
CO Englewood, Integrated Motion Sys. 303-792-5516
CT Bloomfield, SIR-Assocs. 203-243-9343
FL Deerfield, Techn. Mktg. Assocs. 305-427-1090
FL Largo, Techn. Mktg. Assocs. 813-531-4405
FL Orlando, Techn. Mktg. Assocs. 407-857-3760
GA Duluth, DHR Mktg., Inc. 404-564-0529
IL Elk Grove Vl, Control Sls., Inc. 312-595-2110
KS Leawood, Thunderbird Tech. Sls. & Svcs. 913-642-7220
KS Wichita, Thunderbird Tech. Sls. & Svcs. 316-636-5777
MA Westford, SIR Assocs. 508-692-2500
MI Royal Oak, Hilltronics, Inc. 313-435-0920
MN Minneapolis, Josco/Melius, Inc. 612-861-3343
MO Maryland Heights, Thunderbird Tech. Sls. & Svcs. 314-298-8940
NY Clark Mills, KLM-Garner Co. 315-853-6126
NY Oceanside, Bittan Assocs., Inc. 516-678-6222
NY Pittsford, KLM-Garner Co. 716-381-8350
NC Raleigh, DHR Mktg., Inc. 919-829-1970
PA King of Prussia, Freedman-Malta Assocs. 215-337-9211
SC Greenville, DHR Mktg., Inc. 803-235-3594
TN Nashville, DHR Mktg., Inc. 615-331-2745
TX Austin, ION Assocs., Inc. 512-794-9007
TX Grand Prairie, ION Assocs., Inc. 214-647-8225
TX Houston, ION Assocs., Inc. 713-537-7717
WA Bellevue, Testco, Inc. 206-454-7422
WA Vancouver, Testco, Inc. 206-693-7262
WI Brookfield, Control Sls., Inc. 414-797-9500

LUCAS SCHAEVITZ, 7905 N. Route 130, Pennsauken, NJ 08110-1489, Tel: 609-662-8000, TWX: 710-892-0714; FSC No.: 93190; Empl.: 201; *Sls. Mgr.:* Mike Finnerty

LUCAS WEINSCHEL, P.O. Box 6001, Gaithersburg, MD 20884-6001, Tel: 301-948-3434, TELEX: 440702, FAX: 301-948-3625; FSC No.: 93459; *Sls. Mgr.:* Curtis W. Crews

LUCAS WESTERN INC., Electro Systems Division, 610 Neptune Ave., Brea, CA 92621, Tel: 714-671-4500, TWX: 910-240-3603, FAX: 714-671-4503; Empl.: 175; *Sls. Mgr.:* Jerry Neumayer

LUCAS ZETA, INC., Lucas Aerospace, Inc., 2811 Orchard Parkway, San Jose, CA 95134, Tel: 408-434-3600, FAX: 408-433-0205; FSC No.: 31260; Empl.: 280; *Sls. Mgr.:* Richard Wood

LUFF RESEARCH, 22 N. Tyson Ave., Floral Park, NY 11001, Tel: 516-358-2880, FAX: 516-358-2757; Empl.: 5; *Sls. Mgr.:* R. Scheer

LUFT INSTRUMENTS, INC., Hillside Rd., P.O. Box 214, Lincoln, MA 01773, Tel: 617-259-9215, FAX: 617-259-9215; Empl.: 12

LUMEX OPTO/COMPONENTS, INC., 292 E. Hellen Rd., Palatine, IL 60067-6955, Tel: 708-359-2790, FAX: 708-359-8904; Empl.: 125; *Sls. Mgr.:* Hank Zabanski; *Dist. Mgr.:* Tanya Bons

LUMITRON, PO Box 267, Summit, NJ 07902-0267, Tel: 201-273-8998, FAX: 201-273-0853; FSC No.: 51702; Empl.: 20; *Sls. Mgr.:* Gil Chassie

LUNAIRE ENVIRONMENTAL, INC., Lunaire Limited, 4 Quality St., Williamsport, PA 17701, Tel: 717-326-1770, FAX: 717-326-7304; Empl.: 130; *Sls. Mgr.:* Stu Lunick

LUNDAHL INSTRUMENTS, INC., Ezra C. Lundahl Inc., 429 South Main, Logan, UT 84321, Tel: 801-753-7300, FAX: 801-753-7490; Empl.: 17; *Sls. Mgr.:* Val Potter

LUTRON ELECTRONICS CO., 205 Suter Rd., Coopersburg, PA 18036, Tel: 215-282-3800, TELEX: 847475, TWX: 510-651-3755; Empl.: 378; *Sls. Mgr.:* John McKiernan; *Dist. Mgr.:* Robert Van Horne

LUTZE, INC., 38 Fairfield Place, West Caldwell, NJ 07006, Tel: 201-227-2371, 800-447-2371, FAX: 201-227-2954; Empl.: 6

LUXO LAMP CORP., P.O. Box 951, Port Chester, NY 10573, Tel: 914-937-4433, FAX: 914-937-7016; Empl.: 150; *Sls. Mgr.:* Robert H. Newton

LXD

FAX: 216-786-8711

LXD, INC., 7650 First Place, Cleveland, OH 44146, Tel: 216-786-8700, TELEX: 98-5442 LXD BCWD; FSC No.: 66706; Empl.: 100; *Sls. Mgr.:* Patrick Bowen; *Dist. Mgr.:* Patrick Bowen ..... **B•1097-1099**

Local Sales Offices & Reps

AL Madison, DTM Inc. 205-837-5062
CA Redwood City, James S. Heaton Co. .. 415-367-9000
CO Littleton, MRC 303-794-4684
IL Northbrook, Howard Benjamin Assoc. 708-272-2900
CT Seymore, Sturdy Corp. 203-888-1480
ID Boise, N.R. Schultz Co. 208-377-8686
IN Fort Wayne, RL Bontempo Assoc. 219-478-1057
IN Indianapolis, R. L. Bontempo Assocs. 317-293-8312
KS Prairie Village, C. Logsdon & Assocs. 913-381-3833
MA Wellesley Hills, Sturdy Corp. 617-235-2330
MN Minneapolis, George Russell & Assocs. 612-854-1166
MO St. Louis, C. Logsdon & Assocs. 314-849-5125
NH Derry, Sturdy Corp. 603-434-8440
NJ Haddonfield, Sunday O'Brien 609-429-4013
NJ Westwood, Jarms Elctrns. 201-666-9390
NC Raleigh, Eastern Elctrns. 919-876-7591
OH Cleveland, Electronics Mktg. Corp. 216-442-3441
OH Columbus, Electronics Mktg. Corp. 614-299-4161
OR Beaverton, N.R. Schultz Co. 503-643-1644
TX Austin, THT Sls. 512-835-2796
TX Dallas, THT Sls. 214-783-1501
WA Bellevue, N.R. Schultz Co. 206-764-1890
Can Concord, Ont., ITT Multicomponents .. 416-736-1144

LYDALL INC., MANNING DIV., P.O. Box 328, Troy, NY 12181, Tel: 518-273-6320, FAX: 518-273-6361; Empl.: 185; *Sls. Mgr.:* Ray Dugan

LYNN ELECTRONICS, 915 Pennsylvania Blvd., Feasterville, PA 19047, Tel: 215-677-6700, 800-523-6075, TWX: 510-667-1988, FAX: 215-364-2944; FSC No.: 19151; Empl.: 125; *Sls. Mgr.:* H. T. Colas

LYNTRONICS, INC., 569 Acorn St., Unit 5, Deer Park, NY 11729, Tel: 516-243-6397, FAX: 516-243-0232; FSC No.: OBSY 9; Empl.: 12; *Sls. Mgr.:* Gary L. Miller .... **D•1467**

LYN-TRON, INC., 3150 Damon Way, Burbank, CA 91505, Tel: 213-849-6211, 800-423-2734, FAX: 818-840-9581; FSC No.: 05791; Empl.: 85; *Sls. Mgr.:* Kory L. Wardle; *Dist. Mgr.:* Kory L. Wardle

LYON METAL PRODUCTS, INC., Box 671, Aurora, IL 60507, Tel: 708-892-8941, FAX: 1-800-367-6681; Empl.: 600; *Sls. Mgr.:* J. L. Wiebusch

LYTRON INCORPORATED, Dragon Court, Woburn, MA 01801, Tel: 617-933-7300, TELEX: 951-934, FAX: 617-935-4529; Empl.: 75; *Sls. Mgr.:* Edwin Carell

LZRelectronics,inc.

FAX: 301-670-0436

LZR ELECTRONICS, INC., 8051 Cessna Ave., Gaithersburg, MD 20879, Tel: 301-921-4600; Empl.: 35; *Sls. Mgr.:* John Andreoli; *Dist. Mgr.:* Greg Mozingo ..... **B•1823; C•1446-1462, 1766-1769; D•1042-1043, 1878-1889**

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AZ Phoenix, Howe & Howe 602-264-7971
CA Los Alamitos, Power Specialists 213-594-9418
CA San Jose, Bytec Sls. 408-435-8004
CA Simi Valley, Power Specialists 805-581-4785
CO Arvada, Mountain High Mktg. 303-422-2573
CT Guilford, Data Mark, Inc. 203-453-0575
FL Melbourne, Jim Kennedy Assocs. 407-676-6875
AL Huntsville, Dean Assocs., Inc. 205-534-2255
MD Lutherville, DGR 301-583-1360
MA Norwood, JMG, Inc. 617-762-5333
NJ Clifton, ROI Sls. 201-340-1515
NM Albuquerque, Nelco Electronix 505-293-1399
NY Victor, Net Sls.(Upper NY) 716-924-1844
OH Troy, S-Tek 408-435-8004
OH Mason, S-TEK 513-339-5233
PA West Chester, TCA Assocs. 215-692-6853
MN Richfield, Clap Rep Co. 612-861-2191
NJ Totowa, R.O.I. Sls. 201-812-9606
WA Lynnwood, Blair Hirsch Co. 206-774-8151
WI Genoa City, Vine Sales, Inc. 414-279-3871
Can Scarborough, Cantronics Ltd. 416-297-8668

MABUCHI MOTOR AMERICA CORP., 475 Park Ave. South, New York, NY 10016, Tel: 212-686-3622, TELEX: 23-4374, TWX: MABU, FAX: 212-532-4263; Empl.: 10,000 ..... **B•1293**

PANAFAX: 212-532-4263

Local Sales Offices & Reps

MI Detroit, Mabuchi Motor America Corp. 313-370-9090

MACCOR, INC., 2805 W. 40th Street, Tulsa, OK 74107, Tel: 918-446-1874, FAX: 918-445-1496; FSC No.: 6625; *Sls. Mgr.:* Andrew D. MacKay

MACHINE COMPONENTS CORP., 70 Newtown Rd., Plainview, NY 11803, Tel: 516-694-7222, FAX: 516-694-7252; FSC No.: 15531; Empl.: 46; *Sls. Mgr.:* D. L. Dubov

MACOM, INC., 43 Second Ave., Bldg. 8, Burlington, MA 01803, Tel: 617-272-3000, TELEX: 94-9464, TWX: 710-332-6789

M/A-COM CONTROL COMPONENTS DIV., M/A-COM, 21 Continental Blvd., Merrimack, NH 03054-4343, Tel: 603-424-4111, TWX: 710-336-0674, ESYLNK: 62038279, FAX: 603-424-6580; FSC No.: 16179; Empl.: 750

M/A-COM GOVERNMENT PRODUCTS, INC., 10713 Gilroy Rd., Hunt Valley, MD 21030, Tel: 301-771-0077, FAX: 301-771-6025; FSC No.: 29644; *Sls. Mgr.:* Frederick D. Reynolds

M/A-COM LASER DIODE, INC., See Laser Diode, Inc., Div. of Morgan Crucible

M/A COM LTD., Humphrey Rd., Dunstable, Bedfordshire, England LU5 4SX, England, Tel: 44(582)471200, TELEX: 82295; Empl.: 500; *Sls. Mgr.:* D. McGuinness

M/A-COM OMNI SPECTRA, INC., 140 Fourth Avenue, Waltham, MA 02254-9101, Tel: 617-890-4750, FAX: 617-890-2381; FSC No.: 26805; Empl.: 750

M/A-COM PHI, INC., M/A COM, Inc., 1742 Crenshaw Blvd., Torrance, CA 90501, Tel: 213-320-6160, TWX: 910-349-6651, FAX: 213-618-9191; FSC No.: 50998; Empl.: 260; *Sls. Mgr.:* Charlie Hancock

MACROAMP INC., P.O. Box 1512, Ukiah, CA 95482, Tel: 707-462-2222, FAX: 707-462-4103; Empl.: 25

MACRODYNE INC., 4 Chelsea Pl., Box 376, Clifton Pk., NY 12065, Tel: 518-383-3800, FAX: 518-383-0049; Empl.: 16; *Sls. Mgr.:* Clifford J. Jurus

MACROLINK, 1500 N. Kellogg Drive, Anaheim, CA 92807, Tel: 714-777-8800, FAX: 714-777-8807; Empl.: 40; *Sls. Mgr.:* Bill Goodale

MACROMATIC DIVISION, Milwaukee Elctrns. Corp., 7817 W. Clinton Ave., Milwaukee, WI 53223, Tel: 414-358-4000, FAX: 414-358-4001; FSC No.: 98664; Empl.: 100-150; *Sls. Mgr.:* James Scholler

MACRONETICS, See Veeco Instrs. Inc.

MAG-CON, 1626 Terrace Dr., St. Paul, MN 55113, Tel: 612-633-8820, FAX: 612-633-1851; Empl.: 40; *Sls. Mgr.:* Gene Litzau

MAG DEV INC., 17 Downing Three, Pittsfield, MA 01201, Tel: 413-442-6368, FAX: 413-443-9107; Empl.: 10

MAG-HEAD ENGINEERING CO., 686-Mendelssohn Ave., Minneapolis, MN 55427, Tel: 612-545-1321, FAX: 612-545-0335; FSC No.: (Cage) 0DU70; Empl.: 30; *Sls. Mgr.:* Anthony T. Price

MAGNA-POWER ELECTRONICS, INC., 135 Route 10, Whippany, NJ 07981, Tel: 201-428-1197, TELEX: 201-428-2853; FSC No.: 7V550; Empl.: 10 ..... **D•1891**

MAGNATROL VALVE CORP., 67 Fifth Ave., Hawthorne, NJ 07507, Tel: 201-427-4341, FAX: 201-427-7611; *Sls. Mgr.:* R. Kretschmer

MAGNECOMP

FAX: 803-878-0507

MAGNECOMP, INC., P.O. Box 625, Gravley Rd., Pickens, SC 29671, Tel: 803-878-4700; Empl.: 10; *Sls. Mgr.:* T. Sullivan ..... **A•2252**

MAGNECRAFT ELECTRIC CO., 1910 Techny Road, Northbrook, IL 60062-5376, Tel: 708-564-8800, TWX: 910-221-0122, FAX: 312-564-3027; FSC No.: 94696; Empl.: 700; *Sls. Mgr.:* Wiley Greenwood; *Dist. Mgr.:* Wiley Greenwood

MAGNELAB CORPORATION

FAX: 303-447-1588

MAGNELAB, 7315 Red Deer Dr., Boulder, CO 80301-4696, Tel: 303-442-6700; FSC No.: 58439; Empl.: 25; *Sls. Mgr.:* Carl A. Forsberg ..... **A•1209, 2253-2257**

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CA	San Diego, Mesa Sls. & Engrg.	619-278-8021

MAGNETEK, Transducer Products, 650 Easy St., Simi Valley, CA 93065, Tel: 805-581-3985, FAX: 805-583-1526; FSC No.: 65998; Empl.: 37; *Sls. Mgr.:* Dave Snyder

MAGNETEK DEFENSE SYSTEMS, MagneTek, Inc., 901 E. Ball Road, Anaheim, CA 92805, Tel: 714-956-9200, FAX: 714-956-5397; Empl.: 450; *Sls. Mgr.:* Ty Fredericksen

MAGNETEK TRIAD, 1124 E. Franklin St., Huntington, IN 46750, Tel: 219-356-7100, FAX: 219-356-3148; Empl.: 963; *Sls. Mgr.:* Mark Decker ..... **A•2259-2263**

MAGNETIC CIRCUIT ELEMENTS, 1540 Moffett St., Salinas, CA 93905, Tel: 408-757-8752, FAX: 408-757-5478; FSC No.: 09349; Empl.: 30; *Sls. Mgr.:* Lisa Battaglia

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CA	Fremont, R-C Elctrns.	415-656-8490
WA	Bellevue, Advanced Power Comps.	206-747-9127
WA	Seattle, Advanced Power Comps.	206-527-7945

MAGNETIC COILS, INC., See MCI Transformer Corporation

MAGNETIC COMPONENT ENGINEERING CO., 11379 Playa Street, Culver City, CA 90230, Tel: 213-398-4761, FAX: 213-572-1691; FSC No.: 52634; Empl.: 12; *Sls. Mgr.:* L.D. Montgomerie

Local Sales Offices & Reps

AZ	Phoenix, C.T. Carlberg Assocs.	602-468-0750
CA	Culver City, Magnetic Comp. Engrg. ...	213-398-4761
CA	San Jose, Silicon Valley Sls.	408-432-1967
MN	Minneapolis, A. J. Warner Co., Inc.	612-823-8272
NJ	Englewood, Cooper Assocs.	201-871-4985
NY	Rochester, Irondequoit Inds.	716-544-6257
NM	Albuquerque, C.T. Carlberg Assocs. ...	505-836-1448

mi

FAX: 317-549-0502

MAGNETIC INSTRUMENTATION, 8350 E. 48TH ST., Indianapolis, IN 46226, Tel: 317-545-2102, TELEX: 27-2111; Empl.: 35; *Sls. Mgr.:* Peter Stolpe ..... **D•1290**

MAGNETICO INC.

FAX: 516-758-7408

MAGNETICO INC., 182 Morris Ave., Holtsville, NY 11742, Tel: 516-654-1166; FSC No.: 10581; Empl.: 65 ..... **A•2264-2265**

MAGNETIC RADIATION LABS, 690 Hilltop Drive, Itasca, IL 60143, Tel: 708-285-0800, FAX: 708-285-0807; Empl.: 43; *Sls. Mgr.:* Ken Phillips

MAGNETICS, Spang & Co., Box 391, Butler, PA 16003-0391, Tel: 412-282-8282, TWX: 710-373-3821, FAX: 412-282-6955; Empl.: 750; *Sls. Mgr.:* J. F. Huth

MAGNETIC SHIELD CORPORATION, Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, Tel: 708-766-7800, TWX: 910-256-4815, FAX: 708-766-2813; FSC No.: 06682; Empl.: 43 ..... **C•1698-1699**

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CA	Foster City, Polach & Bensinger Inc. ..	415-578-8200
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FL	Orlando, Ludlum Assoc. Co.	305-894-7761
MD	Baltimore, Bernard White & Co.	301-484-5400
MA	Framingham, Harvard Technlg.	617-899-4568
MI	Livonia, Amtech Reps.	313-474-8300
MN	Minneapolis, Josco-Meluis & Assocs.	612-861-3343
NM	Albuquerque, IMEC	505-883-9010
NJ	Morristown, Kenneth L. Love Assocs.	201-540-0204
NY	Plainview, Robert Smith Assoc.	516-932-3975
OR	Hillsboro, Temco Northwest	503-648-8171
PA	Newton Square, W. Reeves Assocs. ..	215-356-7500
PA	Sewickley, Teplitz-Byrne Assoc.	412-741-3268
SC	Walhalla, Overton Assoc.	803-638-7101
TX	Dallas, Allied Components,Inc.	214-238-0408
WA	Bothell, Temco Northwest	206-821-5434

MAGNETIC TECHNOLOGIES CORP., 770 Linden Avenue, Rochester, NY 14625, Tel: 716-385-9010, FAX: 716-385-5625; Empl.: 65; *Sls. Mgr.:* Gordon H. McNeil

MAGNETOELASTIC DEVICES, Box 625, Pittsfield, MA 01202, Tel: 413-445-5608, FAX: 413-442-3750

MAGNETROL INTERNATIONAL, 5300 Belmont Rd., Downers Grove, IL 60515-4499, Tel: 708-969-4000, FAX: 708-969-9489; *Sls. Mgr.:* Roger T. Piegza, Natl. Sls. Mgr.

MAGNET SALES & MFG. CO. INC., 11248 Playa Court, Culver City, CA 90230-6127, Tel: 213-391-7213, 800-421-6692, FAX: 213-390-4357; FSC No.: 17853; Empl.: 55; *Sls. Mgr.:* Chris Nanji; *Dist. Mgr.:* Chris Nanji

MAGNOS, 9 Bonazzoli Ave., Unit 17, Hudson, MA 01749, Tel: 508-562-1173, TELEX: 951417MAGN, FAX: 508-562-1175; Empl.: 5 ..... **D•1291**

MAGNUM MICROWAVE CORP., 4575 Cushing Pkwy., Fremont, CA 94538, Tel: 415-657-9898, FAX: 415-490-3351; FSC No.: 59277; Empl.: 105; *Sls. Mgr.:* Harry L. Fowler

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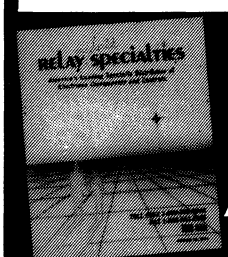

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MAGTECH CONTROLS, Vernitron Corporation, 1601 Precision Park La., San Diego, CA 92073, Tel: 619-428-5581, FAX: 619-428-5090; FSC No.: 10112; Empl.: 200; *Sls. Mgr.:* R. Campbell ..... **B•1294**

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CA	Glendale, Halbar Assocs.	818-246-8263
CO	Wheat Ridge, Waugaman Assocs.	303-423-1020
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Largo, Labrant	813-536-8480
GA	Dunwood, Hugh Assoc.	404-396-5848
IL	Northbrook, Howard Benjamin	708-272-2900
MA	Burlington, Kitchen & Kutchin	617-229-2660
MO	St. Louis, Rush & West	314-965-3332
NJ	Cherry Hill, Lanson Assocs.	609-424-4670
NY	Jericho, Metro Tech. Sls.	516-935-3330
NY	Syracuse, T-Squared Elctrns., Inc.	315-463-8592
NY	Victor, T-Squared Elctrns., Inc.	716-924-9101
OH	Dayton, Rixan Assocs.	513-222-0011
TX	Dallas, CMR	817-379-6540
UT	Salt Lake City, Waugaman Assocs.	801-261-0802
VA	Fredericksburg, Vernitron	703-752-4499

MAG-TEK, 20725 S. Annalee Ave., Carson, CA 90746, Tel: 213-631-8602, TWX: 510-600-0621 MAG TEK CRSN, FAX: 213-631-3956; *Dist. Mgr.:* Shelley Schira

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FAX: 804-722-1194

MAIDA DEVELOPMENT CO., 20 Libby St., Hampton, VA 23663, Tel: 804-723-0785; Empl.: 299; *Sls. Mgr.:* Edward T. Maida, Frank Thompson ..... **A•1086-1089, 1942-1944**

Local Sales Offices & Reps

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CA	Redwood City, Hickey Inds. Sls. Corp.	415-594-9978

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MI	Southfield, M. Gottlieb Assocs.	313-358-4151
MN	St. Paul, Johnson Co.	612-641-1878
NH	Amherst, D.A. Crowley & Assocs.	603-673-7050
NY	Rockville Centre, S-I Assocs., Inc.	516-536-4242
NY	Upstate, Inactive Comp. Sls.	315-445-9600
NC	Raleigh, F.B.D. Sls. Corp.	919-832-0202
OH	Cleveland, RK Comps.	216-642-9312
OR	Beaverton, UniComp, Inc.	503-643-1645
SC	Mauldin, Carl Hart	803-288-2323
TX	Plano, Mega Tech Mktg., Inc.	214-423-6342
VA	Danville, F.B.D. Sls.	804-836-1499
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VA	Manassas(Northern), F.B.D. Sls. Corp.	703-369-7212
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MAINE POLY, INC., P.O. Box 8 Rte. 202, Greene, ME 04236, Tel: 207-946-7440, FAX: 207-946-5492; FSC No.: 46280; Empl.: 130; *Sls. Mgr.:* Jon Chase

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MAKK-O INDUSTRIES, 761 Nepperhan Ave., Yonkers, NY 10703, Tel: 914-376-0160, 914-376-0161, FAX: 914-376-0162; Empl.: 18; *Sls. Mgr.:* Vincent Passalacqua; *Dist. Mgr.:* Debbie Carroll ..... **C•1596**

Local Sales Offices & Reps

AZ	Prescott, IMEC	602-445-8727
MA	Lee, Francis Biasin	413-243-0970
NJ	Upper Montclair, McCarron Entprs.	201-783-3112
NM	Albuquerque, IMEC	505-294-1124
TX	Dallas, S & B Sls.	214-369-5936

MALCO, DIV. OF MICRODOT, INC., See Microdot, Interconnect Sys. Div.

MALLORY BATTERY, See Duracell Intl.

MALLORY CONTROLS, Emerson Electric Canada, P.O. Box 210, 1079 Parkinson Rd., Woodstock, Ont., Canada N4S 7W8, Tel: 519-539-4891, TELEX: 23 MOY 001, FAX: 519-539-6684; FSC No.: 37942;76055; *Sls. Mgr.:* Joe Labonte; *Dist. Mgr.:* Joe Labonte ..... **A•1091, 2064-2065**

Local Sales Offices & Reps

IL	Chicago, M & S Sls.	708-934-1200, FAX:708-934-9169
MN	St. Paul, Johnson Co.	612-641-1878, FAX:612-641-0146
NY	New York, Hebert Rude Assoc., Inc.	212-721-1001, FAX:212-721-1004
OH	Cleveland, ESI	216-831-9555,FAX:216-831-8647
TX	Dallas, Eltec Sls.	817-268-2896,FAX:817-282-3010

MALLORY CONTROLS, Emerson Electric, 2831 Waterfront Pkwy-E. Drive, Indianapolis, IN 46214, Tel: 317-328-4010, FAX: 317-328-4244; Empl.: 2,000; *Sls. Mgr.:* Lewis Jones

MALLORY/NORTH AMERICAN CAPACITOR CO., 4760 Kentucky Ave., Indianapolis, IN 46241, Tel: 317-856-3731, TELEX: 317-687-6090, FAX: 317-856-2500; Empl.: 450; *Dist. Mgr.:* Tom Green, V.P. Sls. & Mktg.

MANAGE, INC., Fibre Optics Elctrns. Sys. Grp., P.O. Box 175, 40 Nichols Rd., Chicopee, MA 01014, Tel: 413-592-9123, FAX: 413-594-4891; Empl.: 33; *Sls. Mgr.:* David Menard

MANGER ELECTRIC COMPANY, INC., W. Henry St., Stamford, CT 06902, Tel: 203-348-7761, FAX: 203-324-5447; FSC No.: 20262; Empl.: 100; *Sls. Mgr.:* Peter J. Romaniello

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GA	Atlanta, Manhattan Elec. Cable Corp.	800-356-4796
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IN	Indianapolis, Wiltrout Sls., Inc.	317-577-7500
MA	Holliston, Manhattan Elec. Cable Corp.	800-255-1429
MN	Maple Grove, North Central Sls.	800-829-2885
NJ	Bridgeton, Manhattan Elec. Cable Corp.	800-225-2293
NJ	Fairfield, Manhattan Elec. Cable Corp.	800-888-0146
OH	Cleveland, Manhattan Elec. Cable Corp.	800-966-9473
TX	Houston, Manhattan Elec. Cable Corp.	800-392-4928
WA	Redmond, Elctrn. Mktg. Grp., Inc.	206-882-0962

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CA	El Toro, Sourcery Wire & Cable	714-380-0466
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CA	Oakland, Brill Elctrns.	415-834-5888
CA	San Jose, Compass Comps.	408-432-7575
CA	Santa Clara, Trinity Elctrns.	408-980-9011
CO	Denver, CSID	303-292-9594
CT	Greenwich, Wise Comps.	203-531-4880
FL	Orlando, Hammond Elctrns.	407-849-6060
FL	Pensacola, Elctrn. Supp. Co.	904-432-6916
FL	Tamarac, Pacer Elctrns.	305-749-1910
FL	Tampa, Dow Elctrns.	813-626-5195
LA	Harahan, MG Elctrns.	504-733-0070
MD	Owings Mill, Cameo Elctrns.	800-227-7077
MA	Burlington, QPL	617-229-2424
MA	Hudson, Metro Wire & Cable	508-562-6288
MA	Woburn, Pacer	617-935-8330
MI	Madison Heights, Quad Elctrns.	800-969-9220
NY	Johnson City, Help Elctrns.	607-729-3528
NY	Long Island City, H. L. Dalis	718-361-1100
NY	Mt. Vernon, QAR/All American	914-699-2224
NY	Rochester, Simcona Elctrns.	800-274-6266
NY	Syracuse, Newark Elctrns.	315-437-6611
OH	Cincinnati, Hughes Peters	800-543-4483
OH	Columbus, Hughes Peters	800-282-1262
OH	Strongsville, Calvert Wire & Cable	800-321-1203
OH	Yellow Springs, Electroshield	800-662-1054
PA	Allentown, P. A. Peters	800-322-9583
PA	Harrisburg, Cumberland Elctrns.	800-692-7425
PA	Montgomeryville, Pytronic Inds.	800-562-5780
TN	Memphis, Bluff City Elctrns.	901-345-9500
TX	Austin, Wholesale Elctrn. Supp.	512-478-9568
TX	Houston, Houston Wholesale Elctrns.	713-644-8320
TX	Houston, Kent Elctrns.	713-780-7770
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
VT	Bethel, Clifford of Vermont	802-234-9921
WA	Seattle, Radar Elec. Co.	206-282-2511
WA	Woodinville, Northwest Wire & Cable	206-486-8342

MANN, HENRY, INC., 3983 Mann Road, Huntingdon Valley, PA 19006, Tel: 215-355-7200, TELEX: 6851160, FAX: 215-355-5134; Empl.: 52; *Dist. Mgr.:* Mickey Hoffer

MANTEX CORP., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48371, Tel: 313-628-8210, FAX: 313-628-1520; Empl.: 100; *Sls. Mgr.:* David Rice

MANUFACTURERS COMPONENTS, INC., 2260 W. 77 St., Hialeah, FL 33016, Tel: 305-556-4481, 800-367-0377, TELEX: 514181, FAX: 305-823-8934; Empl.: 5; *Sls. Mgr.:* Jackie Barker

MANU-TRONICS, INC., 8701-100th St., Lakeview Corporate Pk., Kenosha, WI 53142-9508, Tel: 414-947-7700 , 414-947-7302, FAX: 414-947-7729; Empl.: 300

MARATHON POWER TECHNOLOGIES, P.O. Box 8233, Waco, TX 76714-8233, Tel: 817-776-0650, TWX: 910-894-5203 MARATHON WAC

MARATHON SPECIAL PRODS., Marathon Electric, 13300 Van Camp Rd., Bowling Green, OH 43402, Tel: 419-352-8441, TWX: 810-499-2988, FAX: 419-352-0875; FSC No.: 26405; Empl.: 150; *Sls. Mgr.:* J. Campisi

MARCO MANUFACTURING CO., INC., 2021-43 So. 29th St., Philadelphia, PA 19145, Tel: 215-463-2332, FAX: 215-334-4990; Empl.: 35-40

MARCON AMERICA CORP., 998 Forest Edge Dr., Vernon Hills, IL 60061, Tel: 312-913-9980, FAX: 312-913-1150; Empl.: 14; *Sls. Mgr.:* Tony Olita; *Dist. Mgr.:* Helen A. Stubbs

MARCONI CIRCUIT TECHNOLOGY CORP., 160 Smith St., Farmingdale, NY 11735, Tel: 516-293-8636, FAX: 516-293-0061; Empl.: 500; *Sls. Mgr.:* Kurt Kuhl

MARCONI INSTRUMENTS, 3 Pearl Court, Allendale, NJ 07401, Tel: 201-934-9050, FAX: 201-934-9229; *Sls. Mgr.:* Carl Pepple, Gen. Mgr. ..... **D•1292**

Local Sales Offices & Reps

AZ	Tempe, Scientific Dvcs.West	602-730-9774
CA	Citrus Hights, Larry Allen d/b/a/ LK. Allen	916-638-7655
CA	Santa Fe Springs, Wallace & Wallace	213-945-2908
CA	Shingle Springs, LK Allen Comms.	916-676-2533
CO	Broomfield, Scientific Dvcs. West	303-469-5145
CO	Littleton, K. C. Marketers, Inc.	303-972-8411
FL	Orlando, Panterra Sls., Inc.	407-855-6130
GA	Alpharetta, Panterra Sls.	404-772-9944
GA	Decatur, Panterra Sls., Inc.	404-325-0165
IL	Schaumburg, K.W. Meyers	708-882-4808
IN	Indianapolis, K. Meyers	317-573-0966
KY	Louisville, Webster Assocs., Inc.	502-937-8189
MD	Burtonsville, Elect. Mktg. Assocs.	301-792-9300
MD	Laurel, Elect. Mktg. Assocs.	301-953-7800
MA	Westford, ICS Assocs.	508-765-5131
MA	Westford, ICS Assocs.	508-692-3545
MI	Houghton Lake, W.E.Price & Co.	517-366-8702
MI	Rochester, Webster Assocs., Inc.	313-375-0420
MN	Minneapolis, K.W. Meyers	612-822-9253
MO	Maryland Hgts., Comms. Equip. Specialties	314-291-7841
NJ	Allendale, Allan Mowat	201-934-9050
NM	Albuquerque, Scientific Dvcs.	505-883-3668
NY	Rochester, TAE-REP	716-586-8710
NY	Whitney Point, Tae-Rep	607-692-3705
NC	Pineville, Communications Mktg. SE, Inc.	704-542-0374
OH	St. Mary's, Thomas Shelby Co.	419-394-3377
OR	Oregon City, Proctor Sls. & Mktg.	503-657-7583
TX	Austin, Eng. Equip. Sls.	512-467-9655
TX	Dallas, EES	214-644-8881
TX	Richardson, Engrg. Equip. Sls.	512-467-9655
VT	Graniteville, ICS Assocs.	802-476-4223
WI	Burtonsville, K.W. Meyers Co.	708-882-4808

MAREL INSTR. CO., 907 South East 13th Pl, Cape Coral, FL 33990, Tel: 813-574-8788; Empl.: 14; *Sls. Mgr.:* T. Swift

MARKAT DIV., Wild Oats Corp., 1432 Fox Hollow Way, N. Myrtle Bch., SC 29582, Tel: 803-249-5191, FAX: 803-249-5191; Empl.: 211; *Sls. Mgr.:* K. L. Campbell; *Dist. Mgr.:* W. B. Heather

Markel
CORPORATION

FAX: 215-270-3138

MARKEL CORP., P.O. Box 752, Norristown, PA 19404, Tel: 215-272-8960, TWX: 510-660-0929; FSC No.: 03890; Empl.: 228; *Sls. Mgr.:* Allan R. Soldwisch; *Dist. Mgr.:* L. J. Clemente ..... **C•1677**

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn	602-257-9015
AL	Montgomery, MYA, Inc.	205-284-1948
CA	LA., Natl. Wire & Cable	213-225-5611
CO	Evergreen, Mid/West Co.	303-374-4829
CT	Hamden, Datcom	203-288-7005
FL	Deerfield Bch., Jack Krutek & Assoc.	305-427-4202
IL	Schiller Pk., Wm. R. Bolles	312-678-7888
MD	Glen Burnie, F. Lott	301-744-4611
MA	Waltham, Datcom	617-891-4600
MI	Canton, L. George & Assoc.	313-454-0580
MN	Minneapolis, Technical Comps. Grp.	612-536-9512
MO	Florissant, Mid/West Co.	314-837-3361
NJ	Colonia, Heft & Ficarra	201-381-5193
NY	Lynbrook, Heft & Ficarra	516-599-3351
NY	Rochester, Apex	716-272-7040
OH	Chagrin Falls, Electrolock	216-543-6626
PA	Flourtown, CGM Inc.	215-233-0333
SC	Greenville, Electrolock Inc.	803-297-9830
TN	Murfreesboro, Alpha Mktg.	615-896-6102
TX	Richardson, C.J. Garvey	214-234-3371
WI	Mequon, Wm. R. Bolles	414-241-3320
EXP	Plymouth Meeting, Pa., Ballogh & Thrall	215-825-5710
Can	Rexdale,Ont, True North Technology	416-744-2233

Local Distributors

CA	Los Angeles, Natl. Wire & Cable	213-225-5611
CA	San Bernadino, Indl. Dielectrics West	714-381-4734
CO	Denver, Brownell Elctrns.	303-333-3541
NY	Endwell, Pryme-Line	607-748-5200
CT	Hartford, Wes-Garde	203-527-7705
FL	Davie, Arco Distrs.	305-473-2550
FL	Lakeland, Switch Controls	800-282-7619
GA	Atlanta, Accu-Tech Cable	404-455-6422
IL	Chicago, Fay Electric Wire	708-267-9222
IL	West Chicago, J.J. Glenn	708-293-7800
IN	Indianapolis, Marian Rubber	317-638-6525
KS	Wichita, Midwest Aircraft Supp.	316-267-3318
LA	New Orleans, Radio Parts	504-581-5959
MD	Rockville, Read Plastics	301-881-7900
MI	St. Clair Shores, Spemco	313-771-2700
MN	Bloomington, K.L. Tannenill	612-881-6700
MO	St. Louis, Midwest Switch	314-567-7164
NY	Rochester, Simcona Elctrns.	716-328-3230
OH	Chagrin Falls, Electrolock	216-543-6626
OR	Wilsonville, O.T.S. Wire	503-682-7050
SC	Greenville, Electrolock, Inc.	803-297-9830
AR	Little Rock, Hisco	501-568-3105
CT	Manchester, IMS Inc.	203-288-7005
VA	Roanoke, Control Distbn.	703-774-4586
Can	Mississauga, Ont., Marflex-Barrett Ltd.	416-828-0220

MARKEM CORP., 150 Congress St, Keene, NH 03431, Tel: 603-352-1130, TELEX: 710-366-1800, FAX: 603-357-5871; FSC No.: 38360; Empl.: 1400; *Sls. Mgr.:* Rich Howsen

MARKENRICH CORP., 1812 Flower Avenue, Duarte, CA 91010, Tel: 818-359-9190, TELEX: 298727, FAX: 818-359-5223; FSC No.: 63837; Empl.: 8

MARK EYELET INC., AMP, Inc., 63 Wakelee Rd, Wolcott, CT 06716, Tel: 203-756-8847, TELEX: 69-6191, FAX: 203-755-9410; Empl.: 90; *Dist. Mgr.:* Andrew Babiak

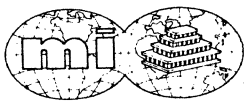
Local Distributors

CA	San Francisco, Marshall	408-942-4600
CA	SAn Jose, Compass Comps.	408-432-7575
CT	Wallingford, Cronin	203-265-3134
FL	Orlando, Hammond Elctrns., Inc.	407-841-1010
FL	Orlando, Marshall	407-767-8585
IL	Chicago, Newark	312-784-5100
MA	Needham, Cronin	617-449-5000
NY	Bohemia, Car-Lac Elctrns.	516-567-4200
NY	Rochester, Masline Elctrns.,Inc.	716-546-5373
PA	Philadelphia, Powell Elctrns.	215-365-1900
WI	Milwaukee, Marsh Elctrns.	414-475-6000

MARK POLARIZED CORP., 25 Davids Dr., Hauppauge, NY 11788, Tel: 516-273-1122, FAX: 516-436-7257; FSC No.: 5895; Empl.: 10; *Sls. Mgr.:* Ronald M. Miller

MARKTECH INTERNATIONAL CORP., 5 Hemlock St, Latham, NY 12110, Tel: 518-786-6591, FAX: 518-786-6599; Empl.: 42; *Sls. Mgr.:* Lou Verenini

MARLEE SWITCH CO., 933-D N. Central Ave., Upland, CA 91786, Tel: 714-982-8988, FAX: 714-982-8989; Empl.: 10; *Sls. Mgr.:* LeRoy Tichy



FAX: 214-341-5212

MARLOW INDUSTRIES, INC., 10451 Vista Park Rd., Dallas, TX 75238-1645, Tel: 214-340-4900, TWX: 910-860-5161; FSC No.: 55686; Empl.: 160; *Sls. Mgr.:* John Nelson; *Dist. Mgr.:* David Marlow ..... **C•1630-1631**

MARQUARDT SWITCHES INC., 2711 Rte. 20 East, Cazenovia, NY 13035, Tel: 315-655-8050, TELEX: 703-287-UD, FAX: 315-655-8042; *Sls. Mgr.:* R. A. Philipchik, V.P. Mktg.; *Dist. Mgr.:* P. D'Addario

MARSH-MCBIRNEY, INC., 4539 Metropolitan Court, Frederick, MD 21701, Tel: 800-368-2723, 301-874-5599, TWX: 710-828-0083, FAX: 301-874-2172; Empl.: 90; *Sls. Mgr.:* K. Steiding

MARSH PRODUCTS, INC., Spectrum Companies, Intl., 336 McKee St, Batavia, IL 60510, Tel: 708-879-8008, FAX: 708-879-8072

MARTEL ELECTRONICS, 8a Industrial Way P.O. Box 897, Salem, NH 03079, Tel: 603-893-0686, FAX: 603-898-6820; *Sls. Mgr.:* David DeVries

MARTIN SOUND PRODS. INC., 28 Alpha Park, Cleveland, OH 44143-2297, Tel: 216-442-2286, FAX: 216-442-7713; Empl.: 4; *Sls. Mgr.:* Christopher Martin; *Dist. Mgr.:* Christopher Martin

MARWAY
PRODUCTS INC.

FAX: 714-973-2931

MARWAY PRODS. INC., 311 N. Clara St, Santa Ana, CA 92703, Tel: 714-973-1800; FSC No.: 60955; Empl.: 23; *Sls. Mgr.:* Tom Goreth ..... **D•2212-2213**

Local Sales Offices & Reps

AZ	Glendale, Sunbird Inds, Inc.	602-439-0134
CA	Milpitas, Ward Elctrn. Packaging Sls.	408-945-0420
CA	Santa Ana, Marway Prods., Inc.	714-973-1800
CO	Monument, Sunbird Inds., Inc.	719-481-2900
CT	Meriden, PCS-Power Conversion Sys.	203-235-4886
FL	Land O' Lakes, A.J's Power Source, Inc.	813-996-2583
MD	Landover, Sel-Tronics, Inc.	301-341-2700
MA	Hopkinton, Eastern Sys. Inc.	508-435-2151, 508-435-2517
NH	Londonderry, PCS- Power Conversion Sys.	603-434-2371
TX	Richardson, Interactive Comp. Sls.	214-669-2277
WA	Bellvue, Underwood Hanify	206-643-1793

MASTECH, INC., Lorlin Test Systems, Precision Rd., Danbury, CT 06810, Tel: 203-744-0096, TELEX: 7104565030; Empl.: 57; *Sls. Mgr.:* L. Sanders Corbit

MASTER APPLIANCE CORP., 2420 18th St., Box 68, Racine, WI 53403, Tel: 414-633-7791, TELEX: 269-505; FSC No.: 83284; Empl.: 54; *Sls. Mgr.:* Don Royer, Natl. Sls. Mgr.; *Dist. Mgr.:* F.W. Krescanko, Int'l. Sls. Mgr.

MASTER BOND, 154 Hobart St., Hackensack, NJ 07601, Tel: 201-343-8983, FAX: 201-343-2132; FSC No.: 59504; Empl.: 16; *Sls. Mgr.:* James Brenner

Distributor

MASTER DISTRIBUTORS, P.O. Box 25662, Los Angeles, CA 90025, Tel: 213-452-1229 ..... **A•1247, 1632, 1739, 1948, 2166, 2308, 2420; B•1152, 1210, 1313, 1350, 1384, 1390, 1466, 1506, 1526, 1557, 1577, 1632, 1730, 1770, 1792, 1852, 1890; C•1052, 1348, 1410, 1478, 1536, 1660, 1818** 608, 610, 611, 612, 618, 631, 632, 635, 641, 649, 651, 652, 661, 665, 667, 668, 669, 672, 689, 692, 695, 699, 700, 701, 710, 717, 720, 722, 723, 727, 731, 737, 738, 753, 755, 763, 772, 784, 789, 792, 803, 807, 808, 810, 812, 817

MEC

FAX: 213-399-8600

MASTER ELECTRONIC CONTROLS, P.O. Box 25905, Los Angeles, CA 90025, Tel: 213-452-1336, TELEX: 182041 MASTER SNM; Empl.: 74; *Sls. Mgr.:* Jamil Nizam; *Dist. Mgr.:* Belinda Valle ..... **B•1541-1544**

BRILL
ELECTRONICS
(415) 834-5888
610 E. 10th St., Oakland, CA 94606

MEC MASTER ELECTRONIC CONTROLS
(213) 452-8002
1220 Olympic Bl., Santa Monica, CA 90404

Local Sales Offices & Reps
CA Los Angeles, Master Distrs. 213-829-4656
CA Santa Monica, Master Distrs. 213-452-1229

Local Distributors
CA Oakland, Brill Elctrns. 415-834-5888
CA Santa Monica, Master Distrs. 213-452-1336

MATEC INSTRUMENTS, INC., 75 South St, Hopkinton, MA 01748, Tel: 508-435-9039, FAX: 508-435-5289; Empl.: 55; *Sls. Mgr.:* Harry Ives

MATERIALS RESEARCH CORPORATION, Route 303, Orangeburg, NY 10962, Tel: 914-359-4200, TELEX: 221862 MRC UR, FAX: 914-425-6075; Empl.: 780; *Sls. Mgr.:* Robert S.Kase

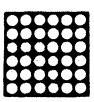
MATH ASSOCS., 2200 Shames Dr., Westbury, NY 11590, Tel: 516-334-6800, FAX: 516-334-6473

MATHEMATICAL SYSTEMS DESIGN, INC., 11835 W. Olympic Blvd., Suite 745, Los Angeles, CA 90064, Tel: 310-479-7180, FAX: 310-479-0942; *Sls. Mgr.:* Lorr Kramer

THE MATHWORKS, INC., 21 Eliot Street, So. Natick, MA 01760, Tel: 508-653-1415, TELEX: 910-240-5521, FAX: 508-653-2997

MATRIX CORP., 2260 Distributors Dr., Indianapolis, IN 46241, Tel: 317-248-2036, FAX: 317-248-8369; Empl.: 10 ..... **D•1185**

MATRIX CORP., 1203 New Hope Rd., Raleigh, NC 27610, Tel: 919-231-8000, FAX: 919-231-8001; Empl.: 65; *Sls. Mgr.:* Michael Bryant



FAX: 818-222-2304

MATRIX SYSTEMS CORP., 5177 N. Douglas Fir Rd., Calabasas, CA 91302, Tel: 818-222-2301; FSC No.: 33281; Empl.: 75; *Sls. Mgr.:* Randy Sue Rabideau ..... **B•1545**

Local Sales Offices & Reps
AL Huntsville, Reynolds Assoc., Inc. 407-259-7000
AZ Scottsdale, Faser Techn. Sls. 602-948-4404
CA Huntington Beach, Scientific Devices-West 714-840-3501
CA San Jose, Scientific Dvcs. West 408-554-0455
CO Broomfield, Scientific Dvcs. 303-469-5145
CT Meriden, Polytek Assocs. 203-634-4499
FL Melbourne, Reynolds Assocs., Inc. 407-259-7000
FL Newport Richey/Coral Springs, Reynolds Assocs. 407-259-7000
GA Duluth, Reynolds Assoc., Inc. 407-259-7000
IL Arlington Hgts., Comtel Midwest 708-392-4040
IN Indianapolis, Comtel Midwest 317-253-1681
KS Shawnee Mission, Comtel Midwest 913-268-0762
MA Ashland, Polytek Assocs. 508-881-4741
MA Falmouth Hgts., RJC Assocs. 508-540-8832
MI Southfield, Comtel-Instr. 313-358-2505
MN Wayzata, Comtel Midwest 612-476-1551
MO Manchester, Comtel Midwest 314-227-7220
NY Mamaroneck, Bassin Tech. Sls. Co. 914-698-9358
NC Raleigh, Reynolds Assoc. 407-259-7000
OH Cleveland, Comtel Instr. 216-442-8080
OH Columbus, Comtel Instr. 614-876-8305
OH Dayton, Comtel Instr. 513-426-5310
OR Portland, Topp Engrg. Sls. 503-244-7265
PA Pittsburgh, Comtel Instr. 412-922-5720
SC Greenville, Reynolds & Assocs. 407-259-7000
TX Carrollton, Seaton Corp. 214-980-9860
UT Scientific Devices 801-973-9411
VA Fairfax, Schibley Assocs. 703-591-3008
WA Bellevue, Topp Engrg. Sls. 206-747-5400
WI New Berlin, Comtel Midwest 414-544-6042

MATROX ELECTRONIC SYSTEMS, LTD., 1055 St. Regis Blvd., Dorval, QU, Canada H9P 2T4, Tel: 514-685-2630, TELEX: 05-822798, FAX: 514-685-2853; Empl.: 450; *Sls. Mgr.:* Ed Dwyer, VP Sls.; *Dist. Mgr.:* Bruce Seidel

FAX: 714-960-6492

MATSUO ELECTRONICS, 2134 Main Street, Suite 200, Huntington Beach, CA 92648, Tel: 714-969-2491; Empl.: 854; *Sls. Mgr.:* Ted Wiltse ..... **A•1092-1097**

Local Sales Offices & Reps
AZ Tempe, FP Sls. 602-894-5303
CA Mission Viejo, Angle Assocs. 714-582-8858
CA Redwood City, James S. Heaton Co. .. 415-367-7158
FL Plantation, Gallagher 305-473-2101
GA Norcross, Macro Mktg. 404-662-5580
IL Des Plaines, ESCO Assocs. 312-298-5310
IN Indianapolis, STB & Assocs. 317-844-9227
MD Randallstown, Chesapeake Mktg. 301-922-5997
MA Randolph, Hatch Assocs. 617-963-3306
MI Grand Rapids, DEM Elctrn. Sls. 616-364-4024
MI St. Clair Shores, DEM Elctrns. 313-777-1750
MN St. Paul, Proud Inds. 612-646-9428
NJ Ft. Lee, Neptune Elctrns. 201-461-2789
NM Albuquerque, FP Sls. 505-345-5553
OH Dayton, Dolfuss-Root & Co. 513-433-6776
OH Strongsville, Dolfuss-Root & Co. 216-238-0300
TX Plano, RAM Elctrns. 214-424-4455
OR Beaverton, N. R. Schultz 503-643-1644
PA Pittsburgh, Dolfuss-Root & Co. 412-221-4420
WA Bellevue, N. R. Schultz 206-454-0300
Can Scarborough, Ont., Bach-Simpson 416-288-9932

Local Distributors
CA Garden Grove, Capacitor Supp. 714-638-0510
CA Garden Grove, National Elctrns. 714-892-7749
CA San Diego, Southland Comps. 619-673-3800
CA San Jose, Passive Technlg. 408-435-5566
CA Santa Maria, Garrett Instrs. 805-922-0594
CA W. Covina, CSI 818-960-4761
CA Yorba Linda, Corona Elctrns. 714-283-8185
GA Norcross, Spectrum Elctrns. 404-448-1516
IL Arlington Heights, Mar/Lyn 312-364-0444
IN Carmel, Altek Elctrns. 317-848-1323
MD Gaithersburg, Axis Elctrns. 301-840-9640
MA Billerica, A. W. Mayer Co. 617-229-2255
MA Billerica, Baldwin Comps. 617-667-6710
MA Wilmington, Aved Elctrns. 617-657-6310
MN New Brighton, Parts 1 612-633-8079
NJ Fairfield, C.H.P.S., Inc. 201-882-0997
NJ Kenilworth, Ventronics 201-272-9262
NY Ronkonkoma, Baldwin Comps. 516-588-5700
PA Norristown, Century Elctrn. Comps. ... 215-631-5400
TX Dallas, C & W 817-831-0395
TX Dallas, Omni-Pro 214-233-0500
VA Charlottesville, Virginia Elctrns. 804-296-4184
Can Montreal, Que., Prelco 514-389-8051
Can N. London, CM Peterson 519-434-3204
Can Willowdale, Ont., Electro Sonic 416-494-1666

MATTHEY ELECTRONICS, Television Equipment Associates, Box 393, South Salem, NY 10590, Tel: 914-763-8893, TELEX: 493-0698, FAX: 914-763-9158; *Sls. Mgr.:* Bill Pegler

MAUELL CORP., 31 Old Cabin Hollow Rd., P.O. Box 339, Dillsburg, PA 17019-0339, Tel: 717-432-8686, FAX: 717-432-8688; Empl.: 25; *Sls. Mgr.:* Frank A. Ulrich; *Dist. Mgr.:* Frank A. Ulrich

MAUREY INSTRUMENT CORP., 4555 W. 60th St, Chicago, IL 60629, Tel: 312-581-4555, FAX: 312-581-2576; FSC No.: 03942; Empl.: 50; *Sls. Mgr.:* E. Maurey; *Dist. Mgr.:* Louis Derdzinski ..... **A•2045-2053**

Local Sales Offices & Reps
CT Killingworth, Gallagher Assocs. 203-663-2338
MA Framingham, Gallagher Assocs. 617-626-2346
TX Dallas, THT Sls. Co. 214-783-1501

Local Distributors
CA Garden Grove, Allied Elctrns. 714-554-0731
CA Santa Clara, Allied Elctrns. 408-727-1690
CO Wheatridge, Allied Elctrns. 303-425-7144
CT Ridgefield, PIC 203-451-1533
FL Margate, Allied Elctrns. 305-973-3070
MA Wilmington, Allied Elctrns. 617-942-0150
MI Battle Creek, Great Lakes Elctrns. 616-963-6282
MI Grand Rapids, SF Elctrn. Supp. 616-459-0216
MI Westland, Allied Elctrns. 313-595-6565
MO St. Louis, Allied Elctrns. 314-878-1229
NY Mineola, Allied Elctrns. 516-248-2360
NC Raleigh, Allied Elctrns. 919-821-0415
OH Akron, Stotts-Friedman 216-253-7000
OH Cincinnati, Stotts-Friedman 513-574-7701
OH Dayton, Stotts-Friedman 513-298-5555
OH Willoughby, Allied Elctrns. 216-951-0908
OK Tulsa, Allied Elctrns. 918-663-7630
PA Bala Cynwyd, Allied Elctrns. 215-267-6940
TN Knoxville, Shields Elctrns. 615-588-2421
TX Ft. Worth, Allied Elctrns. 817-336-5401
TX Houston, Allied Elctrns. 713-932-7321
VA Alexandria, Allied Elctrns. 703-836-5002
WA Seattle, Allied Elctrns. 206-767-5772

MAURY MICROWAVE CORP., 8610 Helms Ave., Cucamonga, CA 91730, Tel: 714-987-4715, FAX: 714-987-1112; FSC No.: 13047; Empl.: 100; *Sls. Mgr.:* M. A. Maury, Jr.

MAXIMUM STRATEGY, INC., 1650 B Berryessa Rd., San Jose, CA 95133, Tel: 408-729-1526, FAX: 408-729-7084; Empl.: 15; *Sls. Mgr.:* Wes Meador; *Dist. Mgr.:* Ernie Ohrenstien

MAXMAR CONTROLS INC., 99 Castleton St, Pleasantville, NY 10570, Tel: 914-747-3540, FAX: 914-747-3567; *Sls. Mgr.:* Julius Chastant; *Dist. Mgr.:* Julius Chastant

MAXON PRECISION MOTORS, INC., 838 Mitten Rd., Burlingame, CA 94010, Tel: 415-697-9614, FAX: 415-697-2887; *Sls. Mgr.:* Sam Robinson

MAXUS ELECTRONIC CORP., 2760 29th St., Boulder, CO 80301, Tel: 303-447-1226, FAX: 303-447-1446; Empl.: 6; *Sls. Mgr.:* Eric Slack

MAXWELL ELECTRONICS, P.O. Box 12033, Research Triangle Park, NC 27609, Tel: 919-846-1633; Empl.: 8; *Sls. Mgr.:* Joe Harrison

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TX Dallas, Kent Elctrns. 214-669-2600
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TX Ft. Worth, Allied Elctrns. 817-336-5401
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WA Kent, Comp. Resources, Inc. 206-454-8666

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PA Pittsburgh, Electro-Mktg. Grp. 412-823-5400
TX Houston, Milco Mktg. 713-469-5156
TX Plano, Milco Mktg. 214-578-1996
WA Redmond, Halbar PNW 206-882-0990
Can Guelph, Ont., Hammond Mfg. Co. 519-822-2960

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OK Tulsa, Hall-Mark 918-254-6110
OK Tulsa, Norvell Elctrns. 918-663-1247
OR Beaverton, Acacia/Deanco, Inc. 503-646-3377
OR Beaverton, Shelley/Ragon 503-641-1691
OR Tualatin, Moore Elctrns., Inc. 503-692-5333
TX Houston, Hall-Mark 713-781-6100
PA Philadelphia, Powell Elctrns. 215-365-1900
TX Richardson, Kent Electrns. 214-669-2600
TX Austin, Hall-Mark 512-258-8848
TX Austin, Kent Elctrns. 512-834-1900
TX Austin, Norvell Elctrns., Inc. 512-837-5555
TX Dallas, Hall-Mark 214-553-4300
TX Dallas, Hall-Mark
TX Dallas, Norvell Elctrns. 214-233-0020
TX El Paso, ERA Elctrns. 915-855-3600
TX Houston, Kent Elctrns. 713-780-7770
TX Houston, Norvell Elctrns. 713-777-1666
TX Plano, Tactic Elctrns. 214-422-0777
UT W. Valley City, Hall-Mark 801-972-1008
WA Redmond, Acacia/Deanco, Inc. 206-881-5566
WA Redmond, Shelley/Ragon Elctrns. 206-883-2220
WA Seattle, Hall-Mark 206-547-0415
WA Tukwila, Carlyle Inc. 206-251-0700
WI Milwaukee, Elctrn. Expeditors, Inc. 414-228-8100
WI New Berlin, Hall-Mark 414-797-7844

3M PHOTODYNE PRODUCTS, Dynatel Systerms Division, 3760 Calle Tecate, Camarillo, CA 93010, Tel: 805-388-8378, 800-426-8688, TWX: 910-874-2020; FSC No.: TWX 910-874-2020; 59912; Empl.: 100

3M PRIVATE NETWORK PRODUCTS, 3M, 6801 Riverplace Blvd., Austin, TX 78769-2963, Tel: 512-984-1800, 800-745-7459, FAX: 512-984-5943; Empl.: 50; *Sls. Mgr.:* R.C. Ware

MDF PRODUCTS INC., 7 Johnson Dr., Danbury, CT 06811, Tel: 203-743-3579, TELEX: 499-8051, FAX: 203-744-2704; FSC No.: 60628 ..... **D•1293**

MDM, INC., 9601 Irondale Ave., Chatsworth, CA 91311, Tel: 818-700-8400, FAX: 818-700-1938; FSC No.: 60994; Empl.: 150; *Sls. Mgr.:* Steven J. LaLonde

MDS CALIBRATION LAB. INC., 437-H Mary Esther Cutoff, Ft. Walton Beach, FL 32548, Tel: 904-664-1234, FAX: 904-664-6789; *Sls. Mgr.:* Gerry Doiron

MEA DIV., See Mechanized Elctrn. Assembly Div., Universal Instrs. Corp.

MEASUREMENTS GROUP, INC., Box 27777, Raleigh, NC 27611, Tel: 919-365-3800, TELEX: 62919594, FAX: 919-365-3945

MEASUREMENT SYSTEMS, INC., 121 Water St., Norwalk, CT 06854, Tel: 203-838-5561, TELEX: 6813573; Empl.: 97; *Sls. Mgr.:* Gerard M. Lacrocque, Nat'l. Sls. Mgr. ..... **D•1138**

Local Sales Offices & Reps

AZ Scottsdale, Advent Comps. 602-481-0044
CA Anaheim, Gabriel & Assoc. 714-531-7674
IA Cedar Rapids, S & O Sls. 319-393-7331
MD Columbia, Robert Elctrn. Sls. 301-995-1900
MA Hudson, Data Rep 508-481-0333
MN Edina, Elctrn. Sls., Inc. 612-933-9070
MO St. Louis, J. S. DeWeese Co. 314-469-7350
OH Medina, J. C. Hofstetter Co. 216-241-4880
PA Hickory, J. C. Hofstetter Co. 412-356-2305
TX Richardson, Scientific Sls. Co. 214-231-6541
VA Richmond, Robert Elctrn. Sls. 804-276-3979

MEC A/S, Industriparken 23, Ballerup, Denmark DK-2750, Tel: 011-4542973366, TELEX: 9125649, TWX: 2381-125649, FAX: 011-4542 681514; Empl.: 50

MP

FAX: 517-782-2810

MECHANICAL PRODUCTS INC., 1824 River St. P. O. Box 729E, Jackson, MI 49204, Tel: 517-782-0391, TWX: 810-253-0827; *Sls. Mgr.:* Dave Olson .... **B•1378-1381**

Local Sales Offices & Reps

AL Huntsville, Electro-Mech 205-533-2100
AZ Scottsdale, Advent Comps. Corp. 602-481-0044
CA Los Angeles, Universal Components Co. 213-641-4255

CA Sunnyvale, Pass Associates 408-735-9040
CO Denver, Advent Comps. Corp. 303-455-1985
FL Tampa, Florida Comp. Sls., Inc. 813-873-3622
GA Atlanta, Electro-Mech 404-447-6478
IL Barrington, Perhats Assocs. 708-381-6360
KS Prairie Village, C. Logsdon & Assoc. .. 913-381-3833
MD Pikesville, Muncy Sls. 301-484-6376
MA Danvers, C. H. Burnham Assoc. 508-774-0111
MN St. Paul, Mackubin Grp. 612-636-5686
MO St.Louis, C. Logsdon & Assoc. 314-849-5125
NH Durham, C. H. Burnham Assocs. 603-868-2282
NJ Pitman, Colrud Corp. 609-589-5866
NY Port Washington, Ashtec, Inc. 516-267-0981
NC Raleigh, Electro-Mech 919-851-8165
OH Euclid, Rockford Controls Ohio, Inc. ... 216-725-3705
RI Johnston, C. H. Burnham Assocs. 401-231-7475
TN Jonesboro, Electro-Mech 615-753-2964
TX Dallas, Control Comps. Corp. 214-458-8877
Can Downsview, Ont., Har Tech 416-665-7773
Can Pointe Claire, Que., Har Tech 514-694-6110

Local Distributors

AZ Phoenix, Beswitched, Inc. 602-275-4805
CA Gardena, Cal Switch ... 213-770-2330/213-538-9830
CA San Carlos, Campbell & George Co. .. 415-594-1994
FL Ft. Lauderdale, Zelcon, Inc. 305-565-2555/6
FL Lakeland, Wes-Garde Comps. Grp. ... 800-282-7619
IL Carol Stream, Wes-Garde Comps. Grp. 800-323-9431
IL Chicago, Nep Elctrns. 708-625-8400
MA Danvers, RCI 617-777-4441
MI Grand Rapids, S & F Elec. Supp. Co., Inc. 616-459-0216
MI St. Clair Shore, Spemco Switch, Inc. .. 313-771-2700
MN Minneapolis, Berquist 612-835-2322
NJ Oakland, Relay Specialties 201-337-1000
NY Plainview, Linrose Elctrns. 516-293-2520
NY Woodside, Switches Unlimited 800-221-0487
OH Euclid, Rockford Controls Ohio, Inc. ... 216-731-5250
TX Arlington, Bell Components Sls., Inc. .. 817-461-5303
Can Scarborough, Ont., Carsten Elctrns. Ltd. 416-495-9999
Can St. Laurent, Que., Tara Inds. Corp. 514-331-6550

MECHANIZED ELCTRN. ASSEMBLEY DIV., UNIVERSAL INSTRS. CORP., See Dover Electronics Manufacturing

MECHATRONICS

FAX: 206-236-5480

MECHATRONICS INC., 2835 82nd Ave. S.E., P.O. Box 20, Mercer Island, WA 98040, Tel: 206-232-4800, TWX: 910-444-4126; Empl.: 40; *Sls. Mgr.:* Jim Innes ..... **C•1636-1639**

Local Sales Offices & Reps

WA Mercer Island, Mechatronics Inc. 206-232-4800

MECO INDUSTRIES, Mechanical Engraving Co., Inc., 4500 Bullard Ave, Bronx, NY 10470, Tel: 212-324-4455, FAX: 212-324-5500; FSC No.: 99040; Empl.: 35

MEDA, INC., Macintyre Electronics Design Assocs., 11260 Roger Bacon Dr., Ste. 202, Reston, VA 22090, Tel: 703-471-1445; Empl.: 8

MEDIA RECOVERY INC., Box 1407, Graham, TX 76046, Tel: 800-527-9497, 214-630-9625 (Texas), TELEX: 73-2561; Empl.: 130; *Sls. Mgr.:* J. Ricciardi

MEGADATA CORP., 35 Orville Dr., Bohemia, NY 11716, Tel: 516-589-6800, FAX: 516-589-6858; FSC No.: 53436; Empl.: 90

MEISSNER INDUSTRIES, 551 Rte. 10, Dover, NJ 07801, Tel: 201-366-1700; Empl.: 10

MEKTRONIX TECHNOLOGY, INC., 53 Depot Rd., Goleta, CA 93117, Tel: 805-964-9669, FAX: 805-964-0797; Empl.: 5; *Sls. Mgr.:* Gregory Mayworm

FAX: 508-881-5082

MELCHER, INC., 200 Butterfield Dr., Ashland, MA 01721, Tel: 800-828-9712, TWX: 5101003630; Empl.: 280; *Sls. Mgr.:* Joe DiPietro ..... **D•1892-1895**

Local Sales Offices & Reps

CA La Habra, West Coast Reps. 213-690-9960
AZ Scottsdale, Power Up Elctrn. Sls. 602-955-1105
CA Granada Hills, West Coast Reps. 818-368-7385
CA San Diego, West Coast Reps. 619-576-9203
FL Coral Springs, Graham Assocs. 305-341-5102
FL Largo, Graham Assocs. 813-539-6779
FL Melbourne, Graham Assocs. 407-773-6631
FL Orlando, Graham Assocs. 407-299-1001
FL Palm Beach Gardens, Graham Assocs. 407-622-4049
WA Snohomish, West Coast Reps. 206-483-5300
FL Winter Garden, Graham Assocs. 407-656-9369
IL Arlington Hgts., Phoenix Elctrn. Sls. ... 708-394-4422
KS Olathe, Tech. Sls. Assocs. 913-829-2800
MI Troy, CB Jensen & Assocs. 313-643-0506
MO St. Louis, Tech. Sls. Assocs. 314-521-2044
NY Wantagh, Bytec Reps. 516-781-7400
NC Winston-Salem, Murcota 919-722-9445
PA Willow Grove, Tech. Sls. Assocs. 215-784-0170
TX Richardson, Jim D. Gray & Assocs., Inc. 214-699-9976
TX Richmond, Jim D. Gray & Assocs., Inc. 713-342-1710
WI Brookfield, McMahon Inc. 414-782-3335

MELCOR

FAX: 609-393-9461

MELCOR/MATERIALS ELCTRN. PRODS., 994 Spruce St., Trenton, NJ 08648, Tel: 609-393-4178, TELEX: 84-3314; FSC No.: 32333; Empl.: 220; *Sls. Mgr.:* M.A. Levine ..... **C•1641-1644**

Local Sales Offices & Reps

CO Fort Collins, Rep Sls., Inc./Andy Cornedi 303-226-1504
CA Mountain View, Shaw Tech, Inc. 415-961-4775
NY W. Henrietta, Exogray Tech. Sls. 716-334-1340

Distributor

FAX: 213-820-6958

MELFESS FIVE, INC., 12304 Santa Monica Blvd., No. 121, Los Angeles, CA 90025, Tel: 213-826-8133, 800-533-2297; Empl.: 7; *Sls. Mgr.:* Michael S. Fisher ..... **D•1106**

MELLES GRIOT, INC., 1770 Kettering St., Irvine, CA 92714, Tel: 714-261-5600, TELEX: 678447; Empl.: 110; *Sls. Mgr.:* Kevin Chittim, VP Mktg.

MEL-RAIN CONTROLS, 42974 M-43 Hwy., Paw Paw, MI 49079, Tel: 616-657-2527, FAX: 616-657-2528; FSC No.: 639; Empl.: 20; *Sls. Mgr.:* Howard F. Walter

MEMBRANE SWITCH & PANEL CO., INC., 1537-G McFadden, Santa Ana, CA 92705, Tel: 714-541-5775; Empl.: 8

MI

FAX: 219-356-7376

MEMCOR-TRUOHM, INC., 1320 Flaxmill Rd., Huntington, IN 46750, Tel: 219-356-4300; FSC No.: 24681; Empl.: 250; *Sls. Mgr.:* Ray Vanderspool ..... **A•1946, 2054**

Local Sales Offices & Reps

AL Huntsville, Murcota 205-539-8476
CA American Canyon, Jacobson & Assoc. 707-552-4412
CA Huntington Bch., Mil-Com Sls. 714-840-2424
FL Indialantic, Raycom 305-727-8860
GA Atlanta, Murcota 404-875-2525
IL Chicago, D. Dolin Sls. 312-286-6200
IN Ft. Wayne, Menze Sls. 219-747-5616
MI St. Clair Shores, J.M. Thorpe 313-779-6363
MO St. Charles, Hayes Elec. Sls. Co. 314-946-6677
NH Atkinson, Mark Rep Assoc. 603-382-9563
NJ Englewood Cliffs, Masin Esco 201-569-8868
NY Hauppauge, Masin Esco 516-273-3500
NY Marcellus, Mullahy Sls. Inc. 315-685-6280
NC Burlington, Murcota 919-585-1577
NC Winston-Salem, Murcota 919-723-1001
OH Cleveland, Glover Sls. 216-842-4520
PA Newtown Square, G.M. Conneen 215-353-2241
TX Dallas, SW Elctrn. Ind. 214-233-9816
TX Houston, SW Elctrn. Ind. 713-729-1670
WA Redmond, Barrett-Squibb 206-885-6991

MEMODYNE, 20 Ossipee Rd., Newton, MA 02164, Tel: 617-964-6556 (in MA), 800-255-1510, FAX: 617-964-2444; Empl.: 40; *Sls. Mgr.:* Leonard Sacon ..... **D•1100**

Local Sales Offices & Reps

AL Huntsville, Dean Assocs. 205-534-2255
AZ Scottsdale, A.M.I. 602-947-4297
CA Carson, Amasco 213-516-8561
CT Portland, BBI Elctrns. 203-342-0648
FL Orlando, DAI Sls. 305-299-7754
IL Elmhurst, Scott Assocs. 312-279-5681
MD Severna Park, Syronics 301-544-8652
MA Holbrook, McLellan Assocs. 617-767-4771
MI Detroit, EQS Sys. 313-961-3042
MI Pontiac, EQS Sys., Inc. 313-338-2280
MN Chanhassen, Jen-Ray Sys. 612-934-8607
NJ Boonton, PAF Assocs. 201-335-0680
NY Liverpool, Syronics 315-451-0968
NY Smithtown, PAF Assocs. 516-360-0940
OH Chesterland, EQS Sys. 216-729-2222
OH Columbus, EQS Sys. 614-228-3453
OH Dayton, EQS Sys., Inc. 513-236-7676
OH Huber Hgts., EQS Sys., Inc. 216-729-2222
OR Lake Oswego, Syntek 503-636-6793
PA Sellersville, Penn-Tech Sls. 215-257-2756
TX Irving, Trice Mktg. 214-255-1877
WA Kirkland, Syntek 206-488-0394

MEMORY PROTECTION DEVICES, INC., 320 Broad Hollow Rd., Farmingdale, NY 11735, Tel: 516-293-5891, FAX: 516-752-1971; *Sls. Mgr.:* Thomas Blaha ..... **D•1469**

Local Distributors

AL Huntsville, Powell Elctrns. 205-837-5300
AL Huntsville, Resistacap, Inc. 205-883-4270
AZ Phoenix, Lynntronics 602-433-0288
CA Buena Park, Cypress Elctrns. 714-521-5230
CA Costa Mesa, Battery Specialties 800-854-5759
CA Costa Mesa, House of Batteries 714-642-8222
CA Costa Mesa, Powell Elctrns. 714-754-1717
CA San Diego, Tauber Elctrns. 619-274-7242
CA San Jose, Powell Elctrns. 408-943-6438
CA San Jose, Rose Elctrns. 408-263-9700
CA Santa Clara, Cypress Elctrns. 408-980-2500
CA Van Nuys, Nesco Corp. 818-781-0522
CO Arvada, Denver Beta Wintronics 303-431-7161
CO Englewood, AVT, Inc. 303-779-8056
CO Englewood, Cypress Elctrns. 303-792-5829
FL Fort Lauderdale, Powell Elctrns. 305-484-8377
FL Tampa, MicroPrecision Inc. 813-854-2861
GA Norcross, Applied Power 404-263-0421
ID Boise, Kimball Elctrns. 208-342-3559
IL Morton Grove, Power Pak 312-966-6000
IN Indianapolis, North American Cap 317-856-3731
MD Annapolis Junction, Powell Elctrns. ... 301-880-3255
MA Andover, Generation Elctrns. 508-683-1177
MA Canton, Richey Impact Elctrns. 617-821-1500
MA Sharon, Adcour Inc. 617-784-8123
MA Sutton, Engrd. Assemblies and Comp. Corp. 508-865-0722
MI Brighton, Applied Power 313-227-3604
MN Minneapolis, Stark Elctrns. 612-332-1325
MN Thief River Falls, Digi Key Corp. 218-681-6674
NJ Camden, Gen. Radio Supp. 609-964-8560
NJ Mountainside, Mars Elctrns. 201-233-0044
NJ Teterboro, Engrd. Assemblies & Comp. Corp. 201-288-4477
NY Buffalo, Summit Distrs. 716-887-2800
NY Rome, Rome Elctrns. 315-337-5400
NC Raleigh, Engrd. Assemblies & Comps. Corp. 919-790-9700
OR Beaverton, Micro Power 503-626-7086
PA Philadelphia, Powell Elctrns. 215-365-1900
TX Dallas, Conformance Technlg., Inc. 214-233-4173
TX Dallas, Computer Comps. Corp. 214-239-0271
TX Dallas, Cypress Elctrns. 214-869-1435
TX Irving, Powell Elctrns. 214-550-0457
UT W. Valley City, Denver Beta Wintronics 801-966-0378
WI Milwaukee, Taylor Elctrns. 414-241-43321

MEMORY X, INC., 5205 Kearny Villa Way, No. 106, San Diego, CA 92123, Tel: 619-292-1151, FAX: 619-292-0774

MEMTEC CORP., 19-B Keewaydin Dr., Salem, NH 03079, Tel: 603-893-8080, FAX: 603-893-8699; Empl.: 35

MEMTRON®

FAX: 517-652-2659

MEMTRON TECHNOLOGIES, INC., 1400 Weiss St., Frankenmuth, MI 48734, Tel: 517-652-2656, 800-234-7525; FSC No.: 6 V 417; Empl.: 130; *Sls. Mgr.:* Daniel T. Ortner ..... **B•1824**

Local Sales Offices & Reps

AZ	Tucson, Intramerica Technlg.	602-326-8997
CA	San Diego, Intramerica Technlg.	619-451-3383
CA	Saratoga, Edward King & Assocs.	408-867-2111
CO	Longmont, Reliance Sls.	303-443-5660
FL	Maitland, EIR, Inc.	305-660-9600
GA	Lawrenceville, Tek-Rep Mktg., Inc.	404-963-1600
IL	Wheaton, CS Tech. Sls.	312-653-8126
IN	Indianapolis, EMCI, Inc.	317-253-1668
MA	Framingham, Stone Comp. Sls. Corp.	508-875-3266
MN	Oakdale, Complete Sls.	612-731-2923
MO	Saint Charles, Buckman & Assocs.	314-946-6201
NY	Islip, ABS Technlgs., Inc.	516-277-7010
NY	Liverpool, Syronics	315-451-0968
OH	Delaware, Bill Romine Co.	614-363-1600
PA	Southampton, Campbell Assocs.	215-322-6630
TX	Richardson, Zonk & Assocs.	214-238-7651, 214-895-9131
VA	Alexandria, Tech-Reps. Inc.	703-370-2600
WA	Renton, K. R. Jensen Sls.	206-277-2772
Can	Toronto, Ont., Reptech	416-863-9510

MENSOR CORPORATION, 2230 IH-35 South, San Marcos, TX 78666, Tel: 512-396-4200

MEPCO/CENTRALAB CORP., See Philips Components Discrete Products Division

MEP CONTROLS, Rising Sun Rd., Bordentown, NJ 08505, Tel: 609-298-7300, FAX: 609-298-1982; Empl.: 25; *Sls. Mgr.:* Thomas Thorn

MEPCOPAL

FAX: 619-481-1123

MEPCOPAL COMPANY, 11468 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-453-0332; Empl.: 160 ..... **A•2055-2057; B•1737**

Potentiometers (Cermet, Carbon) Industrial & Military

Local Sales Offices & Reps

AL	Huntsville, Over & Over, Inc.	205-837-7105
AZ	Tempe, Philips Comps.	602-820-2225
CA	Anaheim, Philips Comps.	714-441-0385
CA	Harbor City, Refrigeration Comp.	213-325-3420
CA	Mission Hills, Philips Comps.	818-891-6299
CA	San Diego, Philips Comps.	619-453-0332
CA	Santa Clara, Philips Comps.	408-748-1563
CA	Sunnyvale, Philips Comps.	408-746-2066/2808
CO	Englewood, Philips Comps.	303-779-9696
FL	Altamonte Springs, Philips Comps.	407-339-5073
FL	Ft. Lauderdale, Philips Comps.	305-485-0115
GA	Norcross, Over & Over Inc.	404-449-6205
GA	Roswell, Philips Comps.	404-992-0150
IL	Bannockburn, GMR Sls., Inc.	312-295-8440
IL	Des Plaines, Philips Comps.	312-827-4487
IN	Ft. Wayne, Corrao Marsh	219-482-2725
IN	Green Field, Corrao Marsh, Inc.	317-462-4446
IN	Kokomo, Philips Comps.	317-456-1615
IA	Cedar Rapids, Lorenz Sls. Inc.	319-377-4666
KS	Merrian, Lorenz Sls. Inc.	913-384-6556
KS	Wichita, Lorenz Sls., Inc.	316-721-0500
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Woburn, Philips Comps.	617-932-4748
MI	Farmington Hills, Philips Comps.	313-553-6000
MN	Minneapolis, Elec. Comps. Sls., Inc.	612-933-2594
MO	St. Louis, Lorenz Sls. Inc.	314-997-4558
NE	Lincoln, Lorenz Sls. Inc.	402-475-4660
NJ	Englewood, Ed Glass Assoc.	201-592-0200
NY	E. Rochester, Empire Tech. Assocs.	716-381-8500
NY	Endwell, Empire Tech. Assoc., Inc.	914-336-6575
NY	Skaneateles, Empire Tech. Assocs.	315-685-5703
NC	Charlotte, Over & Over Inc.	704-542-9111
NC	Raleigh, Over & Over, Inc.	919-876-7338
NC	Raleigh, Philips Comps.	919-782-3334
OH	Dayton, Philips Comps.	513-436-0066
OH	Wickliffe, Philips Comps.	216-731-7721
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
NJ	Englewood Cliff, Ed Glass Assocs.	201-592-0200
PA	Willow Grove, Philips Comps.	215-659-6096
TX	Austin, Philips Comps.	512-331-8828
TX	Houston, Philips Comps.	713-987-0034
TX	Richardson, Philips Comps.	214-231-8274
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
WA	Spokane, Eclipse Mktg. Grp.	509-922-3972
WI	Milwaukee, Philips Comps.	414-228-7632
PR	Caparra Hgts., M. Anderson Co., Inc.	809-793-6544
Can	Scarborough, Ont., Philips Comps.	416-292-5161

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AZ	Scottsdale, Spirit Elctrns.	602-988-1533
CA	Sunnyvale, Hamilton/Avnet	408-743-3355
CO	Englewood, Shelley-Ragon	303-762-0670
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Orlando, TTI, Inc.	407-859-1000
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
IL	Chicago, Nep Elctrns.	312-595-8500
IN	Indianapolis, Marshall Inds.	317-297-0483
MD	Columbia, TTI, Inc.	301-995-1331
MA	Wilmington, Marshall Inds.	508-658-0830
MI	Livonia, Marshall Inds.	313-525-5850
MN	St. Paul, Shelley-Ragon	612-642-2828
NE	Omaha, Scott Elctrns.	402-734-6750
NJ	Mt. Laurel, TTI, Inc.	609-234-6400
NY	Ronkonkoma, TTI, Inc.	516-737-2000
NC	Raleigh, Hall-Mark	919-872-0712
OH	Independence, TTI, Inc.	216-328-9755
OK	Tulsa, Hamilton/Avnet	918-252-7297
OR	Beaverton, Marshall Inds.	503-644-5050
PA	Norristown, Century Elec. Comp.	215-631-5400
TX	Ft. Worth, TTI, Inc.	817-595-3100
WA	Bellevue, Marshall Inds.	206-747-9100
WI	Milwaukee, Marsh Elctrns.	414-475-6000
Can	Scarborough, Ont., Philips Elctrns.	416-292-5161

MERCER ELECTRONICS, Simpson Electric Co., 853 Dundee Ave., Elgin, IL 60120, Tel: 708-697-2260, TELEX: 72-2416, FAX: 708-697-2272; *Sls. Mgr.:* Ron Barma, Adv. Mgr.; *Dist. Mgr.:* George Oskandy, Sls. Admin. Mgr.

MERCOTAC INC., 6195 Corte del Cedro E, Carlsbad, CA 92009, Tel: 619-431-7723, FAX: 619-431-0905; Empl.: 19; *Sls. Mgr.:* Bruce Enigenburg; *Dist. Mgr.:* Bruce Enigenburg ..... **B•1295**

MERCURY COMPUTER SYSTEMS, 600 Suffolk St., Lowell, MA 01854, Tel: 508-458-3100, FAX: 508-458-9580; FSC No.: 04-2741391; Empl.: 120; *Sls. Mgr.:* Graham V. Smith

MERCURY PLASTICS, A UNIT OF ZERO CORP., See Zero Plastics, A Unit of Zero Corp.

MERECO PRODUCTS DIV., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893, Tel: 401-822-9300, FAX: 401-822-9311; Empl.: 25; *Sls. Mgr.:* John E. Powell, Jr.

FAX: 213-828-7567

MERET OPTICAL COMMUNICATIONS, INC., An Amoco Co., 1800 Stewart St., Santa Monica, CA 90404-4998, Tel: 213-828-7496; FSC No.: 53071; Empl.: 120; *Sls. Mgr.:* Chris Walters ..... **B•1225**

For all states not listed call Meret Mn. Ofc. 213-828-7496

MERIAM INSTRUMENT, Scott Fetzer, 10920 Madison Ave., Cleveland, OH 44102, Tel: 216-281-1100, FAX: 216-281-0228; Empl.: 85; *Sls. Mgr.:* Russ Arslanian; *Dist. Mgr.:* Russ Arslanian

MERIX CHEMICAL CO., 2234 East 75th St, Chicago, IL 60649, Tel: 312-221-8242; Empl.: 15; *Sls. Mgr.:* E. O. Sonneman; *Dist. Mgr.:* E. O. Sonneman

MERRILL, INC., POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437, Tel: 215-361-1297; FSC No.: 58624; Empl.: 10; *Sls. Mgr.:* J. Fournier

MERRIMAC INDUSTRIES, 41 Fairfield Pl., West Caldwell, NJ 07006, Tel: 201-575-1300, FAX: 201-575-0531; FSC No.: 12457; Empl.: 150; *Sls. Mgr.:* Tom Cox

J. R. MERRITT CONTROLS, INC., 320 Martin Luther King Dr., Norwalk, CT 06854, Tel: 203-855-9100, 800-333-5762, FAX: 203-855-1038; *Sls. Mgr.:* Earl Atkins ..... **D•1139**

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CA	Laguna Niguel, Simon & Co.	714-495-4583
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FL	Lakeland, V-V Assocs., Inc.	813-858-3200
IL	Crestwood, Brisky Assocs., Inc.	708-385-5100
MI	Royal Oaks, J.H. Green Co.	313-543-1200
NY	Jamestown, William R. Arnold, Inc.	716-664-5402
OH	Solon, Black & Coulton, Inc.	216-349-1188
PA	Westchester, Lenape Inds.	215-696-7664
WA	Renton, SAS Fluid Power, Inc.	206-271-5363
Can	Mississauga, Ont., Patlon Inds., Inc.	416-624-5572

MESA POWER SYSTEMS, 2350 Meyers Ave., Escondido, CA 92029, Tel: 619-489-8162, FAX: 619-489-5718; FSC No.: 46937; Empl.: 20; *Sls. Mgr.:* Bob Posten

MESA TECHNOLOGY CORP., 9720 Patuxent Woods Drive, Columbia, MD 21046, Tel: 800-888-0567, FAX: 301-290-9171; Empl.: 106; *Sls. Mgr.:* Howard Parker

MES INDUSTRIES CO., LTD., Fl. No. 93 Lo-Li Rd., Taipei, Tel: 886-2-7363309, TELEX: 20801 MESICO, FAX: 886-2-7364109; Empl.: 25

MESUR-MATIC ELCTRNS., 10 Colonial Rd., Ste. 6, Salem, MA 01970-2294, Tel: 508-745-7000; Empl.: 18; *Sls. Mgr.:* Kosma L. Evangelidis

METALINK CORPORATION, P.O. Box 1329, Chandler, AZ 85244, Tel: 602-926-0797, TELEX: 4998050, FAX: 602-926-1198

METCAL, INC., 1530 O'Brien Dr., Menlo Park, CA 94025, Tel: 415-325-3291, FAX: 415-325-5932; Empl.: 86; *Sls. Mgr.:* Dan Frailey; *Dist. Mgr.:* Dan Frailey

METHODE ELECTRONICS, INC., 7444 W. Wilson Ave., Chicago, IL 60656, Tel: 708-867-9600, FAX: 708-867-9130; Empl.: 2000; *Sls. Mgr.:* S. Landeene; *Dist. Mgr.:* Randi Close

METHODE ELECTRONICS, INC., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008, Tel: 708-392-3500, FAX: 708-392-9404; FSC No.: 95354; Empl.: 250; *Sls. Mgr.:* Suzi Landeene; *Dist. Mgr.:* Kathy Lindsey

METRA INSTRUMENTS, INC., 1874 Lundy Ave., San Jose, CA 95131, Tel: 408-432-1110, TELEX: 296698; Empl.: 30

METRAPLEX CORP., 5305 Spectrum Dr., Frederick, MD 21701, Tel: 301-662-8000, TELEX: 697-4248 MPX CORP, FAX: 301-695-8099; Empl.: 105

METRICOR, INC., 18800 - 142nd Ave. NE, Woodinville, WA 98072, Tel: 206-483-5577, FAX: 206-485-2592; Empl.: 50; *Sls. Mgr.:* David W. Cable

METRIC SYSTEMS, 645 Anchors St., Ft. Walton Beach, FL 32548-9990, Tel: 904-244-9600, TELEX: 70-2447; FSC No.: 12339; Empl.: 700

METRIX INSTRUMENT CO., 1711 Townhurst, Houston, TX 77043, Tel: 713-461-2131, TELEX: 77-5486, FAX: 713-461-8223; Empl.: 50; *Sls. Mgr.:* W. B. Brown

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METROLAB INSTRUMENTS SA, 110,Chemin du Pont-du-Centenaire, Geneva, Switzerland CH-1228, Tel: (41-22)794 11 21, TELEX: 41-22-794 11 20

METRON OPTICS INC., P.O. Box 690, Solana Beach, CA 92075-0690, Tel: 619-755-4477, FAX: 619-755-4752; Empl.: 22

METROPOLE PRODUCTS INC., P. O. Box 309, Stafford, VA 22554, Tel: 703-659-2132, FAX: 703-659-2133; FSC No.: 55908; *Sls. Mgr.:* John DePaola

METROSONICS, INC., Box 23075, Rochester, NY 14692-3075, Tel: 716-334-7300, TELEX: 853348, FAX: 716-334-2635; FSC No.: 55381; Empl.: 80; *Sls. Mgr.:* R. Branch; *Dist. Mgr.:* S. Macioulis

METRUM INFORMATION STORAGE, P.O. Box 5227, Denver, CO 80217-5227, Tel: 303-773-4581, TELEX: 45793 DVR; Empl.: 1000; *Sls. Mgr.:* C. Miller

FAX: 908-679-3222

METUCHEN CAPACITORS, INC., 139 White Oak Ln., P.O. Box 499, Old Bridge, NJ 08857, Tel: 908-679-3366, TWX: 710-998-0892; FSC No.: 55969; Empl.: 25; *Sls. Mgr.:* George Wolter ..... **A•1098-1106, 1685-1687; C•1468-1471**

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MD	Rockville, C.E. Tech. Elctrns.	301-666-0315
MD	Rockville, Metuchen Capacitors	301-590-0094
MA	Lowell, Underwood Sls.	617-256-8191
MO	Grandview, R. R. Burton Assocs.	816-763-5385
NJ	Brielle, EMC Technlgsts.	908-223-6699
PA	Saegertown, Multi-Phase Comps.	814-763-3640
TX	Dallas, Blackburn Assocs.	214-750-8484

MEXITRONIX (WOMAN OWNED), 2305 Northern Ave., Suite C , Kingman, AZ 86401, Tel: 602-757-9798, FAX: 602-757-8741; Empl.: 4

MEYER WIRE & CABLE CO., Div. of Cole Hersee Co., 1072 Sherman Avenue, Hamden, CT 06514, Tel: 203-281-0817, FAX: 203-281-9648; Empl.: 45; *Sls. Mgr.:* Spencer G. Molloy, VP Sls.

MEYLAN CORPORATION, 543 Valley Rd., Upper Montclair, NJ 07043-1844, Tel: 201-744-6400, FAX: 201-744-1011; Empl.: 8; *Sls. Mgr.:* Stanley Mills

MFE INSTRUMENTS, Stocker & Yale, Inc., 133 Brimbal Ave., PO Box 490, Beverly, MA 01915-0490, Tel: 508-921-9104, 800-472-4633, ESYLNK: 953145, FAX: 508-921-9110; FSC No.: 6640,6685,6625,6660; *Sls. Mgr.:* Dennis A. Doscher; *Dist. Mgr.:* Dennis Doscher ..... **D•1421**

Local Sales Offices & Reps

MA	Natick, Andruss-Peskin Corp.	508-653-3919
NY	Buffalo, Lynn Assocs., Inc.	716-631-0054
OR	Beaverton, Thorson Co. N.W.	503-644-5900
WA	Bellevue, Thorson Co. N.W.	206-455-9180

MF ELCTRNS. CORP., 10 Commerce Dr., New Rochelle, NY 10801, Tel: 914-576-6570, FAX: 914-576-6570; FSC No.: 08111; Empl.: 100; *Sls. Mgr.:* Paul Huron ..... **A•1388-1393**

Local Sales Offices & Reps

AZ	Scottsdale, Haas & Assocs., Inc.	602-998-7195
CA	Irvine, Balzer-Wolf Assocs.	714-261-6877
CA	San Jose, Mac Tron	408-446-8224
AL	Madison, Benchmark Tech. Sls.	205-464-0033
CT	Southington, Orion Group	203-621-8371
GA	Norcross, Benchmark Tech. Sls.	404-446-1711
MA	Peabody, The Orion Group	508-532-6266
MD	Annapolis, Rynone Assocs.	301-263-0794
MN	Edina, Peterson Sls.	612-835-5281
NY	Smithtown, T & K Sls.	516-724-3456
MN	Minneapolis, Ferrian Sls. & Assocs.	612-721-8915
NC	Raleigh, Benchmark Tech. Sls.	919-850-0633
OR	Beaverton, Core II Mktg.	503-649-0877
OR	Portland, Core II	503-649-0871
PA	Prospect Park, Elf Sls. Co.	215-534-3340
PA	Prospect Park, ELF Sls.	215-534-3340
TX	Austin, Matthews & Assocs.	512-346-2969
TX	Dallas, Matthews & Assocs.	214-248-7881
UT	Salt Lake City, R 2 Mktg. Inc.	801-595-0631
WA	Seattle, Core II Mktg./VMI	206-882-2999

Local Distributors

CA	Burbank, Atwater Elctrns.	818-841-9050
NJ	Bellmawr, Mid Atlantic	609-931-5303
NY	Bohemia, RBD Elec.	516-589-7717
NY	Mt. Vernon, Janesway Elec.	914-699-6710

MFG, Parabam Div., 1130 Watsoncenter Rd., Carson, CA 90745, Tel: 213-549-5044; Empl.: 85

MFI, 12304 Santa Monica Blvd., Ste. 121, Los Angeles, CA 90025, Tel: 213-826-8133, 800-533-2297, FAX: 213-820-6958 ..... **D•1106**

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FAX: 516-467-5176

MFM TECHNOLOGY, INC., Affiliate of Unitrode Corp., 200 Thirteenth Ave., Ronkonkoma, NY 11779, Tel: 516-467-5151; Empl.: 25 ..... **B•1297**

Local Sales Offices & Reps

AZ	Mesa, Motion Technlgy., Inc.	602-924-0004
MA	Quincy, Lansea Sys.	617-770-1618
IL	Barrington, Design Comps.	312-381-7842
MN	Eden Prairie, M-Tech	612-949-0847
NY	Plainview, Motion Control Sls.	516-756-5656
OH	Broadview Hts., Control Prods. Corp.	216-838-5700
OR	Portland, ControlTek, Inc.	503-641-0876
CA	Alhambra, C. E. Mello Co.	818-282-2000
CA	San Jose, Motion Control-North	408-997-0544

MG ELECTRONICS

FAX: 516-582-3229

MG ELECTRONICS, 32 Ranick Rd., Hauppauge, NY 11788, Tel: 516-582-3400; Empl.: 14; *Sls. Mgr.:* John Kibbit; *Dist. Mgr.:* Stan Grey ..... **D•1044**

MGR INDUSTRIES INC., 450B Industrial Dr., Ft. Collins, CO 80524, Tel: 303-221-2201, FAX: 303-484-4078; Empl.: 2; *Sls. Mgr.:* Jim Walton; *Dist. Mgr.:* Roger Erickson

MHOTRONICS., INC., 960 Corporate Woods Pkwy., Vernon Hills, IL 60061, Tel: 708-913-9566, FAX: 708-913-9587; Empl.: 45; *Sls. Mgr.:* David McFadden

MICHIGAN MAGNETICS, 203 W. Third St., Vermontville, MI 49096, Tel: 517-726-0590, FAX: 517-726-0078; Empl.: 50; *Sls. Mgr.:* Tom Krul

MICREL SEMICONDUCTOR, 560 Oakmead Parkway, Sunnyvale, CA 94086, Tel: 408-245-2500, FAX: 408-245-4175; FSC No.: 60496; Empl.: 135; *Sls. Mgr.:* Mike O'Neal; *Dist. Mgr.:* Mike O'Neal

MICROAVIONICS CORP., 3198-K Airport Loop Dr., Costa Mesa, CA 92626, Tel: 714-957-6904, FAX: 714-957-1614; Empl.: 15; *Sls. Mgr.:* B. H. Corzine

MICROBAR SYSTEMS, INC., 785 Lucerne Drive, Sunnyvale, CA 94086, Tel: 408-720-9300, FAX: 408-773-9475; *Sls. Mgr.:* Alexander London

MICROCAP, INC., A MicroSemi Company, 501 South Andreasen Drive, Escondido, CA 92025, Tel: 619-480-1906, FAX: 619-480-6741; Empl.: 65; *Sls. Mgr.:* Ken Miller, Sls. Mgr.

MICROCHIP TECHNOLOGY INC., 2355 W. Chandler Blvd., Chandler, AZ 85224, Tel: 602-963-7373, FAX: 602-345-3390; Empl.: 1500; *Sls. Mgr.:* Lanny Flessas; *Dist. Mgr.:* Lanny Flessas

MICRO-CIRCUIT ENGRG., See MCE Semiconductor

MICRO-CIRCUITS CO., INC., 10800 Maudlin Rd., New Buffalo, MI 49117, Tel: 616-469-2744, FAX: 616-469-2742 ..... **C•1145**

MICROCOMPATIBLES INC., 301 Prelude Drive, Silver Springs, MD 20901, Tel: 301-593-0683, FAX: 301-593-5151; Empl.: 4; *Sls. Mgr.:* Linda Esterling

MICRO CRYSTAL/DIVISION SMH, 702 West Algonquin Rd., Arlington Heights, IL 60005, Tel: 708-806-1485, FAX: 708-593-5062; *Sls. Mgr.:* William Kaczmarski; *Dist. Mgr.:* William Kaczmarski ..... **A•1395-1398**

Local Sales Offices & Reps

AZ	Scottsdale, E D P & Assoc.	602-991-6119
FL	Pompano Bch., H H P Assocs.	407-740-0320
GA	Tucker, Mackey Smith & Assoc.	404-496-9913
IL	Arlington Heights, Greenslade Sls.	708-593-3450
NH	Nashua, Bell Controls	603-882-6984
OH	Mt. Orab, Benjenn Engrg.	513-444-3175
PA	Glenside, Koebert Assocs.	215-887-2310

MICRO DATA SYSTEMS, P.O. Box 3278, Thomasville, GA 31799, Tel: 912-226-1709, TELEX: 6503406939 MCI CW; Empl.: 5; *Sls. Mgr.:* Sid Davis; *Dist. Mgr.:* Sid Davis

MICRODIMENSIONS, INC., 7345 Production Dr., Mentor, OH 44060, Tel: 216-974-8070, FAX: 216-974-1648; Empl.: 40

MICRODOT, INTERCONNECT SYSTEMS DIVISION, 201 Progress Dr., Montgomeryville, PA 18936, Tel: 215-699-5373, FAX: 215-699-5536; FSC No.: 91886; *Sls. Mgr.:* K. A. Neumuller

MICRODRY, INC., 7450 Hwy. 329, Crestwood, Kentucky 40014, Tel: 502-241-8933, FAX: 502-241-8648; Empl.: 16; *Sls. Mgr.:* John Wiedersatz

MICRO ELECTRONIC SYSTEMS, INC., 119 Northrup St., Bridgewater, CT 06752, Tel: 203-350-5004, FAX: 203-350-6966; Empl.: 4; *Sls. Mgr.:* Janine Green, V.P. Sls.

MICRO ELECTRONIC TECHNOLOGIES, 35 South St., Hopkinoon, MA 01748, Tel: 508-435-9057, FAX: 508-435-6481; Empl.: 53; *Sls. Mgr.:* Mike Levangie

MICRO-ETCH PRODUCTS, INC., 94 Dodge Ave., P.O. Box 9712, Stratford, CT 06497, Tel: 203-378-8610, FAX: 203-375-6276; FSC No.: 24846; Empl.: 42; *Sls. Mgr.:* Frank Dichiara; *Dist. Mgr.:* Frank Dichiara

MICROFLECT CO., INC., 3575 25th St. S.E., P.O. Box 12985, Salem, OR 97309-0985, Tel: 503-363-9267, TWX: 510-599-0107, FAX: 503-363-4613; Empl.: 100; *Sls. Mgr.:* John J. Kranitz

MICRO HYBRIDS, INC., 2864 Route 112, Medford, NY 11763, Tel: 516-732-3448, FAX: 516-732-3393; FSC No.: 5962; Empl.: 7; *Sls. Mgr.:* Bruce Richardson

MICRO INDUSTRIES, 691 Greencrest Drive, Westerville, OH 43081, Tel: 614-895-0404, ESYLNK: 759200, FAX: 614-882-6357

MICRO INSTRUMENT COMPANY, 2250 Micro Pl, Escondido, CA 92029, Tel: 619-746-2010, TELEX: 882205 MICROINST ESCD, FAX: 619-746-0433; FSC No.: FSCM 24836; Empl.: 40; *Sls. Mgr.:* C.Marks(East), C. Haas(West)

MICROLAB/FXR, 10 Microlab Rd., Livingston, NJ 07039, Tel: 201-992-7700, FAX: 201-992-0513; FSC No.: 00929; Empl.: 40

MICRO LAMPS, INC., 1530 Hubbard Ave., Batavia, IL 60510-1420, Tel: 708-879-0900; Empl.: 12; *Sls. Mgr.:* Edward R. Beutler

MICROMATH, INC., 2469 E. Fort Union Blvd., Salt Lake City, UT 84121, Tel: 801-943-0290, FAX: 801-943-0299; Empl.: 8

MICROMETALS, 1190 N. Hawk, Anaheim, CA 92807, Tel: 714-630-7420, 800-356-5977, FAX: 714-630-4562; FSC No.: 12856; Empl.: 80; *Sls. Mgr.:* Walt Lewis

MICRO MODE PRODS., 1870 John Towers Ave., El Cajon, CA 92020, Tel: 619-449-3844, TWX: 910-331-1673; FSC No.: 15907; Empl.: 55; *Sls. Mgr.:* V. DeMarco; *Dist. Mgr.:* V. DeMarco

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MICRO MO ELECTRONICS, INC., 742 2nd Ave. S., St. Petersburg, FL 33701, Tel: 813-822-2529, TELEX: 807-982; Empl.: 32; *Sls. Mgr.:* S. J. O'Neil ..... **B•1232, 1298-1301, 1920; D•1140-1141, 2243**

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MICRO NETWORKS, Unitrode Corporation, 324 Clark St., Worcester, MA 01606, Tel: 508-852-5400, FAX: 508-853-8296; Empl.: 200; *Sls. Mgr.:* Skip Osgood

MICRONICS TECHNOLOGY INC., 7 Alexander Place, Glen Cove, NY 11542, Tel: 516-759-5600, FAX: 516-759-5603; *Sls. Mgr.:* Robert Herrmann, V.P. Oper. .... **A•1399**

Local Sales Offices & Reps

CA	Palo Alto, Microwave Mktg. Assoc.	415-941-9430
CA	Westlake Vl., Westtech Microwave, Inc.	818-991-9219
FL	Melbourne Beach, EDSI Sls.	407-952-1240
MD	Laurel, CSDS, Inc.	301-953-7884
NY	Melville, R.F. Elctrn. Sls.	516-420-8890
MA	Wayland, High Tech Sls.	508-653-3838
WA	Iffaquah, Seaport Tech. Sls.	206-391-6714

MICRON INDUSTRIES, 4250 Madison St., Hillside, IL 60162, Tel: 708-547-0900, FAX: 708-547-0998; FSC No.: 30882; Empl.: 115; *Sls. Mgr.:* Michael Kitun; *Dist. Mgr.:* Mike Kitun

MICRO-NOW INSTR. CO., INC., 8260 N. Elmwood St., P. O. Box 1488, Skokie, IL 60076, Tel: 708-677-4700, TELEX: RCA 297214-MICRO-UR, FAX: 708-677-0394; FSC No.: 33288; Empl.: 25; *Sls. Mgr.:* C. Arnow

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instr.	205-830-9224
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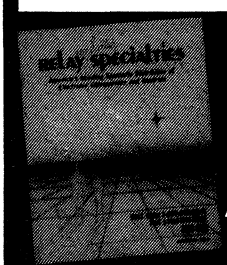
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NY	Kings Park, USTM Tech. Mktg.	516-724-1542
WA	Seattle, Datacom	206-285-2525

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Local Sales Offices & Reps

CA	San Juan Capistrano, Craven & Assocs.	714-240-7242
IL	Lake Bluff, R & R Mktg. Assocs.	312-295-6600
MN	Maple Grove, Elctrn. Prods. For Ind.	612-784-5554
TN	Nashville, Strategic Mktg. Inc.	615-883-7882

Local Distributors

CA	Costa Mesa, Orange County Comps.	714-979-3597
CA	Huntington Bch., Wyle Labs	714-891-8008
CA	San Diego, Neumann Elctrns.	619-695-3005
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Diego, Shelley-Ragon	619-453-7133
CA	San Jose, Rose Elctrns.	408-943-0255
CO	Englewood, Arrow Elctrns.	303-790-4444
MN	Minneapolis, Electronic Ctr.	612-371-5200
NH	Hampstead, Astrum Elctrns.	603-329-5656
NY	New Rochelle, Derf Elctrns.	914-235-4600
NY	Oceanside, Tritech	516-678-6222
PA	McKean, Advacom	814-476-7774
TX	Ft. Worth, Industrial Elect.	817-731-7321
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MICRO PALM COMPUTERS, INC., 13773-500-ICOT Blvd., Clearwater, FL 34620, Tel: 813-530-0128, FAX: 813-530-0738

MICROPHASE, 587 Connecticut Ave., Norwalk, CT 06856, Tel: 203-866-8000, FAX: 203-866-6727; Empl.: 230; *Sls. Mgr.:* F. S. Parin

MICROPLEX, INC., 1977 State College Blvd., Anaheim, CA 92806, Tel: 714-634-1535, FAX: 714-634-8375; Empl.: 30

MICROPLOT SYSTEMS, 1897 Red Fern Dr., Columbus, OH 43229, Tel: 614-882-4786, FAX: 614-882-3399; Empl.: 5; *Sls. Mgr.:* Steve Bean

MICRO PNEUMATIC LOGIC, INC., 2890 N. W. 62nd Street, Fort Lauderdale, FL 33309-1786, Tel: 305-973-6166, TELEX: 522316, FAX: 305-973-6339; Empl.: 100; *Sls. Mgr.:* Brian Irving

MICRO POWER INTL., INC., 10770 Black Mountain Rd. Ste. 248, San Diego, CA 92126, Tel: 619-271-0831, 619-271-5942; Empl.: 58

MICRO POWER SYS. INC., 3100 Alfred St., Santa Clara, CA 95056, Tel: 408-727-5350, TWX: 910-338-0154; FSC No.: 54186; Empl.: 140; *Sls. Mgr.:* Tom Hardy; *Dist. Mgr.:* Chuck Sweet

MICRO-PRODUCTS ENGINEERING CO., 230 Ridgewood Ave., Newark, NJ 07108, Tel: 201-824-8467, FAX: 201-824-5668; Empl.: 100; *Sls. Mgr.:* Gerald Muller

MICRO QUALITY SEMICONDUCTOR, INC., Microsemi Corp., 1000 N. Shiloh Rd., Garland, TX 75042, Tel: 214-272-7811, FAX: 214-487-0406; Empl.: 70; *Sls. Mgr.:* Bill Vandagriff; *Dist. Mgr.:* Bill Vandagriff

MICROSEMI CORP., 2830 S. Fairview St., Santa Ana, CA 92704, Tel: 714-979-8220, TELEX: 4720306, FAX: 714-557-5989; FSC No.: 14552; Empl.: 1200; *Sls. Mgr.:* Robert Shultz; *Dist. Mgr.:* G. Avila

MICROSEMI CORP. COLORADO, Microsemi Corp., 800 Hoyt St., Broomfield, CO 80020, Tel: 303-469-2161, FAX: 303-466-3775; Empl.: 140; *Sls. Mgr.:* Robert H. Werner; *Dist. Mgr.:* George Avila

MICROSEMI CORP. - SCOTTSDALE, Microsemi Corporation, 8700 E. Thomas Rd., P.O. Box 1390, Scottsdale, AZ 85252, Tel: 602-941-6300, TELEX: 4995412 MICROAZ, FAX: 602-947-1503; FSC No.: 860434040; Empl.: 300; *Sls. Mgr.:* Dean Foster (acting); *Dist. Mgr.:* George Avila

MICROSIGNALS INC., 38-42 9th St., L.I.C., NY 11101, Tel: 718-937-7955, 718-937-0391, 800-648-2252, FAX: 718-729-9140; Empl.: 40; *Sls. Mgr.:* Mr. Greg Villafana

MICROSONICS INCORPORATED

FAX: 617-337-4208

MICROSONICS, INC., 60 Winter St., Weymouth, MA 02188, Tel: 617-337-4200; FSC No.: 11869; Empl.: 120; *Sls. Mgr.:* John Hieber ..... **A•1401**

MICROSTAR LABORATORIES, 2863 152nd Ave. N.E., Redmond, WA 98052, Tel: 206-881-4286, FAX: 206-881-5494; Empl.: 16; *Sls. Mgr.:* Debbie Keefe; *Dist. Mgr.:* Linda Meza

MICRO SWITCH
a Honeywell Division

FAX: 815-235-5574

MICRO SWITCH, A Honeywell Div., 11 W. Spring St., Freeport, IL 61032, Tel: 815-235-6600, TELEX: 257499, TWX: 910-642-0922; Empl.: 3000; *Dist. Mgr.:* R. A. Garner ..... **B•1320-1321, 1738-1743, 1916-1919**

Local Sales Offices & Reps

CA	Orange	714-953-4875
CA	San Jose	408-433-3008
CO	Englewood	303-792-1632
CT	Glastonbury	203-659-6472
GA	Atlanta	404-248-2565
IL	Bensenville	312-860-3968
MA	Newton	617-969-0265
MI	Southfield	313-424-3569
MN	Minneapolis	612-830-3516
MO	St. Louis	314-569-7620
NJ	Westfield	201-233-9200
NY	Rochester	716-272-4333
NC	Charlotte	704-362-6948
OH	Brooklyn Heights	216-459-6075
OH	Dayton	513-237-4075
PA	Valley Forge	215-666-8340
TX	Dallas	214-701-2876
TX	Houston	713-780-6651
WA	Bellevue	206-453-7591
WI	Brookfield	414-784-6260
Can	Edmonton	403-483-4727
Can	Ottawa	613-224-3822
Can	Scarsdale	416-293-8111
Can	Vancouver	604-430-3100
Can	Winnepeg	204-783-4545

MICRO/SYS, 1011 Grand Central Ave., Glendale, CA 91201-3010, Tel: 818-244-4600, FAX: 818-244-4246

MICRO SYSTEMS ENGINEERING, INC., 6024 S.W. Jean Rd., Lake Oswego, OR 97035, Tel: 503-635-4016, TELEX: 151-538, FAX: 503-635-9610; FSC No.: 75800; Empl.: 200; *Sls. Mgr.:* Maury Reiter

MICROTECH, 1420 Conchester Hwy., Boothwyn, PA 19061, Tel: 215-459-3566, FAX: 215-358-4827; Empl.: 22; *Sls. Mgr.:* H. Carter

MICRO TECHNICAL INDUSTRIES, 23132 La Cadena Dr. Ste. E, Laguna Hills, CA 92653, Tel: 714-855-4326, TELEX: 371-9688, FAX: 714-855-9545; Empl.: 20; *Sls. Mgr.:* Joe Duarte

MICRO TECHNOLOGY INC., NS6 W13365 Silver Spring Dr., Menomonee Falls, WI 53051, Tel: 414-783-6080, FAX: 414-783-4959; Empl.: 210

MICROTEC RESEARCH, INC., 2350 Mission College Blvd., Santa Clara, CA 95054, Tel: 408-980-1300, FAX: 408-982-8266; Empl.: 100; *Sls. Mgr.:* Derek Taylor; *Dist. Mgr.:* Derek Taylor

MICROTEK INTERNATIONAL/DEV. SYS. DIV., 3300 N.W. 211th Terrace, Hillsboro, OR 97124, Tel: 503-645-7333, FAX: 503-629-8460; Empl.: 120; *Sls. Mgr.:* Chris Bednarek

MICROTOUCH SYSTEMS, INC., 55 Jonspin Rd, Wilmington, MA 01887, Tel: 508-694-9900, TELEX: 530264, FAX: 508-694-9980; FSC No.: 935-0133; Empl.: 100; *Sls. Mgr.:* William Keller

FAX: 516-561-1117

MICROTRAN CO. INC., 145 E. Mineola Ave., P. O. Box 236, Valley Stream, NY 11582, Tel: 516-561-6050; FSC No.: 00348; Empl.: 75; *Sls. Mgr.:* W. Benscher ..... **A•1212, 2130, 2278-2298**

Local Sales Offices & Reps

AZ	Scottsdale, F. Schoeffler	602-948-1004
CA	San Jose, Kottmeier Assocs.	408-371-8700
CA	Torrance, Universal Comp. Co.	213-783-0220
CO	Englewood, Omega, Ltd.	303-762-1921
FL	Winter Pk, HPP Assoc. Inc.	407-740-0320
IL	Wheaton, CS Tech. Sls.	708-653-8126
IN	Fishers, R & D Elctrn. Sls.	317-849-2026
IA	Marion, AEM, Inc.	319-377-1129
KS	Lenexa, AEM, Inc.	913-888-0022
MD	Baltimore, Burgin-Kreh Assocs.	301-265-8500
MA	Wellesley, Newscott Co.	617-235-6868
MN	Minnneapolis, RK Sales	612-571-1001
MO	St. Louis, AEM, Inc.	314-298-9900
NJ	Englewood Cliffs, E. Glass Assocs.	201-592-0200
NM	Albuquerque, C.T. Carlberg & Assocs.	505-899-2155
NY	Marcellus, Mullahy-Welch Sls.	315-673-1009
NY	Rochester, J.G. Welch Assocs.	716-244-1100
NC	Greensboro, Arthur, Harris & Assoc.	919-275-3030
OH	Cleveland, J.O. Olsen Co.	216-838-0510
OH	Goshen, J.O. Olsen Co.	513-722-3320
PA	Pittsburgh, J.O. Olsen Co.	412-381-4254
PA	Wynnewood, Metz-Benham Assoc.	215-896-7300
TX	Houston, Spectra Sls. Corp.	713-270-8212
TX	Richardson, Spectra Sls. Corp.	214-234-3600
VA	Lynchburg, Burgin-Kreh Assocs.	804-239-2626
Can	Montreal, Quebec, Hans Brieger	514-486-5869

Local Distributors

AL	Birmingham, MG Elctrns. & Equip.	205-328-4525
CA	Milpitas, Sierra West Elctrns.	408-945-1050
CA	Oakland, Brill Elctrns.	415-834-5888
CA	San Diego, Kent Electronics	619-471-9561
CA	Santa Clara, Kent Elctrns.	408-727-9810
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Torrance, Kent Elctrns.	213-320-2700
CO	Englewood, Shelley/Ragon Inc.	303-762-0670
FL	Largo, Elctrn. Precepts of Florida	813-544-3636
FL	Pompano Beach, Peerless Radio Corp.	800-327-4993
IL	Northbrook, Classic Comp. Supp.	708-272-9650
IN	Indianapolis, Bell Inds.	317-875-8200
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
MA	Hingham, Sager Elec. Supp.	617-749-6700
MN	Minneapolis, Bergquist	612-835-2322
NJ	Kenilworth, Federated Elctrns.	201-272-0505
NM	Albuquerque, Walker Elctrn. Supp.	505-883-2992
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Hauppauge, Sager Elctrns.	516-348-1300
NY	Johnson City, Help Elctrns.	607-729-3528
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Rochester, Summit Distrs.	716-334-8110
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Dayton, J.A. Becker Co.	513-226-1341
PA	McKeesport, Barno Radio Co.	412-751-5971
PA	Philadelphia, Shap Elctrns.	215-969-3300
TX	Austin, Kent Elctrns.	512-834-1900
TX	Houston, Kent Elctrns.	713-780-7770
TX	Houston, Lenert Co.	713-225-1465
TX	Richardson, Kent Elctrns.	214-669-2600
WA	Redmond, Priebe Elctrns.	206-881-2363
WI	New Berlin, Classic Comp.	414-786-5300

MICROVISION CORP., 591 W. Hamilton Ave. Ste. 250, Campbell, CA 95008, Tel: 408-374-3158, FAX: 408-374-9394; Empl.: 15; *Sls. Mgr.:* Les Peterson

MICROWAVE APPLICATIONS GROUP, 3030 Industrial Pkwy., Santa Maria, CA 93455, Tel: 805-928-5711, TWX: 910-351-5808, FAX: 805-925-5903; FSC No.: 26357; Empl.: 63; *Sls. Mgr.:* D. W. Prigge

MICROWAVE DESIGN SVCS., INC., 437-H Mary Esther Cutoff, Ft. Walton Beach, FL 32548, Tel: 904-664-1234, FAX: 904-664-6789

MICROWAVE DEVELOPMENT LABORATORIES, 10 Michigan Dr., Natick, MA 01760, Tel: 508-655-0060, TWX: 710-386-6850, FAX: 508-655-6972; Empl.: 180; *Sls. Mgr.:* R. Tucker

MICROWAVE DEVICE TECH., 1 Powers St., Lawrence, MA 01843, Tel: 508-688-6000, FAX: 508-688-6220; Empl.: 11; *Sls. Mgr.:* Murthy S. Ayyagari

MICROWAVE FILTER COMPANY, INC.

FAX: 315-463-1467

MICROWAVE FILTER INC., 6743 Kinne St., East Syracuse, NY 13057-0486, Tel: 315-437-3953, 800-448-1666, TELEX: 249-613; FSC No.: 27834; Empl.: 95; *Sls. Mgr.:* E. Bostick, Sls. & Mktg. ..... **A•1688-1695**

Local Sales Offices & Reps

MD	Laurel, CSDS, Inc.	301-490-3800
CA	Mtn. View, Pennisula Tech. Sls.	415-968-3636

Local Distributors

AZ	Mesa, Antenna Techlg. Corp.	602-898-7667
CA	Campbell, Signal Sources	408-866-0600
CA	Torrance, Western CATV	213-539-8030
CO	Englewood, Midwest CATV	303-799-4343
FL	Boca Raton, Passive Dvcs., Inc.	407-998-0600
FL	Miami, Gendra Intl.	305-372-8845
FL	Ocala, Broadcasters Gen. Store	904-622-9058
FL	Panama City, Bay Elctrns. Supp.	904-785-7258
GA	Lawrenceville, John Weeks Entprs.	404-963-7870
IL	Skokie, Anixter Bros.	708-677-2600
IN	Richmond, Allied Broadcast Equip.	317-962-8596
KY	Highland Heights, Midwest Comms. Corp.	606-781-2200
LA	Mamou, Satellite Earth Stas.	318-468-2203
MS	Raymond, Broadcast Equip. Engrg. Sls.	601-857-8578
NE	Dakota City, ATV Research, Inc.	402-987-3771
NE	Omaha, Radio Equip. Co.	404-341-7700
NH	Bow, Earth Terminal, Inc.	603-224-5166
NJ	Union, Avanti Elctrns.	201-964-0333
NC	Pineville, S.C.M.S., Inc.	704-889-4508
PA	Horsham, Toner Cable	215-675-2053
PA	Hummelstown, Winemiller Comms.	717-566-9591
PA	Willow Grove, NCS Inds.	215-657-4690
TX	Bedford, Spectrum Megahertz	817-267-2288
UT	Salt Lake City, RIA Corp.	801-486-8822
VA	Charlottesville, Hall Elctrncs.	804-974-6466
WA	Edmonds, Glade Comms.	206-771-6891
WI	Plymouth, Hi-Tech.	414-892-6210
Can	Burnaby, B.C., Channel One Video Corp.	604-421-2288
Can	Calgary, Alberta, AVR Comms. Ltd.	403-251-0707
Can	Lavel, Que., Incospec Elctrns.	514-686-0033
Can	Markham, Ont., Cabletel Comms.	416-475-1030
Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Montreal, Que., Comega Technlgs.	514-355-3105
Can	St. Leonard, Que., Trispec Comms.	514-328-2025

MICROWAVE SOLUTIONS, INC., 3200 Highland Ave., Ste 3A, National City, CA 91950, Tel: 619-474-6906, FAX: 619-474-7003; FSC No.: 65151; Empl.: 12; *Sls. Mgr.:* Edward M. Teyssier

MICROWAY INC. RESEARCH PARK, Research Park, P.O. Box 79, Kingston, MA 02364, Tel: 508-746-7341, FAX: 508-746-4678; Empl.: 49; *Sls. Mgr.:* Donald Greenbaum; *Dist. Mgr.:* Maryann Strassel

MIDAMERICA DESIGN SERVICE, Spirit of America Corp., 10206 Lima Rd., Fort Wayne, IN 46818, Tel: 219-489-2511, FAX: 219-489-2295; Empl.: 350

MIDCOM, INC., 121 Airport Dr., Watertown, SD 57201, Tel: 605-886-4385, FAX: 605-886-4486; FSC No.: 0GP22; Empl.: 300; *Sls. Mgr.:* Dean Ward ..... **A•2300-2305**

Local Sales Offices & Reps

AL	Huntsville, Twentieth Century Mktg.	205-772-9999
CA	Long Beach, Solutech	213-596-5208
CA	San Diego, Pro Sls.	619-571-1133
CA	San Jose, Veer Mktg.	408-432-1818
FL	Orlando, Richmar Elctrns. Corp.	407-352-3755
GA	Norcross, Twentieth Century Mktg.	404-446-1999
IL	Downers Grove, Richmar Elctrns. Corp.	312-968-0118
IN	Indianapolis, Richmar Elctrns. Corp.	317-577-9950
IA	Iowa City, Richmar Elctrns. Corp.	319-354-8894
MD	Hunt Valley, Eagle Sls. Corp.	301-666-3030
MN	N. Mankato, E.I. Sls.	507-345-5786
NH	Nashua, Bell Controls	603-882-6984
NJ	Medford, Champion Elctrn. Sls. Co.	609-983-0932
NC	Cary, Twentieth Century Mktg.	919-481-3370
TX	Plano, Richmar Elctrns. Corp.	214-424-8388
TX	Round Rock, Richmar Elctrns. Corp.	512-255-2551
WI	Butler, Richmar Elctrns. Corp.	414-781-1730
Can	Gloucester, Ont., True North Technlg. Ltd.	613-837-2553
Can	Rexdale, Ont., True North Technlg. Ltd.	416-744-2233

MIDDLEBERG CORPORATION/MIDDCO CONNECTORS, 95 Albany Turnpike, Canton, CT 06019, Tel: 203-693-8361, FAX: 203-693-6403; Empl.: 20; *Sls. Mgr.:* Marty Townsend

MID-EASTERN INDUSTRIES, Technology Dynamics Inc., 100 School Street, Bergenfield, NJ 07621-2915, Tel: 201-385-0500, FAX: 201-385-0702; FSC No.: 06179; Empl.: 15; *Sls. Mgr.:* Daniel Ellenback ..... **D•1896-1899**

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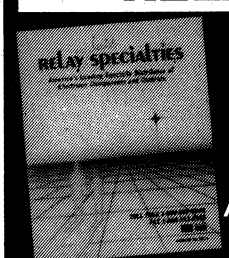
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FL	Land O' Lakes, AJ'S Power Source Inc.	813-996-2583
IL	Des Plains, Marsland Assocs., Inc.	312-298-2620
IN	Indianapolis, Marsland Assocs., Inc.	317-293-5437
IA	Marion, Marsland Assocs., Inc.	319-373-0566
MN	Minneapolis, Marsland Assocs., Inc.	612-545-4481
MO	St. Louis, Marsland Assocs., Inc.	314-991-1399
NM	Albuquerque, Westahl Assocs.	505-881-0995
NY	Huntington, C.R. Mayer Co.	516-692-4221
WA	Seattle, Eicher-Richards Co.	206-LA3-7888
WI	New Berlin, Marsland	414-786-6611

MIDGET LOUVER, 800 Main Ave., Norwalk, CT 06851, Tel: 203-866-2342; Empl.: 10; *Sls. Mgr.:* Helen Monroe; *Dist. Mgr.:* Helen Monroe

MIDLAND-ROSS CORP., NEL UNIT, See NEL Frequency Controls, Inc.

Midtex Relays, Inc.

FAX: 915-772-1116

MIDTEX RELAYS, INC., 9B2 Butterfield Trail, El Paso, TX 79906, Tel: 915-772-1061, 1-800-MIDTEX1, TWX: 910-240-3407, ESYLNK: 62752541; Empl.: 275; *Sls. Mgr.:* Craig Law; *Dist. Mgr.:* Bob Walasiak ..... **B•1546-1549**

Local Sales Offices & Reps

AL	Huntsville, Twentieth Century Mktg.	205-772-9999
AZ	Phoenix, More Sls.	602-788-9181
CA	Los Altos, J.W. Wilholt	415-961-3660
CA	Tustin, Schoenbachler-Dobson	714-544-1888
CO	Longmont, Reliance Sls.	303-443-5660
FL	Orlando, Richmar Elctrns.	407-352-3755
GA	Norcross, Twentieth Century Mktg.	404-446-1999
IL	Downers Grove, Richmar Elctrns.	708-968-0118
IN	Indianapolis, Richmar Elctrns.	317-577-9950
IA	Iowa City, Richmar Elctrns.	319-354-8894
KS	Overland Park, M.I.N.K. Assocs.	913-341-3309
KS	Wichita, M.I.N.K. Assocs., Inc	316-838-0190

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NH	Nashua, Bell Controls	603-882-6984
NJ	Medford, Champion Elctrns.	609-983-0932
NM	Albuquerque, More Sls.	505-265-6265
NY	Rochester, Lamb Comps.	716-328-6350
NC	Raleigh, Twentieth Century Mktg.	919-790-9383
OH	Beachwood, Elctrn. Salesmasters, Inc.	216-831-9555
OK	Tulsa, D.J. Sls.	918-663-8155
OR	Portland, Caruso Assocs.	503-246-5439
TX	Austin, D.J. Sls.	512-258-3002
TX	Dallas, DJ Sls.	214-783-8876
WA	Bellevue, Caruso Inc.	206-455-8811
Can	Ontario, Haltronics Ltd.	416-844-2121

Local Distributors

AL	Huntsville, Hall-Mark	205-837-8700
AZ	Phoenix, Hall-Mark	602-437-1200
AZ	Tempe, Control Design Supp.	602-829-7981
AR	Little Rock, Newark Elctrns.	501-225-8130
CA	Anaheim, Control Design Supp.	714-821-1516
CA	Bay Area, Hall-Mark	408-432-0900
CA	Irvine, Integrated Elctrns.	714-837-9960
CA	Orange County, Hall-Mark	714-669-4100
CA	San Carlos, Control Design Supp.	415-592-4806
CO	Santa Monica, Master Dists.	213-452-1229
CO	Denver, Integrated Elctrns.	303-292-5537
CT	Wallingford, Mid State Elctrns.	203-265-9900
FL	Altamonte Springs, Control Design	305-788-3220
FL	Ft. Lauderdale, Hall-Mark	305-971-9280
GA	Stone Mtn., Control Design	404-979-3500
IL	Chicago, Hall-Mark	312-860-3800
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Schaumburg, Control Design	312-307-8900
IN	Indianapolis, Control Design	317-788-4559
IA	Cedar Rapids, Dee Elctrns.	319-365-7551
KS	Kansas City, Control Design	913-362-4248
KY	Louisville, Newark	502-423-0280
LA	Shreveport, Indl. Elec. Supp.	318-222-9459
MD	Columbia, Hall-Mark	301-988-9800
MA	Boston, Hall-Mark	617-667-0902
MA	Newton, Green-Shaw Inc.	617-969-8900
MA	Woburn, Control Design Supp.	617-932-9404
MI	Oak Pk., Newark	313-967-0600
MI	St. Clair Shores, Spemco	313-771-2700
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MN	Minneapolis, Hall-Mark	612-941-2600
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NY	Buffalo, Genesse Indl.	716-873-9661
NY	Long Island, Hall-Mark	516-737-0600
NJ	Oakland, Relay Specialties	201-337-1000
NJ	Paterson, Feldman Bros.	201-742-7329
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NY	Woodside, Switches Unltd.	718-478-5000
NC	Charlotte, Control Design	704-588-4410
NC	Raleigh, Hall-Mark	919-872-0712
OH	Cinicinnati, Schuster Elec.	513-489-1400
OH	Cleveland, CAM RPC Elctrns.	216-461-4700
OK	Tulsa, Hall-Mark	918-251-1108
OR	Portland, Integrated Elctrns.	503-641-1690
PA	Malvern, Control Design Supp.	215-296-0150
PA	McKean, Advacom	814-476-7774
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TX	Dallas, Control Design Supp.	214-358-1441
TX	Dallas, Force-Heiland	214-247-9955
TX	Dallas, Hall-Mark	214-553-4300
TX	El Paso, Midtex (Export)	915-772-1061
TX	Houston, Hall-Mark	713-781-6100
UT	Salt LAke City, Hall-Mark	801-972-1008
VA	Falls Church, Newark	703-522-0880
WA	Bellevue, Integrated Elctrns.	206-455-2727
WV	Dunbar, Newark	304-768-6872
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WY	Gillette, Gifford	307-682-7203
Can	Richmond Hill, Ont., Selbar Elctrns. Ltd.	416-736-0271
Can	Scarborough, Ont., Carsten Elctrns.	416-495-7705

MIDWEC, See Industrial Midwec Capacitors

MIDWEST COMPONENTS,INC., See Therm-O-Disc, Div. Midwest Component Product Group

MIDWEST MICROWAVE, 6564 South State Rd., Saline, MI 48176-9569, Tel: 313-429-4773, 800-521-4410, FAX: 313-429-1415; FSC No.: 34078; Empl.: 180; *Sls. Mgr.:* Doug Hartje, Dir. Sls. & Mktg.

MIKRON INSTR., 445 W. Main St., Wyckoff, NJ 07481, Tel: 201-891-7330, TELEX: 361870, FAX: 201-891-1205; Empl.: 60; *Sls. Mgr.:* John Merchant

MIL-COMM DISTRIBUTORS, INC., 9400 Lurline Ave. 6C, Chatsworth, CA 91311, Tel: 818-998-3111

MIL ELECTRONICS, INC., 106 Perimeter Rd., Nashua, NH 03036, Tel: 603-882-3200, FAX: 603-881-8661; FSC No.: 07862; Empl.: 40

MILES PLATTS INC., 901 Touhy Ave., Elk Grove Village, IL 60007, Tel: 1-708-364-0363, FAX: 708-364-0614; Empl.: 7; *Sls. Mgr.:* J. L. Packwood

MILFORD RIVET & MACH., 857 Bridgeport Ave., Milford, CT 06460, Tel: 203-878-4631, TELEX: 964363, TWX: 710-462-0538, FAX: 203-878-5071; Empl.: 200

JAMES MILLEN ELCTRNS., Caywood Elec. Inc., 87 Belmont St., No. Andover, MA 01845, Tel: 508-475-7831, FAX: 508-474-8949; Empl.: 6; *Sls. Mgr.:* R. Jannini

MILLER DIAL CORP., 4400 N. Temple City Blvd., El Monte, CA 91731, Tel: 818-444-4555, TWX: 910-587-3438, FAX: 818-443-3267; FSC No.: 91345; Empl.: 200; *Sls. Mgr.:* P. J. Wener, V.P. Membrane

MILLER, J.W., CO., See Bell Inds.

MILLER, L.C., CO., 717 Monterey Pass Rd., Monterey Pk., CA 91754, Tel: 213-268-3611, FAX: 213-264-3203; Empl.: 45

MILLER, SANFORD, CORP., See Sanford-Miller Corp.

MILLER, W. A., CO., Mingo Loop, P.O. Box 337, Oquossoc, ME 04964-0337, Tel: 207-864-3344, 800-227-1415, FAX: 207-864-3344; Empl.: 15

MILLER-STEPHENSON CHEM. CO., INC., George Washington Hwy., Danbury, CT 06810-0950, Tel: 203-743-4447, TELEX: 643-711; *Sls. Mgr.:* Mrs. Fran Bodnar

MILLIFLECT, 37444 Sycamore St., Bldg. A, Newark, CA 94560, Tel: 415-791-5188, TELEX: 466465, FAX: 415-791-5237; FSC No.: 52426; Empl.: 39; *Sls. Mgr.:* Don Koijane; *Dist. Mgr.:* Alex Nilva

MILLIVAC INSTRUMENTS, INC., Box 997, Curry Rd. Ext., Schenectady, NY 12301, Tel: 518-355-8300, FAX: 518-356-5161; FSC No.: 85711; Empl.: 30; *Sls. Mgr.:* Jan B. Metzger ..... **D•1294**

Local Sales Offices & Reps

CA	San Diego, Advanced Prods. Sls.	619-530-0200
CA	Westlake VL, Advanced Prods. Sls.	818-706-8351
MD	Laurel, CSDS Inc.	301-490-3800
MA	Needham, Addelco Corp.	617-444-4754
MA	Needham, Addelco, Co.	617-444-4754
GA	Atlanta, Saber Assocs.	800-327-0853
NY	Fayetteville, Martin P. Andrews	315-637-5291
AL	Huntsville, Saber Assocs.	800-327-0853
FL	Ft. Lauderdale, Saber Assocs.	800-327-0853
TX	Houston, Scientific Sls.	713-645-6218
TX	Richardson, Sci. Sls.	214-231-6541
VA	Fairfax, CSDS Inc.	703-385-0139
Can	Downsview, Ont., Tradeport Elctrns. Grp.	416-736-0866

MILL-MAX MANUFACTURING CORP., P.O. Box 300, Oyster Bay, NY 11771-0300, Tel: 516-922-6000, FAX: 516-922-9253; FSC No.: 3N087; Empl.: 200; *Sls. Mgr.:* Richard M. Weiner ..... **C•1473**

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Mfr's Agt.	800-633-2920
AR	Mabelvale, Erickson Sls., Inc.	501-455-0618
CA	Campbell, Patrick Conahan Assocs.	408-559-2866
CA	Dana Point, Patrick Conahan Assocs.	714-493-9822
CO	Westminister, Straube Assocs., Inc.	303-426-0890
AZ	Scottsdale, B. Breedlove	602-483-1943
FL	Boca Raton, Tech Sls. Specialists	407-391-3718
GA	Roswell, Elctrn. Mfr's Agt.	800-633-2920
IL	Elk Grove Village, Tristar Grp., Inc.	708-593-0200
IN	Indianapolis, M & L Elctrn. Sls., Inc.	317-359-4742
LA	Chalmette, Erickson Sls., Inc.	504-271-1976
MA	Scituate, Olsen Tech. Sls.	617-545-5101
MN	St. Paul, Johnson Co.	612-641-1878
NH	Nashua, Olsen Tech. Sls.	603-883-2760
NY	Bohemia, JSA Sls.	516-244-2584
NC	Raleigh, Elctrn. Mfr's Agt.	919-846-6888
OH	Kettering, Catalyst Sls. Co.	513-429-6958
OR	Milwaukie, Comtec	503-654-6626
PA	Doylestown, G. A. Recentio Assocs.	215-348-7577
PA	Pittsburgh, Catalyst Sls. Co.	412-826-3434
TX	Dallas, Erickson Sls., Inc.	214-739-5833
UT	Salt Lake City, Hendrickson Sls.	801-467-1445
WA	Bellevue, Comtec	206-453-1188
WI	Menomonee Falls, Tristar Grp., Inc.	414-628-3583
Can	Gloucester, Ont., True North Technlg., Ltd.	613-837-2553
Can	Rexdale, Ontario, True North Technlg. Ltd.	416-744-2233

FAX: 213-430-8309

MILLS RESISTOR CO., 3840 Catalina St., Los Alamitos, CA 90720, Tel: 213-598-2454; FSC No.: 34238; Empl.: 50; *Sls. Mgr.:* S. Kistner; *Dist. Mgr.:* C. Brown ..... **A•1949**

Local Sales Offices & Reps

CA	Los Altos, Frauman Assocs.	415-941-0660
CA	Sacramento, Mills Resistor Co.	916-422-5461
CT	Rocky Hill, Jim McPhail	203-721-1802
MA	Waltham, Dynasel Assocs.	617-890-6777
OR	Gaston, SPS Elctrns.	206-323-4140
PA	Montgomeryville, Quick Response Tech. Sls.	215-362-9225
TX	Houston, Ev Smith Co.	713-649-5756
WA	Seattle, SPS Elctrns.	206-323-4140

Local Distributors

FL	Ft. Lauderdale, Jaro Elctrns.	800-327-5551
PA	Harrisburg, ADTECH	717-939-8337
PA	McKean, Advacom	814-476-7774

MILROSS CONTROLS, INC., 511 Second St. Pike, Southampton, PA 18966, Tel: 215-355-0200, TWX: 510-667-1702, FAX: 215-355-6326; FSC No.: 07047; Empl.: 100; *Sls. Mgr.:* Scott R. Tate

MILTOPE BUSINESS PRODUCTS, Miltope Grp., 1770 Walt Whitman Rd., Melville, NY 11747, Tel: 516-420-0200, 516-756-7650, TWX: 510-221-1803, FAX: 516-756-7606; Empl.: 650

MILTOPE CORP., 1770 Walt Whitman Rd., Melville, NY 11747, Tel: 516-420-0200, TWX: 510-221-1803; Empl.: 750; *Sls. Mgr.:* Frederick S. Korb; *Dist. Mgr.:* William Jennings

MILWAUKEE ELECTRONICS, 7817 W. Clinton Ave., Milwaukee, WI 53223, Tel: 414-358-4000, FAX: 414-358-4001; FSC No.: 98664; Empl.: 100-150; *Sls. Mgr.:* James Scholler

FAX: 414-271-9876

MILWAUKEE RESISTOR CORP., 700 W. Virginia St., Milwaukee, WI 53204, Tel: 414-271-9900; FSC No.: 82807;15109; Empl.: 75; *Sls. Mgr.:* John Dorsha; *Dist. Mgr.:* John Dorsha ..... **A•1950-1954**

Local Sales Offices & Reps

CA	San Carlos, Electro Pacific	415-441-5541
IL	Willow Brook, PVA Corp.	708-655-3355
NC	Kernersville, Heritage Elctrl. Sls.	919-996-4484
MA	Stoughton, EECS-Mel Botsian	617-344-5139
SC	Greer, Heritage Elctrl. Sls.	803-292-1723
NY	Rochester, Gislason Sls.	716-328-7400
NY	Whitestone, M. H. Lynn co.	718-352-9233
OH	Westlake, Assocd. Elctrl. Comps.	216-835-9960

MIMIC, INC., P. O. Box 705, Islington, MA 02090-0705, Tel: 617-329-9593; Empl.: 5; *Sls. Mgr.:* S. Thurston

MINC INCORPORATED, 6755 Earl Dr., Colorado Springs, CO 80918, Tel: 719-590-1155, FAX: 719-590-7330; *Sls. Mgr.:* Mark S. A. Smith

MINCO PRODUCTS, 7300 Commerce La., Minneapolis, MN 55432, Tel: 612-571-3121, FAX: 612-571-0927; FSC No.: 09359; Empl.: 475; *Sls. Mgr.:* J. Anderson

MIN-E-CON, 3160 Pullman, Costa Mesa, CA 92626, Tel: 714-434-7312, TWX: 910-595-1144; FSC No.: 54455

MINELCO INC. | Talley™ Industries

FAX: 203-283-6527

MINELCO INC. - A TALLEY IND., 135 S. Main St., Thomaston, CT 06787-0459, Tel: 203-283-8261; FSC No.: 07479; Empl.: 70; *Sls. Mgr.:* James A. Myles ... **B•1178**

Local Sales Offices & Reps

AL	Huntsville, L & D Inc.	205-837-1469
AZ	Phoenix, R. W. Riedel & Co.	213-283-7694
CA	Anaheim, M.W. Riedel & Co.	213-283-7694
CO	Centerville, West Inc.	303-477-1134
CO	Denver, West Inc.	303-477-8180
CT	Old Saybrook, FJS Assocs.	203-388-5374
FL	Longwood, Delmac	407-831-0040
GA	Atlanta, L & D, Inc.	404-395-7079
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
KS	Wichita, Magna Eng. Sls. Co.	316-744-0851
MD	North East, Magna Eng. Sls. Co.	301-398-4215
MA	Burlington, F.J.S. Assocs.	617-273-5959
MO	St. Louis, Magna Eng. Sls. Co. Inc.	314-878-4441
MO	St. Louis, Magna Eng. Sls. Co. Inc.	314-849-6590
NJ	Hasbrouck Hgts., Comp-Tech Sls.	201-288-7400
NY	New Hyde Park, Comp-Tech Sls.	516-593-2628
NC	Raleigh, L & D, Inc.	919-876-5301
OH	Dayton, Electro Mktg. Grp.	513-890-8322
OR	Portland, Caruso & Assocs.	503-246-5439
TX	Roanoke, CMR	817-379-6540
WA	Bellevue, Caruso & Co.	206-455-8811
Can	Rexdale, Ont., Myelco, Inc.	416-674-1636

MINGSTON ELECTRONICS, INC., MEC Inc.(Taiwan), 14145 Proctor Ave. Unit 8, City of Industry, CA 91746, Tel: 818-330-2086, FAX: 818-330-9988; Empl.: 3; *Sls. Mgr.:* Johnny Chao

Mini-Circuits

FAX: 718-332-4661

MINI-CIRCUITS LAB., 13 Neptune Avenue, P.O. Box 350166, Brooklyn, NY 11235-0003, Tel: 718-934-4500, TELEX: 125460, 620156 (Int'l); FSC No.: 15542 ..... **A•1752-1819**

Local Sales Offices & Reps

AZ	Scottsdale, Thorson Desert States, Inc.	602-998-2444,FAX:602-998-1236
CA	Los Altos, Cain-White & Co.	415-948-6533, FAX:415-948-0115
CA	Tustin, Youngewirth & Olenick Assocs.	714-838-5144,FAX:714-838-5321
CO	Parker, W. Howard Assocs.	303-841-5755, FAX:303-841-9272
FL	Clearwater, Beacon Microwave & Instrmn., Inc.	813-796-2378,FAX:813-796-0075
FL	Satellite Bch., Beacon Microwave & Instrmn., Inc.	407-777-6303,FAX:407-777-9131
GA	Atlanta, Beacon Microwave & Instrmn., Inc.	404-256-9640,FAX:404-256-1398
GA	Sylvester, Beacon Microwave & Instrmn. Inc.	912-776-4100,FAX:912-776-0831
IL	Mt. Prospect, Cain-Forlaw Co., Inc.	708-253-3578, FAX:708-253-6987
IL	Mundelein, Cain-Forlaw, Inc.	708-540-9962, FAX:708-540-9974
MD	Columbia, M. Lader Co.	800-442-3177, FAX:301-381-6924
MA	Waltham, Scientific Dvcs. New England Inc.	617-890-2252,FAX:617-890-5816
NM	Albuquerque, Thorson Desert States, Inc.	505-883-4343,FAX:505-889-2999
NY	Hartsdale, Spectrum Sls., Inc.	914-472-8600, FAX:914-472-0461
NY	Skaneateles, Robtron, Inc.	315-685-5731, FAX:315-685-3717
NC	Greensboro, M. Lader Co.	800-442-3177, FAX:919-674-7655
NC	Raleigh, Beacon Microwave & Instrmn., Inc.	919-781-8118,FAX:919-781-9058
OH	Worthington, Cain-Forlaw Co. Inc.	614-436-3004, FAX:614-436-3097
OR	Aloha, Cain-Sweet, Co.	503-591-0647, FAX:503-591-0856
PA	Conshohocken, M. Lader Co.	215-825-3177, FAX:215-834-8543

TX Dallas, Beacon Microwave & Instrmn. Inc. 214-437-1505,FAX:214-437-5874
TX Richardson, Beacon Microwave & Instrn, Inc. 214-437-1505,FAX:214-437-5874
TX Round Rock, Beacon Microwave & Instrmn. Inc. 512-244-6675,FAX:512-244-1883
WA Bellevue, Cain-Sweet Co. 206-462-2118, FAX:206-451-9418
PR Santurce, Beacon Elctrns. 809-728-5040, FAX:809-728-5180
Can Ottawa, Ont., Giga-Tron Assocs., Ltd. 613-225-4090,FAX:613-225-4592
Can Vancouver, B.C., Penstock/Canada ... 604-662-3475

Local Distributors

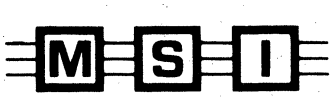
AL Huntsville, Component Distrs., Inc. 205-851-7800, FAX:205-859-2249
AZ Scottsdale, Spirit Elctrns. 602-998-1533, FAX:602-998-1427
CA Sunnyvale, Penstock, Inc. 408-730-0300, FAX:408-730-4782
FL Palm Bay, Component Distrs., Inc. 407-724-9910, FAX:407-729-6579
GA Norcross, Component Distrs., Inc. 404-441-3320, FAX:404-449-1712
IL Mt. Prospect, CFC Distrs., Inc. 708-253-3578, FAX:708-253-6987
IL Mundelein, CFC Distrs., Inc. 708-540-9962, FAX:708-540-9974
MD Columbia, MLC Distrs. 800-442-3177, FAX:301-381-6924
NC Greensboro, MLC Distrs. 919-674-8970, FAX:919-674-7655
NC Raleigh, Comp. Distrs., Inc. 919-859-3391, FAX:919-859-3396
PA Conshohocken, MLC Distrs. 215-825-3177, FAX:215-834-8543
TX Dallas, Comp. Distrs., Inc. 214-644-0373, FAX:214-644-1115
WA Bellevue, Penstock,Inc. 206-454-2371, FAX:206-451-9418

MINI COMPUTER TECHNOLOGY, 696 E. Trimble Rd., San Jose, CA 95131, Tel: 408-435-1616, TWX: 910-338-2281, FAX: 408-435-2709; Empl.: 22; *Sls. Mgr.:* John P. Lazare; *Dist. Mgr.:* John P. Lazare

MINI-SYSTEMS, INC., Electronic Package Div., 168 E. Bacon St., P.O. Box 1597, Plainville, MA 02762, Tel: 508-695-2000, TWX: 510-600-4340, FAX: 508-695-8758; *Sls. Mgr.:* Heather Edwards ..... **A•1735**

Local Sales Offices & Reps

CT Fairfield, Wexler-Court Sls. 203-334-1122
NC Raleigh, Spears & Assocs. 919-846-9711
WA Bellevue, Advanced Power Comps. ... 206-747-9127
Can Ontario, CN, Intrade Canada 613-727-1272



FAX: 508-695-6076

MINI-SYSTEMS, INC., Thick/Thin Film Division, 20 David Rd., North Attleboro, MA 02761, Tel: 508-695-0203, TWX: 710-348-0564; FSC No.: 50316; Empl.: 163 ..... **A•1955**

Local Sales Offices & Reps

AL Huntsville, Summit Mktg. Assocs. 205-721-1701, FAX:205-721-9250
AZ Tuscon, Morrison & Fern 602-296-8181, FAX:602-296-4833
CA Brea, S.C.T.S. 213-691-1114,FAX:213-690-0504
CA Mountain View, L.S. Engrg. 415-967-5880, FAX:415-967-5884
CA Woodland Hills, S.C.T.S. 818-704-9087, FAX:818-704-8632
FL Pompano Beach, J.P. Elctrns. 305-782-6830, FAX:305-782-1640
GA Norcross, Summit Mktg. Assocs. 404-498-4530, FAX:404-498-4530
IL Elk Grove, ABC Elctrns. 708-228-1204, FAX:708-228-1249
ME Bethel, Shain Assocs., Inc. 207-836-3200
MA Belmont, Shain Assocs., Inc. 617-484-4376, FAX:617-489-3598
MA Hingham, Shain Assocs., Inc. 617-740-2334, FAX:617-740-2680
MN Minneapolis, Intertec Assocs. 612-921-8443, FAX:612-929-4488
NH Nashua, Shain Assocs., Inc. 603-881-4881, FAX:603-880-8924
NJ Princeton, Wexler-Court Sls. Co. 609-452-8670, FAX:609-452-9213
NY Rockville Centre, Milano Bros. Intl. 516-764-2200, FAX:516-764-4006
OH Maineville, G.A. Barnett Inc. 513-677-0922, FAX:513-677-0922
TX Double Oak, Carolyn Bender Assocs. 214-539-9461,FAX:214-539-7027
TX Lewisville, C & J Assocs. 214-539-0140
TX Richardson, Southwest Microwave Elctrns. 214-669-1195,FAX:214-669-0353
WA Bellevue, Advanced Power Comps. 206-747-9127, FAX:206-641-8655
Can Nepean, Ont., Intrade Canada 613-727-1272, FAX:613-727-0246

MINI-SYSTEMS, INC., Sunbelt Microelectronic Division, 237 Enterprise Rd., Deltona, FL 32725, Tel: 407-574-0208, FAX: 407-574-8262

MINNESOTA WIRE & CABLE, 1835 Energy Park Drive, St. Paul, MN 55108-2721, Tel: 612-642-1800 , 1-800-258-6922(MWCC), FAX: 612-642-9201; Empl.: 155; *Sls. Mgr.:* Paul Wagner

MINOR RUBBER CO., INC., Ackerman St., Bloomfield, NJ 07003, Tel: 201-338-6800, 800-433-6886, FAX: 201-893-1399; *Sls. Mgr.:* Tom Fitzhenry

MINT SYSTEMS CORPORATION, 1633 South Main Street, Milpitas, CA 95035-6262, Tel: 408-262-7171, FAX: 408-262-5387; *Sls. Mgr.:* Rudy Juang ..... **D•1295, 1412-1413**

MIRAGE/KLM, 16890 Church St., P.O. Box 1000, Morgan Hill, CA 95037, Tel: 408-779-7363, FAX: 408-779-8845; Empl.: 50; *Sls. Mgr.:* John J. Concialdi

MISCO/MINNEAPOLIS SPEAKER CO., INC., 3806 Grand Avenue, Minneapolis, MN 55409, Tel: 612-825-1010, FAX: 612-825-7010; FSC No.: 14208; *Sls. Mgr.:* Don Ringham

MITCHELL ELECTRONICS CORP., 84 West Grand Street, Mt. Vernon, NY 10552, Tel: 914-699-3800, TELEX: 914-699-1022; Empl.: 30; *Sls. Mgr.:* Jonathan Lerner ..... **A•2306**

MITEC ELECTRONICS, 104 Gun Avenue, Pointe Claire, Quebec, Canada H9R 3X3, Tel: 514-694-6666, FAX: 514-694-3814; FSC No.: FSCM 38494; Empl.: 125; *Sls. Mgr.:* J. Robinson

MITECH ELECTRONICS CORP., 411 Washington St., Otsego, MI 49078, Tel: 616-694-9471, FAX: 616-692-2651; Empl.: 78; *Sls. Mgr.:* Kendall Meyer

MITEL SEMICONDUCTOR DIV. OF MITEL CORP., 360 Legget Dr., PO Box 13089, Kanata, Ont., Canada K2K 1X3, Tel: 613-592-2122, TELEX: 053 3221, FAX: 613-592-6909; Empl.: 1000; *Sls. Mgr.:* Howard Tweddle; *Dist. Mgr.:* Howard Tweddle

MITEQ INC., 100 Davids Drive, Hauppauge, NY 11788, Tel: 516-436-7400, TELEX: 6718148, FAX: 516-436-7430; Empl.: 275

MITRONICS, P.O. Box 2129, Rolling Hills, CA 90274, Tel: 213-377-2022

MITSUBISHI ELECTRONICS, 991 Knox Street, Torrance, CA 90502, Tel: 213-515-3993, TELEX: 06-4703-M USA LSA, TWX: 66-4787-MELA TRNC; Empl.: 423; *Sls. Mgr.:* Bob Crooks, V.P. Sls.; *Dist. Mgr.:* Bob Crooks, V.P. Sls.

MITSUBISHI ELCTRNS. AMERICA, INC., Elctrn. Device Grp., 1050 East Arques Ave., Sunnyvale, CA 94086, Tel: 408-730-5900, TELEX: 172296, TWX: 910-339-9549, FAX: 408-730-4972; Empl.: 200; *Sls. Mgr.:* John Zucker; *Dist. Mgr.:* Roger Yee

Local Sales Offices & Reps

AL Huntsville, Beacon Elctrns. 205-881-5031
AZ Scottsdale, SMS & Assocs. 602-998-0831
CA San Diego, Mitsubishi Elctrns. Reg. Sls. Off. 619-451-9618
CA San Diego, SC Cubed 619-458-5808
CA San Jose, QCI 408-432-1070
CA Sunnyvale, Mitsubishi Elctrns.-Reg. Sls. Off. 408-730-5900
CA Thousand Oaks, SC Cubed 805-496-7307
CA Tustin, SC Cubed 714-731-9206
CO Englewood, Mitsubishi Elctrns. Reg. Sls. Off. 303-220-0744
CO Littleton, Simpson Assocs. 303-794-8381
CT Yalesville, Comp. Rep Assocs. 203-269-1145
FL Boca Raton, Beacon Elctrns. 407-997-5740
FL Boca Raton, Mitsubishi Elctrns. 407-487-7747
FL Longwood, Beacon Elctrns. 407-332-1940
GA Atlanta, Beacon Elctrns. 404-256-9640
GA Norcross, Beacon Advanced Comps. 404-662-8190
GA Norcross, Mitsubishi Elctrns. Reg. Sls. Off. 404-448-1263
IL Mt. Prospect, Mitsubishi Elctrns.-Reg. Sls. Off. 708-298-9223
IL Rolling Meadows, Phase II Mktg. 708-806-1330
IN Fishers, Carter, McCormick, Pierce 317-842-8277
KS Overland Park, Gibb Tech 913-451-6788
MI Farmington Hills, Carter, McCormick .. 313-477-7700
MN Edina, Gibb Elctrns. Sls. 612-835-3370
MN Minnetonka, Gibb Elctrn. Sls. 612-935-4600
MN Minnetonka, Mitsubishi Elctrns.-Reg. Sls. Off. 612-938-7779
NJ Cherry Hill, Trinkle Sls., Inc. 609-795-4200
NJ Parsippany, METEC Sales 201-263-8898
NJ Somerset, Mitsubishi Elctrns.-Reg. Sls. Off. 201-469-8833
NY Fishkill, Mitsubishi Elctrns. Reg. Sls. Off. 914-896-0896
NY Manlius, LAMTEC 313-637-3738
NY Northport, METEC Sales 516-757-1881
NC Cary, Mitsubishi Elctrns. Reg. Sls. Off. 919-460-0404
NC Raleigh, Beacon Elctrns. 919-787-0330
OH Cincinnati, Makin & Assocs., Inc. 513-871-2424
OH Dublin, Makin & Assocs., Inc. 614-793-9545
OH Solon, Makin & Assocs. 216-248-7370
OR Portland, ES/Chase Co., Inc. 503-292-8840
TX Austin, OM Assocs., Inc. 512-794-9971
TX Carrollton, Mitsubishi Elctrns.-Reg. Sls. Off. 214-245-0047
TX Houston, OM Assocs., Inc. 713-789-4426
TX Richardson, OM Assocs., Inc. 214-690-6746
UT Midvale, Simpson 801-566-3691
VA Sterling, Beacon North 703-478-2480
WA Kirkland, ES Chase 206-823-9595
WA Kirkland, Insight Elctrns. 206-820-8100
WI Wauwatosa, Phase II Mktg. 414-771-9986
PR San Truce, Beacon Elctrns. 818-728-5440
Can Kanata, Ont., Mitsubishi Elec. Sls. Canada, Inc. 613-591-3348
Can Mississauga, Mitsubishi Elctrns.Reg. Sls. Off. 416-670-8711

Local Distributors

AZ Scottsdale, Added Value Elctrns. 602-951-9788
AZ Tempe, Insight Elctrns. 602-829-1800
CA Agoura, Insight Elctrns. 818-707-2100
CA Irvine, Insight Elctrns., Inc. 714-727-2111
CA Orange, Western Microtechnlgy. 714-637-0200
CA San Diego, Added Value Elctrns. Dists., Inc. 614-558-8890
CA San Diego, Insight Elctrns., Inc. 619-587-0471
CA San Diego, Western Microtechnlgy. ... 619-453-8430
CA San Jose, Merit Elctrns. Inc. 408-434-0800
CA San Jose, QCI Comp. Sls. 408-432-1070
CA Saratoga, Western Microtechnlg., Inc. 408-725-1660
CA Tustin, Added Value Elctrns. Dist., Inc. 714-259-8258
CO Wheat Ridge, Added Value Elctrns. Dists. Inc. 303-422-1701
CT Milford, Milgray Elctrns., Inc. 203-878-6970
CT Wallingford, Almo Elctrns. Corp. 203-269-6801
FL Ft. Lauderdale, Hammond Elctrns., Inc. 305-973-7103
FL Miami, All American 305-621-8282
FL Orlando, Hammond Elctrns., Inc. 305-841-1010
FL Winter Pk., Milgray Elctrns., Inc. 305-647-5747
GA Norcross, Beacon Advanced Comps. 404-662-8190
GA Norcross, Hammond Elctrns., Inc. 404-449-1996
GA Norcross, Milgray Elctrns., Inc. 404-446-9777
IL Arlington Heights, Milgray Elctrns., Inc. 708-253-1212
IL Bensenville, GBL/Goold Elctrns. Corp. 708-860-7171
KS Overland Pk., Milgray Elctrns., Inc. 913-236-8800
MD Columbia, Milgray Elctrns., Inc. 301-995-6169
MD Tissup, Almo Elctrns. Corp. 301-953-2566
MA Canton, Almo Elctrns. Corp. 617-821-1450
MA Hopkinton, Interface Elctrns. Corp. 617-435-6858
MA Westwood, Comp. Rep. Comps. 617-329-3454
MA Wilmington, JV Elctrns. of Boston, Inc. 617-657-6523
MN Sterling Elctrns., Indl. Comps., Inc. 612-831-2666
NJ E. Brunswick, Almo Elctrns., Inc. 201-613-0200
NJ Marlton, Milgray Elctrns., Inc. 609-983-5010
NY Farmingdale, Milgray Elctrns., Inc. 516-420-9800
NY Rochester, Milgray Elctrns., Inc. 716-235-0830
NY Rome, Rome Elctrns. 315-337-5400
NC Greensboro, Hammond Elctrns., Inc. .. 919-275-6391
OH Cleveland, Milgray Elctrns., Inc. 216-447-1520
OR Beaverton, Western Microtechnlg., Inc. 503-629-2082
PA Maris, Almo Elctrns. Corp. 412-776-9090
PA Trevose, Almo Elctrns. Corp. 215-953-2800

SC Greenville, Hammond Elctrns. 803-233-4121
TX Dallas, Milgray Elctrns. 214-248-1603
WA Redmond, Western Microtechnig., Inc. 206-881-6737

MKC ELECTRONICS CORP., 9205 Quivira Road, Overland Park, KS 66215, Tel: 913-894-9711, FAX: 913-894-9713; Empl.: 26

MKS INSTRUMENTS, INC., Six Shattuck Road, Andover, MA 01810, Tel: 508-975-2350, TELEX: 94-9375, FAX: 508-975-0094; Empl.: 500

MLI INDUSTRIES, INC., 3 East Main Street, Apalachin, NY 13732, Tel: 607-754-5800, FAX: 607-625-2022; Empl.: 485; *Sls. Mgr.:* Michael T. Mackenzie

MMI-MIRCO MACHINES, INC., P. O. Box 242, Santa Clara, CA 95052, Tel: 408-727-0100, TWX: 910-338-0260; Empl.: 4; *Sls. Mgr.:* Frank J. Andezzone

MOBILE-TRONICS CO., INC., Box 1147, San Clemente, CA 92674, Tel: 714-361-4305, FAX: 714-361-4356; Empl.: 2

MODULAIR, 4674 Aircenter Circle, Reno, NV 89502, Tel: 702-829-2033, FAX: 702-829-2029; Empl.: 50

MODULAR AUDIO PRODUCTS, Modular Devices, Inc., Brookhaven R & D Plaza, One Roned Road, Shirley, NY 11967, Tel: 516-345-3100, FAX: 516-345-3106; *Sls. Mgr.:* C. Liptman

MODULAR DEVICES, Brookhaven R & D Plaza, 1 Roned Rd., Shirley, NY 11967, Tel: 516-345-3100, FAX: 516-345-3106; FSC No.: 52202; Empl.: 65; *Sls. Mgr.:* C. Liptman ..... **B•1302; D•1901-1906**

Local Sales Offices & Reps

CA Murrieta, MIL-COM Sls., Inc. 714-677-2097
CA San Diego, Mil-Com Sls. 619-275-0641
CA Santa Clara, Integrated Tech Sls. 408-727-3406
CT Bloomfield, Zaslow Sls. Co. 203-242-7781
KS Prairie Village, Thunderbird Tech. Sls. 913-642-7220
KS Wichita, Thunderbird Tech. Sls. 316-636-5777
MD Towson, Advanced Tech. Sls., Inc. 301-296-9360
MN St. Paul, K-Rep 612-681-9510
MO Maryland Heights, Thunderbird Tech. Sls. 314-298-8940
NY Great Neck, F & F Metro Inc. 516-482-4080
NY Williamsville, NV Elect. Assoc. 716-632-1347
PA Norristown, Rivco January Inc. 215-631-1414
TX Dallas, M-Rep Co. 214-484-5711

MODULAR DEVICES INC., 4115 Spencer St., Torrance, CA 90503, Tel: 213-542-8561, FAX: 213-371-6331; Empl.: 150; *Sls. Mgr.:* A. C. Augusta

MODULAR MINING SYSTEMS, INC., 3289 E. Hemisphere Loop, Tuscon, AZ 85706, Tel: 602-746-9127, FAX: 602-889-5790; Empl.: 60; *Sls. Mgr.:* J.Michael Canty

MODULAR SYSTEMS, INC., 905 Albemarle St., Charlottesville, VA 22901, Tel: 804-295-7882; Empl.: 5; *Sls. Mgr.:* H. N. Patel

FAX: 408-496-0204

MODUPOWER, Inc., 1400 Coleman Ave., Santa Clara, CA 95050, Tel: 408-496-5796; Empl: 3; *Sls. Mgr.:* Art Fury ..... **D•1908-1910**

MOISTURE REGISTER PRODUCTS DIV., Aqua Measure Instrument Co., 1712 Earhart Court, P.O. Box 369, LaVerne, CA 91750-0369, Tel: 714-392-5833, FAX: 714-392-5838; Empl.: 25; *Sls. Mgr.:* Gabriel Cote, Jr.

MOLDCON DIV. OF CONTEX ELECTRONICS, 221 Interstate Dr., W. Springfield, MA 01089, Tel: 413-736-0371, FAX: 413-736-9716; Empl.: 200; *Sls. Mgr.:* Robert Krzynowek

MOLDTRONICS. INC., 703 Rogers St., Downers Grove, IL 60515, Tel: 708-968-7000, FAX: 708-968-5068; Empl.: 100; *Sls. Mgr.:* J.D. Wilson

MOLECU-WIRE, P.O. Box 495, Farmingdale, NJ 07727, Tel: 201-938-9473, TWX: 710-723-6943, FAX: 201-938-3189; Empl.: 125

FAX: 708-969-1352

MOLEX, INC., 2222 Wellington Ct., Lisle, IL 60532, Tel: 708-969-4550, TELEX: 25-4069; Empl.: 6300; *Sls. Mgr.:* Bill Cox; *Dist. Mgr.:* Bill Hickey ..... **C•1474**

Local Sales Offices & Reps

CA Laguna Hills, Molex 714-586-0950
CA Milpitas, Molex 408-946-4700
CO Englewood, Molex 303-779-8321
GA Roswell, Molex 404-992-3715
IL Lisle, Molex 312-969-4550
IN Indianapolis, Molex 317-299-0099
KY Louisville, Molex 502-245-8336
MA Woburn, Molex 617-935-8983
MI Troy, Molex 313-879-7400
TX Dallas, Molex 214-931-0999

Local Distributors

AL Huntsville, Hamilton/Avnet 205-837-7210
AL Huntsville, Time Elctrns. 205-721-1133
AZ Phoenix, Force Elctrns. 602-437-1060
AZ Phoenix, Sterling Elctrns. 602-437-5565
AZ Tempe, Harper S.I.D. 602-967-1464
AZ Tempe, Time Elctrns. 602-967-2000
AR Ft. Smith, Carlton Bates 501-646-8201
AR Little Rock, Carlton Bates 501-562-9100
AR Pine Buff, Carlton Bates 501-535-1354
AR Springdale, Carlton Bates 501-756-5012
CA Chatsworth, Sterling Elctrns. 818-407-8850
CA Chatsworth, Time Elctrns. 818-998-7200
CA Compton, Harper S.I.D. 213-979-5090
CA Costa Mesa, Hamilton Electro Sls. 714-641-4100
CA El Segundo, Force Elctrns. 213-772-1324
CA Garden Grove, Richey Impact Elctrns. Ltd. 714-895-0060
CA Gardena, Hamilton Avnet 213-217-6700
CA Irvine, Integrated Elctrns. Corp. 714-837-9960
CA Roseville, Hamilton/Avnet 916-925-2216
CA S. San Francisco, Peters-de Laet 415-873-9595
CA Sacramento, Integrated Elctrns. Corp. 916-363-6030
CA San Diego, Force Elctrns. 619-569-9661
CA San Diego, Hamilton Avnet 619-571-1900
CA San Diego, Harper S.I.D. 619-578-2500
CA San Diego, Richey Impact Elctrns. Ltd. 619-271-4511
CA San Diego, Sterling Elctrns. 619-271-6555
CA San Diego, Time Elctrns. 619-586-1331
CA San Jose, Harper S.I.D. 408-943-9490
CA San Jose, Integrated Elctrns. Corp. 408-435-1000
CA San Jose, Richey Western Elctrns. Ltd. 408-432-7100
CA Santa Clara, Force Elctrns. 408-748-1324
CA Sunnyvale, Hamilton Avnet 408-743-3000
CA Sunnyvale, Time Elctrns. 408-734-9888
CA Torrance, Kent Elctrns. 213-320-2700
CA Torrance, Time Elctrns. 213-320-0880
CA Tustin, Sterling Elctrns. 714-259-0900
CA Tustin, Time Elctrns. 714-669-0100
CO Denver, Integrated Elctrns. 303-292-6121
CO Englewood, Hamilton Avent 303-799-0663
CO Englewood, Sterling Elctrns. 303-792-3939
CO Englewood, Time Elctrns. 303-799-8851
CO Wheatridge, Bell Inds. 303-424-1985
CT Danbury, Hamilton Avnet 203-743-6077
CT Danbury, Heilind Elctrns. 203-797-8600
CT Southbury, Time Elctrns. 203-271-3200
CT Wallingford, Sager Elec. Supp. Co. 203-265-4600
CT Wallingford, Sterling Elctrns. 203-265-9535
FL Ft. Lauderdale, Hamilton Avnet 305-767-6377
FL Ft. Lauderdale, NEWH for Ind. 305-772-5050
FL Ft. Lauderdale, Time Elctrns. 305-484-4778
FL Largo, LoDan 813-586-2851
FL Miami, Time Elctrns. 305-940-8231
FL Orlando, Hamilton/Avnet 407-657-3344
FL Orlando, Time Elctrns. 407-841-6565
FL St. Petersburg, Hamilton Avnet 813-573-3930
FL Winter Park, Hamilton Avnet 407-628-3888
GA Atlanta, Electro Air Corp. 404-351-3545
GA Duluth, Gateway Megatech 404-497-0799
GA Duluth, Hamilton/Avnet 404-446-0611
GA Norcross, Time Elctrns. 404-368-0969
IL Bensenville, Hamilton/Avnet 312-860-7700
IL Chicago, Waldom Elctrns. Inc. 312-585-1212
IL Crystal Lake, Sub-Sem, Inc. 815-459-4139
IL Hoffman Estates, Integrated Elctrns. Corp. 708-843-2040
IL Schaumberg, Time Elctrns. 708-303-3000
IN Carmel, Hamilton Avnet 317-844-9333
IN Carmel, Time Elctrns. 800-331-5114
IN Indianapolis, Gateway Megatech 317-298-0111
IN Indianapolis, PEI-Genesis 800-428-5081
IN South Bend, PEI-Genesis 800-348-2996
IN Valparasio, Gateway Megatech 219-477-4255
IA Cedar Rapids, Hamilton Avnet 319-362-4757
IA Cedar Rapids, Time Elctrns. 800-325-9085
KS Lenexa, Hamilton/Avnet 913-888-8900
KS Lenexa, Time Elctrns. 913-492-5406
KY Lexington, Hamilton Avnet 800-543-4783
LA Shreveport, Carlton Bates 318-636-9975
LA Westego, Sterling Elctrns. 504-436-1418
MD Baltimore, Hamilton Avnet 301-995-3500
MD Columbia, Sterling Elctrns. 301-290-3800
MD Columbus, Time Elctrns. 301-964-3090
MD Jessup, Gateway 301-792-7527
MA Canton, Richey/Impact Elctrns. Ltd. ... 617-821-1500
MA Hingham, Sager Elec. Supp. Co. 617-749-6700
MA Peabody, Hamilton Avnet 508-532-3701
MA Peabody, Time Elctrns. 508-532-6200
MA Wilmington, Heilind Elctrns. 508-657-4870
MA Woburn, Sterling Elctrns. 617-938-6200
MI Ann Arbor, Gateway Megatech 313-761-2980
MI Hamilton/Avnet, Hamilton/Avnet 616-243-8805
MI Novi, Hamilton/Avnet 313-347-4270
MI Troy, Empire Elctrns. 313-585-8130
MN Edina, Time Elctrns. 612-943-2433
MN Minneapolis, Sterling Elctrns. 612-831-2666
MN Minnetonka, Hamilton Avnet 612-932-0600
MO Chesterfield, Hamilton/Avnet 314-537-1600
MO Manchester, Time Elctrns. 314-391-6444
MO St. Charles, Lectronix 800-325-3348
NH Manchester, Hamilton/Avnet 603-624-9400
NH Salem, Sager Elec. Supp. Co. 603-898-1348
NJ Camden, GRS Elctrns. Co., Inc. 609-964-8560
NJ Cherry Hill, Hamilton Avnet 609-424-0100
NJ Edison, Sterling Elctrns. 908-417-1000
NJ Fairfield, Hamilton Avnet 201-575-3390
NJ Marlton, Time Elctrns. 609-596-6700
NJ Teterboro, EAC/JAMAR Corp. 201-772-6400
NM Albuquerque, Hamilton Avnet 505-345-0001
NM Albuquerque, Sterling Elctrns. 505-884-1900
NY Buffalo, Summit Dists. 716-887-2800
NY E. Syracuse, Time Elctrns. 315-432-0355
NY Hauppauge, Sager Elctrns. 516-348-1300
NY Hauppauge, Time Elctrns. 516-273-0100
NY Rochester, Hamilton Avnet 716-475-9130
NY Rochester, Summit Distrs. 716-334-8110
NY Syracuse, Hamilton Avnet 315-437-2641
NC Charlotte, Time Elctrns. 704-522-7600
NC Raleigh, Hamilton Avnet 919-878-0810
NC Raleigh, Sagar Elctrl. Supp. Co., Inc. ... 919-850-9550
OH Columbus, Gateway Megatech 614-447-0222
OH Columbus, Time Elctrns. 614-761-1100
OH Dayton, Gateway Megatech 513-298-6342
OH Dayton, Hamilton Avnet 513-439-6700
OH Solon, Hamilton Avnet 216-349-5100
OH Westerville, Hamilton Avnet 614-882-7004
OH Willoughby, Gateway Megatech 216-953-0333
OK Oklahoma City, Carlton Bates 405-691-4446
OK Tulsa, Carlton Bates 918-250-1626
OK Tulsa, Hamilton Avnet 918-252-7297
OK Tulsa, Sterling Elctrns. 918-663-2410
OR Beaverton, Hamilton/Avnet 503-627-0201
OR Beaverton, Integrated Elctrns. Corp. ... 503-641-1690
OR Portland, Radar Elec. 503-232-3404
OR Portland, Time Elctrns. 503-684-3780
PA McKean, Advacom 814-476-7774
PA Philadelphia, Sagar Elctrl. Supp. Co. ... 215-464-4336
PA Pittsburg, Hamilton Avnet 412-281-4150
TN Memphis, Carlton Bates 901-365-3539
TN Nashville, Carlton Bates 615-885-3232
TN Soddy-Daisy, Techni-Tronics, Inc. 615-332-2119
TX Austin, Hamilton Avnet 512-837-8911
TX Austin, Kent Elctrns. 512-834-1900
TX Austin, Sterling Elctrns. 512-836-1341
TX Austin, Time Elctrns. 512-339-3054
TX Carrollton, Sterling Elctrns. 214-243-1600
TX Dallas, Carlton Bates 214-404-9906
TX Dallas, Force Elctrns. 214-247-9955
TX Houston, Force Elctrns. 713-561-8644
TX Houston, Kent Elctrns. 713-780-7770
TX Houston, Sterling Elctrns. 713-627-9800
TX Houston, Time Elctrns. 713-530-0800
TX Irving, Harper S.I.D. 214-621-0500
TX Richardson, Kent Elctrns. 214-669-2600
TX Richardson, Time Elctrns. 214-644-4644
TX Stafford, Hamilton Avnet 713-240-7733
TX Texarkana, Carlton Bates 214-792-6923
UT Salt Lake City, Bell Inds. 801-255-9611
UT Salt Lake City, Hamilton Avnet 801-266-2022
UT Salt Lake City, Integrated Elctrns. 801-977-9750
UT Salt Lake City, Sterling Elctrns. 801-972-5444
UT Salt Lake City, Time Elctrns. 801-973-8181
VA Richmond, Sterling Elctrns. 804-226-2190
WA Bellevue, Integrated Elctrns. Corp. 206-455-2727
WA Redmond, Hamilton Avnet 206-881-6697
WA Richland, Radar Elec. 509-943-8336
WA Seattle, Radar Elec. 206-282-2511

WA	Spokane, Rader Elec.	509-747-3053
WI	Milwaukee, Time Elctrns.	800-331-5114
WI	New Berlin, Sub Sem	800-435-6130
WI	Waukesha, Hamilton Avnet	414-784-4510
PR	Bayamon, NEHW for Ind.	809-798-1300

MOLI ENERGY LIMITED, 20000 Stewart Crescent, Maple Ridge, B.C., Canada V2X 9E7, Tel: 604-465-7911/1-800-663-MOLI, TELEX: 04-356708, FAX: 604-465-4398; FSC No.: 6140; Empl.: 160; *Sls. Mgr.:* Mary Connolly; *Dist. Mgr.:* Mary Connolly

MOLON MOTOR & COIL CORPORATION, 3737 Industrial Avenue, Rolling Meadows, IL 60008, Tel: 708-253-6000, FAX: 708 259-5491; *Sls. Mgr.:* William Steele

MONARCH INSTRUMENT, Monarch International Inc., Columbia Dr., Amherst, NH 03031, Tel: 603-883-3390, 800-999-3390, FAX: 603-886-3300; FSC No.: Cage Code 17500; Empl.: 24; *Sls. Mgr.:* Richard Peters, Prod. Mgr.; *Dist. Mgr.:* Myron Kasok

MONITOR PC

FAX: 619-434-0255

MONITOR PRODUCTS CO., INC., 502 Via Del Monte, Oceanside, CA 92054, Tel: 619-433-4510, ESYLNK: 629 5085; FSC No.: 54331; Empl.: 65; *Sls. Mgr.:* Robert Blasier; *Dist. Mgr.:* Robert Blasier ..... **A•1402-1407**

Local Sales Offices & Reps

AL	Huntsville, CSR Elctrns.	205-533-2444
AZ	Phoenix, Eltron	602-266-2164
CA	Los Angeles, Monitor Prods. Co.	619-433-4510
CA	Mountain View, Straube Assocs.	415-969-6060
CA	Orange County, Monitor Prods. Co.	618-433-4510
CO	Denver, Straube Assocs.	303-426-0890
CT	Bloomfield, Zaslow Sls., Inc.	203-242-7781
FL	Brandon, R.C. Simon & Company	813-689-6524
FL	Lighthouse Pt., R.C. Simon & Company	305-941-2757
GA	Atlanta, CSR Elctrns.	404-396-3720
MA	Westboro, Zaslow Sls., Inc.	617-393-8150
MN	Eden Prairie, Elctrn. Innovators	612-941-0830
NY	Rochester, Electra Sls.	716-427-7860
NY	Syracuse, Electra Sls.	315-463-1248
NC	Raleigh, CSR Elctrns.	919-878-9200
PA	Philadelphia, Monitor Prods.	904-725-4386
TN	Knoxville, CSR Elctrns.	615-673-0222
TX	Austin, Mil-Rep Assocs.	512-346-6331
TX	Houston, Mil-Rep Assocs.	713-444-2557
TX	Richardson, Mil-Rep Assocs.	214-644-6731

Local Distributors

AL	Huntsville, Component Distrs., Inc.	205-883-7501
AL	Huntsville, Resistacap, Inc.	205-883-4270
AZ	Tempe, Harper SID	602-967-1464
AR	Little Rock, Component Distrs., Inc.	501-227-6305
CA	Compton, Harper SID	213-979-5090
CA	San Diego, Harper SID	619-560-8545
CA	San Diego, Neumann Elctrns.	619-695-3005
CA	Sherman Oaks, Delay Line Distrs.	818-986-9455
CA	Sunnyvale, Harper SID	408-747-0333
CA	Tustin, Added Value Elctrns.	714-259-8258
CO	Wheatridge, Added Value Elctrn.	303-422-1701
FL	Ft. Lauderdale, Component Distrs., Inc.	305-723-8874
FL	Melbourne, Rome Elctrns.	305-242-8151
GA	Norcross, Component Distrs., Inc.	404-441-3320
IL	Bensenville, Voyager Elctrns.	312-773-4900
MA	Hudson, DSC, Inc.	617-562-6920
MN	Fridley, Voyager Elctrns.	612-571-7766
NY	Johnson City, Help Elctrns.	607-729-3528
NC	Greensboro, Golden Elctrns.	919-294-4653
TX	Dallas, Component Distrs., Inc.	214-644-0373
TX	Fort Worth, C & W Supply	817-831-0395
TX	Richardson, Harper SID	214-235-3177
VA	Falls Church, Component Distrs., Inc.	703-241-8227

MONOLITHIC SYS. CORP., 7050 South Tuscan Way, Englewood, CO 80112, Tel: 303-790-7400, FAX: 303-790-7118; Empl.: 80; *Sls. Mgr.:* C. Edward O'Neal; *Dist. Mgr.:* C. Edward O'Neal

MONROE ELECTRONICS, INC., 100 Housel Ave., Lyndonville, NY 14098, Tel: 716-765-2254, TELEX: 756662, FAX: 716-765-9330; Empl.: 50; *Sls. Mgr.:* Brian D. Ives

MONSANTO CO., 800 N. Lindbergh Blvd., St. Louis, MO 63167, Tel: 314-694-1000, TELEX: 44-7282; Empl.: 49,197

MONTROSE PRODUCTS COMPANY, Intercole, 28 Sword Street, Auburn, MA 01501, Tel: 508-791-3161, FAX: 508-793-9862; Empl.: 250; *Sls. Mgr.:* Michael McLaughlin, OEM Sls. Mgr.; *Dist. Mgr.:* Bill Wilmot

MOODY TOOLS, INC., 43 Crompton Ave., E. Greenwich, RI 02818, Tel: 401-885-0911, FAX: 401-885-4565; Empl.: 11; *Sls. Mgr.:* J. H. Moody; *Dist. Mgr.:* D .H. Moody

MOORE PRODUCTS CO., Sumneytown Pike, Spring House, PA 19477, Tel: 215-646-7400, FAX: 215-283-6358; Empl.: 1000ò; *Sls. Mgr.:* J. McDonald

MOORE REED & CO. LTD., Southway Walworth, Andover, Hampshire SP 105AB, Tel: 0264-324155, TELEX: 47654, FAX: 0264-356561; Empl.: 150; *Sls. Mgr.:* W. North

MORGAN-MATROC, Vernitron Div., 232 Forbes Rd., Bedford, OH 44146-5478, Tel: 216-232-8600, TWX: 810-427-2274, FAX: 216-232-8731; Empl.: 100; *Sls. Mgr.:* D.W. Bacso ..... **B•1921**

Local Sales Offices & Reps

CA	El Toro, Morgan Matroc, Inc.	714-768-8672
IL	Des Plaines, Esco Assoc.	312-298-5310

MORRIS, J. I., CO., 372 Elm St., Southbridge, MA 01550, Tel: 508-764-4394, FAX: 508-764-7350; FSC No.: 95548; Empl.: 25

MORRIS ENTERPRISES, 16799 Schoenborn St, Sepulveda, CA 91343, Tel: 818-894-9103, TELEX: 6-74681, TWX: 910-496-1525, FAX: 818-894-5791; FSC No.: 54918; Empl.: 50; *Sls. Mgr.:* J. Dumpert

MORS ASC®

FAX: 617-245-4531

MORS/ASC, 134 Water St., PO Box 544, Wakefield, MA 01880-4444, Tel: 617-246-1007; FSC No.: 54659; Empl.: 35; *Sls. Mgr.:* Mike Palmerino; *Dist. Mgr.:* Mike Palmerino ..... **B•1745**

Local Sales Offices & Reps

CA	Arcadia, HMC, Inc.	818-447-0958
CA	San Jose, Vernexx	408-972-9072
CO	Boulder, Stratford Grp.	303-530-3194
FL	Boca Raton, Newell-Hynes	407-392-3186
GA	Norcross, Mountain Electro Mktg.	404-448-5594
IL	Wheaton, C-S Technical Sls.	708-653-8126
IA	Marion, MSB Assocs.	319-377-6261
KS	Shawnee Mission, MSB Assocs.	913-432-2131
MA	Andover, Crawford Assocs.	508-470-2122
MI	Farmington Hills, W. R. Hummon	313-474-0661
MN	Golden Valley, Highland Sls.	612-546-2123
MO	St. Charles, MSB Assocs.	314-946-5577
NY	Fairport, Andres Component Sls.	716-223-2430
NY	Patchogue, Optimum Metro Sls.	516-758-0644
OH	Willoughby, Nationwide Comps.	216-946-3226
OR	Hillsboro, Doran Sls.	503-640-4500
PA	Wynnewood, Metz-Benham Assoc.	216-896-7300
TX	Bedford, El-Tec Sls.	817-268-2896
VA	Ashland, Glasscock Assoc.	804-798-2125
WA	Redmond, Doran Sls.	206-885-1885
EXP	CT/Litchfield, Intrade	203-567-5901

Local Distributors

AL	Birmington, Forbes Distbg.	205-251-4104
AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Tempe, RCD Inds.	602-838-0979
CA	Fremont, KEA Elctrns.	415-651-2600
CA	Los Angeles, Elec. Switches	213-660-1310
CA	San Jose, Rose Elctrns.	408-943-0200
CA	San Jose, Sierra West	408-435-7477
CA	Santa Monica, Master Dists.	213-452-1229
CA	Sunnyvale, PSC	408-737-1333
CA	Tustin, Western Switch & Controls	714-731-4333
CO	Denver, CSID	303-292-9594
CO	Englewood, Indelco	303-694-9444
CT	Bridgeport, Park Dists.	203-366-7200
CT	Wallingford, Mid-State Elctrns.	203-265-9900
DE	New Castle, Elctrns. Exchange	302-322-5401
FL	Boca Raton, Zelcon	407-451-1600
FL	Ft. Lauderdale, Brothers Elctrns.	305-561-6700
FL	Melbourne, GRS/Rome Elctrns.	407-242-8151
GA	Norcross, Dow Elctrns.	404-448-4004
ID	Spirit Lake, A-I Elctrns.	208-623-3111
IL	Addison, Belford Elctrns.	708-691-1100
IL	Chicago, Leeds Elctrns.	312-625-3800
IL	Wheeling, Hawk Elctrns.	312-459-4030
IL	Wood Dale, Nep Elctrns.	312-595-8500
IN	Carmel, Altex Elctrns.	317-848-1323
IN	Terre Haute, Midwest Supp.	812-232-0187
IA	Cedar Rapids, Iowa Radio Supp.	319-393-4510
IA	W. Des Moines, Ramco Co.	515-225-6933
KS	Wichita, Radio, Inc.	316-264-2798
MD	Beltsville, PSI	301-937-4960
MD	Jessup, Treeko Elec.	301-470-3300
MD	Kensington, Marine Air Supp.	301-949-9560
MA	Marlboro, Hardware Specialties	617-481-8622
MA	Westborough, In Stock Prods.	617-870-5750
MA	Wilmington, North Star Elec.	617-657-5155
MI	Battle Creek, Great Lakes Elctrns.	616-731-4156
MI	Grand Rapids, Calder Elctrns.	616-698-7400
MI	St. Clair Shores, Spemco	313-771-2700
MN	Burnsville, Cassidy Elctrns.	612-895-9026
MN	Fridley, Voyager Elctrns.	612-571-7766
MN	Minneapolis, Tortec Corp.	612-866-3662
MO	St. Louis, Wes-Garde Comps.	314-567-7776
NH	Salem, Diamond Elec.	603-894-4420
NJ	E. Brunswick, Brothers Elctrns.	201-238-2200
NJ	Mt. Laurel, New Jersey Comps.	609-722-7108
NJ	Oakland, Relay Specialties	201-337-1000
NM	Albuquerque, Harrison/Int'l	505-345-8127
NY	Amherst, Std. Elctrns.	716-691-3801
NY	Bohemia, Key Comps.	516-567-7500
NY	Hempstead, Davis Elect.	516-483-9200
NY	Mt. Vernon, QAR/All American	914-699-2224
NY	Rome, Rome Elctrns.	315-337-5400
NY	Woodside, Switches Unltd.	718-478-5000
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Willoughby, Gateway Megatech	216-953-0333
OR	Beaverton, Rose Elctrns.	503-629-9288
PA	Norristown, Kimberly James Co.	215-666-7286
PA	Philadelphia, Shap Elctrns.	215-969-3300
RI	Pawtucket, Major/Edwards	401-725-7400
TX	Arlington, Bell Comp. Sls.	817-461-5303
TX	Dallas, Wholesale Elctrns.	214-824-3001
TX	Ft. Worth, Indl. Elctrns.	817-731-7321
TX	Garland, J & S Elctrns.	214-487-8808
UT	Salt Lake City, Std. Supp. Co.	801-486-3371
WA	Redmond, Kent Elctrns.	206-883-7200
WA	Vancouver, Interconnect Sls.	206-256-4085
WV	Huntington, Elctrn. Supp.	304-523-6443
WI	Mequon, Lake-View Elctrns.	414-377-8250
WI	Milwaukee, Progressive Image	414-321-4722
WI	New Berlin, Nep Elctrns.	414-785-9100
Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Montreal, Que., Versatech Elctrns.	514-481-0196
Can	Quebec, A.R. Gray & Assoc.	514-694-6378
Can	Surrey, B.C., Memco	604-590-1553

MORS TECHNOLOGIES INC., Mors Group-France, 225 Industrielle, Delson, Quebec, Canada J0L 1G0, Tel: 514-638-4150, FAX: 514-638-2270

MOSAIC SEMICONDUCTOR INC., Implex Inc., 7420 Carroll Rd., San Diego, CA 92121, Tel: 619-271-4565, FAX: 619-271-6058; Empl.: 45; *Sls. Mgr.:* Derek Best, Gary Brown; *Dist. Mgr.:* Derek Best

MOTION ENGINEERING, INC., 520 E. Montecito St, Santa Barbara, CA 93103, Tel: 805-962-5409, FAX: 805-962-8001; Empl.: 6; *Sls. Mgr.:* Matt Cheresh

MOTION SCIENCE INC., 830-6 Jury Ct., San Jose, CA 95112, Tel: 408-993-0300, FAX: 408-993-0123; Empl.: 27

MOTION SENSORS, INC., 12 Park Street, Cranford, NJ 07701, Tel: 908-709-0025, FAX: 908-709-1144; Empl.: 6; *Sls. Mgr.:* Arthur Bergman

MOTOR CAPACITORS, INC., 6655 N. Avondale Ave., Chicago, IL 60631, Tel: 312-631-0713, FAX: 312-774-8778; Empl.: 14

MOTOROLA CERAMIC PRODUCTS, Components Division, 4800 Alameda Blvd. N.E., Albuquerque, NM 87113, Tel: 505-822-8801; Empl.: 600; *Sls. Mgr.:* Tom Gilder

MOTOROLA INC., Auto. & Indl. Elctrns., Elctrn. Sys. Comps. Div., 4000 Commerical Ave., Northbrook, IL 60062, Tel: 708-205-2867, TELEX: 671-5420 MOT APD; Empl.: 2500

MOTOROLA SEMICONDUCTOR PRODS. SECTOR, 2100 East Elliot, Tempe, AZ 85284, Tel: 602-244-6900, TWX: 910-951-1334; FSC No.: 04713; *Sls. Mgr.:* Ted Jaros; *Dist. Mgr.:* Brian Hilton

MOTOR TECHNOLOGY, INC., 2798 Culver Ave., Dayton, OH 45429, Tel: 513-294-1041, FAX: 513-294-8336; Empl.: 35 ..... **B•1303-1305**

Local Sales Offices & Reps

OH	Dayton, Motor Technology, Inc.	513-294-1041

MOTORTEST, INC., PO Box 292633, Columbus, OH 43229, Tel: 614-882-7821, FAX: 614-841-9007

MOTOR-TRONICS, INC., 2142 Industrial Ct., Bldg. 'F', Vista, CA 92083, Tel: 619-727-7430, FAX: 619-727-4436; *Sls. Mgr.:* Bill Linko

MOUSER ELECTRONICS, 11433 Woodside Ave., Santee, CA 92071, Tel: 619-449-2222, TELEX: 619-44; Empl.: 200; *Sls. Mgr.:* C. Degurse; *Dist. Mgr.:* G. Rye

MOUSER ELECTRONICS, 2401 Hwy. 287 North, Mansfield, TX 76063, Tel: 800-346-6873, FAX: 817-483-0931; Empl.: 200; *Dist. Mgr.:* G. Rye

MOXNESS PRODUCTS, INC., Versa Technologies, 1914 Indiana St., Racine, WI 53405, Tel: 414-554-5050, 800-558-5706, FAX: 414-554-2321; Empl.: 250; *Sls. Mgr.:* Ronald M. Buono; *Dist. Mgr.:* Ronald M. Buono

MPB CORP., Miniature Precision Bearings Div., Precision Park, Keene, NH 03431, Tel: 603-352-0310, TWX: 710-366-1801; FSC No.: 40920; Empl.: 1900; *Sls. Mgr.:* T. A. Rudziensky; *Dist. Mgr.:* R. F. Chartier

M P C, 150 S. Harbor Blvd. Unit J, Santa Ana, CA 92704, Tel: 714-775-0211, FAX: 714-775-1674; Empl.: 25; *Sls. Mgr.:* Sam Granat

MPC, Div. of Consulting Systems, 638 Main St., Danville, NH 03819, Tel: 603-642-5913, FAX: 603-642-5913; *Sls. Mgr.:* W. Morse ..... **D•1911**

Local Distributors

TN	Knoxville, Indl. Elctrns.	615-573-7135

MP/CAPAR, Multi Products International, 250 Lackawanna Ave., P.O. Box 737, West Paterson, NJ 07424, Tel: 201-890-1344, FAX: 201-890-1677; *Sls. Mgr.:* Leroy Gray ..... **A•1107**

Local Sales Offices & Reps

AZ	Phoenix, JBS Assocs.	602-893-2382
CA	Mission Viejo, Jay Mktg. Assoc.	714-768-7519
CA	Santa Clara, Nova-Tronix, Inc.	408-727-0261
CO	Denver, Electrophase	303-296-0443
FL	Indian Rocks Bch., Electronic Mfrs. Agt.	813-596-5053
GA	Lawrenceville, Tek Rep Mktg.	404-963-1600
IL	Des Plaines, ESCO Assocs.	312-298-5310
IN	Frankfort, CS Elctrns. Sls.	317-659-1874
IA	Marion, MSB Assocs	319-377-6261
KS	Shawnee Mission, MSB Assocs.	913-432-2131
MA	Norwood, The MacInnis Co.	617-762-8090
MI	Lathrup Village, RC Nordstrom & Co.	313-559-7373
MN	St. Paul, Proud Inds.	612-646-9428
MO	St Charles, MSB Assocs.	314-967-5577
NY	Farmingdale, BDK Mktg., Inc.	516-694-5500
NY	Rochester, Ontec Elctrn. Mktg.	716-464-8636
OH	Dayton, KW Elctrn. Sls.	513-890-2152
OR	Tigard, Eltech Inc.	503-684-3458
PA	Collegeville, Beacon North	703-478-2480
TX	Irving/Dallas, AID Elctrns	214-790-4761
WA	Bellevue, Eltech Inc.	206-643-4330

Local Distributors

AL	Huntsville, Components Resources	205-533-2862
CA	Chatsworth, Passive Comps.	818-700-8838
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Huntington Beach, Capacitor Specialists	714-843-1815
CA	Irvine, Kelex Inc.	714-863-1230
CA	Sunnyvale, Capsco Sls.	408-734-3020
CT	Wallingford, Midstate Elctrns.	203-265-9900
FL	Ft. Lauderdale, NRC Elctrns.	305-772-4500
IL	Lisle, Components Inc.	312-852-7707
IN	Carmel, Altex Elctrns.	317-848-1323
MD	Gaithersberg, Axis Elctrns.	301-840-9640
MD	Spencerville, US Elctrns.	301-384-3300
MA	Bellrica, Baldwin Comps.	508-667-6710
MA	Tyngsboro, Port Elctrns.	508-649-4880
MI	Grand Rapids, RM Elctrns. Co.	616-531-9300
MN	New Brighton, Chris Elctrns.	612-631-2647
MN	New Brighton, Parts I	612-633-8079
NJ	Rockaway, Tonar Inds.	201-986-9000
NY	Bohemia, Key Components	516-567-7500
NY	Ronkonkoma, Baldwin Comps.	516-588-5700
OR	Portland, Radar Elec.	503-232-3404
OR	Tualatim, Moore Elctrns.	503-692-5333
PA	York, E C I	717-846-5334
PA	Bristol, Aim Elctrns.	215-785-3510
RI	Pawtucket, Major Edward Elctrns.	401-725-7400
TX	Ft. Worth, Allied Elctrns.	817-336-9168
TX	Richardson, GTT	214-437-4747
WA	Seattle, Radar Elctrns.	206-282-2511
WI	Grafton, Lakeview Elctrns.	414-377-8250
Can	Montreal, Prelco Elctrns.	514-389-8051
Can	St. Laurent, Que., ZEI Elctrns.	514-342-6211

MRL, Missouri Research Labs., 3800 West Clay, St. Charles, MO 63301, Tel: 314-946-6900, 1-800-325-0223, FAX: 314-946-2860; Empl.: 100; *Sls. Mgr.:* Virgil Beer

MSC AUTOMATION, Miller Sales Co., 1111 Old Rand Rd., Wauconda, IL 60084, Tel: 708-526-9200, 800-323-5294, FAX: 708-526-9206; Empl.: 23; *Sls. Mgr.:* Paula Bilinski; *Dist. Mgr.:* Lena Nilsson

FAX: 803-393-4123

MSD, INC., Magnecraft, 700 Orange St., Darlington, SC 29532, Tel: 803-393-5421; Empl.: 210; *Sls. Mgr.:* Bob Forbes ..... **B•1551-1556**

Local Sales Offices & Reps

AL	Huntsville, BCI	205-539-4411
AZ	Tuscon, Clemick	602-749-4003
CA	Mountain View, Bridge Mktg.	415-965-8045
CA	Torrance, MG Sls.	213-533-1808
CO	Englewood, CSI	303-779-8060
CT	Bloomfield, Zaslow Sls. Co.	203-242-7781
FL	Orlando, CDM	407-240-3903
GA	Chamblee, BCI	404-455-0405
IL	Downers Grove, Rockford Controls Co.	312-960-2046
KS	Olathe, Advanced Tech Sls.	913-782-8702
MA	Millis, Zaslow Sls.	508-393-8150
MD	Towson, Bresson	301-321-0326
MI	Southfield, L.H. Dickelman Co.	313-353-8210
MN	Edina, Dunlop	612-559-9693
MO	St. Louis, Advanced Tech. Sls.	314-878-2921
NJ	West Caldwell, GSA	201-575-9300
NH	Portsmouth, Zaslow	508-393-8150
NY	Buffalo, Zang Agency	716-877-3677
OR	Tigard, Eltech	503-684-3458
OH	Cincinnati, Stegman Blaine	513-729-1969
VA	Moneta, Bresson	804-525-7445
PA	Narberth, Bresson	215-664-6460
TN	Memphis, Lesley Assocs.	901-755-9492
TX	Richardson, Texoma	214-238-8127
WA	Bellevue, Eltech, Inc.	206-643-4330
UT	Midvale, CSI	801-561-5099
WI	Sun Prairie, Rockford Controls	608-837-3350

Local Distributors

AL	Birmingham, M G Elctrns.	205-328-4525
AL	Decatur, M-G Elctrns. & Equip.	205-355-6121
AL	Huntsville, Wyle Lab.	205-837-4411
AL	Montgomery, Southern Controls, Inc.	205-277-5030
AR	Little Rock, Carlton-Bates	901-755-1249
CA	Buena Park, Cypress Elctrns.	714-521-5230
CA	Hayward, Electro Comps. Inc.	415-783-5800
CA	Hayward, Western Electro Sls.	415-489-2211
CA	Los Angeles, Master Distrs.	213-452-1229
CA	Oakland, Brill Elctrs.	415-834-5888
CA	San Diego, Johnstone Supply	619-298-7168
CA	Santa Ana, Norstan Elctrns. Inc.	714-540-4165
CA	Woodland Hills, Cypress Elctrns., Inc.	818-710-7730
CO	Aurora, Comp. Specialties, Inc.	303-341-0160
CO	Denver, Newark-Denver Elctrns.	303-757-3351
CT	Wallingford, Sager Elec Supp. Co.	203-265-4600
CT	West Hartford, HESCO	203-236-6363
FL	Lakeland, A-A Elec. Inc	813-665-6941
FL	Orlando, T & T Prods., Inc.	407-857-2282
GA	Atlanta, Brownell-Electro, Inc.	404-762-5181
GA	Norcross, A-A Elec. Inc.	404-449-8670
IL	Bensenville, Voyager Elctrns.	312-860-1300
IL	Chicago, Newark Elctrns. Corp.	312-784-5100
IL	Hinsdale, Whiteco,Inc.	312-654-3326
IL	Peoria, Klaus Radio, Inc.	309-691-4840
IN	Ft. Wayne, Bell Inds., Inc.	219-423-3422
IA	Cedar Rapids, The Van Meter Co.	319-366-5301
KS	Kansas City, Kornfeld-Thorp Elec.	913-321-7070
LA	Baton Rouge, Menard Elctrns. Inc.	504-355-0323
MA	Harrahan, M-G Electrns. & Equip. Co.	504-733-0070
LA	Lafayette, Ralph's of Lafayette Inc.	318-233-0105
LA	Shreveport, Ind. Elctr. Supp.	318-222-9459
ME	lakeland Engrg. Equiq.	
MD	Baltimore, Whitney Distrs. Inc.	301-944-8080
MA	Springfield, T.F. Cushing Inc.	413-788-7341
MA	Woburn, Apparatus Svce. Co.	617-933-5999
MI	Battle Creek, Kendall Elec. Supp.	616-963-5585
MI	Oak Park, Newark-Detroit Elctrn.	313-967-0600
MI	Troy, Teal Elec. Co.	313-689-3000
MN	Fridley, Voyager Elctns. Corp.	612-571-7766
MN	Hibbing, Jasper Engnrg. & Equip.	218-262-3421
MO	Maryland Hgts., L Comp. Inc.	314-291-6200
NJ	Audubon, Universal Elctrns. Supp.	800-327-3529
NJ	E. Hanover, State Elctrn. Parts	201-887-2550
NJ	Oakland, Relay Specialties, Inc.	201-337-1000
NM	Albuquerque, Summit Elec. Supp.	505-884-4400
NY	Buffalo, L.A. Wooley Co.	716-821-1200
NY	Buffalo, Summit Dists.	716-887-2800
NY	Plainview, A.C.I. Elctrns.	516-293-6630
NY	Rochester, Requa Elec. Co.	716-475-1600
NY	Rome, Rome Elctrns., Inc.	315-337-5400
NY	Woodside, Switches Unlimited	718-478-5000
NC	Goldsboro, Shepherd Elec. Supp.	919-735-1701
OH	Akron, Aesco Elctrns., Inc.	216-762-8818
OH	Cincinnati, Hughes-Peters, Inc.	614-294-5351
OH	Cincinnati, Wesco	513-542-4300
OH	Columbus, E & M Equip.	614-236-0888
OH	Toledo, F.N. Cuthbert, Inc.	419-385-0881
OH	Warren, REM Elctrns.	216-373-1300
OK	Tusla, Radio, Inc.	918-587-9123
OR	Portland, Johnstone Supp., Inc.	503-231-4833
PA	McKean, Advacom Inc.	814-476-7774
PA	McKeesport, Barno Radio Co.	412-751-5966
PA	Murrysville, Wesco	412-733-6800
PA	Philadelphia, PEI/Genesis	215-673-0400
PA	St. Marys, B & R Elec. Co.	814-834-2814
PA	West Chester, West Chester Elec.	215-696-7500
PA	York, E.C.I. Inc.	717-846-5334
SC	Charleston, Cameron & Barkley Co.	803-745-2900
SC	Greenville, Emsco	803-233-4121
TN	Chattanooga, Electr. Motor Sls. & Supp.	615-899-1126
TN	Kingsport, WESCO	615-247-6190
TN	Nashville, Electra Distrbg. Co.	615-256-0800
TX	Dallas, Assocd. Aircraft	214-331-4381
TX	Dallas, Wholesale Elctr. Supp.	214-824-3001
TX	Fort Worth, Allied Elctrs.	817-595-3500
TX	Houston, Lenert Co.	713-225-1465
UT	Salt Lake City, Stuart Elec. Supp.	801-466-8603
WA	Redmond, EIL Insts. Inc.	206-882-3222
WV	Huntington, State Elec. Supp. Co.	304-523-7491
WV	South Charleston, Allied Controls Co.	304-768-7313
WI	Cedarburg, Automation Engrg.	414-377-7500
WI	Milwaukee, Marsh Elctrs.	414-475-6000
IA	Cedar Rapids, Advanced Tech. Sls.	319-393-8280

MSI ELECTRONICS, INC., 34-32 57th St., Woodside, NY 11377, Tel: 718-672-6500, TELEX: 426407, FAX: 718-397-0972; FSC No.: 18518; Empl.: 18; *Sls. Mgr.:* A. Lederman

M. SYSTEM TECHNOLOGY, INC., 15028 Beltway Dr., Dallas, TX 75244, Tel: 800-544-3181, FAX: 214-385-2299; Empl.: 10; *Sls. Mgr.:* Chuck Seifert

MTE CORP., W147 N 9525 Held Dr., Menomonee Falls, WI 53051, Tel: 414-253-8200, FAX: 414-253-8222; FSC No.: 5950; Empl.: 120; *Sls. Mgr.:* John Houdek; *Dist. Mgr.:* John Houdek

M-TEK, 2419 Smallman St., Pittsburgh, PA 15222, Tel: 800-245-5101 , 412-261-9030, TELEX: 812-569, FAX: 412-261-7220; FSC No.: 56452; Empl.: 20; *Sls. Mgr.:* John Hartnett

M-tron

FAX: 605-665-1709

M-TRON INDUSTRIES, P.O. Box 630, E. Hwy. 50, Yankton, SD 57078, Tel: 605-665-9321, TWX: 910-668-3603; FSC No.: 23875; Empl.: 150; *Sls. Mgr.:* Larry Barbary; *Dist. Mgr.:* Les Willman ..... **A•1408-1409**

Local Sales Offices & Reps

AL	Huntsville, Group 2000 Sls. Inc.	205-536-2000
AZ	Phoenix, Howe & Howe Sls., Inc.	602-264-7971
CA	Mountain View, Bridge Mktg.	415-965-8045
CA	Torrance, Universal Comps. Co.	213-783-0220
CO	Englewood, Comp. Sls; Inc.	303-779-8060
CT	Fairfield, Comptech/NRG Ltd.	203-384-1112
FL	Ft. Lauderdale, QXI of Florida Inc.	305-978-0120
FL	Melbourne, QXI of Fl., Inc.	407-723-4384
FL	Orlando, QXI of Florida Inc.	407-872-2321
FL	St. Petersburg, QXI of Florida Inc.	813-894-4556
GA	Norcross, Group 2000 Sls. Inc.	407-729-1889
IL	Arlington Hgts., KMA Sales	708-398-5300
IN	Ft. Wayne, Alpha Tech, Inc.	219-447-0040
MD	Columbia, Robert Electronic Sales	301-995-1900
MD	Hunt Valley, Eagle Sls. Corp.	301-666-3930
MA	Tyngsboro, Comptech, Inc.	508-649-3030
MI	Farmington Hills, Tritech Sales, Inc.	313-553-3370
MN	Edina, OHMS Technology Inc.	612-932-2920
NJ	E. Brunswick, Winch Sales Associates	201-613-1515

NJ Marlton, Naudain Associates, Inc. 609-983-5300
NY Farmingdale, Milgray Int'l 516-420-9800
NY Pittsford, James E. Zimmerman Sales 716-381-3186
NY Plainview, Winch Sales Associates ... 516-681-3163
NC Raleigh, Robert Electronic Sales 919-878-4465
NC Sapphire, Robert Electronics Sales ... 704-877-3280
OH Dayton, Lyons Corporation 513-278-0714
OH Richfield, Lyons Corporation 216-659-9224
OH Westerville, Lyons Corporation 614-895-1447
OR Portland, K-Tek Intl. Inc. 503-624-0315
TX Austin, Ram Electronics Sales, Inc. 512-250-5082
TX Houston, Ram Electronics Sales, Inc. 713-955-0768
TX Plano, Ram Electronic Sales, Inc. 214-424-4455
UT Midvale, Component Sales, Inc. 801-561-5099
WA Lynnwood, Quadra Sales 206-743-2633
WI Milwaukee, KMA Sales 414-259-1771
Can Burnaby, BC., Kaytronics 604-294-2000
Can Concord, Ont., Kaytronics 416-669-2262
Can Kantata, Ont., Kaytronics 613-564-0080
Can Ville St. Laurent, Que., Kaytronics 514-745-5800

Local Distributors

AL Huntsville, Bell Industries 205-837-1074
AL Huntsville, Pioneer Electronics 205-837-9300
AZ Phoenix, Sterling Electronics 602-437-5565
AZ Tempe, Acacia 602-894-2874
AZ Tempe, Bell Industries 602-966-7800
AR Little Rock, Carlton-Bates 501-562-9100
CA Agoura Hills, Bell Industries 818-706-2608
MA Auburn, Dove Electronics 508-832-2730
WI Brookfield, Pioneer 414-784-3480
CA Chatsworth, Sterling Electronics 818-407-8850
CA Cypress, Bell Industries 714-895-7801
CA Fremont, Acacia 415-623-7500
CA Gardena, Bell Industries 213-515-1800
CA Huntington, Wyle Kitting 714-373-9944
CA Irvine, Acacia 714-660-0834
CA Los Angeles, Bell Industries 213-826-6778
CA Rocklin, Bell Industries 916-652-0414
CA San Diego, Acacia 619-597-0577
CA San Diego, Bell Industries 619-268-1277
CA San Diego, Pyramid Electronics/Kent 619-271-5404
CA San Diego, Sterling Electronics 619-271-6555
CA San Jose, All American 403-943-1200
CA San Jose, Compass Components 408-432-7525
CA Santa Clara, Pyramid/Kent Elect. 408-727-9810
CA Sherman Oaks, DLDI 213-283-2058
CA Stanton, Inductive Comp/Crystal 714-828-3420
CA Sunnyvale, Bell Industries 408-745-0400
CA Sunnyvale, Bell Industries 408-734-8570
CA Torrance, All American 213-320-0240
CA Torrance, Pyramid/Kent Electronics .. 714-773-0781
CA Tustin, Sterling Electronics 714-259-0900
CO Englewood, Component Sales, Inc. ... 303-779-8060
CO Englewood, Sterling Electronics 303-792-3939
CO Lakewood, Acacia 303-232-2882
CO Wheatridge, Bell Industries 303-424-1985
CT E. Haven, J.V. Electronics 203-469-2321
CT Norwalk, Pioneer Electronics 203-853-1515
FL Altamonte Springs, Bell Industries 407-339-0078
FL Altamonte Springs, Pioneer 407-834-9090
FL Clearwater, All American 813-536-0445
FL Miami, All American 305-621-8282
CA Santa Fe Springs, Bell Industries 213-921-3611
GA Norcross, Bell Industries 404-662-0923
GA Norcross, Pioneer Electronics 404-623-1003
IL Addison, Pioneer Electronics 708-495-9680
IL Elk Grove Vl., Bell Industries 312-640-1910
IL Rosemont, Advent Electronics 708-297-6200
IL Schaumburg, Sterling Electronics 707-303-9900
IN Ft. Wayne, Bell Industries 219-423-3422
IN Indianapolis, Advent Electronics 317-872-4910
IN Indianapolis, Bell Industries 317-875-8200
IN Indianapolis, Pioneer Electronics 317-573-0880
IA Cedar Rapids, Advent Electronics 319-363-0221
IA Cedar Rapids, Bell Industries 319-395-0730
CA San Jose, Pioneer Technologies 408-954-9100
FL Sunrise, All American 305-572-7999
MD Baltimore, Resco Baltimore 301-931-8200
MD Beltsville, Resco/Washington 301-937-9100
MD Gaithersburg, Pioneer Electronics 301-921-0660
MA Andover, Bell Industries 508-474-8880
MA Billerica, A. W. Mayer Co. Inc. 508-229-2255
FL Clearwater, Pioneer/Tampa 813-536-0445
MA Lexington, Pioneer Electronics 617-861-9200
MD Rockville, All American 301-251-1205
MA Wakefield, All American 617-246-2300
MA Wilmington, J.V. Electronics 508-833-0700
MA Winchester, Bell Industries 617-729-5800
MI Ann Arbor, Bell Industries 313-347-6633
MI Farmington Hills, Advent Industries ... 313-477-1650
MI Grand Rapids, Pioneer Electronics 616-698-1800
MI Livonia, Pioneer Electronics 313-525-1800
MN Eden Prairie, All American 612-944-2151
MN Eden Prairie, Pioneer 612-944-3355
MN Hibbing, Minntech Electronics 218-262-5228
NJ Hopeland, Dove Electronics 201-324-7830
MN Minneapolis, Stark Electronics 612-332-1325
MO St Louis, Ric-tronics 314-997-0747
MO St. Louis, Pioneer Electronics 314-432-4350
NH Hudson, Bell Industries 603-882-1133
NH Nashua, Brevan Electronics 603-889-7230
NJ Fairfield, Pioneer Electronics 201-575-3510
NJ W. Berlin, GCI 609-768-6767
NM Albuquerque, Bell Industries 505-292-2700
NM Albuquerque, Sterling Electronics 505-884-1900
NJ Berlin, P.A.C. Electronics 609-768-5180
NY Binghamton, Pioneer Electronics 607-722-9300
NY Bohemia, Key Components Inc. 516-567-7500
NY Fairport/Rochester, Pioneer 716-381-7070
NY Farmingdale, Bell Industries 516-752-9303
NY Ronkonkoma, All American 516-981-3935
NY Ronkonoma, M-tron Components 516-467-5100
NY Stony Brook, Dove Electronics 516-689-7733
NY Woodbury, Pioneer Electronics 516-921-8700
NC Charlotte, Pioneer Electronics 704-527-8188
NC Durham, Pioneer Electronics 919-544-5400
NC Raleigh, Century Electronics 919-782-2116
NC Raleigh, Sterling 804-226-2190
OH Cleveland, Pioneer Electronics 216-587-3600
OH Dayton, Bell Inds. (Industrial) 513-435-8660
OH Dayton, Bell Inds. (Military) 513-434-8231
OH Dayton, Pioneer Electronics 513-236-9900
OK Oklahoma City, Radio Inc. 405-789-0741
OK Tulsa, Altair 918-252-5781
OK Tulsa, Radio Inc. 918-587-9123
OR Beaverton, Acacia 503-646-3377
OR Lake Oswego, Bell Industries 503-635-6500
NM Betatron, Albuquerque 505-821-1122
PA Horsham, Pioneer Electronics 215-674-4000
PA Norristown, Century Electronics 215-631-5400
PA Pittsburgh, Pioneer Electronics 412-782-2300
TX Austin, Altair 512-837-4970
TX Austin, Pioneer Electronics 512-835-4000
TX Dallas, Pioneer Electronics 214-386-7300
TX Ft. Worth, Carlton Bates 800-456-0314
TX Houston, Altair 713-462-3029
TX Houston, Pioneer Electronics 713-495-4700
TX Houston, Pyramid/Kent 713-978-5896
TX Houston, Sterling 713-627-9800
TX Richardson, Altair 214-231-5166
TX Richardson, Bell Industries 214-690-0466
UT Midvale, Bell Industries 801-255-9611
UT Salt Lake City, Standard Supply 801-486-3371
UT Salt Lake City, Sterling Electronics 801-972-5444
VA Herndon, Sterling Electronics 703-742-8400
VA Richmond, Sterling Electronics 804-226-2190
WA Redmond, Bell Industries 206-885-9963
WA Redmond, Priebe Electronics 206-881-2363
WA Redmond, Pyramid/Kent Electronics 206-883-7200
WA Redwood, Acacia 206-881-5566
WI Brookfield, Pioneer 414-784-3480
WI Milwaukee, Marsh Electronics 414-475-6000
TX Richardson, All American 214-231-5300
WI Waukesha, Bell Industries 414-547-8879
Can Burnaby, BC, ITT/R-A-E Ltd. 604-291-8866
Can Calgary, Alb., Electrosonic 403-255-9550
Can Calgary, AB, Cardinal Electronics Ltd. 306-934-3443
Can Calgary, AB, Zentronics 403-295-8838
Can Concord, Ont., ITT/R-A-E Ltd. 416-736-1144
Can Dartmouth, NS, ITT/R-A-E Ltd. 902-465-2350
Can Don Mills, Ont., Saynor Varah 416-445-0723
Can Edmonton, Alb., Zentronics 403-484-1669
Can Edmonton, ALB., Cardinal Electronics 403-483-6266
Can Mississauga, Ont., Zentronics 416-564-9600
Can Moncton, NB, ITT/R-A-E Ltd. 506-857-8011
Can Nepean, Ont., ITT/R-A-E Ltd. 613-596-6980
Can Nepean, Ont., Zentronics 613-226-8840
Can Ottawa, Ont., Electrosonic Inc. 613-728-8333
Can Richmond, B.C., Zentronics 604-273-5575
Can Richmond, BC, Electrosonic Inc. 604-273-2911
Can Saskatoon, SK, Cardinal Electronics Ltd. 306-934-3443
Can St. Foy,Que., Zentronics 418-654-1077
Can St. Laurent, Que., Zentronics 514-437-9700
Can St. Laurent, QB, ITT/R-A-E Ltd. 514-335-7697
Can Willowdale, Ont., Electrosonic Inc. 416-494-1666
Can Winnepeg, Man., Zentronics 204-694-1957
Can Winnipeg, Electrosonic Inc. 204-783-3105
Can Winnipeg, MN, ITT/R-A-E Ltd. 204-786-8401

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MUELLER ELEC. CO., 1583 E. 31st St., Cleveland, OH 44114, Tel: 216-771-5225, FAX: 216-771-3068; Empl.: 156; *Sls. Mgr.:* J. E. Wisneski

MULTI-AMP CORP., TBG, 4271 Bronze Way, Dallas, TX 75237, Tel: 214-333-3201, TELEX: 163548 MULAM DL, FAX: 214-333-3533; Empl.: 350; *Sls. Mgr.:* Hermann Michaeli

MULTICOMP., INC., 3005 S.W. 154th No. 3, Beaverton, OR 97006, Tel: 503-626-4200, FAX: 503-643-4889; Empl.: 150 ..... **A•1108, 2307**

Local Sales Offices & Reps

OR Portland, Intertech Sls. 503-775-7885

MULTI-CONTACT USA, 610 Davis St., Santa Rosa, CA 95401, Tel: 707-575-7575, FAX: 707-575-7573; *Sls. Mgr.:* Walter Roberts, Gen. Mgr.; *Dist. Mgr.:* Walter Roberts ..... **C•1475-1477**

Local Sales Offices & Reps

IL Chicago, Multi-Contact 312-286-1666

MULTICORE SOLDERS, 1751 Jay Ell Drive, Richardson, TX 75081, Tel: 214-238-1214; Empl.: 1000

MULTICORE SOLDERS, 400 Post Ave. Ste., 306, Westbury, NY 11590, Tel: 516-334-7997, FAX: 516-334-7098

MULTIPOWER, INC., Spectrum Electronics Corp., 3005 S.W. 154th Terrace No. 1, Beaverton, OR 97006, Tel: 503-646-4700, FAX: 503-643-4889; FSC No.: 75498; Empl.: 33 ..... **D•1912**

Local Sales Offices & Reps

OR Beaverton, MultiPower, Inc. 503-646-4700

MULTI PRODUCTS INTERNATIONAL, 250 Lackawanna Ave., West Paterson, NJ 07424, Tel: 201-890-1344, TELEX: 219289, FAX: 201-890-1677; Empl.: 28; *Sls. Mgr.:* LeRoy Gray ..... **A•2309; D•1913**

Local Sales Offices & Reps

AZ Phoenix, JBS Assocs. 602-893-2382
CA Mission Viejo, Jay Mktg. 714-768-7519
CA Santa Clara, Nova Tronix 408-727-9530
CA Westminster, West Elctrn. Sls. 714-898-0120,
CO Denver, Electrophase 303-296-0443
FL Longwood, Elctrn. Mfgs. Agt. 305-682-1202,
GA Lawrenceville, Tek Rep Mktg. 404-963-1600
IL Des Plaines, Esco Assocs. 312-298-5310
IN Frankfort, C-S Elctrns. Sls. 317-659-1874
KS Shawnee Mission, MSB Assocs. 913-432-2131
MD Sterling, Beacon North 703-478-2480
MA Norwood, Mac Innis Co. 617-762-8090
MI Lathrup Vl, R. C. Nordstrom & Co. 313-559-7373
MN St. Paul, Proud Inds. 612-646-9428
MO St. Charles, MSB Assocs. 314-967-5577
NJ Cedar Grove, Legtonics Assocs. 201-239-4098
NY Rochester, Ontec Elctrns. 714-464-8636
OH Dayton, K.W. Elctrn. 513-890-2150
PA Langhorne, Beacon North 703-478-2480
PA Pittsburgh, KW Elctrns. 412-366-9396
TX Dallas, AID Elctrns. 214-790-4761
WA Bellevue, Eltech 206-643-4330
Can Lachine, Bytewide Mktg. 514-636-4121

MULTISENS INC, 2633 Blv. Le Corbusier, Laval, Que., Canada H7S 2E8, Tel: 514-629-5646, FAX: 514-629-6801; Empl.: 20; *Sls. Mgr.:* Jean-Franqois Olivier

MULTI-TECH SYSTEMS, INC., 2205 Woodale Dr., Mounds View, MN 55112, Tel: 612-785-3500, 800-328-9717, FAX: 612-785-9874; Empl.: 210; *Sls. Mgr.:* Thomas Heimerman; *Dist. Mgr.:* Peter Hanlon/Jan Hubbard/Jim Stacklie

MUPAC CORP., Carlo Gavazzi Co., 10 Mupac Dr., Brockton, MA 02401, Tel: 508-588-6110, FAX: 508-588-0498; Empl.: 180; *Sls. Mgr.:* James L. Gallagher

FAX: 404-436-3030

MURATA ERIE NORTH AMERICA, INC., 2200 Lake Park Dr., Smyrna, GA 30080, Tel: 404-436-1300, TELEX: 54-2329, TWX: 810-766-1531; Empl.: 1800; *Sls. Mgr.:* Jack Driscoll; *Dist. Mgr.:* Kenneth O'Connor ..... **A•1109-1113, 1213, 1410-1415, 1696-1698, 1736-1738, 1820, 1957, 2058-2060; B•1323, 1853, 1922-1923; D•1045-1047**

Local Sales Offices & Reps

AL Madison, Jack Harvey & Assoc., Inc. .. 205-461-8591
AZ Scottsdale, Thom Luke Sls. 602-941-1901
CA Chatsworth, Murata Erie 818-701-9702
CA Fountain Valley, Bager Elctrns.,Inc. 714-957-3367
CA Los Altos, Recht Assocs. 415-964-6321
CA San Diego, CK Assocs. 619-279-0420
CA Tustin, Murata Erie 714-832-9972

CA Woodland Hills, Bager Elctrns., Inc. ... 818-712-0011
CO Boulder, Promotional Technlg. Corp. .. 303-447-2474
FL Deerfield Besch, Glen White Assocs. ... 305-570-8545
FL Maitland, Murata Erie ... 407-644-0954
FL Satellite Beach, Glen White Assoc. ... 407-773-3514
FL Tarpon Springs, Glen White Assoc. ... 813-938-7557
GA Norcross, Jack Harvey & Assocs. ... 404-449-4643
IL Park Ridge, Metcom Assoc. Corp. ... 708-696-1490
IN Carmel, Jack Harvey & Assocs., Inc. .. 317-575-4900
IN Kokomo, Jack Harvey & Assoc., Inc. .. 317-453-4260
IA Cedar Rapids, Stan.Clothier Co., Inc. .. 319-393-1576
KS Olathe, Stan Clothier Co., Inc. ... 913-829-0073
KY Prospect, Jack Harvey & Assoc., Inc. .. 502-228-4100
NY Ithaca, Technlg. Sls., Inc. ... 607-257-7070
MD Towson, Glen White Assoc. ... 301-321-7235
MD Towson, Murata Erie ... 301-494-0405
MA Wakefield, Murata Erie ... 617-245-7880
MI W. Bloomfield, Jack Harvey & Assoc., Inc. ... 313-737-9122
MN Eden Prairie, Stan Clothier Co., Inc. ... 612-944-3456
MO St. Charles, Stan Clothier Co., Inc. ... 314-928-8078
NJ Springfield, Radix, Inc. ... 201-467-4970
NY Fairport, Technology Sls., Inc. ... 716-223-7500
NY Ithaca, Technlg. Sls., Inc. ... 607-257-7070
NC Raleigh, Glen White Assoc. ... 919-848-1931
OH Dayton, KW Electrn. Sls., Inc. ... 513-890-2150
OH Shaker Hgts., KW Elctrn. Sls., Inc. ... 216-491-9177
OR Beaverton, Murata Erie ... 503-646-4973
OR Beaverton, Westmark Elec., Inc. ... 503-641-8780
PA Pittsburg, KW Elctrn. Sls., Inc. ... 412-366-9396
TN Knoxville, Jack Harvey & Assoc., Inc. ... 615-694-7541
TX Austin, RAM Elec. Sls., Inc. ... 512-345-2982
TX Houston, RAM Elec. Sls., Inc. ... 713-955-0768
TX Plano, RAM Elec. Sls., Inc. ... 214-424-4455
UT Midvale, Promotional Technlg. Corp. .. 801-566-8919
VA Lynchburg, Glen White Assocs. ... 804-385-6110
WA Bellevue, Westmark Elect., Inc. ... 206-454-1944
WI West Allis, Metcom Assoc. Corp. ... 414-476-1300
PR Hato Rey, Semtronic Assocs., Inc. ... 809-766-0700
Can Mississauga, Ont., Gidden Morton Assocs. ... 416-671-8111
Can Richmond, Ont., Gidden Morton Assocs. ... 613-838-4480
Can St. Laurent, Que., Gidden Morton Assocs. ... 514-335-9572

Local Distributors

AL Huntsville, Future Elctrns. ... 205-830-2322
AZ Phoenix, Future Elctrns. ... 602-968-7140
AZ Phoenix, Sterling Elctrns. ... 602-437-5565
AZ Tempe, Acacia Sls./Deanco ... 602-894-2874, 602-882-9054
AZ Tempe, Time Elctrns. ... 602-967-2000
CA Agoura Hills, Time Elctrns. ... 818-707-2890
CA Camarillo, Milgray Elctrns. ... 805-484-4055
CA Chatsworth, Future Elctrns. ... 818-772-6240
CA Chatsworth, Passive Technlg. ... 818-882-2277
CA Chatsworth, Sterling Elctrns. ... 818-407-8850
CA Chatsworth, Time Elctrns. ... 818-998-7200
CA Compton, Harper Sid ... 213-979-5090
CA Fremont, Acacia/Deanco ... 415-623-7500
CA Garden Grove, Natl. Elctrns. Corp. ... 800-854-2451
CA Inglewood, Newark Elctrns., Inc. ... 213-671-7377
CA Irvine, Acacia Sls./Deanco ... 213-971-2428, 714-660-0834
CA Irvine, Future Elctrns. ... 714-250-4141
CA San Diego, Acacia Sls./Deanco ... 619-565-4365
CA San Diego, Future Elctrns. ... 619-278-5020
CA San Diego, Sterling Elctrns. ... 619-271-6555
CA San Diego, Time Elctrns. ... 619-586-1331
CA San Jose, Future Elctrns. ... 408-434-1122
CA San Jose, Future Elctrns. ... 408-434-1114
CA San Jose, Passive Technlg. ... 408-435-5566
CA Sunnyvale, Capsco Sls., Inc. ... 408-734-3020
CA Sunnyvale, Time Elctrns. ... 408-734-9888
CA Torrance, Time Elctrns. ... 213-320-0880
CA Tustin, Sterling Elctrns. ... 714-259-0900
CA Tustin, Time Elctrns. ... 714-669-0100
CO Denver, Newark Elctrns. ... 303-757-3351
CO Englewood, Sterling Elctrns. ... 303-792-3939
CO Englewood, Time Elctrns. ... 303-799-8851
CO Lakewood, Acacia Sls./Deanco ... 303-232-2882
CO Westminister, Future Elctrns. ... 303-421-0123
CT Bethel, Future Elctrns. ... 203-743-9594
CT Milford, Milgray Elctrns. ... 203-878-5538
CT Wallingford, Cronin Elctrns. ... 203-265-3134
CT Wallingford, Sterling Elctrns. ... 203-265-9535
FL Altamonte Springs, Future Elctrns. ... 407-767-8414
FL Clear Water, Future Elctrns. ... 813-578-2770
FL Orlando, Time Elctrns. ... 407-841-6565
FL Winter Park, Milgray Elctrns. ... 407-647-5747
GA Augusta, Dixie Elctrns. ... 404-722-2055
GA Concord, Dixie Elctrns. ... 404-495-5916
GA Norcross, Future Elctrns. ... 404-441-7676
GA Norcross, Milgray Elctrns. ... 404-446-9777
GA Norcross, Time Elctrns. ... 404-448-4448
IL Arlington Hgts., Milgray Elctrns. ... 708-253-1212
IL Bensenville, Goold Elctrns. Corp. ... 708-860-7171
IL Chicago, Newark Elctrns. ... 312-784-5100
IL Rosemont, Advent Elctrns., Inc. ... 708-297-6200
IL Schaumburg, Future Elctrns. ... 708-882-1255
IL Schaumburg, Time Elctrns. ... 708-303-3000
IN Indianapolis, Advent Elctrns., Inc. ... 317-872-4910
IA Cedar Rapids, Advent Elctrns., Inc. ... 319-363-0221
KS Lenexa, Sterling Elctrns. ... 913-492-5406
KS Overland Park, Milgray Elctrns. ... 913-236-8800
MD Baltimore, Resco(Baltimore) ... 301-981-8200
MD Beltsville, Resco(Washington) ... 301-937-9100
MD Columbia, Future Elctrns. ... 301-290-0600
MD Columbia, Milgray Elctrns. ... 301-621-8169
MD Columbia, Sterling Elctrns. ... 301-290-3800
MD Columbia, Time Elctrns. ... 301-964-3090
MA Hopkinton, Interface Elctrns. Corp. ... 508-435-6858
MA Needham, Cronin Elctrns. ... 617-449-5000
MA Peabody, Time Elctrns. ... 508-532-9900
MA Westborough, Future Elctrns. ... 508-366-2400
MA Wilmington, Milgray Elctrns. ... 508-657-5900
MA Woburn, Sterling Elctrns. ... 617-938-6200
MI Farmington Hills, Advent Elctrns., Inc. ... 313-477-1650
MI Livonia, Future Elctrns. ... 313-261-5270
MI Oak Park, Newark Elctrns. ... 313-967-0600
MN Eden Prairie, Future Elctrns. ... 612-944-2200
MN Edina, Time Elctrns. ... 612-835-1250
MN Minneapolis, Aero Space Computer Supp. ... 612-884-4725
MN Minneapolis, Newark Elctrns. ... 612-331-6350
MN Minneapolis, Sterling Elctrns. ... 612-831-2666
MO St. Louis, Future Elctrns. ... 314-469-6805
MO St. Louis, Time Elctrns. ... 314-391-6444
NH Manchester, Cronin Elctrns. ... 603-624-0105
NJ Edison, Sterling Elctrns. ... 908-417-1000
NJ Maritan, Time Elctrns. ... 609-596-6700
NJ Mariton, Milgray Elctrns. ... 609-983-5010
NJ Mt. Laurel, Future Elctrns. ... 609-778-7600
NJ Parsippany, Future Elctrns. ... 201-299-0400
NJ Parsippany, Milgray Elctrns. ... 201-335-1766
NJ Pine Brook, Time Elctrns. ... 201-882-4611
NJ Rockaway, Tonar Inds. ... 201-586-9000
NM Albuquerque, Sterling Elctrns. ... 505-884-1900
NY E. Syracuse, Time Elctrns. ... 315-432-0355
NY Farmingdale, Milgray Elctrns. ... 516-420-9800
NY Hauppauge, Future Elctrns. ... 516-234-4000
NY Hauppauge, Time Elctrns. ... 516-273-0100
NY Liverpool, Future Elctrns. ... 315-451-2371
NY Rochester, Future Elctrns. ... 716-272-1120
NC Charlotte, Dixie Elctrns. ... 704-377-4338
NC Charlotte, Elctrn. Mktg. Corp. ... 704-394-6195
NC Charlotte, Time Elctrns. ... 704-522-7600
NC Oxford, Time Elctrns. ... 919-693-5166
NC Raleigh, Future Elctrns. ... 919-790-7111
NC Raleigh, Milgray Elctrns. ... 800-562-3118, 919-790-8094
OH Cleveland, Milgray Elctrns. ... 216-447-1520
OH Columbus, Elctrn. Mktg. Corp. ... 614-299-4161
OH Dublin, Time Elctrns. ... 614-761-1100
OH Highland Hgts., Elctrn. Mktg. Corp. ... 216-442-3441
OH Kettering, Elctrn. Mktg. Corp. ... 513-439-4711
OH Valleyview, Newark Elctrns. ... 216-447-8860
OK Tulsa, Sterling Elctrns. ... 918-663-2410
OR Beaverton, Acacia Sls./Deanco ... 503-646-3377
OR Beaverton, Future Elctrns. ... 503-645-9454
OR Portland, Time Elctrns. ... 503-684-3780
OR Tualatin, Moore Elctrns. ... 503-692-5333
PA Malvern, Interface Elctrns. ... 215-889-2060
SC Columbia, Dixie Elctrns. ... 803-779-5332
SC Greenville, Dixie Elctrns. ... 803-297-1430
SC N. Charleston, Dixie Elctrns. ... 803-552-2671
TN Gray, Dixie Elctrns. ... 615-477-2131
TN Oak Ridge, Dixie Elctrns. ... 615-481-3393
TX Austin, Sterling Elctrns. ... 512-836-1341
TX Austin, Time Elctrns. ... 512-339-3051
TX Carrollton, Sterling Elctrns. ... 214-243-1600
TX Dallas, Milgray Elctrns. ... 214-248-1603
TX Garland, Newark Elctrns. ... 214-487-8144
TX Houston, Newark Elctrns. ... 713-270-4800
TX Houston, Sterling Elctrns. ... 713-623-6600
TX Irving, Harper Sid ... 214-621-0500
TX Richardson, Future Elctrns. ... 214-437-2437
TX Richardson, Time Elctrns. ... 214-644-4644
UT Salt Lake City, Future Elctrns. ... 801-972-8489
UT Salt Lake City, Milgray Elctrns. ... 801-272-4999
UT Salt Lake City, Sterling Elctrns. ... 801-972-5444
UT Salt Lake City, Time Elctrns. ... 801-973-8181
VA Richmond, Sterling Elctrns. ... 804-226-2190
WA Redmond, Acacia/Deanco ... 206-881-5566
WA Redmond, Future Elctrns. ... 206-881-8199
WA Redmond, Time Elctrns. ... 206-882-1600
WI Mequon, Taylor Elec. Co., Inc. ... 414-241-4321
WI Yaukesha, Future Elctrns. ... 414-786-1884
Can Alberta, AB Calgary, Zentronics ... 403-295-8838
Can Downsview, Ont., Future Elctrns. ... 416-638-4771
Can Edmonton, AB, Zentronics ... 403-484-1669
Can Manitoba-Winnipeg, MB, Zentronics ... 204-694-1957
Can Mississauga, Ont., Time Elctrns. ... 416-672-5300
Can Mississauga, Ont., Zentronics ... 416-564-9600
Can Montreal,PA, Future Elctrns. ... 514-694-7710
Can Nepean, Ont., Carsten ... 613-726-9250
Can Nepean, Ont., Zentronics ... 613-226-8840
Can Ottawa, Ont., Future Elctrns. ... 613-820-8313
Can Scarborough, Ont., Carsten ... 416-495-9999
Can St. Foy, Que., Zentronics ... 418-654-1077
Can St. Laurent, Zentronics ... 514-737-9700
Can St. Laurent, PQ, Carsten ... 514-334-8321
Can St. Laurent, PQ, Toner Industries ... 514-286-4061
Can Vancouver, BC, Future Elctrns. ... 604-294-1166
Can Vancouver, BC, Zentronics ... 604-273-5575
Can Willowdale, Ont., Milgray Elctrns./Toronto ... 416-756-4481

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MWS WIRE INDUSTRIES, 31200 Cedar Valley Dr., Westlake Village, CA 91362, Tel: 818-991-8553; FSC No.: 51668; Empl.: 65; *Sls. Mgr.:* Greg Fancon ... **C•1772-1775**

H. WM. MYERS & ASSOCS., 361 Virginia St., Crystal Lake, IL 60014, Tel: 815-459-0100; Empl.: 5; *Sls. Mgr.:* L. Peter Baenziger

NAMCO CONTROLS, An Acme-Cleveland Co., 7567 Tyler Blvd., Mentor, OH 44060, Tel: 216-946-9900, TELEX: 24-1566, FAX: 216-946-1228; Empl.: 200; *Sls. Mgr.:* Jon Slayburgh, Pres., Gen. Mgr.

NAMIKI, Precision of America, Inc., 201 West Passaic St., Rochelle Park, NJ 07662, Tel: 201-368-0123, FAX: 201-368-2244; FSC No.: 201-343-3172

NANO PULSE INDUSTRIES, 440 Nibus St., Brea, CA 92670, Tel: 714-529-2600, FAX: 714-671-7919; FSC No.: 57222; Empl.: 250; *Sls. Mgr.:* Michael J. Schubert

NATEL

FAX: 805-584-4357

NATEL ENGINEERING CO., INC., 4550 Runway St., Simi Valley, CA 93063-3449, Tel: 805-581-3950, TWX: 910-494-1959; Empl.: 170; *Sls. Mgr.:* Tom Guerriere ... **D•1186-1187**

Local Sales Offices & Reps

AL Huntsville, Saber Assocs. ... 800-327-0853
CA Solana Bch., Cerco ... 619-792-5555
CO Parker, Howard Assocs. ... 303-841-5755
IL Itasco, Beta Technlg. Sls., Inc. ... 708-250-9586
IA Cedar Rapids, Midwest Tech. Sls., Inc. ... 319-393-5115
KS Goddard, Midwest Tech. Sls., Inc. ... 316-794-8565
KS Lenexa, Midwest Tech. Sls., Inc. ... 913-888-5100
MD Eldersburg, Natel Engrg. Co., Inc. ... 301-795-1115
MA Topsfield, Natel Engrg. Co., Inc. ... 508-887-7939
MO Earth City, Midwest Tech. Sls., Inc. ... 314-298-8787
NY Bohemia, Natel Engrg. Co., Inc. ... 516-563-4911

OH Dayton, Rixan Assocs., Inc. 513-222-0011
OH Stow, Rixan Assocs., Inc. 216-686-2909
TX Houston, Lear Assocs. 713-488-7893
TX Richardson, Lear Assocs. 214-231-5388
WA Mercer Island, Eagle Entprs., Inc. 206-232-7401
WI Milwaukee, Beta Technlg. Sls., Inc. 414-543-6609

NATIONAL ELECTRONICS CORP., 11731 Markon Dr., Garden Grove, CA 92641, Tel: 714-892-7749, 800-854-2451, FAX: 714-898-6769; Empl.: 50

NATIONAL CONTROLS CORP., 1725 Western Dr., W. Chicago, IL 60185, Tel: 312-231-5900, FAX: 312-231-1377; Empl.: 250; *Dist. Mgr.:* Cy Pfeifer

NATIONAL INFORMATION SYSTEMS, INC., 4040 Moorpark Ave., San Jose, CA 95117-1852, Tel: 408-985-7100, 800-441-5758, FAX: 408-246-3127; Empl.: 50

NATIONAL INSTRUMENTS®
The Software is the Instrument™

FAX: 512-794-8411

NATIONAL INSTRUMENTS CORP., 6504 Bridge Point Pkwy., Austin, TX 78730-5039, Tel: 512-794-0100, TELEX: 756737 Nat Inst Aus; Empl.: 3000; *Sls. Mgr.:* Melodie Summersett, Natl. Sls. Mgr.
..... **D•1124, 1188-1189, 1296-1297**

Local Sales Offices & Reps
CA Milpitas, Natl. Instrs. 408-453-3120
CO Colorado Springs, Natl. Instrs. 719-542-2815
GA Marietta, Natl. Instrs. 404-499-0505
IL Oak Brook, Natl. Instrs. 708-574-0050
MA Boston, Natl. Instrs. 617-938-8508
MA Norwell, Natl. Instrs. 617-659-9444
MN Shoreview, Natl. Instrs. 612-482-9930
NJ Rutherford, Natl. Instrs. 201-460-7883
NY Levittown, Natl. Instrs. 516-822-3074
OH Mogadore, Natl. Instrs. 216-325-3156
TX Richardson, Natl. Instrs. 214-699-7474
VA Herndon, Natl. Instrs. 703-709-9874

Local Distributors
CA Riverside, Innovation Products., Inc. ... 714-682-8506
WA Woodenville, Team, Inc. 206-485-1111
Can Mississauga, Ont., Allan Crawford Assocs. 416-890-2010

NATIONAL LAMINATION CO., National Material Ltd., 555 Santa Rosa Dr., Des Plaines, IL 60018, Tel: 708-298-7676, FAX: 708-635-8624; Empl.: 210

NATIONAL MANUFACTURING CO., INC., 12 River Rd., Chatham, NJ 07928, Tel: 201-635-8846, FAX: 201-635-7810; Empl.: 150; *Sls. Mgr.:* Otto Stahl, Jr.

NATIONAL MICRONETICS, 71 Smith Ave., Kingston, NY 12401, Tel: 914-338-0333, TWX: 510-247-8046, FAX: 914-338-0377; Empl.: 700; *Sls. Mgr.:* Richard Carlton

NATIONAL POWER TECHNLG., See Intelligence Power Technology

NATIONAL SEMICONDUCTOR, 2900 Semiconductor Dr., Santa Clara, CA 95052, Tel: 408-721-2641, FAX: 408-245-9655; Empl.: 30,000

NATIONAL SEMICONDUCTORS, LTD., See Silonex Inc.

NATIONAL-STANDARD CO., 1618 Terminal Rd., Niles, MI 49120, Tel: 616-683-8100, TELEX: 295187, FAX: 616-683-6249; Empl.: 2800; *Sls. Mgr.:* A. Osos; *Dist. Mgr.:* D. M. Wedsworth

NATIONAL TELEPHONE & ELECTRONICS INC., 2350 N.W. 96 Avenue, Miami, FL 33172, Tel: 305-592-0551, FAX: 305-599-0948; Empl.: 50

FAX: 213-225-4630

NATIONAL WIRE & CABLE CORP., 136 San Fernando Rd., Los Angeles, CA 90031-1780, Tel: 213-225-5611, TELEX: 181409, TWX: 910-321-4155; FSC No.: 04569; Empl.: 225 ..... **C•1704, 1776-1797**

Local Sales Offices & Reps
AZ Mesa, System Sls. 602-464-9989
AR Cotter, P.M.I. Sls. Co. 501-430-5525
CA San Diego, C.K. Sales 619-279-0420
CA Santa Clara, Ross Mktg. 408-988-8111
CO Arvada, Arrowhead/CSI Sls. 303-423-5597
FL Altamonte Springs, Gugel Assocs. 407-788-0845
GA Lawrenceville, Tek-Rep Mktg. 404-963-1600
HI Hilo, Kirco Corp. 808-959-3888
IL Northfield, H. S. Tollaksen 708-441-6644
MD Glen Burnie, Faion Lott 301-744-4611
MA Norwood, Tom Maguire Assocs., Inc. .. 617-551-0500
MI Farmington Hills, Luebbe Sls. 313-489-8828
MN Minnetonka, Producton Automation ... 612-935-1414
MO St. Louis, P.M.I. Sls. Co. 314-963-0001
NJ Wayne, GT Assoc. 201-694-6040
NY Sodus, S.W. Woolard 315-655-8145
OH Cincinnati, Luebbe Sls. 513-530-0600
OH Dayton, Luebbe Sls. 513-294-0426
OH Westlake, Luebbe Sls. 216-899-0071
PA Hatboro, Jacobsen Assocs. 215-674-2937
PA Pittsburgh, Luebbe Sls. Co. 412-364-0490
TX Ft. Worth, Tesco, Inc. 214-553-1200
WA Redmond, Halbar Assocs. 206-882-0990

NATIONWIDE ELECTRONIC SYSTEMS, See Weschler/NES Instruments

NAUGLER ENGINEERING, INC., Off Dunham Rd., Beverly, MA 01915, Tel: 617-922-5634, FAX: 617-468-1272; FSC No.: 05222; Empl.: 10; *Sls. Mgr.:* Kristen N. Bonnette

NAVAN CORPORATION, 20 West Front Street, Media, PA 19063, Tel: 215-543-8066, FAX: 215-543-2151; FSC No.: 6695; Empl.: 6; *Sls. Mgr.:* Howland St. Clair

NAZ-DAR/K.C., Thrall Enterprises, 1087 N. Branch St., Chicago, IL 60622, Tel: 312-943-8338, FAX: 312-943-8215; Empl.: 53; *Sls. Mgr.:* Kent Schnese; *Dist. Mgr.:* Kent Schnese

NCE:NATIONAL CUSTOM ENTERPRISES, INC., 400 Gateway Blvd., Burnsville, MN 55337-2559, Tel: 612-890-1360, FAX: 612-890-1014; FSC No.: 1FS75; Empl.: 25; *Sls. Mgr.:* J. A. Carlson

NCGI/STRUTHERS-DUNN, INC., INDUSTRIAL/COMMERICAL RELAYS, See MSD, Div. of Magnecraft

NCI, 6438 University Drive, Huntsville, AL 35806, Tel: 205-837-6667, FAX: 205-837-5221; Empl.: 8; *Sls. Mgr.:* Hal Newcomb; *Dist. Mgr.:* David Newcomb

NCR COMTEN, INC., NCR Corp., 2700 Snelling Avenue N., St. Paul, MN 55113, Tel: 612-638-7777, TELEX: 6879018 Comten, FAX: 612-638-8573; FSC No.: 7025-0010; Empl.: 1000; *Sls. Mgr.:* Gerry Fisher; *Dist. Mgr.:* Gerry Fisher

NCR POWER SYSTEMS, 3200 Lake Emma Rd., Lake Mary, FL 32746, Tel: 407-323-9250, FAX: 407-333-8312; Empl.: 156; *Sls. Mgr.:* Rick Ullinger

NDK

FAX: 415-623-6590

NDK AMERICA, INC., 47671 Westinghouse Dr., Fremont, CA 94539, Tel: 415-623-6500; Empl.: 28; *Sls. Mgr.:* Mike Kurihara, VP ..... **A•1416-1423**

Local Sales Offices & Reps
AL Huntsville, Elctrn. Mktg. Assoc. 205-880-8050
AZ Scottsdale, Carefree 602-951-9121
TX Dallas, SW Tech. 214-369-0977
CA Irvine, Quad-Rep South, Inc. 714-727-4222
CA Orangevalle, I Square, Inc. 916-989-0843
CA San Diego, Quad-Rep. 619-560-8330
CA Santa Clara, I Square, Inc. 408-988-3400
CO Englewood, CSI 303-779-8060
CT Woodbury, Anacon 203-266-0707
DE Medford, Jack McCoy 609-953-0770
GA Atlanta, Elctrn. Mktg. Assoc. 404-448-1215
ID Boise, Intermountain Tech. 208-888-6071
IL Chicago, M. Gottlieb & Assocs. 312-775-1151
IN Carmel, Fred A. Dorsey & Assocs. 317-844-4842
IA Davenport, Rush & West Assocs. 319-388-9494
KS Olathe, Rush & West Assocs. 913-764-2700
MD Annapolis, E.E.S Assoc. 301-269-4234
MA Burlington, Anacon Sls. Assocs., Inc. .. 617-272-9080
MI Grand Rapids, Miltimore Sls. 616-942-9721
MI Novi, Miltimore Sls. 313-349-0260
MO St. Louis, Rush & West Assocs. 314-965-3322
MT Boise, Inter-Mtn. Tech. 208-888-6071
NE Davenport, Rush & West 319-388-9494
NV Santa Clara, I Squared 408-988-3400
NY Syracuse, Rep Tech., Inc. 315-437-2845
NJ Fairfield, Tech. Applications & Mktg. ... 201-575-4130
NJ Medford, Jack McCoy, Inc. 609-953-0770
NM Albuquerque, Nelco Elctrns. 503-293-1399
NY Fairfield, TAM 201-575-4130
NC Raleigh, Elctrn. Mktg. Assoc. 919-847-8800
OH Cincinnati, Makin Assocs. 513-871-2424
OH Columbus, Makin Assocs. 614-848-5424
OH Solon, Makin Assocs. 216-248-7370
OR Tigard, Comps. West 503-684-1671
PA Medford, Jack McCoy, Inc. 609-953-0770
PA Solon, Makin Assocs. 216-248-7370
SC Greenville, Elctrn. Mktg. Assoc. 803-233-4637
TX Austin, Southwestern Tech. Sls. 512-440-0499
TX Dallas, Southwestern Tech. Sls. 214-369-0977
TX Houston, Southwestern Tech. Sls. 713-440-9200
UT Boise, Inter-Mtn Tech. 208-888-6071
VT Wilmington, Anacon 617-270-3712
WA Redmond, Comps. West 206-885-5880
WI Chicago, M. Gottlieb Assocs. 312-775-1151

Local Distributors
AL Huntsville, Lex Elec. 205-895-0480
AL Huntsville, Time Elctrns. 214-721-1134
AZ Tempe, Lex Elec. 602-431-0030
AZ Tempe, Time Elctrns. 602-967-2000
CA Calabassas, Lex Elec. 818-880-9686
CA Chatsworth, Time Elctrns. 818-988-7200
CA Irvine, Lex Elec. 714-987-0404
CA San Diego, Time Elctrns. 619-986-0129
CA San Jose, Lex Elec. 408-432-7171
CA Sunnyvale, Time Elctrns. 408-734-9888
CA Torrance, Time Elctrns. 213-320-0880
CO Englewood, Lex Elec. 303-799-0258
CO Englewood, Time Elctrns. 303-721-8882
CT Danbury, Lex Elec. 203-264-4700
FL Deerfield, Lex Elec. 305-977-7511
FL Ft. Lauderdale, Time Elctrns. 305-484-7778
GA Norcross, Lex Elec. 404-449-9170
GA Norcross, Time Elctrns. 404-448-4488
IL Schaumburg, Lex Elec. 708-330-2888
IL Wood Dale, Time Elctrns. 312-350-0610
KS Overland Pk., Lex Elec. 913-492-2922
MD Columbia, Lex Elec. 301-996-7800
MD Columbia, Time Elctrns. 301-964-3090
MA Peabody, Time Elctrns. 508-532-9900
MA Wilmington, Lex Elec. 508-694-0962
MI Livonia, Lex Elec. 313-525-8100
MN Eden Prairie, Lex Elec. 612-941-5280
MN Edina, Time Elctrns. 612-943-2433
MO Manchester, Lex Elec. 314-391-6444
MO St. Louis, Time Elctrns. 314-391-6444
NH Manchester, Lex Elec. 603-625-2250
NJ Marlton, Time Elctrns. 609-996-6700
NJ Pinebrook, Lex Elec. 201-227-7880
NY E. Syracuse, Time Elctrns. 315-432-0355
NY Hauppauge, Lex Elec. 516-231-2900
NY Hauppauge, Time Elctrns. 516-434-3344
NY Rochester, Lex Elec. 716-424-2222
NY Westbury, Lex Elec. 516-876-4000
NC Raleigh, Lex Elec. 919-876-0000
NC Raleigh, Time Elctrns. 919-847-9650
OH Beachwood, Lex Elec. 216-464-2970
OH Columbus, Time Elctrns. 614-794-3309
OH Dayton, Lex Elec. 513-439-1800
OK Tulsa, Lex Elec. 918-622-8000
OR Portland, Time Elctrns. 503-684-3782
PA Pittsburgh, Lex Elec. 412-963-6804
TX Austin, Lex Elec. 512-339-3051
TX Austin, Time Elctrns. 512-346-7346
TX Dallas, Lex Elec. 214-247-6300
TX Houston, Lex Elec. 713-784-3600
UT West Valley City, Time Elctrns. 801-973-8494
WA Kirkland, Time Elctrns. 206-820-1525
WI New Berlin, Lex Elec. 414-784-9451
Can Ontario, Time Elctrns. 416-672-5300

NEC

FAX: 415-965-6272

NEC ELECTRONICS, INC., 401 Ellis Street, P.O. Box 7241, Mountain View, CA 94039, Tel: 415-960-6000, TWX: 910-379-6985; Empl.: 1200; *Sls. Mgr.:* Mike Despotes, Sls. V.P.; *Dist. Mgr.:* Michael Kelly ..... **A•1115-1119; B•1100-1102, 1324-1332, 1558-1564**

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-772-9999
AZ	Phoenix, Oasis Sls., Inc.	602-277-2714
CA	Cardiff, Mission Technlg.	619-753-5092
CA	Mtn. View, NEC Elctrns.	415-965-6000
CA	San Jose, Exis	408-456-1650
CA	Santa Ana, NEC Elctrns.	714-546-0501
CO	Aurora, NEC Elctrns.	303-755-6353
CO	Boulder, Promotional Technlg.	303-447-2474
CO	Parker, Promotional Technlg.	303-841-4664
CT	Cheshire, Datatrack Engrg., Inc.	203-271-1311
FL	Altamonte Springs, V.G. Sls., Inc.	407-831-8688
FL	Ft. Lauderdale, V.G. Sls. Inc.	305-938-4333
FL	Largo, V.G. Sls. Co., Inc.	813-536-7787
FL	Maitland, NEC Elctrns.	407-875-1145
GA	Norcross, NEC Elctrns.	404-447-4409
GA	Norcross, 20th Century Mktg. Inc.	404-446-1999
IL	Arlington Hgts., NEC Elctrns.	312-577-9090
IL	Schaumburg, Martan Inc.	312-303-5660
IN	Carmel, Technlg. Mktg. Corp.	317-844-8462
IN	Ft. Wayne, Technlg. Mktg. Corp.	219-432-5553
IA	Cedar Rapids, Stan Clothier Co.	319-393-1576
KS	Overland Pk., AME Sls.	913-492-3971
KY	Louisville, Technlg. Mktg. Corp.	502-893-1377
MD	Glen Burnie, TRI-MARK Inc.	301-761-6000
MA	Natick, NEC Elctrns.	508-650-4100
MA	Woburn, Compass Technlg.	617-933-3336
MI	Grand Rapids, Miltimore Sls.	616-942-9721
MI	Novi, Miltimore Sls.	313-349-0260
MI	Troy, NEC Elctrns.	313-680-0506
MN	Bloomington, NEC Elctrns.	612-854-4443
MN	Minneapolis, Stan Clothier Co.	612-944-3456
MO	St. Charles, AME Sls.	314-928-2599
NJ	Bellmawr, TAI Corp.	609-778-5353
NJ	Saddle Brook, Metro Logic Corp.	201-575-5585
NY	Fishkill, NEC Elctrns.	914-897-2101
NY	Melville, NEC Elctrns.	516-753-7526
NY	Pittsford, Elcom Sls.	716-385-1400
NY	Skaneateles, Elcom Sls.	315-685-8245
NC	Charlotte, Quantum Mktg. Inc.	704-523-8822
NC	Durham, NEC Elctrns.	919-544-4132
NC	Raleigh, Quantum Mktg. Inc.	919-846-5728
OH	Columbus, NEC Elctrns.	614-436-1778
OH	Pepper Pike, NEC Elctrns.	216-831-0067
OR	Portland, Venture Elctrns.	503-624-0617
OR	Tigard, NEC Elctrns.	503-671-0177
PA	Allentown, NEC Elctrns.	215-391-9094
TX	Austin, TL Mktg., Inc.	512-837-7272
TX	Dallas, NEC Elctrns.	214-931-0641
TX	Dallas, TL Mktg., Inc.	214-484-6800
TX	Houston, NEC Elctrns.	713-955-2191
TX	Houston, TL Mktg., Inc.	713-589-2763
UT	Midvale, Promotional Technlg. Corp.	801-566-8919
WA	Bellevue, Venture Elctrns.	206-454-4594
WI	Mequon, Martan Inc.	414-241-4955
PR	Mayaguez, V. G. Sls. Co., Inc.	809-831-4150
Can	Concord, Ont., Kaytronics	416-669-2262
Can	Kanata, Ont., Kaytronics	613-592-6606
Can	Surrey, BC, Kaytronics Western	604-294-2000
Can	Ville St-Laurent, Que., Kaytronics	514-745-5800

NEARFIELD SYSTEMS, INC., 1330 E. 223rd St. 524, Carson, CA 90745, Tel: 213-518-4277, FAX: 213-518-4279; Empl.: 6

NECOA, INC., Nittoku Engineering Group, 9321A Philadelphia Rd., Baltimore, MD 21237, Tel: 301-574-4960, FAX: 301-574-7083; *Sls. Mgr.:* Larry Whyte

NEC TECHNOLOGIES, INC., 1414 Massachusetts Ave., Boxborough, MA 01719, Tel: 508-264-8000, TELEX: 910-997-0594; Empl.: 2700; *Sls. Mgr.:* Richard Gilbert/Jim Gregg

NEDAP N.V., P.O. Box 6, Groenlo, Holland 7140 AA, Tel: 0315440-71111, TELEX: 44253, FAX: 0315440.62745; Empl.: 420; *Sls. Mgr.:* W. Bonnemeier

NEDCO ELECTRONICS, INC., 8246 LeHigh, Morton Grove, IL 60053, Tel: 312-967-0500, FAX: 312-967-0505; Empl.: 10

NEEDHAM'S ELECTRONICS, 4539 Orange Grove Ave., Sacto, CA 95841, Tel: 916-924-8037, FAX: 916-972-9960; Empl.: 5

NEFF INSTR., 700 S. Myrtle Ave., Monrovia, CA 91016, Tel: 818-357-2281, TWX: 910-585-1833, FAX: 818-303-2286; Empl.: 125; *Sls. Mgr.:* Louis P. Lang

NEL FREQUENCY CONTROLS, INC., 357 Beloit St., Burlington, WI 53105, Tel: 414-763-3591, FAX: 414-763-2881; FSC No.: 00815; Empl.: 160; *Sls. Mgr.:* Dick Griebel, VP Sls. & Mktg.; *Dist. Mgr.:* Boyd Recknagel ... **A•1425**

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-772-9999
FL	Valrico, Richmar Elctrns.	813-654-8032
CA	Burlingame, Wm. J. Purdy Co.	415-347-7701
CA	Westlake Vlg., Elkin & Assoc.	818-597-1075
CO	Parker, A5 Co.	303-841-3651
FL	Orlando, Richmar Elctrns.	407-352-3755
GA	Norcross, 20th Century Mktg.	404-446-1999
IL	Downers Grove, Richmar Elctrns.	708-968-0118
IN	Indianapolis, Richmar Elctrns.	317-577-9950
IA	Iowa City, Richmar Elctrns.	319-354-8894
MI	Adrian, Elctrn. Salesmasters	517-263-2500
MI	Wixom, Elctrn. Salesmasters	313-669-0015
NH	Nashua, Bell Controls	603-882-6984
NY	Glen Cove, DynoRep	516-676-1598
NJ	Medford, Champion Elctrn. Sls. Assoc.	609-983-0932
NJ	Somerville, DynoRep	201-874-4670
NY	Attica, PSR Co.	716-591-1219
NY	Auburn, PSR Co.	315-253-4109
NY	Endicott, PSR Co.	607-754-7846
NY	Port Jefferson Sta., DynoRep	516-928-5135
NC	Raleigh, 20th Century Mktg.	919-790-9383
OH	Beechwood, Elctrn. Salesmasters	216-831-9555
OR	Tigard, RTS, Inc.	503-244-4123
TX	Plano, Richmar Elctrns.	214-424-8388
TX	Round Rock, Richmar Elctrns.	512-255-2551
WA	Edmonds, RTS Inc.	206-745-5445
WA	Vashon, RTS, Inc.	206-285-1363
WI	Butler, Richmar Elctrns.	414-781-1730
EXP	San Juan, Puerto Rico, Elctrn. Tech. Sls.	809-798-1300

Local Distributors

AZ	Tempe, Time Elctrns.	602-967-2000
CA	Chatsworth, Time Elctrns.	818-998-7200
MA	Auburn, Dove Elctrns.	508-832-2730
CA	Canoga Pk., Tim-Co Sls.	818-992-5040
CA	Irvine, Integrated Elctrns.	714-837-9960
NH	Manchester, Glynn Elctrns.	603-622-8131
CA	Milpitas, Sierra West	408-945-1050
MN	New Brighton, Chris Elctrns.	800-356-6599
CA	Sacramento, Integrated Elctrns.	916-363-6030
CA	San Jose, All American	408-943-1200
CA	San Jose, Integrated Elctrns.	408-435-1000
CA	Sunnyvale, Target	408-733-0384
CA	Torrance, All American	800-669-8300
CA	Torrance, Time Elctrns.	213-320-0880
CA	Tustin, Time Elctrns.	714-669-0100
CA	Van Nuys, C. W. Swift	818-989-1133
CA	Westlake Village, Sertek	818-707-2872
CA	Yorba Linda, Target Elctrns.	714-692-1630
CO	Denver, Integrated Elctrns.	303-292-6121
CT	Yalesville, Glynn	203-265-2498
FL	Miami, All American	305-621-8282
FL	Sunrise, All American	800-327-6237
IL	Hoffman Estates, Integrated Elctrns.	708-843-2040
IL	Lisle, Components Inc.	312-852-7707
IL	Northbrook, Classic Comps.	708-272-9650
IL	Rosemont, Advent	800-323-1270
IN	Indianapolis, Advent	317-872-4910
IA	Cedar Rapids, Advent	319-363-0221
MD	Jessup, Treeko Elctrns.	301-792-0112
MD	Rockville, All American	800-426-0420
MA	Billerica, Mayer Elctrns.	617-229-2255
MA	Middleboro, Glynn Elctrns.	800-225-8684
MA	Wakefield, All American	800-874-2834
MI	Farmington Hills, Advent	313-477-1650
MN	Eden Prairie, All American	612-944-2151
MN	Minneapolis, Bergquist	612-835-2322
NJ	Hopelawn, Dove Elctrns.	908-324-7830
NY	Buffalo, Genesee Indl.	716-873-9661
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Ronkonkoma, All American	800-874-2830
NY	Stony Brook, Dove Elctrns.	516-689-7733
OH	Englewood, Argent	513-836-8633
OH	Solon, Repco Elctrns.	216-248-8900
OK	Tulsa, Altair	918-252-5781
OR	Beaverton, Integrated Elctrns.	503-641-1690
TX	Austin, Altair Co.	512-837-4970
TX	Dallas, Off The Shelf	214-247-0052
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, All American	800-541-1435
TX	Richardson, Altair Co.	214-231-5166
TX	Richardson, Off The Shelf	214-238-0808
UT	Salt Lake City, Integrated Elctrns.	801-977-9750
WA	Bellevue, Integrated Elctrns.	206-455-2727
WI	Mequon, Taylor Elec.	800-242-8914
WI	New Berlin, Classic Comps.	800-242-7408
Can	Calgary, Alberta, Memco	403-258-3399
Can	Surrey, B.C., Memco	604-590-1553

NEMETH ENGINEERING ASSOCIATES, INC., 5901 West Highway 22, Crestwood, KY 40014, Tel: 502-241-1502, FAX: 502-241-5907; Empl.: 36

NEPENTHE, INC., 2479 E. Bayshore Rd. 800, Palo Alto, CA 94303, Tel: 415-496-6666, FAX: 415-856-8650; FSC No.: 415.856 8650; Empl.: 50; *Sls. Mgr.:* Kirk Feyerabend

NESCO BATTERY SYSTEMS, National Electro-Sales Corp., 7110 Gerald Ave., Van Nuys, CA 91406-7840, Tel: 818-781-0505, 1-800-423-2664, FAX: 818-786-2758

NESHAMINY TRANSFORMER CORP., Edison-Furlong Road, Furlong, PA 18925, Tel: 215-794-7411, FAX: 215-794-3894; Empl.: 70; *Sls. Mgr.:* Tom Linton

NES, INC.(NATIONWIDE ELECTRONIC SYSTEMS), See Weschler Instruments

N.E.S., INC., 502 Union St., Box 29, W. Springfield, MA 01090, Tel: 413-734-6491; FSC No.: 3439; Empl.: 10; *Sls. Mgr.:* Sandy Saffer

NETCOM, INC, 3000 Commerical Ave.,P.O.Box 3025, Northbrook, IL 60065-3025, Tel: 708-564-5100, FAX: 708-564-2279; FSC No.: 57193; Empl.: 105; *Sls. Mgr.:* Wayne Roeder

NETWORKS INTERNATIONAL CORPORATION, 13924 W. 108th St., Lenexa, KS 66215, Tel: 913-469-6494, FAX: 913-469-6495; Empl.: 20; *Sls. Mgr.:* Abhay Bisarya; *Dist. Mgr.:* Abhay Bisarya

NETWORK SOFTWARE ASSOCIATES, INC., 39 Argonaut, Laguna Hills, CA 92656, Tel: 714-768-4013, FAX: 714-768-5049; Empl.: 50; *Sls. Mgr.:* Raymond Chan; *Dist. Mgr.:* Raymond Chan

NETWORK TECHNOLOGIES INC., 7322 Pettibone Rd, Chagrin Falls, OH 44022, Tel: 216-543-1646, FAX: 216-543-5423

NEURAL SYSTEMS INC., 2827 West 43rd Ave., Vancouver, BC, Canada V6N 3H9, Tel: 604-263-3667, FAX: 604-263-3667; Empl.: 2; *Sls. Mgr.:* Gary Josin

NEURON ELECTRONICS, INC., 3914 Del Amo Blvd., Ste. 902, Torrance, CA 90503, Tel: 213-793-1300, 1-800-FON-4-NEI, FAX: 213-793-1304; Empl.: 4; *Sls. Mgr.:* Steve Stone

NEUTRIK PRODUCTS, See Kulka Smith

NEW ENGLAND KEYBOARD INC., 191 Cleghorn St., Fitchburg, MA 01420, Tel: 508-345-8332, FAX: 508-345-4329; Empl.: 16; *Sls. Mgr.:* Mark A. Yates ..... **B•1825**

NEW HAMPSHIRE BALL BEARING, INC., Corp. Hdgtrs & Hitech Div., Rte. 202, Peterborough, NH 03458, Tel: 603-924-3311, FAX: 603-924-6632; Empl.: 1200; *Dist. Mgr.:* Alan Paynter

NEW HAMPSHIRE BALL BEARINGS, INC., 9727 DeSoto Ave., Chatsworth, CA 91311, Tel: 818-407-9300, FAX: 818-407-5020; FSC No.: 50294; Empl.: 245; *Sls. Mgr.:* Paul M. Spencer; *Dist. Mgr.:* Alan H. Paynter

NEWMAN, M. M., CORP., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, Tel: 617-631-7100, FAX: 617-631-8887; FSC No.: 09106; *Sls. Mgr.:* C. Loutrel; *Dist. Mgr.:* C. Loutrel ..... **C•1798**

NEW MEDIA GRAPHICS CORP., 780 Boston Rd., Billerica, MA 01821, Tel: 508-663-0666, FAX: 508-663-6678; Empl.: 50

FAX: 714-546-3022

NEWPORT ELECTRONICS, 2229 S.Yale St., Santa Ana, CA 92704-4426, Tel: 714-540-4914, 800-NEWPORT, TWX: 910-595-1787; Empl.: 120; *Sls. Mgr.:* Chris Salzer; *Dist. Mgr.:* Chris Salzer ..... **D•1363-1364, 1366**

Local Sales Offices & Reps

AL	Birmingham, Richardson Co.	205-823-2200
CO	Denver, AKI Entprs.	303-388-4488
IA	Davenport, H & H Vega Sls. Assocs.	319-326-5664
KS	Shawnee Mission, H & H Vega Sls.	913-432-6363
MD	Joppa, Electra-Tech	301-877-0344
MI	Livonia, Amtech Reps.	313-474-8300
MN	Eden Prairie, Rockmore Sls. Corp.	612-941-1390
NJ	Parlin, JMR Sls.	201-525-8000
NY	Albany, Expert Indl. Sys.	518-869-3355
NY	Wading River, JMR Sls., Inc.	516-929-5756
NC	Charlotte, SPK Instrmn.	704-535-2345

PA Valley Forge, J. E. Cuesta & Co., Inc. .. 215-935-0400
TN Memphis, Southeastern Marketing 901-794-1230
TX Richardson, ADI Instrs., Inc. 214-680-2222
VA Dumfries, Electra-Tech 703-670-6962

Local Distributors

AL Birmingham, Brownell Instrs. 205-332-3374
AZ Tempe, Metermaster 602-431-0880
AR Little Rock, Brownell Instrs. 501-562-2061
CA Costa Mesa, FLW, Inc 714-751-7512
CA Foster City, Therm-X 415-571-1166
CA Fremont, FLW, Inc. 415-651-6511
CA Hayward, Coast Instr. 415-786-9300
CA Los Angeles, EIL Instrs., Inc. 213-685-7020
CA S. San Francisco, Steven Engrg. 415-588-9200
CA Yorba Linda, Metermaster 714-921-2101
CO Denver, Brownell 303-333-3541
CT Middletown, EIL Instrs., Inc. 203-346-6646
FL Orlando, FLW, Inc. 407-894-9671
GA Atlanta, Inotek/Sesco, Inc. 404-458-6423
GA Atlanta (Hapeville), Brownell Electro .. 404-362-9009
GA Marietta, FLW Southeast 404-424-1731
HI Kailua, FLW, Inc. 808-262-0818
IL Chicago, Data Elctrns. Co. 708-283-0300
IL Countryside, Inotek 708-352-3500
IL Glendale Heights, Crompton Metermaster 708-351-4554
IN Evansville, Electro-Lab Svcs. 812-423-5211
IA Davenport, Interstate Indl. 319-355-5959
KS Kansas City, Process Measurement .. 913-384-2064
KY Louisville, EIL Instrs. 502-454-3420
LA Baton Rouge, SIA, Inc. 504-756-4631
MD Sparks, EIL Instr. 301-771-4800
MA Waltham, Calibron Instrs. 617-894-6440
MI Royal Oak, George Instr. 313-280-1111
MN Minneapolis, Instrmn. Svcs. 612-544-8916
MN Minneapolis, Process Meas. 612-544-4035
MO Kansas City, ISL Corp. 816-587-5400
MO St. Louis, Universal Precision Inst. 314-394-4693
NE Omaha, Interstate Indl. 402-331-3535
NJ Edison, Brownell 201-287-2030
NJ Newfoundland, Hosica Labs. 201-697-6111
NY Buffalo, EIL 716-634-8500
NY Buffalo, KOM Lamb 716-874-3530
NY Hauppauge, Brownell Electro 516-234-8600
NC Charlotte, EIL 704-376-2237
OH Cincinnati, Schlemmer 513-522-8340
OH Cleveland, Pioneer Instr. 216-248-8710
OH Cleveland, Weschler Elec. 216-238-2550
OH Dayton, Pioneer Instr. 513-236-9900
PA Philadelphia, Shelby-Jones 215-446-6600
OK Tulsa, Inotek 918-627-1500
OR Portland, Branom 503-283-2555
OR Portland, Westcon 503-283-0132
PA Philadelphia, Sunshine Scientific 215-673-5600
PA York, Trola Inds. 717-848-3700
SC Columbia, Brownell Instrs. 803-772-6111
TN Knoxville, Brownell 615-966-3441
TX Dallas, EIL Instrs. 214-357-0297
TX Dallas, Inotek 214-243-7000
TX Houston, American Analog 713-941-7265
UT N. Salt Lake, Western Controls 801-292-5900
VA Richmond, Metermetrics 804-275-1431
WA Redmond, EIL Instruments 201-882-3222
WA Seattle, Branom Instrs. 206-762-6050
WI Milwaukee, E-M Instrs. 414-272-7799

NEW WAVE INSTRUMENTS, 128 W 3100 N., Provo, UT 84604, Tel: 801-373-4909, FAX: 801-373-4909; *Sls. Mgr.:* Larry Christensen

THE J. M. NEY COMPANY, Ney Industrial Park, Bloomfield, CT 06002, Tel: 203-242-2281, TELEX: 9-9238, FAX: 203-242-5688; *Sls. Mgr.:* Terrence P. Dunn

NF ELECTRONIC INSTRUMENTS, 3303 Harbor Blvd., Ste.G-14, Costa Mesa, CA 92626, Tel: 714-557-1684, FAX: 714-549-9742; Empl.: 250; *Sls. Mgr.:* Jeff Dwyer; *Dist. Mgr.:* Jeff Dwyer

NH RESEARCH

FAX: 714-474-7062

NH RESEARCH, INCORPORATED INSTRUMENTATION PRODUCTS DIVISION, 16601 Hale Ave., Irvine, CA 92714, Tel: 714-474-3900, TELEX: 67-8377; Empl.: 120; *Sls. Mgr.:* Fred Sabatine ..... **D•1299**

Local Sales Offices & Reps

FL Treasure Island, NH Research 813-367-5101

NH RESEARCH, 16601 Hale Avenue, Irvine, CA 92714, Tel: 714-474-3900, TELEX: 67-8377, FAX: 714-474-7062; FSC No.: 24862; Empl.: 125; *Sls. Mgr.:* Gary Pollard ..... **D•1299**

Local Sales Offices & Reps

CA Irvine, NH Research, Inc. 714-474-3900
IL Naperville, NH Research, Inc. 312-355-5991
NJ Totowa, NH Research, Inc. 201-785-2261

NIC COMPONENTS CORP., 6000 New Horizons Blvd., N. Amityville, NY 11701, Tel: 516-226-7500, TELEX: 221-228, FAX: 516-226-6262; Empl.: 50; *Sls. Mgr.:* Robert Schatz; *Dist. Mgr.:* Nancy Lamendola

NICHICON (AMERICA) CORP., 927 E. State Pkwy., Schaumburg, IL 60173, Tel: 708-843-7500, TELEX: 20-6577, FAX: 312-843-2798/7125; *Sls. Mgr.:* Russ Edwards; *Dist. Mgr.:* Buddy Black

NICHIFU AMERICA, INC., 60 Robinson St, Pottstown, PA 19464, Tel: 215-323-7120, FAX: 215-970-2096; *Sls. Mgr.:* Roy Allen

NICOLET INSTRUMENT CORP., Test Instrument Division, 5225 Verona Rd., Madison, WI 53711, Tel: 608-271-3333, TELEX: 608-273-5061, TWX: 910-286-2737; Empl.: 700; *Sls. Mgr.:* Robert Terrio

NICOLET COMPUTER GRAPHICS DIV., See Bruning Computer Graphics

NIDEC CORPORATION, 318 Industrial Lane, Torrington, CT 06790, Tel: 203-482-4422, FAX: 203-489-7201; Empl.: 350; *Sls. Mgr.:* John Mills; *Dist. Mgr.:* Richard Bagg

NIEC-BASISTA, 3401 Brecksville Rd 110, Richfield, OH 44286, Tel: 216-659-9287, FAX: 216-659-3580; Empl.: (NIEC-Japan) 1200 230M Sales

NIEC, See QMI/NIEC

NISSEI DENKI AMERICA, INC., 7873 S.W. Nimbus Ave., Beaverton, OR 97005, Tel: 503-646-1434, FAX: 503-641-9594; Empl.: 6; *Sls. Mgr.:* T. Watanabe

Nissei Electronics

FAX: 415-961-7259

NISSEI ELECTRONICS, 460 E. Middlefield Rd., Mountain View, CA 94043, Tel: 415-969-1100 ..... **B•1103-1105**

NITTANY PIEZO CERAMICS, See Piezo Kinetics, Inc.

NJE CORPORATION, 329 Culver Rd, P.O. Box 669, Dayton, NJ 08810-0669, Tel: 201-329-4611, TWX: 710-480-5674, FAX: 201-329-6185; FSC No.: 98380; Empl.: 105; *Sls. Mgr.:* John Slavik

NKK switches OF AMERICA INC

FAX: 602-998-1435

NKK SWITCHES OF AMERICA, INC., 7850 E. Gelding Dr., Scottsdale, AZ 85260, Tel: 602-991-0942; FSC No.: 63426; Empl.: 459; *Sls. Mgr.:* Joseph Nessim; *Dist. Mgr.:* Joseph Nessim ..... **B•1638, 1746-1752**

Local Sales Offices & Reps

AL Huntsville, Over & Over 205-837-7105
AZ Phoenix, C.T. Carlberg & Assocs. 602-468-0750
AZ Scottsdale, NKK Switches 602-991-0942
CA Cupertino, Getsales 408-725-8384
CA Torrance, Universal Comps. 213-783-0220
CO Wheat Ridge, Cluff & Assocs. Inc. 303-425-6604
FL Altamonte Springs, Over & Over, Inc. 407-332-1222
FL Coral Springs, Over & Over Inc. 305-753-7050
FL Tampa, Over & Over Inc. 813-626-9100
GA Norcross, Over & Over, Inc. 404-449-6205
IL Mt. Prospect, The Dornbrow Co., Inc. .. 708-253-3326
IN Carmel, Frank E. Kahsar Sls. 317-844-9353
KS Overland Park, Spectrum Sls. 913-648-6811
MD Baltimore, Eastern Comp. Sls. 301-788-7050
MA Harvard, Cycle Sls. Inc. 508-456-6868
MI Warren, Frank E. Kahsar Sls. 313-795-3530
MI Grand Haven, Frank E. Kahsar Sls. ... 616-846-7590
MN Minneapolis, Boerger & Assocs. 612-560-3435
MO Hazelwood, Spectrum Sls. 314-731-5151
NM Albuquerque, C. T. Carlberg & Assocs. 505-899-2155
NY Fairport, Lamtec Sls. Corp. 716-377-1210
NY Manlius, Lamtec Sls. Corp. 315-682-4780
NY Melville, Comtronic Assocs., Inc. 516-249-0505
NC Charlotte, Over & Over Inc. 704-542-9111
NC Raleigh, Over & Over Inc. 919-876-7338
OH Cincinnati, Frank E. Kahsar Sls. 513-922-3133
OH Columbus, Frank E. Kahsar Sls. 614-252-4009
OH Elyria, Frank E. Kahsar Sls. 216-365-5219
OH Mentor, Frank E. Kahsar Sls. 216-257-1166
OR Beaverton, Pacific Mktg. Spec. 503-641-9373
PA West Conshohocken, Eastern Comps. Sls. 215-825-8610
PA Wexford, Frank E. Kahsar Sls. 412-935-8561
TX Dallas, Rem Air Components Corp. ... 214-234-1069
TX Houston, Rem-Air Comps. Corp. 713-589-9721
UT Salt Lake City, Cluff & Assocs. 801-486-7297
WA Redmond, Pacific Mktg. Specs. 206-882-3144
Can Dorval, Que., John G. Weiss Co., Ltd. 514-685-6644
Can Mississauga, Ont., John G. Weiss Co., Ltd. 416-673-0011
Can Nepean, Ont., John G. Weiss Co., Ltd. 613-825-0545
Can Vancouver, B.C., John G. Weiss Co., Ltd. 604-873-1112
Can Winnipeg, Man., John G. Weiss Co., Ltd. 204-772-3665

Local Distributors

AL Huntsville, Powell Elctrns. 205-837-5300
AZ Glendale, Powell Elctrns. 602-938-5552
AZ Phoenix, Dalis Elctrn. Supp. 602-275-2885
AZ Tempe, L Comp. Inc. 602-730-1633
AZ Tucson, Dalis Elctrn. Supp. 602-294-2628
AR Ft. Smith, Radio, Inc. 501-646-5200
AR Little Rock, Bluff City Elctrns. 501-376-7044
CA Costa Mesa, Eric Elctrns. 714-751-1185
CA Costa Mesa, Powell Elctrns. 714-754-1717
CA Fountain Valley, Components Ctr. 714-979-0433
CA Irvine, ITT Multicomps. 714-727-4001
CA Los Angeles, Electric Switches, Inc. ... 213-660-1310
CA Milpitas, Zack Elctrns. 415-942-5432
CA Red Bluff, N. Valley Distrs. Co. 916-529-1130
CA Redding, N. Valley Distrs. Co. 916-222-1500
CA Sacramento, Zack Elctrns. 916-369-1786
CA San Diego, Mock III Sls. Co., Inc. 619-693-8230
CA San Diego, Shanks & Wright 619-239-0176
CA San Diego, Southland Comps. 619-673-3800
CA San Francisco, Zack Elctrns. 415-626-1444
CA San Jose, Eric Elctrns. 408-432-1111
CA San Jose, ITT Multicomps. 408-453-1404
CA San Jose, Powell Elctrns. 408-943-9020
CA San Jose, Rose Elctrn. Dist. Co. 408-943-0200
CA Santa Clara, Components Ctr. 408-988-3751
CA Tustin, Western Switches & Controls 714-259-8144
CA Vallejo, Zack Elctrns. 707-644-6676
CO Arvada, Denver Beta 303-431-7161
CO Aurora, Jet Elctrns. Supp. Co. 303-364-1000
CO Colorado Springs, Colorado Springs Wintronic Co., Inc. 719-636-1661
CO Denver, Denver Walker Wintronic Co., Inc. 303-744-9505
CO Englewood, Kimball Elctrns. 303-799-0317
CO Fort Collins, Fort Collins Wintronic Co., Inc. 303-482-1155
CO Grand Junction, Grand Junction Wintronic Co., Inc. 303-242-4435
CO Pueblo, Pueblo Wintronic Co., Inc. 719-542-1924
CO Westminster, ITT Multicomps. USA ... 303-451-8740
CT Danbury, Pilgrim Elctrns., Inc. 203-792-7274
CT Wallingford, Cronin Elctrns., Inc. 203-265-3134
CT Wallingford, Greene Shaw 203-265-3333
CT Wallingford, Midstate Elctrns. 203-265-9900
CT Yalesville, Glynn Elctrns., Inc. 203-265-2498
DE Milford, Harco Elctrns. 302-422-3105
DE Wilmington, Wholesale Elctrns. 302-652-3222
FL Altamonte Springs, Control Des. Supp., Inc. 407-788-3220
FL Clearwater, Atlantic Elctrns., Inc. 813-531-5900
FL Deerfield Beach, Atlantic Elctrns., Inc. 305-698-6400
FL Ft. Lauderdale, Bros. Elctrns. 305-561-6700
FL Ft. Lauderdale, Powell Elctrns. 305-484-8377
FL Ft. Meyers, Dow Elctrns. 813-334-6577
FL Gainesville, Dow Elctrns. 904-376-3231
FL Jacksonville, Dow Elctrns. 904-356-8426
FL Lakeland, Atlantic Elctrns., Inc. 813-687-0200
FL Longwood, RM Elctrns. 407-767-8005
FL Maitland, Elctrn. Equip. 407-539-0888
FL Melbourne, Greene Shaw 407-951-3636
FL Miami, Elctrn. Equip. 305-526-6000

FL Orlando, Dow Elctrns. 407-299-2771
FL Orlando, Wallace 407-841-0400
FL Pompano Beach, Control Design Supp. 305-782-1311
FL Pompano Beach, Elctrn. Equip. Co., Inc. 305-960-1200
FL Tampa, Dow Elctrns. 813-626-5191
FL Tampa, Elctrn. Equip. 813-988-0810
FL West Palm Beach, Atlantic Elctrns., Inc. 407-686-8553
GA Albany, Dow Elctrns. 912-435-1711
GA Augusta, Dixie Elctrns., Inc. 404-722-2055
GA Augusta, Dow Elctrns. 404-722-1526
GA Macon, Dow Elctrns. 912-743-5421
GA Norcross, Applied Power, Inc. 404-263-0421
GA Norcross, Dow Elctrns. 404-448-4004
GA Norcross, Whitehead Elctrns. 404-923-6667
CA Redwood City, HdB Elctrns. 415-368-1388
GA Savannah, Dow Elctrns. 912-234-1684
ID Boise, Kimball Elctrns., Inc. 208-342-3559
ID Pocatello, Kimball Elctrns., Inc. 208-232-2201
IL Addison, Belford Elctrns. 708-691-1100
IL Addison, L Comp, Inc. 708-628-1400
IL Algonquin, Marshall Wolf Automation 708-658-8130
IL Bensenville, Goold Elctrns. 708-860-7171
IL Chicago, Leeds Electro Comps. 312-625-3800
IL Crystal Lake, Sub-Sem Inc. 815-459-4139
IL Glendale Heights, Belford Elctrns. 708-858-4960
CA Santa Ana, BDS 714-662-1050
IL Wheeling, Hawk Elctrns., Inc. 708-459-4030
IL Wood Dale, Nep Elctrns. 708-595-8500
IN Indianapolis, CAM RPC 317-578-1111
IN Indianapolis, MAR Elctrns. 317-633-6699
IN Indianapolis, RM Elctrns. 317-291-7110
IA Sioux City, Molstad Distrbg. 712-255-8023
KS Wichita, Airtechnics, Inc. 316-267-2849
KS Wichita, Radio Inc. 316-264-2798
KS Wichita, RSC Elctrns., Inc. 316-267-5213
KY Florence, URI Elctrns., Inc. 606-371-4423
KY Louisville, Peerless Elctrn. Supps. 502-637-7674
LA New Orleans, Southern Radio Supp. Co. 504-524-2343
MD Aberdeen, Harco Elctrns. 301-838-7990
MD Annapolis Jct., Powell Elctrns. 301-880-3255
MA Billerica, Mayer Elctrns. 617-229-2255
MD Gaithersburg, Axis Elctrns., Inc. 301-840-9640
MD Kensington, Marine Air Supply Co. 301-949-9560
MD Rockville, Capitol Radio Wholesalers 301-881-2270
MA Avon, Controller Svc. & Sls. 508-584-9010
MA Billerica, Mayer Elctrns. Co. 617-229-2255
MA Middleboro, Glynn Elctrns., Inc. 508-947-4262
MA Needham, Cronin Elctrns., Inc. 617-449-5000
MA Newton, Greene Shaw 617-969-8900
MA Sandwich, JV Elctrns. 508-833-0700
MA Westborough, Powell Elctrns. 508-366-6100
MI Ann Arbor, Wedemeyer Elctrn. Supp. 313-665-8611
MI Brighton, Applied Power, Inc. 313-227-3604
MI Grand Rapids, RM Elctrns. 616-531-9300
MI Lansing, Wedemeyer Elctrn. Supp. 517-484-9009
MI Mt. Clemens, Spec Connector Corp. 313-465-3232
MI Novi, Belford Elctrns. 313-349-6842
MI St. Clair Shores, Spemco Switches 313-771-2700
MN Brooklin Center, Powell Elctrns. 612-566-8682
MN Burnsville, Cassidy Elctrns. 612-895-9026
MN Minneapolis, Bergquist Co. 612-835-2322
MN Minneapolis, Stark Elctrns. Supp., Inc. 612-332-1325
MN Minneapolis, Tor Tec 612-866-3662
MN Plymouth, Leeds Electro Comps. 612-557-1277
MS Columbus, Bluff City Elctrns. 601-328-6212
MS Tupelo, Bluff City Elctrns. 601-842-6832
MO Kansas City, L Comp., Inc. 816-221-2400
MO Kansas City, Walters Indl. 816-531-7015
MO Maryland Hgts., L Comp., Inc. 314-291-6200
MO St. Louis, Franklin Elctrns. Co. 314-429-3111
NE Lincoln, Scott Elctrns. 402-466-8221
NE Omaha, Scott Elctrns. 402-734-6750
NV Las Vegas, Kiesub Corp. 702-733-0024
NH Manchester, Controller Svc. & Sls. 603-623-7225
NH Manchester, Cronin Elctrns., Inc. 603-624-0105
NH Manchester, Glynn Elctrns., Inc. 603-622-8131
NH Salem, Diamond Elctrns. 603-894-4420
NJ E. Brunswick, Brothers Elctrns. 201-238-2200
NJ Kenilworth, Federated Purchaser 201-272-0505
NJ Little Falls, Powell Elctrns., Inc. 201-890-0010
NM Albuquerque, Dalis Elctrns. Supp. 505-888-4525
NM Albuquerque, Walker Elctrn. Supp. Co. 505-883-2992
NM Farmington, Farmington Wintronics 505-327-6356
NY Buffalo, Crest Audio, Video Elctrns. 716-885-5878
NY E. Rochester, Rome Elctrns. 716-248-0160
NY Mt. Vernon, All American/QAR Inc. 914-699-2224
NY Rochester, Masline Elctrns., Inc. 716-546-5373
NY Rome, Rome Elctrns. 315-337-5400
NY Troy, Trojan Elctrn. Supp. Co. 518-274-4481
NC Cary, Powell Elctrns. 919-467-1212
NC Charlotte, Dixie Elctrns., Inc. 704-377-5413
NC Raleigh, Greene-Shaw Co., Inc. 919-954-7138
NC Raleigh, Resco/Raleigh 919-781-5700
NC Winston-Salem, Dixie Elctrns., Inc. 919-724-5961
OH Cincinnati, Schuster Elctrns. 513-489-1400
OH Cincinnati, URI Elctrns. 513-761-4030
OH Columbus, Wedemeyer Elctrn. Supp. Co., Inc. 614-436-9600
OH Columbus, Whitehead Elctrns. 614-224-4234
OH Dayton, Srepco 513-293-0871
OH Dayton, Whitehead Elctrns. 513-293-2947
OH Highland Hgts., CAM RPC Elctrns. 216-461-4700
OH Lima, LRP Elctrns. 419-228-1220
OH Twinsburg, Schuster Elctrns. 216-425-8134
OH Warren, REM Elctrns. 216-373-1300
OK Lawton, Lawton Wintronic 405-355-0603
OK Oklahoma City, Oklahoma City Wintronic Co., Inc. 405-682-0545
OK Oklahoma City, Radio, Inc. 405-789-0741
OK Oklahoma City, RSC Elctrns. 405-631-7729
OK Tulsa, Radio, Inc. 918-587-9123
OR Beaverton, Comp. Resources 503-641-8488
OR Beaverton, Norvac Elctrns. 503-626-2200
OR Beaverton, Rose Elctrn. Distr. 503-629-9288
OR Eugene, Norvac Elctrns. 503-345-2905
OR Medford, Valley Indl. Elctrns. 503-779-3995
OR Portland, URS Elctrns. 503-233-7151
OR Salem, Norvac Elctrns. 503-585-9810
OR Tigard, Priebe Elctrns. 206-881-2363
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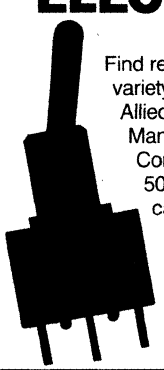

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MD Laurel, Rayma 1-800-447-2962
TX Argyle, Miles Tek, Inc. 817-455-7444

NORTH HILLS ELECTRONICS INC., Power Products Div., 1 Alexander Place, Glen Cove, NY 11542-3796, Tel: 516-671-5700, TELEX: 46-6886 NOHILL CI, FAX: 516-759-3327; Empl.: 135; *Sls. Mgr.:* Jay M. Mohr

NORTHLAKE ENGINEERING, INC., 999 Anita Ave., Antioch, IL 60002, Tel: 708-395-5710, FAX: 708-395-9101; FSC No.: 50638; Empl.: 120; *Sls. Mgr.:* W. A. Hardt

NORTHWEST ANALYTICAL INC., 520 N. W. Davis St., Portland, OR 97209, Tel: 503-224-7727, FAX: 503-224-5236; Empl.: 14

NORTHWEST MICROCIRCUITS, INC., 211 S. 9th - P.O. Box 1199, Philomath, OR 97370, Tel: 503-929-6424, FAX: 503-929-6428; Empl.: 15; *Sls. Mgr.:* Matt Granam

NORTON ASSOCIATES, INC., 557 Oak St., Copiague, NY 11726, Tel: 516-842-4666, FAX: 516-842-4667; FSC No.: 08739

NORWESCO, INC., See Norwesco Interconnect Devices

NORWESCO INTERCONNECT DEVICES, 2633 Plastics Drive, Gastonia, NC 28053, Tel: 704-868-3581, FAX: 704-867-0577; Empl.: 80; *Sls. Mgr.:* Frank Pellatt

NOVA ELECTRIC CORP., Technology Dynamics, Inc., 100 School St., Bergenfield, NJ 07652, Tel: 201-385-0500, FAX: 201-385-0702; FSC No.: 29019; Empl.: 50; *Sls. Mgr.:* Kenneth Niovitch .... **D•2214-2215**

Local Sales Offices & Reps

AZ Phoenix, CPS Assoc. 602-246-1097
CA Flintridge, Synertek Mktg. 818-915-1439
CA Los Altos, Jay Stone Assoc. 415-948-4563
CO Englewood, Odyssey 1 303-773-8176
CT W. Hartford, Power Factor Assoc. 203-233-0600
FL Orlando, Truex Assoc. 407-859-2160
KS Kansas City, Harris-Hansen Co. 816-763-6200
MD Rockville, Marktron 301-251-8990
MA Whitinsville, Power Factor Assoc. 508-234-6415
MI Detroit, Comtel 313-358-2505
MN Minneapolis, White Sls. Co. 612-553-1818
MO St. Louis, Harris-Hansen Co. 314-432-3611
NJ Westfield, Metro-Mics 201-233-6116
NM Albuquerque, Fry-Gates Assoc. 505-262-1525
NY Hauppauge, Metro-Mics 516-361-6134
OH Cleveland, Comtel Assoc. 216-442-8080
TN Knoxville, Southern Automation Sls. 615-690-8488
TX Dallas, Carey McMahill Assoc. 214-681-1414
UT Odyssey 1. 801-485-4728
WA Bellevue, Topp 206-747-5400
Can Ottawa, Ont., Subtec 613-723-7720

NOVATEK CORPORATION, 3700 NW 124th Ave., Coral Springs, FL 33065, Tel: 305-341-7700, TELEX: 522600 AAA EXECT, FAX: 305-345-9334; Empl.: 15; *Sls. Mgr.:* Joe DiBrigida

NOVA TRAN CORPORATION, Union Carbide Corporation, 100 Deposition Dr., Clear Lake, WI 54005, Tel: 715-263-2333, FAX: 715-263-3189; Empl.: 85; *Sls. Mgr.:* Bill Henry

NOVATRONICS INC., 677 Erie St., P.O. Box 610, Stratford, Ontario, Canada N5A 6V6, Tel: 519-271-3880, TELEX: 06-955394, FAX: 519-271-9781; Empl.: 100; *Sls. Mgr.:* Laraine Murray

NOVOTECHNIK U.S., INC., 237 Cedar Hill St., Marlborough, MA 01752, Tel: 508-485-2244, FAX: 508-485-2430; FSC No.: MULTIPLE; Empl.: 8

NRD INC., Subsidiary of Mark IV Inds., Inc., 2937 Alt Blvd. N., Grand Island, NY 14072, Tel: 716-773-7634, TELEX: 91578 NRD GRDI, FAX: 716-773-7744; Empl.: 100; *Sls. Mgr.:* James Curtis; *Dist. Mgr.:* Larry Keating .... **D•2238**

Local Sales Offices & Reps

AZ Tempe, Frank Steinmetz & Assoc. 602-829-0654
CA Santa Clara, Tech-Ser, Inc. 408-496-1004
CA Torrance, Tech-Ser, Inc. 213-370-7200
FL St. Cloud, Kurt Whitlock Assoc., Inc. 407-892-9876
IL Chicago, MGA Kokomo 312-775-1151
FL Kokomo, MGA Kokomo 317-455-0444
KS Lenexa, MIDTEC Assoc., Inc. 913-541-0505
MA Salem, Alpha-Stat 508-744-1100
MI Southfield, M. Gottlieb Assoc.,Inc. 313-358-4151
MN Edina, Omni-Tec 612-881-4447
MO St. Louis, Midtec Assoc., Inc. 314-275-8666
NY Fairport, Rod Patterson Assocs. 716-425-2738
NC Charlotte, Electro-Rep Assocs. 704-527-2530
PA Feasterville, ARC Assocs. 215-364-1050
TX Dallas, Scalon, Hughes & Assocs. 214-739-2888

NTE ELECTRONICS, INC., 44 Farrand St., Bloomfield, NJ 07003, Tel: 201-748-5089, FAX: 201-748-6224; FSC No.: 7T184; Empl.: 60; *Sls. Mgr.:* Cindy Habick; *Dist. Mgr.:* Mary Damiano

NTK

FAX: 708-390-6482

NTK TECHNICAL CERAMICS, NGK Spark Plugs (USA), 1200 Business Ctr. Dr., Suite 300, Mt. Prospect, IL 60056, Tel: 708-824-1133; FSC No.: 95-246-1286; *Sls. Mgr.:* Mark Ota; *Dist. Mgr.:* Chuck Ito .... **A•1699-1704, 1822**

Local Sales Offices & Reps

AZ Mesa, NTK Tech. Ceramic 602-820-4900
CA San Jose, NTK Tech. Ceramic 408-727-5180
FL Longwood, D-Assocs. 407-321-9594
FL Maitland, D. J. Ellis & Assocs., Inc. 305-645-1101
GA Atlanta, L&D Inc. 404-455-3483
IL Mt. Prospect, NTK Tech. Ceramic 708-824-1133
IN Ft. Wayne, T.X. Sls. 219-489-4447
IA Chanhassen, Barnes Sls. Assocs. 612-934-2907
MA Farmingham, NTK Tech. Ceramic 508-820-0220
MI Ann Arbor, Jordan-Elliott Sls. Inc. 313-662-4087
MI Jackson, Jordan-Elliottt Inc. 517-788-8353
MN Chanhassen, Barnes Sales Assocs. 612-934-2907
NJ Springfield, NTK Tech. Ceramic 201-376-6070
TX Dallas, NTK Tech. Ceramic 214-404-1173
Can Ontario, NGK Spark Plugs Canada 416-291-9746
Can Scarborough, Ont., NGK Spark Plugs Canada Ltd. 416-291-1927

NUCLEAR RESEARCH CORP., 125 Titus Ave., Box H, Warrington, PA 18976, Tel: 215-343-5900, TELEX: 510-665-8525 NRC WNTN, FAX: 215-343-4670; FSC No.: 96696; Empl.: 130; *Sls. Mgr.:* Tom O'Malley; *Dist. Mgr.:* Tom O'Malley

NUCLEONIC PRODS., See Thomson-CSF Comps. Corp., Passive Comps. Div.

NU-CONCEPT SYSTEMS, 2725 Advance La.,P. O. Box 587, Colmar, PA 18915, Tel: 215-822-8400, FAX: 215-822-1427; FSC No.: 58561; Empl.: 10; *Sls. Mgr.:* Robert F. Scheuerle

NU DATA, INC., 32 Fairview Ave., Little Silver, NJ 07739, Tel: 908-842-5757, TELEX: 271139, FAX: 908-842-5757; Empl.: 20; *Sls. Mgr.:* Richard A. Previte; *Dist. Mgr.:* George Serbe

NUMERIX CORP., 20 Ossipee Rd., Newton, MA 02164, Tel: 617-964-2500, TELEX: 948032, FAX: 617-969-4380

NWL CAPACITORS, NWL Transformers, 1 Industrial Drive, Snow Hill, NC 28580, Tel: 919-747-5943; Empl.: 55 .... **A•1120-1122**

Local Sales Offices & Reps

NJ Haddonfield, M&S Mesa Inc. 609-429-7055
NM Albuquerque, Westfahl & Assocs. 505-268-1433
NY Canandaigua, Jones/Sudder 716-384-2628
NY Nassau, Dave Jones(Jones/Sudder) 518-766-9575
OH Maineville, George Barnet 513-677-0922
VT White River Junction, Gary Jones(Jones/Sudder) 802-295-5260

NWL TRANSFORMERS, Rising Sun Rd., P.O. Box 358, Bordentown, NJ 08505, Tel: 609-298-7300, FAX: 609-298-1982; Empl.: 225; *Sls. Mgr.:* Helmut Herder .... **A•1120-1121, 2314-2315; D•1915**

WILLIAM F. NYE, INC., P.O. Box G-927, New Bedford, MA 02742-0927, Tel: 508-996-6721, TELEX: 940807, FAX: 508-997-5285; Empl.: 27; *Sls. Mgr.:* Donald R. Fairbanks .... **C•1146**

Local Sales Offices & Reps

MI Pleasant Ridge, Brian C. Holley 313-542-2720

NY GLASS PLASTICS, Calnetics Corp., 7314 E. Madison St., Paramount, CA 90723, Tel: 213-636-1035, FAX: 213-531-0693; Empl.: 60; *Sls. Mgr.:* Chris Ward

NYTRON INDUCTORS, INC., 700 Orange St., Darlington, SC 29532, Tel: 803-393-5421, TWX: 810-665-2182, FAX: 803-393-4123; FSC No.: 83125; Empl.: 450; *Sls. Mgr.:* John Elliot .... **A•1214-1235; B•1023**

OAKGRIGSBY

FAX: 708-556-4216

OAKGRIGSBY INC., 88 N. Dugan Rd., Sugar Grove, IL 60554, Tel: 708-556-4200; FSC No.: 76854; Empl.: 300 .... **B•1633, 1754-1759**

Local Sales Offices & Reps

AL Huntsville, Electramark, Inc. 205-830-4400
AZ Scottsdale, Carefree Elctrns. Sls. 602-951-9121
CA Laguna Hills, Fitch Assocs. 714-951-0196
CA Los Gatos, Stewart/Fullerton 408-376-0368
CA Mountain View, Stewart/Fullerton 415-964-7870
CA Napa, Stewart Fullerton & Assoc. 707-258-1160
CO Englewood, Krebill Comp. Sls. 303-771-0955
CO Grand Junction, Krebill Comp. Sls. 303-243-8220
FL Altamonte Springs, Electramark FL 407-830-0844
GA Norcross, Electramark, Inc. 404-446-7915

IL Cary, Golbeck/Milota 708-639-3424
IL Crystal Lake, Oak Switch Sys. Inc. 815-459-5000
IA Cedar Rapids, Pattison Sls. 319-395-9866
KS Parker, S.W. Wollard Assocs. 913-898-6552
MA Acton, Boston Elctrns. Assocs. 508-264-4456
MI White Pigeon, Jim Wells & Assoc. 616-483-7179
MN Bloomington, Murnco & Assocs. 612-854-4161
FL Boca Raton, Electramark FL 407-392-1763
NV Henderson, Carefree Elctrns. Sls. 702-386-8858
NJ Mountainside, Henry G. Richter 201-233-4615
NJ Mt. Laurel, Eastern Elctrns. 609-778-3106
FL Tampa, Electramark FL 813-889-7775
NY Pittsford, A.C.S. 716-381-3818
NC Raleigh, Eastern Elctrns. 919-876-7591
OH Cincinnati, JMK Elctrns. 513-271-3860
OH Middlebury Heights, JMK Elctrns. 216-234-1202
OR Tigard, Rep-West 503-639-0325
PA Phoenixville, Henry G. Richter 215-495-6176
TX Dallas, Dal/Tex Rep., Inc. 214-991-7799
WA Seattle, Rep-West 206-283-8351
Can Mississauga, Ont., GMA (Toronto) 416-671-8111
Can Richmond, Ont., GMA(Ottowa) 613-838-4480
Can St. Laurent, Que., GMA (Montreal) 514-335-9572

Local Distributors

AL Huntsville, Component Distr. 205-883-7501
AZ Scottsdale, Harper SID 800-442-7737
CA Compton, Harper SID 213-979-5090
CA San Diego, Harper SID 619-578-2500
CA San Jose, Harper SID 408-943-9490
CO Denver, CSID 303-292-9594
CO Englewood, Component Distrs. 303-799-4916
FL Melbourne, Component Distr. 407-724-9910
FL W. Palm Bch., Wings Electro Sls. Co. 407-798-6606
GA Norcross, Component Distr. 404-441-3320
IL Crystal Lake, Sub-Sem, Inc. 815-459-4139
IL Rosemont, Advent Elctrns. 708-297-6200
IA Cedar Rapids, Advent Elctrns. 319-363-0221
IN Indianapolis, Advent Elctrns. 317-872-4910
MA Canton, Impact Sls. 617-821-1500
MA Westborough, In-Stock Prods. 508-870-5750
MA Westwood, Semad 617-329-7373
MA Wilmington, North Star Elctrns. 508-657-5155
MI Farmington Hills, Advent Elctrns. 313-477-1650
MN Minneapolis, Berquist 800-328-3882
NY Hauppauge, Fairmont Elec. 516-231-3313
NY Jamaica, Calson Co. 718-525-5900
NY Northport, Coke-el Aerospace Co. 516-754-2233
NC Raleigh, Component Distr. 919-787-7311
OH Centerville, IPD 513-435-2086
TX Dallas, Component Distr. 214-644-0373
TX Irving, Harper S. I. D. 214-621-0500
WI Milwaukee, Progressive Image, Inc. 414-321-4722
Can Burnaby, B.C., Semad Elctrn. Dist. 604-420-9889
Can Calgary, Alberta, Semad Elctrn. Dist. .. 403-252-5664
Can Concord, Ontario, Westburne Elec. Supp. 416-660-3545
Can Markham, Ont., Semad Elctrn. Dist. 416-475-3922
Can Ottawa, Ont., Semad Elctrn. Dist. 613-727-8325
Can Pointe Claire,Quebec, Semad Elctrn. Dist. 514-694-0860
AZ Tucson, Carefree Elctrns. Sls. 602-882-8642

OAK SWITCH SYSTEMS, See OakGrigsby, Inc.

OAKTRON CORPORATION, Mtx, 704 30th St., Monroe, WI 53566, Tel: 608-328-5560, FAX: 608-328-5575; FSC No.: 07109; Empl.: 100; *Sls. Mgr.:* J. F. Disch

OAL ASSOCIATES, INC., P.O. Box J, Escondido, CA 92033, Tel: 619-743-7143, FAX: 619-743-2460; Empl.: 18; *Sls. Mgr.:* Mark Lohkemper

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OCEAN MOTIONS CO., P.O. Box 130, Barrington, RI 02806, Tel: 401-246-1394, FAX: 401-246-0075; FSC No.: 64654 ..... **B•1924**

Local Sales Offices & Reps

CO Denver, Control Agcy., Inc. 303-694-9214
UT Salt Lake City, Control Agcy. 801-268-9880, FAX:801-268-9924

OCEAN STATE THERMOTICS, INC., 27 Thurber Blvd., Smithfield, RI 02917, Tel: 401-231-4640, FAX: 401-231-4641; Empl.: 50; *Sls. Mgr.:* Stephen R. Hecht; *Dist. Mgr.:* Stephen R. Hecht

OCE' GRAPHICS, 385 Ravendale Dr., Mountain View, CA 94039, Tel: 415-964-7900, FAX: 415-961-6152; *Sls. Mgr.:* Bill Manos; *Dist. Mgr.:* Bill Manos

OCTAGON SYSTEMS, 6510 W. 91st Ave., Westminster, CO 80030, Tel: 303-430-1500, FAX: 303-426-8126

OCULAR INC., 610 Presidential, Ste. 100, Richardson, TX 75081, Tel: 214-437-2561, FAX: 214-437-2562; Empl.: 110; *Sls. Mgr.:* Ben Kwong ..... **B•1106-1107**

Local Sales Offices & Reps

CA San Dimas, A-F Sls. Engrg. 714-599-4412
CO Arvada, Arrowhead Sls. 303-423-5556
FL Hollywood, Advantage Comps. 305-962-2255
IL Arlington Hgts., Coombs & Assocs. ... 708-439-9810
IN Fort Wayne, Menze Sls. 219-747-5616
MA Swansen, Wm. Poisson & Assocs. 508-677-3655
MN Corcoran, Mktg. Assocs. 612-420-2506
MO Kansas City, EPI, Inc. 816-523-8911
NJ Wayne, Paul Breen Assocs. 201-696-8683
NC Durham, Advantage Comps. 919-383-0933
PA Newton, Indl. Sls. Assoc. 215-860-2076
TX Dallas, Component Technlg. 214-783-8831
WA Renton, K.R. Jensen Sls. Co. 206-277-2772
WI Milwaukee, Coombs & Assocs. 414-351-6123

ODU-USA, INC., ODU-KONTAKT GmbH, 4620 Calle Quetzal, Camarillo, CA 93012, Tel: 805-484-0981, FAX: 805-484-7458; Empl.: 1; *Sls. Mgr.:* Ralf Eberlein

OECO CORP., 4607 S.E. International Way, Milwaukie, OR 97222, Tel: 503-659-7932, TELEX: 36-0350, FAX: 503-653-6310; FSC No.: 95266; Empl.: 700; *Sls. Mgr.:* Dave Fuller, VP Sls.

OGALLALA ELCTRNS., Div. Arnold Engrg. Co., Box 59, Ogallala, NE 69153, Tel: 308-284-4093, FAX: 308-284-4740; Empl.: 41; *Sls. Mgr.:* H. L. Harrington

OGDEN MANUFACTURING CO., 48 W. Seegers Road, Arlington Heights, IL 60005, Tel: 708-593-8050, FAX: 708-593-8062; Empl.: 250; *Dist. Mgr.:* Gordon D. Hollander

FAX: 614-486-0743

OHIO SEMITRONICS, INC., 1205 Chesapeake Ave., Columbus, OH 43212, Tel: 614-486-9561; FSC No.: 12066; Empl.: 47; *Sls. Mgr.:* G. Clagett ..... **B•1925-1944**

Local Sales Offices & Reps

AL Huntsville, Datarep Inc. 205-881-0361
AZ Tucson, Sheldon Equip. 602-722-1452
CA Arcadia, Van Gott & Assocs. 818-445-9728
CA Fremont, FLW, Inc. 415-651-6511
CO Denver, MC Squared Inc. 303-286-1414
DC Dumfries, Electra-Tech 703-670-6962
FL Margate, Datarep 305-968-6568
FL Orlando, Datarep 407-843-5224
GA Marietta, FLW 404-424-1731
IL Columbia, R.L. Weisheimer & Assocs. 314-487-7328
IL Park Ridge, Elctrn. Instr. Assocs. 708-298-2290
IN Indianapolis, Electronic Instr. Assocs. 317-257-7231
KS Kansas City, R.L. Weisheimer & Assocs. 816-561-1711
MD Edgewood, Electra-Tech, Inc. 301-676-2254
MI Milford, TMS 313-360-1514
MN Minneapolis, The Mark Co. 612-933-3026
NJ Garwood, E.R. Mertz, Inc. 201-232-4643
NJ Haddonfield, G.L. Williams & Assoc. ... 609-428-6060
NM Albuquerque, MC Squared Inc. 505-293-9090
NY Latham, L-Tron Corp. 518-489-7810
NC Charlotte, Zelco Assocs. 704-541-6122
OH Columbus, Ohio Semitronics Inc. 614-486-9561
OH Dayton, Mohawk Intronics 513-434-8873
OH No. Ridgeville, TMS, Inc. 216-327-3527
OK Stillwater, Acudata Inc. 405-743-1886
OR Portland, Topp Engrg. Sls. Corp. 503-244-7265
PA Pittsburg, TMS 412-221-2338
RI Narragansett, Pat Assocs. 401-783-9598
TX Austin, Acudata Inc. 214-424-3561
TX Houston, Acudata Inc. 713-580-2451
TX Plano, Acudata Inc. 512-478-1018
UT Salt Lake City, MC Squared, Inc. 801-298-3388
VA Waverly, Electra-Tech 804-834-2417
WA Bellevue, Topp Engrg. Sls. Corp. 206-747-5400
Can Brossard, Ont., CTH Industrial Controls. 514-671-2181
Can Edmonton, Alb., CTH Instrs. 403-466-2900
Can Sarnia, Ont., Armatek Controls 519-332-0100
Can Toronto, Ont., Armatek Controls 416-251-3111

FAX: 708-675-1505

OHMITE MANUFACTURING CO., 3601 W. Howard St., Skokie, IL 60076, Tel: 708-675-2600, TELEX: 72-4433; FSC No.: 44655; *Sls. Mgr.:* Kim Youngblood; *Dist. Mgr.:* Ed Kason ..... **A•1958-1964**

Local Sales Offices & Reps

AL Huntsville, Over & Over 205-837-7105
AZ Tempe, Elctrn. Dev. Sls. 602-438-1547
CA Los Angeles, Wiley Co. 213-666-1611
CA Santa Clara, Ross Mktg. 408-492-0197
CO Wheat Ridge, Cluff & Assocs. 303-425-6604
FL Altamonte Spgs., Over & Over 407-332-1222
GA Norcross, Over & Over 404-449-6205
IL Mt. Prospect, Dombrow Co. 708-253-3326
IN Indianapolis, Leslie M. DeVoe Co. 317-842-3245
IA Cedar Rapids, Spectrum Sls. 319-366-0576
KS Overland Pk., Spectrum Sls. 913-648-6811
MA Norwood, MacInnis Co. 617-762-8090
MI Farmington Hills, R.C. Merchant Co. ... 313-476-4600
MN Minneapolis, Elec. Comp. Sls. 612-933-2594
MO Florissant, Spectrum Sls. 314-921-1313
NJ Englewood Cliffs, Ed Glass Assocs. ... 201-592-0200
NY Victor, Net Sls. 716-924-1844
NC Charlotte, Over & Over 704-542-9111
NC Raleigh, Over & Over 919-876-7338
OH Westlake, Baehr Greenleaf & Assoc. .. 216-892-1770
OR Beaverton, Eclipse Mktg. 503-642-1661
PA Narbeth, Bresson Assocs. 215-664-6460
PA Warrendale, Baehr Greenleaf & Assoc. 412-934-3088
TX Richardson, Pro-Comp Sls. 214-669-1500
WA Redmond, Eclipse Mktg. 206-885-6991
EXP Skokie, IL, Ohmite Mfg. Co. 708-675-2600
Can Pickering, Ont., A.C. Simmonds & Sons 416-839-8041

Local Distributors

AR Ft. Smith, Carlton Bates 501-646-8201
CA El Monte, Kimball & Stark 818-444-2594
CA Fountain Valley, Component Ctr. 800-879-3550
CA Oakland, Brill Elctrns. 415-834-5888
FL Orlando, Hammond Elctrns. 407-849-6060
IL Chicago, Newark Elctrns. 312-784-5100
IL Palatine, Ohm Elctrns. 708-359-5500
IN Indianapolis, Bell Inds. 317-875-8200
MA Hingham, Sager Elctrns. 617-749-6700
MI Livonia, RS Elctrns. 313-525-1155
MN St. Paul, Gopher Elctrns. 612-490-4900
NJ Camden, GRS Elctrns. 609-964-8560
NY Buffalo, Summit Distrs. 716-887-2800
NY Lynbrook, Peerless Radio Corp. 516-593-2121
NY Rome, Rome Elctrns. 315-337-5400
OH Akron, AESCO Elctrns. 216-762-8818
OH Dayton, Stotts-Friedman Co. 513-298-5555
OH Warren, REM Elctrns. Supp. 216-373-1300
SC Columbia, Dixie Elctrns. 803-779-5332
TX Richardson, Altair Co. 214-231-5166
TX Stafford, Harrison Equip. 713-879-2600
WA Richland, Radar Elec. 509-943-8336
WI Milwaukee, Marsh Elctrns. 414-475-6000
Can Don Mills, Ont., Saynor Varah 416-445-2340
Can Willowdale, Ont., Electro-Sonic 416-494-1666

OHMTEK INC., Vishay, 2160 Liberty Dr., Niagara Falls, NY 14304, Tel: 716-283-4025, FAX: 716-283-5932; FSC No.: 57489; Empl.: 205; *Sls. Mgr.:* William Cuviello ..... **A•1965-1967**

Local Sales Offices & Reps

AL Huntsville, JWL Assocs. 205-883-1712
AZ Chandler, Mission Mktg. Grp. 602-786-0804

AZ	Phoenix, Howe & Howe Sls., Inc.	602-264-7971
CA	Glendale, Mission Mktg. Grp.	818-247-9110
CA	Redwood City, James S. Heaton Co.	415-367-9000
CA	San Diego, V.E.C.	619-690-5112
CA	Tustin, V.E.C.-Los Angeles	714-544-7024
CO	Loveland, V.E.C.-Rocky Mtn.	303-667-7500
CT	Wallingford, Comp Rep Assoc., Inc.	203-269-1145
FL	Altamonte Springs, Semtronic Assoc., Inc.	407-831-8233
FL	Clearwater, Semtronic Assoc., Inc.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assoc., Inc.	305-731-2484
GA	Roswell, JWL Assocs.	404-993-0100
IL	Skokie, IRI-Illinois	312-967-8430
IN	Ft. Wayne, Scott Elctrns.	219-489-5690
IN	Indianapolis, Scott Elctrns.	317-841-0010
KS	Olathe, Tech. Sls. Assoc., Inc.	913-829-2800
MD	Lutherville, J.A. Dougherty Sls., Inc.	301-321-7890
MA	Sterling, Compatable Comps. Inc.	508-422-7641
MA	Westwood, Comp. Rep. Assoc., Inc.	617-329-3454
MI	Plymouth, Jay Mktg. Assoc.	313-459-1200
MN	Bloomington, IRI of MN.	612-854-8027
MN	Edina, Dunlop Consultants	612-933-9070
MN	Minneapolis, Dunlop Consits.	612-544-1070
MO	St. Louis, Tech. Sls. Assoc., Inc.	314-521-2044
NJ	Flanders, K & R Eng. Sls., Inc.	201-584-5235
NM	Albuquerque, Nelco Electronix	505-293-1399
NY	Rochester, L-Mar Assocs.	716-381-9100
NC	Charlotte, JWL Assocs.	704-541-5750
NC	Raleigh, JWL Assocs.	919-787-4826
OH	Aurora, EMA, Inc.	216-562-6104
OH	Centerville, EMA, Inc.	513-433-2800
OH	Worthington, EMA, Inc.	614-436-9452
OR	Beaverton, N.R. Schultz Co.	503-643-1644
PA	Horsham, TMI, Inc.	215-441-4300
TX	Dallas, Edward F. Avmond Co.	214-826-7620
TX	Houston, Edward F. Avmond Co.	713-943-3149
WA	Bellevue, UniComp	206-868-5124
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CA San Diego, Deco Elctrns., Inc. 619-693-1595
CA San Jose, Spectra Elctrns. 408-452-1590
CA Tustin, Western Switches & Controls, Inc. 714-259-8144
CA Van Nuys, Wes Garde Components .. 213-873-4802
CO Aurora, Jet Elctrn. Supp., Co., Inc. 303-364-1000
CT Fair Haven, Control Comps. 203-865-0300
CT Waterbury, Century Elec. Supps., Inc. 203-755-0405
CT West Hartford, Wes Garde Components 203-527-7705
FL Lakeland, A A Elec. 800-237-8274
FL Lakeland, Wes Garde Components ... 813-644-7564
IL Addison, LComp., Inc. 312-628-1400
IL Carol Stream, Wes Garde Components 1-800-323-9431
IL Crystal Lake, Sub Sem 815-459-4139
IN Indianapolis, Mar Elctrns., Inc. 317-633-6699
KS Overland Park, Wes-Garde 913-262-2718
KS Wichita, LComp.,Inc. 316-265-5100
MD Kensington, Marine Air Supp. 301-949-9560
MA Canton, Impact Sls. Co., Inc. 617-821-1500
MA Marlboro, Hardware Specialties 508-481-8622
MI St. Clair Shores, SPEMCO, Inc. 313-771-2700
MN Minneapolis, Dot Elctrns. 612-861-4561
MN Minneapolis, Elctrn. Center, Inc. 612-371-5200
MO Maryland Hgts., LCOMP, Inc. 800-325-1393
MO St. Louis, Wes-Garde Comps. 314-567-7776
NJ Mt. Laurel, Wes Garde Components .. 609-778-8190
NJ Oakland, Relay Specialties, Inc. 201-337-1000
NY Bohemia, Key Comps. 516-567-7500
NY Johnson City, Help Elctrns. 607-729-3528
NY Woodside, Switches Unltd., Inc. 718-478-5000
OH Shandon, Cartessa Corp. 513-738-4477
OH Westerville, Wes Garde Components 614-885-0319
TX Dallas, GEECO Sls. Co. 214-341-0610
TX Dallas, Wes Garde Components 214-357-1768
WI Grafton, Lakeview Elctrns. 414-377-8250
WI Mequon, Taylor Elec. 414-241-4321
Can Downsview, Ont., Westburne Elctrns. 416-635-2950

OSTBY-BARTON TEST PROBES, 487 Jefferson Blvd., Warwick, RI 02886, Tel: 401-739-7310, TELEX: 927573, TWX: 401-732-4937; Empl.: 75; *Sls. Mgr.:* Joe Burns

OTTO CONTROLS, Otto Engineering, 2 E. Main St., Carpentersville, IL 60110, Tel: 708-428-7171, FAX: 708-428-1956; FSC No.: 21649: Empl.: 200; *Sls. Mgr.:* R. E. Sparks ..... **B•1762-1763**

Local Sales Offices & Reps

CO Denver, Advent Comps. Corp. 303-455-1985
AZ Scottsdale, Advent Comps. Corp. 602-481-0044
CA Anaheim, Gabriel & Assocs. 714-666-0660
CA San Jose, Westron Assocs. 408-997-7332
CT Gulliford, Norris & Assocs. 203-453-1613
GA Norcross, South Atlantic Comp. 404-447-6154
IL Itasca, LTD Technlgs., Inc. 708-773-2900
IN Ft. Wayne, Menze Sls. 219-747-5616
MD Gaithersburg, Naudain Assocs. Southern, Inc. 301-258-5040
MI Madison Heights, Pine Sls., Inc. 313-589-0350
MN Roseville, Vector Comp. Sls. 612-631-1334
MO Florissant, Spectrum Sls. 314-921-1313
KS Overland Pk, Spectrum Sls. 913-648-6811
NJ Marlton, Naudain Assocs., Inc. 609-983-5300
NJ Hackensack, Coakley, Boyd & Abbett 201-440-4114
NC Raleigh, S. Atlantic Comp. Sls. 919-859-9970
FL Orlando, S. Atlantic Comp. Sls. 407-857-3650
TX Dallas, Control Comps. Corp. 214-458-8877
WA Bellevue, James Findlay Co. 206-455-9597
WI Mequon, Badgerep, Inc. 414-241-9200
Can Toronto, Ont., Wilson Entprs. 416-766-0510

Local Distributors

AZ Phoenix, Beswitched 602-275-4805
AZ Tempe, LCOMP 602-730-1633
CA Gardena, Cal Switch 213-770-2330
CA Los Angeles, Electric Switches, Inc. 213-660-1310
CA Santa Ana, Norstan Elctrns. 714-540-4163
CT Wallingford, Sager Elctrl. Supp. 203-265-4600
FL Orlando, Sager Elctrns. 407-240-3114
FL Pompano Beach, Peerless Radio Corp. 305-973-4141
IL Addison, LCOMP 708-628-1400
IL Carol Stream, Wes-Garde Comps. Grp. 708-653-1460
MD Columbia, Sager Elctrns. 301-995-6580
MD Kensington, Marine Air Supp. 301-949-9560
MA Hingham, Sager Elec. Supp. 617-749-6700
MI Grand Rapids, RM Elctrns. 616-531-9300
MO Kansas City, LCOMP 816-241-0111
MO Maryland Heights, LCOMP 314-291-6200
NY Hauppauge, Sager Elctrns. 516-348-1300
NY Lynbrook, Peerless Radio Corp. 516-593-2121
NC Raleigh, Sager Elctrns. 919-850-9550
NC Winston, Kirkman Elctrns. 919-722-9131
PA Trevose, Sager Elctrns. 215-638-7491
TX Dallas, Associated Aircraft Supp. 214-331-4381

OUPIIN AMERICA, INC., 65 W. Easy Street 201, Simi Valley, CA 93065, Tel: 805-520-0862, FAX: 805-520-0864; *Sls. Mgr.:* Randy Ryan

OUTLAND TECHNOLOGY INC., 2144 S. Glencove Ln., Gretna, LA 70056, Tel: 504-394-4354, FAX: 504-394-4354; Empl.: 4; *Sls. Mgr.:* George J. Mayfield; *Dist. Mgr.:* George J. Mayfield

OUTLOOK TECHNOLOGY, INC., 200 E. Hacienda Ave., Campbell, CA 95008, Tel: 408-374-2990, TELEX: 350479, FAX: 408-374-9273; *Sls. Mgr.:* Walter A. Klees

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Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
CA	EL toro, Marktronix	714-858-0632
CA	Los Angeles, Martronix	213-782-7826
CA	San Mateo, Melvin Sls.	415-349-7445
DC	Towson, Dickison Sales Co.	301-823-0923
FL	Longwood, D. Assocs.	407-830-8976
FL	Maitland, Ellis & Assocs.	407-645-11-1
GA	Atlanta, L & D Inc.	404-395-7079
KS	Lexena, MIDTEC Associates	913-541-0505
MD	Towson, Dickison Sls. Co.	301-823-0923
MA	Milton, Naton Assocs.	617-698-0670
NJ	Paramus, Eltech Sls.	201-967-1309
NY	Buffalo, Quality Comps.	716-837-5430
NC	Greensboro, L & D, Inc.	919-292-3201
NC	Raleigh, L&D Inc.	919-876-5301
TN	Bristol, L&D Inc.	615-878-2266
TX	Euless, W. Pat Fralia Co.	817-354-1144
WA	Seattle, Eltech, Inc.	206-643-4330
Can	Mississauga, Vitel Electronics	416-676-9720

OVEN INDUSTRIES, 207 Hempt Rd., P.O. Box 290, Mechanicsburg, PA 17055, Tel: 717-766-0721, FAX: 717-766-4786; FSC No.: 21302; Empl.: 60; *Sls. Mgr.:* T. M. Nolan

OXLEY INC., 25 Business Pk. Dr., P.O. Box 814, Branford, CT 06405, Tel: 203-488-1033, FAX: 203-481-6971; FSC No.: 3R006; *Sls. Mgr.:* Carol Carr .... **A•1705; B•1025, 1179, 1335; C•1479**

Local Sales Offices & Reps

CA	Irvine, Balzer Wolf Assocs.	714-261-6877
CA	Sunny Vale, Stout Inds.	408-746-0470
MN	St. Paul, Hanks	612-484-8531
PA	Paoli, Stitzer Co. Inc.	215-644-5500
TX	Richardson, Eagle Marketing	214-238-5383

PACCOM, 3928 148th NE, Redmond, WA 98052, Tel: 206-883-9200, 800-426-6254, TWX: 910-449-2973, FAX: 206-881-0508; Empl.: 20; *Sls. Mgr.:* B. Rudd

PACE INC., 9893 Brewers Ct., Laurel, MD 20723-1990, Tel: 301-490-9860, TELEX: 198296, FAX: 301-498-3252; *Sls. Mgr.:* James K. Bausell

PACER INDUSTRIES, INC., 1450 First Ave., Chippewa Falls, WI 54729, Tel: 715-723-1141, TELEX: 284755, FAX: 715-723-7890; FSC No.: 60162; Empl.: 13; *Sls. Mgr.:* Patrick Brennan; *Dist. Mgr.:* Patrick Brennan

PACER SYSTEMS, INC., 900 Technology Park Dr., Billercia, MA 01821, Tel: 508-667-8800, FAX: 508-663-5155; Empl.: 325; *Sls. Mgr.:* E. Childress

PACIFIC ATLANTIC ELCTRNS., Patronix, Inc., Box 754, El Cerrito, CA 94530, Tel: 415-237-5837, FAX: 415-524-9267; Empl.: 4; *Sls. Mgr.:* P. Yen; *Dist. Mgr.:* P. Yen

PACIFIC COAST CIRCUITS, INC., 189 Granada Dr., San Luis Obispo, CA 93401, Tel: 805-544-4881, FAX: 805-544-6475; FSC No.: 66107; Empl.: 18; *Sls. Mgr.:* Chris Cofer

PACIFIC COIL CO., Inductor Supp., Inc., 430 E. 19th St., Bakersfield, CA 93305-5495, Tel: 805-323-7714, 800-332-COIL, FAX: 805-325-9732; Empl.: 23

PACIFIC COMMUNICATIONS, 2041 S. Grand Ave., Santa Ana, CA 92705, Tel: 714-546-0147, FAX: 714-546-0084; Empl.: 60

PACIFIC ELECTRICORD, 747 W. Redondo Bch. Blvd., Gardena, CA 90247, Tel: 213-532-6600, TWX: 910-346-7619, FAX: 213-532-5044; Empl.: 1000; *Sls. Mgr.:* Alan Manzo; *Dist. Mgr.:* Alan Manzo

PACIFIC ELECTRO DYNAMICS, INC., 11465 Willows Rd. N.E., Redmond, WA 98073-9745, Tel: 206-881-1700, TWX: 901-449-29-77; Empl.: 420

PACIFIC INDUSTRIAL COMPONENTS CORP., See Altair Exchange Corp.

PACIFIC INDUSTRIAL COMPONENTS CORP., 19201 Parthenia St. No.E, Northridge, CA 91324, Tel: 818-775-1007, FAX: 818-701-5508; *Sls. Mgr.:* Ray Pross ..... **B•1036**

Local Sales Offices & Reps

IL	Elk Grove Village, Pacific Comps.	708-228-0030

PACIFIC INSTRUMENTS INC., 215 Mason Circle, Concord, CA 94520, Tel: 415-827-9010, FAX: 415-827-9023; Empl.: 40

PACIFIC MAGNETICS CORP., 2602 Transportation Ave., Ste. G, National City, CA 92050, Tel: 619-474-8216, FAX: 619-474-3979; *Sls. Mgr.:* Mary Hill

PACIFIC MICROCOMPUTERS, Signal Technology, 5855 Oberlin Dr. Ste. B, San Diego, CA 92121, Tel: 619-453-8649; Empl.: 15; *Sls. Mgr.:* Guy Halac

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FAX: 714-891-1928

PACIFIC POWER SOURCE CORP., 15122 Bolsa Chica St., Huntington Bch., CA 92649, Tel: 714-898-2691, 800-854-2433; FSC No.: 57148; Empl.: 50; *Sls. Mgr.:* Russ Engle ..... **D•2216-2221**

Local Sales Offices & Reps

AL	Huntsville, W A Brown Instrs.	205-830-9224
CA	San Jose, Amasco Corp.	408-262-1500
CA	Torrance, Amasco Corp.	213-781-9494
CO	Denver, Aztec Entprs.	303-779-5285
AZ	Tempe, Aztec Entprs.	602-431-8401
FL	Ft. Lauderdale, W. A. Brown Instrs.	305-581-6444
FL	Melbourne, W.A. Instrs.	407-723-0766
FL	Orlando, W.A. Brown Instrs.	407-648-9660
GA	Norcross, W.A. Brown Instrs.	404-449-7160
IL	Arlington Hgts., Comtel Midwest	708-392-4040
IN	Indianapolis, Comtel Midwest	317-253-1681
KS	Shawnee Mission, Comtel Midwest Co.	913-268-0762
MA	Hopkinton, Eastern Sys. Inc.	508-435-2151
MI	Plymouth, EQS Sys.	313-455-7920
MO	St. Louis, Comtel Midwest Co.	314-227-7220
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	Liverpool, Northern Tech. Sls. Assocs., Inc.	315-451-1091
NY	Wantagh, Bytec Reps.	516-781-7400
NC	Cary, W.A. Brown Instrs.	919-460-1120
OH	Chesterland, EQS Sys.	216-729-2222
OH	Dayton, EQS Sys.	513-236-7676
OR	Portland, Westcon	503-283-0132
NJ	Fairfax, Sci. Reps.,Inc.	609-662-5222
PA	Huntingdon Valley, Sci-Rep Inc.	215-322-6500
PA	Pittsburgh, EQS Sys.	800-729-8084
TX	El Paso, Aztec Entprs.	505-262-1688
VA	Fairfax, Sci-Rep, Inc.	703-385-0600
WA	Kent, Westcon, Inc.	206-824-8922
Can	Ottawa, Ont., Multitest Midwest Elctrns.	613-727-0848
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WI	New Berlin, Comtel Midwest Co.	414-544-6042
Can	Scarborough, Ont., Multitest Elctrns.	416-609-8396
Can	St. Laurent, PQ, Multitest Elctrns.	514-337-0723

PACIFIC RESISTOR CO., 18300 Oxnard St., Tarzana, CA 91356, Tel: 818-345-7811, FAX: 818-345-1507; FSC No.: 06416; *Sls. Mgr.:* Douglas Trewhitt ... **A•1968-1970**

Local Sales Offices & Reps

CA	San Jose, Comtech Mktg.	408-294-5448

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PACIFIC SCIENTIFIC CO., 4301 Kishwaukee, Rockford, IL 61109, Tel: 815-226-3100, TELEX: 386743, FAX: 815-226-3122; Empl.: 400; *Dist. Mgr.:* Steve Earley

PACIFIC SCIENTIFIC, Electro Kinetics Division, 402 E. Gutierrez St., Santa Barbara, CA 93101, Tel: 805-963-2055, TWX: 910-334-1177; Empl.: 220; *Sls. Mgr.:* Robert E. Lynch

PACIFIC TRANSDUCER CORP., 2301 Federal, Los Angeles, CA 90064-1482, Tel: 213-478-1134, FAX: 213-312-0826; Empl.: 22; *Sls. Mgr.:* Laura Barba

PACIFIC TRANSFORMER CORP., 4750 Wesley Dr., Anaheim, CA 92807, Tel: 1-800-325-0501, FAX: 714-779-0718; Empl.: 75

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Division of LaFrance Corp

FAX: 215-365-4420

PACTEC, LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, Tel: 215-365-8400; Empl.: 503; *Sls. Mgr.:* J. Singer .... **C•1002, 1070-1076**

Local Sales Offices & Reps

AL	Huntsville, Scott Ray	205-883-2159
CA	Anaheim, Jonathan Winters	714-779-8092
CA	San Jose, Michael Bennett	408-943-0360
FL	Palm Harbor, Roger Hauck	813-784-7895
IL	Lisle, Jim McCloskey	708-969-8821
MA	Burlington, Jim Craig	617-221-4824
EXP	Philadelphia, PA, PacTec Export Sls. Dept.	215-365-8400
NJ	Merchantville, Bill Boucot	609-488-9086
NC	Thomasville, Keith Pierce	919-472-2030
OH	Perrysburg, Bruce Brown	419-874-1110
TX	Dallas, Craig LaDue	214-340-6288
WA	Seattle, Mike Werttemberger	206-363-9899
WI	Appleton, Ed Sabish	414-731-7212

Local Distributors

AL	Birmingham, American Elctrns. Supp.	205-942-4656
AZ	Tempe, Circut Specialists, Inc.	602-966-0764
CA	Anaheim, R&D Elctrns.	714-773-0240
CA	Burbank, Electronic City	213-842-5275
CA	Canoga Park, Sandy's Elctrns. Supp.	213-346-8353
CA	Carpenteria, Electronic Resources	805-684-5439
CA	Costa Mesa, Marvac	714-540-3280
CA	El Segundo, Force Elctrns.	213-772-1324
CA	El Toro, R-Vac	714-586-1210
CA	Gardena, California Switch & Signal	213-538-9830
CA	Milpitas, Zack Elctrns.	408-942-5432
CA	San Diego, Southland Comps.	619-673-3800
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Rose Elctrns.	408-943-0200
CA	Santa Clara, Force Elctrns.	408-435-1324
CA	Sunnyvale, Fry's Elctrns.	408-733-1770
CA	Vallejo, Zackit (Vallejo)	707-644-6676
CO	Aurora, Jet Elctrn. Supp.	303-364-1000
CO	Littleton, Display's Plus	303-730-7333
CT	Wallingford, Midstate Elctrns.	203-265-9900
CT	Wallingford, Sager Elctrl. Supp.	203-265-4600
CT	Wallingford, Utronics, Inc. Coghlin	203-265-2724
DE	Wilmington, Wholesale Elctrns. Inc.	302-656-9988
FL	Largo, Electronic Precepts of FL	813-544-3636
FL	Longwood, Intertec Comps.	305-834-7777
FL	Tampa, Sunex Elctrns.	813-885-4074
FL	West Palm Beach, Nurmi Elctrns.	305-686-8553
GA	Norcross, American Elctrn. Supp.	800-562-8740
GA	Norcross, Dow Elctrns., Inc.	404-448-4004
GA	Norcross, EMSCO	404-925-8366
HI	Honolulu, Precision Radio, Ltd.	808-537-5291
ID	Boise, Radar Elec.	208-336-2227
IL	Berwyn, BB & W Inc.	312-242-1533
IL	Champaign, Klaus Radio	217-356-1896
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Elk Grove, Martec Assocs.	312-956-8090
IL	Mt. Prospect, Tri State Elctrns.	312-255-0600
IL	Northbrook, Classic Comps.	312-291-0019
IL	Peoria, Klaus Radio	309-691-4840
IL	Rosemont, Advent Elctrns.	312-298-4210
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Meunier Elctrns.	317-635-3511
IA	Cedar Rapids, Iowa Radio Supply	319-393-4510
MD	Beltsville, P.S.I.	301-937-4960
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Westborough, In-Stock Products Co.	508-870-5750
MI	Grand Rapids, S. F. Elctrns.	616-459-0216
MI	Livonia, RS Elctrns.	313-525-1155
MI	Taylor, Tel Van Elctrn. Supp.	313-291-3515
MN	Minneapolis, AEI Elctrn. Parts	612-338-4754
MN	Minneapolis, Berquist	612-835-2322
MN	New Brighton, Parts I	612-633-8079
MO	Kansas City, Walters Indl. Elctrns.	816-531-7015
NE	Lincoln, Scott Elctrns.	402-466-8221
NH	Salem, Sager Elctrl. Supp.	603-898-1348
NJ	Rockaway, Tonar Inds., Inc.	201-586-9000
NM	Albuquerque, Walker Elctrns. Supp.	505-883-2992
NY	Buffalo, Summit Distr.	716-887-2800
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Sager Elctrns.	516-348-1300
NY	Rochester, Masline Elctrns., Inc.	716-546-5373
NY	Rochester, Summit Distr.	716-334-8110
NC	Raleigh, Sager Svc. Plus Elctrns.	919-850-9550
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cincinnati, R. S. Elctrns.	513-793-2450
OH	Cleveland, Roberts Elctrns.	216-238-1711
OH	Columbus, Hughes-Peters	614-294-5351
OK	Tulsa, Radio Inc.	918-587-9123
OR	Beaverton, Rose Elctrns	503-629-9288
OR	Portland, Radar Elec.	503-232-3404
PA	Exton, VSH Elctrns.	215-363-2250
PA	Mars, Sager Elctrns.	412-772-2233
TX	Austin, Wofford Elctrns.	512-339-1131
TX	Dallas, Force Elctrns.	214-247-9955
TX	Dallas, Off-the-Shelf Comps.	214-247-0052
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Ft. Worth, Tandy Natl. Pts.	817-870-5600
TX	Houston, Force Elctrns.	713-561-8644
TX	Houston, Wofford Elctrns.	713-847-3583
TX	Richardson, Off-the-Shelf Comps.	214-238-0808
UT	Salt Lake City, Standard Supp.	801-486-3371

VA Charlottesville, Virginia Elctrn. Comps. 804-296-4184
WA Seattle, Radar Elec. 206-282-2511
WI Grafton, Lake View Elctrns. Corp. 414-377-8250
WI Milwaukee, Industrial Elctrns., Inc. 414-276-1212
WI Milwaukee, Marsh Elctrns. 414-475-6000
WI New Berlin, Classic Comps. Supp., Inc. 414-786-5300
WI Oshkosh, Electronic Inds., Inc. 414-235-8930
Can Burnaby, BC, Intek Elctrns. 604-294-8100
Can Mississauga, Ont., Rush Elctrns. 416-677-7280
Can Pointe Claire, Future Elctrns. 514-694-7710
Can Pointe Claire, Que., Future Elctrns. 514-694-7710
Can Vancouver, BC, Future Elctrns. 604-294-1166
Can Victoria, BC, Queale Elctrns., Ltd. 604-388-6111

PAINE CORPORATION, 2401 S. Bayview St., Seattle, WA 98144, Tel: 206-329-8600, 800-426-0366, FAX: 206-329-1615; FSC No.: 13624; Empl.: 93; *Sls. Mgr.:* John Sagvold

PAKTRON, See ITW Paktron

PAK-TRONIC, See Tracor Paktronics

PAKTRONICS CONTROLS, INC., P.O. Box 185669, Ft. Worth, TX 76181, Tel: 817-284-5241, FAX: 817-284-1712; Empl.: 30; *Sls. Mgr.:* D. R. Sundberg, Acting

PALADIN CORP., 3543 Old Conejo Rd., No.101-102, Newbury Park, CA 91320, Tel: 805-499-0318, FAX: 805-499-4006; Empl.: 20; *Sls. Mgr.:* Scott Allen

PALOMAR ENGINEERS, Box 455, Escondido, CA 92033, Tel: 619-747-3343, FAX: 619-747-3346; Empl.: 9

PAMRAN INC., 1900 Williams St., Young Ind. Pk., Racine, WI 53404, Tel: 414-637-7999, FAX: 414-637-2303; FSC No.: K 8-67203; Empl.: 28; *Sls. Mgr.:* R. C. Pfeil

PANAMETRICS, 221 Cresent St., Waltham, MA 02154-3497, Tel: 617-899-2740, TELEX: 6817337, TWX: 951006, FAX: 617-899-1552; Empl.: 200; *Sls. Mgr.:* Bob Mel

PANASONIC FACTORY AUTOMATION CO., Matsushita Elect. Corp. of America, 9401 W. Grand Ave., Franklin Park, IL 60131, Tel: 708-452-2410, 708-452-2650, FAX: 708-452-2575; *Sls. Mgr.:* Art Hagiwara

Panasonic

FAX: 201-392-4782

PANASONIC INDUSTRIAL CO., Battery Sales GP, Box 1511, Secaucus, NJ 07096-1511, Tel: 201-348-5266; Empl.: 25 ..... **D•1470-1475**

Local Sales Offices & Reps

AZ Scottsdale, Dar-C 602-948-2240
CA Glendale, Halbar Assocs. Inc. 818-246-8263
CA Pleasanton, Moulthrop Sls. Inc. 415-463-0450
CA San Diego, Tauber & Assocs. 619-274-7242
MA Burlington, Conti-Younger Assocs. Inc. 617-273-1582
MN Eden Prairie, Electro Mark Inc. 612-944-5850
OH Beachwood, Elctrn. Salesmasters Inc. 216-831-9555
OR Beaverton, Advanced Power Prods. ... 503-646-0994

Local Distributors

AL Huntsville, Resistacap Inc. 205-883-4270
AZ Scottsdale, Electro Mktg. 602-991-0110
CA San Diego, Tauber Elctrns. Inc. 619-274-7242
CA San Jose, Rose Elec. Distrbg. Co. 408-943-0440
CA Santa Clara, Cypress Elctrns. Inc. 408-980-2500
CA Van Nuys, NESCO 818-781-0505
CO Englewood, AVT 303-779-8056
CT Woodbury, Cell Technlg. 203-575-1103
FL St. Petersburg, Micro Precision 813-854-2861
GA Norcross, Applied Power, Inc. 404-263-0421
IL Morton Grove, Power Pak Inc. 312-966-6000
IL Palatine, Ohm Elctrns. 708-359-9686
IN Indianapolis, Bell Inds. 317-634-8200
MD Beltsville, Mark Elctrns. 301-792-0072
MA Canton, Impact Sls. Co. Inc. 617-821-1500
MI Danvers, Generation Elctrns. Inc. 508-683-1177
MI Brighton, Applied Power Inc. 313-227-3604
MN Thief River Falls, Digi-Key 800-344-4539
MN Minneapolis, Stark Elctrns. Supp. Inc. 612-332-1325
NJ Camden, Gen. Radio 609-964-8560
NJ Clifton, Engineered Assem. 201-288-4477
NC Raleigh, Engrd. Assemblies Inc. 919-790-9700
NC Winston Salem, Kirkman Elctrns. 800-334-0158
OH Columbia, Promark Elctrns. Inc. 614-876-8885
OH Columbus, Hughes-Peters 614-294-5351
OR Beaverton, Micro Power 503-626-7086
TX Dallas, Computer Comps. Corp. 214-239-0271
TX Dallas, Norvell Elctrns. Inc. 214-233-0020
TX Fort Worth, Allied Elctrns. 817-336-5401
WI Mequon, Taylor Elec. Co. 414-241-4321

PANASONIC INDUSTRIAL COMPANY, Custom Peripheral Dept., Two Panasonic Way, Secaucus, NJ 07094, Tel: 201-392-6313, FAX: 201-348-7849; *Dist. Mgr.:* Edmund Silvia Jr., Prod. Mgr.

PANASONIC INDUSTRIAL CO., 1616 McCandless Dr., Milpitas, CA 95035, Tel: 408-946-7200, FAX: 408-946-3753

PANAVISE PRODUCTS, INC., 1485 Southern Way, Sparks, NV 89431, Tel: 702-353-2900, FAX: 702-353-2929; Empl.: 35; *Sls. Mgr.:* Mark Thorsell; *Dist. Mgr.:* Mark Thorsell

PANDUIT CORP., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, Tel: 800-777-3300, FAX: 708-532-1811; FSC No.: ;06383; Empl.: 2000 .... **C•1480-1482, 1800-1802**

Local Sales Offices & Reps

AL Birmingham, Frank Parker & Assocs. 205-655-4801
AL Mobile, Frank Parker & Assocs. 205-675-7213
AK Anchorage, Bar Elec. Agt. 907-562-0011
AZ Phoenix, Maddox Sls. 602-437-1002
AR Little Rock, Byron Carson Co. 501-663-6870
CA Los Altos, Ewing-Foley, Inc. 415-941-4525
CA Los Angeles, Maddox Sls. 213-949-7400
CA Sacramento, Ewing-Foley, Inc. 916-885-6591
CO Denver, Panduit Corp. 800-777-3300
CT Glastonbury, Panduit Corp. 203-657-4105
DC Washington, Agency Group, Inc. 301-858-1600
FL Ft. Lauderdale, Panduit Corp. 800-282-9209
FL Orlando, Panduit Corp. 800-282-9209
GA Atlanta, Panduit Corp. 404-256-5940
HI Honolulu, PEFCO, Inc. 808-832-0000
IL Burr Ridge, Panduit Corp. 708-887-1000
IN Indianapolis, Panduit Corp. 800-777-3300
KS Kansas City, Panduit Corp. 800-777-3300
KY Louisville, A. L. Pickens Co. 502-491-4215
LA Baton Rouge, Wells-Keown & Assocs. 504-292-6578
LA New Orleans, Wells- Keown & Assocs. 504-733-0301
LA Shreveport, Wells-Keown & Assocs. .. 318-688-6040
MD Baltimore, Agency Group, Inc. 301-793-0023
MA N. Andover, Panduit Corp. 508-681-0451
MI Fraser, Panduit Corp. 313-791-1700
MI Grand Rapids, Panduit Corp. 800-777-3300
MN Minneapolis, Electric Comp. Sls. 612-933-2594
MO St. Louis, Panduit Corp. 314-894-7800
NE Omaha, Panduit Corp. 402-391-0452
NV Las Vegas, Maddox Sls. 702-870-1151
NJ Leonia, Panduit Corp. 201-461-7790
NM Albuquerque, F P Sls. 505-345-5553
NY Buffalo, Panduit Corp. 800-777-3300
NY Rochester, Panduit Corp. 800-777-3300
NY Schenectady, Panduit Corp. 800-777-3300
NY Syracuse, Panduit Corp. 800-777-3300
NC Raleigh, L. G. White Southern 919-872-6049
NC Winston-Salem, L. G. White Southern 919-725-3612
OH Cincinnati, Panduit Corp. 800-777-3300
OH Cleveland, Panduit Corp. 800-777-3300
OH Columbus, Panduit Corp. 614-888-6224
OK Oklahoma City, Elctrl. Prods. of Okla. 405-842-8371
OR Portland, Panduit Corp. 503-654-9455
PA Philadelphia, Kunz, Powell & Assoc. .. 215-296-9490
PA Pittsburgh, Cody Assocs., Inc. 412-787-5336
SC Greenville, L. G. White Southern 803-271-0630
TN Memphis, Byron Carson Co. 901-276-0614
TN Nashville, Panduit Corp. 800-777-3300
TX Dallas, Panduit Corp. 214-518-0004
TX Houston, Panduit Corp. 713-686-5600
UT Salt Lake City, Ray Walker Co. 801-973-7454
VA Richmond, L. G. White Southern 804-752-7055
WA Seattle, Panduit Corp. 800-777-3300
WA Spokane, Lighting, Inc. 509-467-6650
WI Appleton, H. Mercer Co. 414-739-6223
WI Milwaukee, Panduit Corp. 800-777-3300
PR Santurce, L. Gandia & Assocs. 809-725-3473
Can Markham, Ont., Panduit Canada Ltd. .. 416-475-6922

PANEL COMPONENTS CORPORATION

FAX: 707-578-5478

PANEL COMPONENTS CORP., P.O. Box 6626M, Santa Rosa, CA 95406, Tel: 707-523-0600; Empl.: 25 ..... **A•2316; B•1382-1383; C•1484-1492, 1804-1809; D•2222**

Local Sales Offices & Reps

AL Huntsville, DHR Mktg. Inc. 205-722-0440
CA Santa Clara, Ross Mktg. Assoc. 408-988-8111
CA Tustin, Schoenbachler-Dobson Co. ... 714-544-1888
CO Englewood, Omega Ltd. 303-762-1921
GA Duluth, DHR Mktg., Inc. 404-564-0529
IL Northbrook, Raines & Assocs. 708-498-0890
IA Marion, M-S-B Assocs., Inc. 319-377-6261
KS Roeland Park, M-S-B Assocs., Inc. 913-432-2131
MA Scituate, Olsen Tech. Sls. 617-545-5101
MN St. Paul, Arkco Sls. 612-777-7454
MO St. Louis, M-S-B Assocs., Inc. 314-946-5577
NJ Kenvil, CFE/Gray 201-927-6662
NY Victor, Net Sls. 716-924-1844
NC Raleigh, DHR Mktg., Inc. 919-829-1970
OH Medina, Rockford Controls 216-725-3705
OR McMinnville, Electro-Design 503-472-0481
PA Philadelphia, Eastern Sci. Mktg. 215-368-4570
SC Greenville, DHR Mktg. Inc. 803-235-3594
TX Lewisville, Jim Hughes Co. 214-221-1536
WA Redmond, Electro-Design 206-867-9300
EXP Burnaby, B.C., Darmac Agencies, Ltd. 604-520-7121
Can Ottawa, Ont., Ellam & Assoc. 613-727-3892

PANELTEC, 3307 Edward Ave., Santa Clara, CA 95054, Tel: 408-496-1175, FAX: 408-970-1277; Empl.: 65

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(213) 452-8002
1220 Olympic Bl Santa Monica, CA 90404

Pan-International (U.S.A.) Inc.

FAX: 714-989-9935

PAN INTERNATIONAL (USA), INC., 9477 E. Archibald Ave., Rancho Cucamonga, CA 91730, Tel: 714-945-1365; Empl.: 21; *Sls. Mgr.:* Barry Park; *Dist. Mgr.:* Barry Park, Natl. Sls. Mgr. ..... **C•1810-1812; D•1107**

Local Sales Offices & Reps

CA San Jose, Enhance Sls. 408-293-2425
CO Littleton, Taylor Mktg. 303-850-0207
NH Londonderry, RJR Assoc. 603-437-6343
TX Garland, Hamilton & Savarese 214-271-4003
UT Ogden, Taylor Mktg. 801-546-9570

Local Distributors

CA San Jose, Enhance Sls. 408-293-2425
NH Londonderry, RJR Assoc. 603-437-6343

PAN-MAGNETICS, See Tamura Corp. of America

PAPST

FAX: 401-849-4640

PAPST MECHATRONIC CORP., Aquidneck Indl. Pk., Newport, RI 02840, Tel: 401-849-8810; Empl.: 30 ..... **C•1654-1659**

Local Sales Offices & Reps

AL Huntsville, Over & Over, Inc. 205-837-7105
AZ Phoenix, Jr. Engrg. Sls., Inc. 602-956-4670
CA Foster City, Papst Mechatronic Corp. 415-571-9591
CA Los Gatos, Luscombe Engrg. Co of San Francisco 408-370-2020
CA Montrose, Luscombe Engrg. Co. of So. Calif. 818-249-9000
CA San Diego, Luscombe Engrg. Co. of So. Calif. 619-549-9699
CO Englewood, Quorum 3 303-799-8100
CT Hartford, Sturgeon Co. 203-249-7800
FL Altamonte Springs, Over & Over, Inc. 407-332-1222
GA Norcross, Over & Pver, Inc. 404-449-6205
IL Arlington Heights, Brainard-Wilson Mktg; Inc. 708-437-2700
IL Arlington Heights, Papst Mechatronic Corp. 708-981-1404,FAX:708-981-1642
IL Arlington Hgts., Brainard-Wilson Mktg. 708-437-2700
IN Indianapolis, Elctrn. Mktg. Consits. 317-921-3450
IA Marion, MSB Assocs. Inc. 319-377-6261
KS Shawnee Mission, MSB Assocs., Inc. .. 913-432-2131
MA Needham, Sturgeon Tech. Sls. 617-444-6603
MN Edina, Mel Foster Tech. Sls., Inc. 612-941-9790
MO St. Charles, MSB Assocs. 314-946-5577
NJ Cherry Hill, Trinkle Sls., Inc. 609-795-4200
NJ Englewood, Harold Gray Assocs., Inc. 201-894-0894
NY Johnson City, Tech-Mark, Inc. 607-729-6340
NY Mendon, Tech-Mark, Inc. 716-624-3840
NY Utica, Tech-Mark, Inc. 315-733-0575
NC Charlotte, Over & Over, Inc. 704-542-9111
OH Beachwood, Elctrn. Salesmasters, Inc. 216-831-9555
OR Portland, Venture Elctrns. 503-624-0617
PA Knoxville, Trinkle Sls., Inc. 215-922-2080
RI Newport, Papst Mechatronic Corp. 401-849-8810
TX Dallas, JYSCO/Comps., Inc. (except El Paso) 214-349-1650
WA Bellevue, Venture Elctrns. 206-454-4594
WI Waukesha, Brainard-Wilson Mktg. 414-797-7940
Can Pickering, Ont., A.C. Simmonds & Sons, Ltd. 416-839-8041

PARAGON ELECTRIC CO., INC., 606 Parkway Blvd., Two Rivers, WI 54241, Tel: 414-793-1161, TELEX: 26-3450, FAX: 414-793-3736; Empl.: 500; *Sls. Mgr.:* Don Karman

PARALINE

FAX: 818-281-5867

PARA-LINE TRANSFORMER CO., INC., 511 South Palm Ave., Alhambra, CA 91803, Tel: 818-281-0222; FSC No.: 59465 ..... **A•2317**

PARKER HANNIFIN CORP., 17325 Euclid Ave., Cleveland, OH 44112-1290, Tel: 800-272-7537, 800-C-PARKER, TELEX: 980636; Empl.: 33,225

PARKER HANNIFIN CORP., Compumotor Div., 5500 Business Park Dr., Rohnert Pk, CA 94928, Tel: 707-584-7558, FAX: 707-584-8015

PARKER HANNIFIN CORP., Daedal Div., P.O. Box 500, Sandy Hill Road, Harrison City, PA 15636, Tel: 412-744-4451, FAX: 412-744-7626

PARKER HANNIFIN CORP., Filter Division, 16810 Fulton County Rd. No.2, Metamora, OH 43540, Tel: 419-644-4311, FAX: 419-644-6205

PARKER HANNIFIN CORP., Fluidpower Pump Division, 100 Parker Drive, Ostego, MI 49078-1495, Tel: 616-694-9411, FAX: 616-694-4638

PARKER HANNIFIN CORP., Hose Products Division, 30240 Lakeland Blvd., Wickliffe, OH 44092, Tel: 216-943-5700, FAX: 216-943-7088

PARKER HANNIFIN CORP., Hydraulic Valve Division, 520 Ternes Ave., Elyria, OH 44035, Tel: 216-366-5100, FAX: 216-366-5253

PARKER HANNIFIN CORP., Instrumentation Connectors Div., 9400 S. Memorial Pkwy., Huntsville, AL 35802, Tel: 205-881-2040, FAX: 205-881-5730

PARKER HANNIFIN CORP. PARFLEX DIVISION, 1300 N. Freedom Street, Ravenna, OH 44266, Tel: 216-296-2871, FAX: 216-296-8433

PARKER HANNIFIN CORP. PNEUMATIC DIV., 8676 E M-89, Richland, MI 49083, Tel: 616-694-9411, FAX: 616-629-5385

PARKER HANNIFIN CORP., Refrigerating Specialties Division, 2445 South 25th Ave., Broadview, IL 60153, Tel: 708-681-6300, FAX: 708-681-6300 Ext.315

PARKER HANNIFIN CORP., Rotary Actuator Division, 135 Quadral Drive, Wadsworth, OH 44281-0450, Tel: 216-336-3511, FAX: 216-334-3335

PARKER HANNIFIN CORP., Schrader Bellows Division, 200 W. Exchange Street, Akron, OH 44309-0631, Tel: 216-375-5202, FAX: 1-800-446-7451

PARKER HANNIFIN CORP., Seal Group, 18321 Jamboree Rd., P.O. Box C-19510, Irvine, CA 92713, Tel: 714-851-3763, FAX: 714-851-2127

PARKER HANNIFIN CORP., Tube Fittings, 3885 Gateway Blvd., Columbus, OH 43228, Tel: 614-279-7070, FAX: 614-279-7685

PARKER MCCRORY MFG. CO., 2000 Forest Ave., Kansas City, MO 64108, Tel: 816-221-2000, FAX: 816-221-9879; *Sls. Mgr.:* Ken Turner; *Dist. Mgr.:* Ken Turner

PARKER SEAL GROUP, 18321 Jamboree Road, Irvine, California 92715, Tel: 714-851-3763, FAX: 714-851-2127; Empl.: 2,200; *Sls. Mgr.:* Joe Vicic; *Dist. Mgr.:* John Dick

Local Sales Offices & Reps

CA Arcadia, Van Gott & Assocs. 818-445-9728
TX Dallas, Glitsh Special Prods. 214-631-0120

Local Distributors

AL Birmingham, Alabama Seal & Packing 205-879-7225
AZ Phoenix, State Seal Co. 602-437-1532
CA Garden Grove, Cal-State Seal & Fluid Comps., Inc. 714-554-9080
CA La Mirada, Ad-Tech Seal, Inc. 213-921-6608
CA San Leandro, Nor-Cal Seal Co. 415-568-7371
CA Woodland Hills, Valley Seal Co. 213-873-3630
CO Englewood, Aspen Seal & Packing 303-761-9049
CT Newington, Niantic Rubber Co. 203-666-5661
GA Atlanta, United Seal & Rubber 404-729-8880
GA Hapeville, Go-Air, Inc. 404-768-1121
IN Indianapolis, Seal Prods., Inc. 317-633-7277
MA Northborough, Hope Co. 508-393-7660
MA Woburn, Seal Distrbn. Ctr. 617-491-0100
MI Farmington Hills, Roger Zatkoff Co., Inc. 313-478-2400
MI Grand Rapids, Roger Zatkoff Co., Inc. 616-698-6880
MI Kalamazoo, Depatie Fluid Power Co. 616-381-4590
NY Rochester, Web Seal, Inc. 716-546-1320
NC Raleigh, Smith Seal of North Carolina 919-790-1000
OH Holland, Roger Zatkoff Co. 419-866-1600
OR Portland, Air-Oil Prods. 503-234-0866
PA Allentown, Staver Hydraulics Co., Inc. 215-837-1818
PA Exton, Staver Hydraulics Co., Inc. 215-594-0540
PA Newton, D.B.R. Inds. 215-968-6100
RI Cranston, Niantic Rubber Co. 401-942-0900
TX Arlington, Texas Seal Supp. Co. 817-640-1193
TX Houston, Parker Seal Distrbn. Ctr. 713-649-7592
Can Mississauga, D & D Packing & Seals 416-625-2033
Can Mississauga, Sealtech Supply, Inc. 416-238-5885
Can Port Credit, Seals Unlimited, Inc. 416-278-1326
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PAR METAL PRODUCTS, INC., Par Industrial Complex, 1246 Atlantic Ave., Brooklyn, NY 11216, Tel: 718-774-5900, TELEX: 424 823 SNDS UI ATTN:PAR; FSC No.: 3449;3469; Empl.: 100; *Sls. Mgr.:* J. Troiano ..... **C•1077**

PARSONS MANUFACTURING, 1055 O'Brien Dr., Menlo Park, CA 94025-1476, Tel: 415-324-4726, FAX: 415-324-3051; Empl.: 45; *Sls. Mgr.:* S. Wurzer

PARSYTEC INC., Bldg. 9, Unit60, 245 W. Roosevelt Rd., West Chicago, IL 60185, Tel: 708-293-9500, FAX: 708-293-9525; Empl.: 8; *Sls. Mgr.:* Reinhard Rinn

PARVEX SERVO SYSTEMS, GEC Alsthom International, Inc., Two Ram Ridge Road, Spring Valley, NY 10977, Tel: 914-425-6908, FAX: 914-425-6314

PASO SOUND PRODUCTS, 14 First St, Pelham, NY 10803, Tel: 914-738-4800, FAX: 914-738-3954; Empl.: 18; *Sls. Mgr.:* Ken O'Brien

PASS & SEYMOUR/LEGRAND, Pass & Seymour/Inc., P.O. Box 4822, Syracuse, NY 13221, Tel: 315-468-6211, TELEX: 93-7232, FAX: 315-468-6305; Empl.: 1700; *Sls. Mgr.:* Sergio Palluci, Sls. Mgr./Kristin Northrop, Prod. Mgr.

PASTERNACK ENTERPRISES, P.O. Box 16759, Irvine, CA 92713, Tel: 714-261-1920, FAX: 714-261-7451; FSC No.: 53919; *Sls. Mgr.:* Elayne Wilson

PATTON-MACGUYER INC., 17 Virginia Ave., Providence, RI 02905, Tel: 401-941-6000, FAX: 401-941-5290; FSC No.: 77147; Empl.: 45; *Sls. Mgr.:* F. Spunzo

PAVE TECHNOLOGY CO., INC., 2751 Thunderhawk Ct., Dayton, OH 45414-3445, Tel: 513-890-1100, FAX: 513-890-5165

PAYNE ENGINEERING, Box 70, Scott Depot, WV 25560, Tel: 304-757-7353, TELEX: 88-5452, FAX: 304-757-7305; Empl.: 40; *Sls. Mgr.:* R. B. Vogelbach

PCA ELECTRONICS, 16799 Schoenborn St., Sepulveda, CA 91343, Tel: 818-892-0761, TWX: 910-496-1525, FAX: 818-894-5791; FSC No.: 97722; Empl.: 45; *Sls. Mgr.:* Nand Aggarwal ..... **A•1589-1594, 2318-2322**

Local Sales Offices & Reps

AZ Phoenix, Toward Engrg. Assocs. 602-955-3193
CA Irvine, Ramsey & Assocs. 714-851-2340
CA San Diego, Ramsey & Assocs. 619-451-8865
CA San Jose, Arnold Techn. Sls. 408-954-0400
FL Ft. Lauderdale, Sunland Assoc. 305-561-1303

FL Goldenrod, Sunland Assocs. 305-365-9533
IL Westchester, Emtronics, Inc. 312-345-6500
IL Wheaton, Emtronics, Inc. 708-665-6222
IN Carmel, Emtronics, Inc. 317-848-2016
MA Sudbury, KSA of New England 508-443-5881
MN Bloomington, Bill Deming and Assocs. 612-888-5000
MS Meridan, Southeast Tech. Grp. 601-485-7055
AL Huntsville, Southeast Tech. Grp. 205-534-2376
GA Lawrenceville, Southeast Tech. Grp. .. 404-979-2055
NC Zebulon, Southeast Tech. Grp. 919-269-5589
OH Beavercreek, Electro-Com 513-299-0864
OH Dayton, Electro-Com 513-898-5140
OR Tigard, Elctrn. Comp. Sls. 503-245-2342
PA Exton, Linear Sls. 215-524-8080
TX Dallas, Blackburn Assocs. 214-750-8484
UT Salt Lake City, Sage Sls. 801-467-5451
WA Mercer Island, Elctrn. Comp. Sls. 206-232-9301

Local Distributors

CA Buena Pk, Cypress Elctrns. Inc. 714-521-5230
CA San Diego, Cypress Elctrns. Inc. 619-535-0011
CA San Jose, Cypress Elctrns. 408-980-2500
CA Santa Clara, Cypress Elctrns. Inc. 408-980-8400
CA Sherman Oaks, DLDI-Delay Lines Distrs. 818-986-9455
CO Englewood, Cypress Elctrns. 303-792-5829
CO Wheatridge, Cypress Elctrns. Inc. 303-431-2622
MA Sudbury, ASK Elctrns. 508-443-5880
NJ Rockaway, NASCO Elctrns. 201-625-7777
OR Beaverton, Cypress Elctrns. 503-641-2233
OR Portland, Cypress Elctrns. 503-223-8900
PA Exton, VSH Elctrns. 215-363-2250
WA Bothwell, Cypress Elctrns. 206-483-1140

P.C. BOARDS, INC., 210 West Main, Chanute, KS 66720, Tel: 316-431-0406, FAX: 316-431-2013; Empl.: 43; *Sls. Mgr.:* Greg Bilyeu

PCB PIEZOTRONICS, 3425 Walden Ave., Depew, NY 14043-2495, Tel: 716-684-0001, TWX: 710-263-1371, FAX: 716-684-0987; Empl.: 210; *Sls. Mgr.:* John Lally

PCD, 2 Technology Dr., Peabody, MA 01960, Tel: 508-532-8800, FAX: 508-532-6800; FSC No.: 58982; *Sls. Mgr.:* A. Arcisz

P C EXPRESS, INC., 15103 U.S. Hwy. 19, Hudson, FL 34667, Tel: 813-863-6114; Empl.: 15

PCI, INC., 1530 Parkmoor Ave.-Ste. A, San Jose, CA 95128, Tel: 408-282-0200, FAX: 408-282-0216; Empl.: 2500; *Sls. Mgr.:* Mike Clarke; *Dist. Mgr.:* Jane Campbell

PCK ELASTOMERICS, INC., See Elastomeric Technologies, Inc.

PC TRANSFORMER CORP., 64 D Nancy St., West Babylon, NY 11704, Tel: 516-491-3300, FAX: 516-491-3689; FSC No.: 62281; Empl.: 15; *Sls. Mgr.:* Stanley L. Goldstein ..... **A•2324-2331**

PDS TECHNOLOGIES, See Power-Pac

PEARL TECHNOLOGY, 1000 E. William St.-Ste. 100, Carson City, NV 89701, Tel: 702-883-1979, FAX: 702-883-4874

PEARSON ELECTRONICS, INC., 1860 Embarcadero Rd., Palo Alto, CA 94303, Tel: 415-494-6444, TELEX: 171-412, FAX: 415-494-6716; FSC No.: 05280; Empl.: 23; *Sls. Mgr.:* Michelle Kelsey ..... **A•2332**

PECA, INC., 592 Winks Lane, Bensalem, PA 19020, Tel: 215-245-1550, FAX: 215-639-3545; Empl.: 30; *Sls. Mgr.:* Jean Douglass

THE PEDRO COMPANIES, 104 E. 10th St., St. Paul, MN 55101, Tel: 612-224-9491, FAX: 612-224-8674; Empl.: 100; *Sls. Mgr.:* Douglas Bieniek

PEERLESS, 19 Wilbur St., Lynbrook, NY 11563, Tel: 516-593-2121, 1-800-645-2268

PEER PROTOCOLS, 3176 Pullman, Ste. 101, Costa Mesa, CA 92626, Tel: 714-662-1929, FAX: 714-662-1437; Empl.: 10; *Sls. Mgr.:* Don Bergis

PENBERTHY, INC., De Vlieg-Bullard, P.O. Box 112, Locust St., Prophetstown, IL 61277, Tel: 815-537-2311, TWX: 257-339 PMCO PRWN, FAX: 815-537-5764; Empl.: 160; *Sls. Mgr.:* Craig Hagel

PENFIELD, INC., 8 West St., Plantsville, CT 06479, Tel: 203-621-9141, TWX: 5101003285, ESYLNK: 6287757, FAX: 203-621-2380; Empl.: 77; *Sls. Mgr.:* Gary Zoccolante; *Dist. Mgr.:* Gary Zoccolante

PENN ENGINEERING & MANUFACTURING CORP., 5190 Old Easton Rd. PO Box 1000, Danboro, PA 18916, Tel: 215-766-8853, 800-237-4736, FAX: 215-766-0143; FSC No.: CAGE 46384; Empl.: 850; *Sls. Mgr.:* John E. O'Brien

PENN KEYSTONE CORP., 30 N. Plains Ind. Ste.13, Wallingford, CT 06492, Tel: 203-294-0537, FAX: 203-294-0361; FSC No.: 03034; *Sls. Mgr.:* Robert Ginter

PENN-TRAN CORP.,SUB. OF SPECTRUM ELCTRNS. INC., Box 1321, Rte. 144N, Wingate, PA 16880, Tel: 814-355-1521, FAX: 814-355-1524; FSC No.: 50783; Empl.: 80; *Sls. Mgr.:* Jeffrey Krauss ..... **D•1918**

Local Sales Offices & Reps

CA Los Altos, Cain-White & Co. 415-948-6533
CA Pasadena, A-F Sls. Engrg., Inc. 213-681-5631
MN Minneapolis, International Sls. Co. 612-831-8423
OR Portland, Intertech Sls. 503-775-7885
PA Glenside, Koebert Assocs., Inc. 215-887-2310
TX Dallas, Seaton Corp. 214-980-9860

PENNY & GILES, 1640 Fifth Street, Suite 224, Santa Monica, CA 90401, Tel: 213-393-1497, TELEX: 65-2337; *Dist. Mgr.:* Rose Riedel Prod. Mgr.

Penny+Giles

FAX: 404-740-0420

PENNY & GILES DATA SYSTEMS, INC., 1250 Northmeadow Pkwy., Ste. 114, Roswell, GA 30076, Tel: 404-740-0415, FAX: 404-740-0420 ..... **D•1310**

Local Sales Offices & Reps

AZ Tempe, Scientific Dvcs.-West 602-730-9774
GA Atlanta, Magard & Assocs. 404-451-8862
CA Huntington Bch., Scientific Dvcs.-West 714-840-3501
CA San Jose, P & M Elctrns. 408-287-0402
CO Denver, Scientific Dvcs.-West 303-469-5145
IL Chicago, Sector Eng. 312-530-7850
IN Indianapolis, Sector Eng. 317-253-9221
MD Annapolis, Blackwood Associates 301-269-1676
MA Andover, Saret Assocs. 508-475-9332
MN Minneapolis, Sector Eng. 612-378-2123
NM Albuquerque, Scientific Dvcs.-West ... 505-883-3668
NC Raleigh, Lee Assoc./Carolinas 919-848-8818
OH Columbus, Robert Cloon Assocs. 614-459-2890
PA Philadelphia, G.L. Williams Assocs. 609-428-6060
TX Dallas, Scientific Dvcs.-Southwest 214-231-8106
WA Seattle, Scientific Dvcs.-West 206-637-0945
WI Milwaukee, Sector Eng. 414-352-8280
Can Ontario, Giga-Tron Assocs. Ltd. 613-225-4090

PENRIL DATACOMM NETWORKS, 1300 Quince Orchard Blvd., Gaithersburg, MD 20878, Tel: 301-921-8600, TWX: 710-828-0522; Empl.: 200

PENSTOCK ENGINEERING LABS., Penstock, Inc., 520 Mercury Dr., Sunnyvale, CA 94086-4018, Tel: 408-730-0300, 800-PENSTOCK, FAX: 408-730-4782; Empl.: 46; *Sls. Mgr.:* Steve Ulett; *Dist. Mgr.:* Steven Ulett

Local Sales Offices & Reps

CA Sunnyvale, Penstock, Inc. 800-PENSTOCK

Local Distributors

AZ Phoenix, Penstock Desert Sls. 800-PENSTOCK
CA Anaheim, Penstock, Inc. 800-PENSTOCK
CA Beverly Hills, Penstock, Inc. 800-PENSTOCK
CA San Diego, Penstock, Inc. 800-PENSTOCK
CA Sunnyvale, Penstock Intl. 800-PENSTOCK
CA Sunnyvale, Penstock, Inc. 800-PENSTOCK
CO Denver, Penstock, Inc. 800-PENSTOCK
IL Palatine, Penstock Midwest 800-PENSTOCK
IN Indianapolis, Penstock, Inc. 800-PENSTOCK
NJ Fairfield, Penstock East 800-PENSTOCK
NJ Teterboro, Penstock East 800-PENSTOCK
OR Portland, Penstock Northwest 800-PENSTOCK
UT Salt Lake City, Penstock, Inc. 800-PENSTOCK
WA Bellevue, Penstock Northwest 800-PENSTOCK
EXP CA/Sunnyvale, Penstock Intl. 800-PENSTOCK
Can Vancouver, BC, Penstock Canada 604-662-3475

PERCEPTICS CORP., 725 Pellissippi Parkway, Knoxville, TN 37922, Tel: 615-966-9200, FAX: 615-966-9330; Empl.: 90; *Sls. Mgr.:* J.R. Johnson; *Dist. Mgr.:* J.R. Johnson

PENTICA SYSTEMS, INC., One Kendall Sq., Bldg. 200, 4th Floor, Cambridge, MA 02139, Tel: 617-577-1101, FAX: 617-494-9162; Empl.: 4

PERCON, INC., 1710 Willow Creek Circle, Ste. 37, Eugene, OR 97402-9153, Tel: 1-800-8-PERCON, 503-344-1189, FAX: 503-344-1399; Empl.: 26; *Sls. Mgr.:* Nonie Mansfield, Sls.; *Dist. Mgr.:* Dean VanPeursem, V.P. Mktg/Sls.

PERFECT GEAR & INSTRUMENT, Designatronics, Inc., 2101 Jericho Tpk., New Hyde Park, NY 11040, Tel: 516-328-3300, TWX: 510-223-0642, FAX: 516-326-8827; Empl.: 210; *Sls. Mgr.:* Murray Ores

PERFECTION MICA CO., See Magnetic Shield Corp.

PERFORMANCE CONTROLS, INC., 433 Caredean Drive, Horsham, PA 19044, Tel: 215-675-6500, TELEX: 88-1478, FAX: 215-674-8714; FSC No.: 61773; Empl.: 40

PERIPHERALS, 1363 Logan Ave., Costa Mesa, CA 92626, Tel: 714-540-4925, 800-468-6888, FAX: 714-540-2026; Empl.: 20; *Sls. Mgr.:* Elizabeth O'Rouke

PERKIN-ELMER CORP., Elctrn. Prods. Dept., 761 Main Ave., Norwalk, CT 06859-0132, Tel: 203-762-4786, TWX: 710-468-3213; Empl.: 70; *Sls. Mgr.:* D. P. Duggan

PERMALUSTER, INC., 1844 N. Keystone St., Burbank, CA 91504, Tel: 213-849-4543, 213-849-6454, FAX: 818-566-4232; Empl.: 6; *Sls. Mgr.:* J. Ross

PERMA POWER ELCTRNS., 5601 W. Howard Ave., Chicago, IL 60648, Tel: 312-763-0763, FAX: 312-763-8330; Empl.: 80/100; *Sls. Mgr.:* Michael Shatz; *Dist. Mgr.:* Michael Shatz

Local Distributors

CA Los Angeles, Marshall Ind. 800-522-0084
IL Chicago, Newark Elctrns. 800-367-3573
TX Ft. Worth, Allied Elctrns. 800-433-5700

PERRY AMPLIFIER, 138 Fuller St., Brookline, MA 02146, Tel: 617-734-0844; Empl.: 18; *Sls. Mgr.:* N. Geskos

PERX,INC., 525 Tamal Plaza, Corte Madera, CA 94925, Tel: 415-927-0155, FAX: 415-927-0159; Empl.: 5

PETER PARTS & ASSOCS., 82 E. Main St., Webster, NY 14580, Tel: 716-265-2540, FAX: 716-265-2542; *Sls. Mgr.:* Peter Parts

PFC, See Southern Elctrns. Co. Inc.

P.G. ELECTRONICS LTD., 800 Arrow Rd., 8, Weston, Ont., Canada M9M2Z8, Tel: 416-741-7682, FAX: 416-741-9927; FSC No.: 38243

PHASE CONTROL ELECTRONICS, 87-27 Myrtle Ave., Glendale, NY 11385, Tel: 718-441-4278; Empl.: 16; *Sls. Mgr.:* Jack Stanley

PHELPS DODGE MAGNET WIRE, P.O. Box 600, Ft. Wayne, IN 46801, Tel: 219-458-4444, 800-255-CLIC (2542), TWX: 810-332-1506, FAX: 219-422-1667; *Sls. Mgr.:* G. H. Guyer

PHENIX TECHNOLOGIES, Central Garrett Ind'l. Pk., Accident, MD 21520, Tel: 301-746-8118, FAX: 301-895-5570; Empl.: 35; *Sls. Mgr.:* Bill Robeson

PHILADELPHIA INSULATED WIRE CO. INC., 333 New Albany Rd., Moorestown, NJ 08057, Tel: 800-257-8357, 609-235-6700, FAX: 609-235-5480; Empl.: 150; *Sls. Mgr.:* Glenn McCleery

PHILIPS AUDIO VIDEO SYS. CORP., See AKG Acoustics

PHILIPS CIRCUIT ASSEMBLIES:A DIVISION OF NORTH AMERICAN PHILIPS CORP., 2601 S. Moorland Rd., New Berlin, WI 53151, Tel: 414-785-6506, TWX: 910-262-3032, FAX: 414-785-6516

PHILIPS CIRCUIT ASSEMBLIES, 3602 W. Waters Avenue, Tampa, FL 33614-2797, Tel: 813-933-5113, TELEX: 3727509, FAX: 813-932-1373; *Sls. Mgr.:* C. Maslona

PHILIPS CIRCUIT ASSEMBLIES:NORTH AMERICAN PHILIPS CORP., 100 Providence Pike, Slatersville, RI 02876-2078, Tel: 401-762-3800, FAX: 401-762-2324

Philips Components
Discrete Products Division
A North American Philips Company

FAX: 407-881-3300

PHILIPS COMPONENTS DISCRETE PRODUCTS DIVISION, A North American Philips Company, 2001 W. Blue Heron Blvd., Riviera Beach, FL 33404, Tel: 407-881-3200, TELEX: 136461, TWX: 810-848-0228; *Dist. Mgr.:* Jess Hall ..... **A•1124-1128, 1286-1287, 1289-1292, 1972-1974, 2100-2116; B•1026-1027, 1112-1113, 1336-1338, 1856-1857**

Local Sales Offices & Reps

AL	Huntsville, Over & Over Inc.	205-837-7105
AZ	Tempe, Philips Comps.	602-820-2225
CA	Anaheim, Philips Comps.	714-441-0385
CA	Folsom, Webster Assocs.	916-989-0843
CA	Harbor City, Refrigeration Comp.	213-325-3420
CA	Mission Hills, Philips Comps.	818-891-6299
CA	San Diego, Philips Comps.	619-453-0332
CA	Santa Clara, Philips Comps.	408-748-1563
CA	Sunnyvale, Philips Comps.	408-746-2066/2808
CO	Englewood, Philips Comps.	303-779-9696
FL	Altamonte Springs, Philips Comps.	407-339-5073
FL	Ft. Lauderdale, Philips Comps.	305-485-0115
GA	Norcross, Over & Over, Inc.	404-449-6205
GA	Roswell, Philips Comps.	404-992-0150
IL	Bannockburn, GMR Sls., Inc.	312-295-8440
IL	Rolling Meadows, Philips Comps.	708-670-9494
IN	Fort Wayne, Corrao Marsh, Inc.	219-482-2725
IN	Green Field, Corrao Marsh, Inc.	317-462-4446
IN	Kokomo, Philips Comps.	317-456-1615
IA	Cedar Rapids, Lorenz Sls., Inc.	319-377-4666
KS	Merriam, Lorenz Sls., Inc.	913-384-6556
KS	Wichita, Lorenz Sls., Inc.	316-721-0500
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Woburn, Philips Comps.	617-932-4748
MI	Farmington Hills, Philips Comps.	313-553-6000
MN	Minneapolis, Electric Comp. Sls., Inc.	612-933-2594
MO	St. Louis, Lorenz Sls., Inc.	314-997-4558
NE	Lincoln, Lorenz Sls., Inc.	402-475-4660
NJ	Englewood Cliffs, ED Glass Assocs.	201-592-0200
NJ	Parsippany, Philips Comps.	201-455-1507
NY	Binghamton, Empire Tech. Assoc., Inc.	607-772-0651
NY	East Rochester, Empire Tech. Assoc., Inc.	716-381-8500
NY	Port Ewen, Empire Tech. Assoc., Inc.	914-331-5553
NY	Skaneateles, Empire Tech. Assoc., Inc.	315-685-5703
NC	Charlotte, Over & Over, Inc.	704-542-9111
NC	Raleigh, Over & Over, Inc.	919-876-7338
NC	Raleigh, Philips Comps.	919-782-3334
OH	Dayton, Philips Comps.	513-436-0066
OH	Wickliffe, Philips Comps.	216-731-7721
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
PA	Willow Grove, Philips Comps.	215-659-6069
TX	Austin, Philips Comps.	512-331-8828
TX	Houston, Philips Comps.	713-987-0034
TX	Richardson, Philips Comps.	214-231-8274
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
WA	Spokane, Eclipse Mktg. Grp.	509-922-3972
WI	Milwaukee, Philips Comps.	414-228-7632
PR	Caparra Hgts., M. Anderson Co. Inc.	809-793-6544
Can	Scarborough, Ont., Philips Comps.	416-292-5161

PHILIPS COMPONENTS DISCRETE PRODUCTS DIV., A North American Philips Co., 5083 Kings Hwy., Saugerties, NY 12477, Tel: 914-246-2811, TWX: 510-247-5410, FAX: 914-246-2811(Ext 427); FSC No.: 02114; *Sls. Mgr.:* B. Grindle ..... **A•1286-1292**

Local Distributors

CA	Canoga Park, Philips Comps. Magnetic Prods.Svc.Ctrs.	1-800-343-1370
IL	Rolling Meadows, Philips Comps. Magnetic Prods. Svc. Ctrs	1-800-241-7667
MA	Norwood, Philips Comps. Magnetic Prods.Svc.Ctrs.	1-800-367-8083
NY	Woodstock, Elna Ferrite	914-246-5861
PA	West Conshohocken, Eastern Comps.	215-825-8610

PHILIPS COMPONENTS DISCRETE PRODUCTS DIV., A North American Philips Co., 5900 Australian Avenue, W. Palm Bch., FL 33407, Tel: 407-863-1800, TELEX: 820677, FAX: 407-863-1811 ..... **A•1124**

PHILIPS COMPONENTS DISCRETE PRODUCTS DIV., A North American Philips Co., 6071 St. Andrews Rd., Columbia, SC 29212-3198, Tel: 803-772-2500, TELEX: 805024, FAX: 803-772-2445; *Sls. Mgr.:* Bill Cvirko ..... **A•1125-1126**

DC Aluminum Electrolytic Capacitors(Computer Grade, Radial)Indl. & Consumer AC Motor Starts, Film Capacitors (Film/Foil, Metallized) Tantalum Capacitors (Foil) Film Trimmer Capacitors

PHILIPS COMPONENTS DISCRETE PRODUCTS DIV, A North American Company, 6-D Founders, El Paso, TX 79906, Tel: 915-775-4200, FAX: 915-775-4249 ..... **A•1128**

See Philips Components, Riviera Beach

PHILIPS COMPONENTS DISCRETE PRODUCTS DIVISION, Airport Road, P.O. Box 760, Mineral Wells, TX 76067, Tel: 817-325-7871, FAX: GPR 817-325-1052 SPR 817-325-8397; *Sls. Mgr.:* Tom McKelvy ... **A•1972-1973**

PHILIPS COMPONENTS DISCRETE PRODUCTS DIV., A NORTH AMERICAN PHILIPS CO., Professional Components Grp, 100 Providence Pike, Slatersville, RI 02876, Tel: 401-762-3800, FAX: 401-762-4497(mktg); FSC No.: 73445 ..... **B•1112-1113**

PHILIPS COMPONENTS DISCRETE PRODUCTS DIV., A NORTH AMERICAN PHILIPS CO, Discrete Semiconductor Group, 100 Providence Pike, Slatersville, RI 02876-2078, Tel: 401-762-3800, FAX: 401-767-4497 ..... **A•2100-2109, 2111-2116; B•1112-1113, 1336-1338**

PhilipsECG
A North American Philips Company

FAX: 717-323-4691

PHILIPS ECG, North American Philips Co., 1025 Westminster Dr., Williamsport, PA 17701, Tel: 717-323-4691; *Sls. Mgr.:* L.R. Brophy, Gen. Mgr. Mktg.; *Dist. Mgr.:* E. H. Frost ..... **A•2118-2119**

Local Sales Offices & Reps

CA	Anaheim, Philips ECG	714-441-0385
CA	Santa Clara, Philips ECG	408-727-6132
FL	Maitland, Hutto Hawkins Assoc.	407-831-2474
FL	Tampa, Hutto Hawkins Assoc.	813-251-2970
GA	Atlanta, Millar Elctrns.	404-634-3350
MA	Woburn, Philips ECG	617-932-4748
MI	Farmington Hills, R.C. Merchant & Co.	313-476-4600
MO	Kansas City, Philips ECG	816-741-4019
NY	Seneca Falls, Philips ECG	315-568-5432
NC	Raleigh, Millar Elec., Inc.	919-828-8840
OH	Dayton, Philips ECG	513-436-0066
PA	Willow Grove, Philips ECG	215-659-6096
TX	Richardson, Philips ECG	214-231-8274
Can	Dorval, Que., ECG Canada Inc.	514-685-5800

For distributor information, call 1-800-225-8326. (In Massachusetts, call 1-890-6107.)

Local Distributors

MA	For Distributor information,call	800-526-9354

PHILMORE MANUFACTURING, 2240 15th St. P.O. Box 6386, Rockford, IL 61125-1386, Tel: 815-229-7773, FAX: 815-229-7785; Empl.: 18

PHI TECHNOLOGIES, INC., 4605 North Stiles, Oklahoma City, OK 73105, Tel: 405-521-9000, TWX: 910-831-3286, FAX: 405-524-4254; Empl.: 40; *Sls. Mgr.:* Robert P. Gelernter ..... **D•1048-1049**

Local Sales Offices & Reps

CA	North Hollywood, Martin & Assocs.	213-872-1990
DC	Gans & Pugh Assoc.	703-527-3262
MA	Wenham, Ellis Assoc.	508-468-4990

PHOENIX CONTACT INC., P.O. Box 4100, Harrisburg, PA 17111, Tel: 717-944-1300, FAX: 717-944-1625; *Sls. Mgr.:* Howard C. Minnick, Jr.; *Dist. Mgr.:* Mark F. Gilliford

PHOENIX DATA, INC., 3384 W. Osborn Rd., Phoenix, AZ 85017, Tel: 602-278-8528, 800-828-4327, FAX: 602-278-8679; Empl.: 55; *Sls. Mgr.:* David Norgord

PHOENIX MICROSYSTEMS, 991 Discovery Dr., Huntsville, AL 35806, Tel: 205-922-1200, TELEX: 752592, FAX: 205-837-1256; Empl.: 180

PHOENIX WIRE, INC., 100 Teflon Ave., S. Hero, VT 05486, Tel: 802-372-4561; Empl.: 25; *Sls. Mgr.:* Ohmer Corbin; *Dist. Mgr.:* Ohmer Corbin ..... **C•1813**

PHONON CORPORATION, 7 Herman Drive, P.O. Box 549, Simsbury, CT 06070, Tel: 203-651-0211, TELEX: 294705, FAX: 203-651-8618; FSC No.: 6Y858; Empl.: 24

PHOTON, INC., 1115 Space Park Dr., Santa Clara, CA 95054-3432, Tel: 408-492-9449, FAX: 408-492-9659; *Sls. Mgr.:* J. M. Darchuk

PHOTON SOURCES, INC., See Lumonics Material Processing Corp.

PHOTO RESEARCH:KOLLMORGEN, 9330 DeSoto Ave./PO Box 2192, Chatsworth, CA 91313-2192, Tel: 818-341-5151, TELEX: 69-1427; FSC No.: 92434; Empl.: 90; *Sls. Mgr.:* M. L. Woolsey

PHO-TRONICS DIV., E. R. Wagner Mfg. Co., 8701 W. Bradley Rd., Milwaukee, WI 53224, Tel: 414-355-6704, FAX: 414-355-0593; Empl.: 155; *Sls. Mgr.:* Steven J. O'Brien, Sls./Mktg. Mgr.

PHYSICS INTERNATIONAL CO., Olin Defense Systems Grp., 2700 Merced St., San Leandro, CA 94577, Tel: 415-577-7236, TWX: 910-366-7033; Empl.: 360

PIC DESIGN, Remington Technologies, Inc., P.O. Box 1004, Middlebury, CT 06762, Tel: 203-758-8272, TWX: 910-997-0989, FAX: 203-758-8271; FSC No.: 00141; Empl.: 105; *Sls. Mgr.:* Gary Hampton

PICO Electronics, Inc.

FAX: 914-699-5565

PICO ELECTRONICS, INC., 453 North MacQuesten Pkwy., Mt. Vernon, NY 10552, Tel: 914-699-5514, 800-431-1064; FSC No.: 31669; *Sls. Mgr.:* Joe Sweeney ..... **A•1236-1246, 2333-2366; D•1919-1959**

Local Sales Offices & Reps

CA	Santa Clara, Fisher Assocs.	408-733-7350
IN	Ft. Wayne, Denton Mktg., Inc.	219-486-0665/1264
WA	Seattle, W. Spaulding Co.	206-282-9173

FAX: 508-649-9643

PICONICS, INCORPORATED, 26 Cummings Road, Tyngsboro, MA 01879, Tel: 508-649-7501, TELEX: 754759; FSC No.: 26618; Empl.: 48; *Sls. Mgr.:* V. Dibiase ..... **A•1248-1249, 1975**

Local Sales Offices & Reps

AL	Huntsville, Murcota Corp.	205-539-8476
AZ	Scottsdale, Semper-Fi Sls.	602-730-9553
CA	N. Hollywood, Jewett Co.	818-789-8103
CA	Palo Alto, J/M Assocs.	415-857-1260
CO	Parker, Mikro Sls. Co.	303-841-4131
FL	Lighthouse Point, R.C. Simon & Co.	305-941-2757
IL	No. IL.& WI, R.H.I. Sls.	708-888-0099
IN	Huntington, Ellet Sls.	219-356-1866
MD	Kensington, Koebert Assocs.	301-493-8924
MA	Natick, Wayland Engrg. Sls. Co.	508-655-6080
MN	Minneapolis, Peterson Sls. Assocs.	612-835-5281
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NY	Huntington, Regulus Indl. Sls. Co.	516-673-6252
NY	Rochester, Welch/Mulgahy Inc.	716-244-1100
NC	Winston-Salem, Murcota Corp.	919-722-9445
OH	Cincinnati, G & H Sls. Co.	513-272-0580
PA	Glenside, Koebert Assocs. Inc.	215-887-2310
TX	Ft. Worth, El-Tec Sls.	817-268-2896
WA	Belleview, Reptronix	206-820-0833
WV	Inwood, Koebert & Assocs., Inc.	304-229-8401

PICOSECOND PULSE LABS, INC., P.O. Box 44, Boulder, CO 80306, Tel: 303-443-1249, FAX: 303-447-2236; Empl.: 6; *Sls. Mgr.:* J.R. Andrews; *Dist. Mgr.:* J.R. Andrews

PIEZO CRYSTAL CO., 100 K St., Box 619 , Carlisle, PA 17013, Tel: 717-249-2151, FAX: 717-249-7861; FSC No.: 74306; Empl.: 250; *Sls. Mgr.:* Glenn R. Kurzenknabe

PIEZO ELECTRIC PRODUCTS, INC., 212 Durham Ave., Metuchen, NJ 08840, Tel: 908-548-2800, TWX: 710-998-0592, FAX: 908-548-3625; Empl.: 75; *Sls. Mgr.:* M.R. Scarillo

PIEZO KINETICS INC., P.O. Box 756, Pine and Mill Streets, Bellefonte, PA 16823, Tel: 814-355-1593, FAX: 814-355-4342; FSC No.: 5Y690; Empl.: 28; *Sls. Mgr.:* Harry D. Shirey

PIEZO TECHNOLOGY INC., 2525 Shader Rd., Orlando, FL 32804, Tel: 407-298-2000, TWX: 810-850-4136, FAX: 407-293-2979; FSC No.: 25120; *Sls. Mgr.:* Paul Dechen

PIHER INTERNATIONAL CORP., 903 Feehanville Dr., Mt. Prospect, IL 60056, Tel: 708-390-6680, 800-323-6693, FAX: 708-390-9866; FSC No.: 54869; Empl.: 25; *Sls. Mgr.:* Kimberly Mack, Sls. Supp. Mgr.

PILLAR INDUSTRIES, INC., 1780 Evergreen Street, Duarte, CA 91010, Tel: 818-358-1337, FAX: 818-358-0398; Empl.: 3 ..... **D•1960-1961**

Local Sales Offices & Reps

CA	Los Angeles, Power Partner, Inc.	213-215-0800
CA	Santa Cruz, LEREP	408-458-0667

PIND TESTERS INC., 19-B Thomas, Irvine, CA 92718, Tel: 714-380-1551, FAX: 714-951-1269; FSC No.: 66; Empl.: 25; *Sls. Mgr.:* J. Baker

PINE INSTRUMENT CO., 101 Industrial Dr., Grove City, PA 16127, Tel: 412-458-6391, FAX: 412-458-4648; Empl.: 60

PIONEER COMPONENTS, 2352 E. 66th St., Brooklyn, NY 11234, Tel: 718-444-3880; Empl.: 3; *Sls. Mgr.:* Michael R. Verter; *Dist. Mgr.:* Michael R. Verter

Pioneer Magnetics

FAX: 213-453-3929

PIONEER MAGNETICS, 1745 Berkeley St., Santa Monica, CA 90404, Tel: 213-829-6751, TELEX: 182-093, TWX: 910-343-6249; FSC No.: 08676; Empl.: 475; *Sls. Mgr.:* A. Hagiwara, V.P. of Mktg. ..... **D•1963-1965**

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech Assocs.	205-881-9298
AZ	Scottsdale, Williams Assocs.	602-947-4297
CA	Santa Monica, Pioneer Magnetics, Inc.	213-829-6751
CO	Commerce City, Williams Assocs.	303-289-5647
FL	Boca Raton, Pen-Tech Assocs.	305-394-7400
GA	Marietta, Pen-Tech Assocs.	404-424-1931
MD	Columbia, Stein Instrmn.	301-596-3748
MA	Needham Hts., Kanan Assoc.	617-449-7400
MI	Ann Arbor, KRW Sls., Inc.	313-769-0056
MN	St. Paul, Cahill, Schmitz & Cahill	612-636-7217
MO	Lee's Summit, Omni Tech. Sls.	816-578-4221
NJ	Glen Gardner, Daner-Hayes Inc.	201-537-4534
NM	Albuquerque, Williams Assocs.	505-255-1368
NY	Brewster, Daner-Hayes Inc.	914-279-2168
NY	E. Norwich, Daner-Hayes Inc.	516-922-0080
NC	Greensboro, Pen-Tech Assocs.	919-852-6000
OH	Dublin, KRW Sls. Inc.	614-885-2598
OH	Westlake, KRW Sales	216-871-7521
OR	Lake Oswego, RTS, Inc.	503-244-4123
PA	Cheltenham, Stein Instrm.	215-379-1990
PA	Oakmont, KRW Sls. Inc.	412-828-1490
TX	Dallas, Kruvand	214-437-3355
UT	Salt Lake City, Williams Assocs.	801-485-6511
WA	Vashon, RTS, Inc.	206-285-1363
Can	LaSalle, Electrodesign Ltd.	514-363-0245

PIONEER RESEARCH, INC., 1745 Berkeley St., Santa Monica, CA 90404, Tel: 213-829-6751, FAX: 213-453-3929; Empl.: 450; *Sls. Mgr.:* A. Hagiwara

PIRELLI CABLE CORP., See Specialty Cable Corp.

PITTMAN®

FAX: 215-256-1338

PITTMAN, Penn Engrg. & Mfg. Corp., 343 Godshall Dr., Harleysville, PA 19438, Tel: 215-256-6601; FSC No.: 98938; Empl.: 165 ..... **B•1308-1309**

Local Sales Offices & Reps

AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Leucadia, Halbar Assocs.	619-942-4075
CA	San Mateo, Halbar North, Inc.	415-349-4700
CA	Van Nuys, Halbar Assocs.	818-906-3941
CO	Englewood, Integrated Motion Sys.	303-792-5516
CT	Bristol, M. L. Assocs., Inc.	203-589-2856
FL	Fort Lauderdale, Motion Controls, Inc.	305-434-4197
IL	Mount Prospect, K-W Assocs.	708-253-6680
IN	Elkhart, Shaum Mfg., Inc.	219-264-0771
MA	Wayland, M. L. Assocs.	508-358-5540
NY	Glen Head, Marcus Sls. Assocs., Inc.	516-671-6820
NY	Rochester, Application Spec.	716-586-6226
OH	Cleveland, Servo-Mark	216-871-2353
OK	Edmond, Motion Reps, Inc.	405-340-8100
PA	Exton, Kiley Elect. Co., Inc.	215-363-8550
TX	Austin, Motion Reps, Inc.	512-288-5758
TX	Denton, Motion Reps, Inc.	817-382-4159
TX	Houston, Motion Reps, Inc.	713-981-8700
WA	Redmond, Halbar PNW, Inc.	206-882-0990
Can	Downsview, Ont., Electomate Indl. Sls. Ltd.	416-665-0221

PIXELWORKS, INC., 7 Park Ave., Hudson, NH 03051, Tel: 603-880-1322, FAX: 603-880-6558; Empl.: 30; *Sls. Mgr.:* Rattan Dhar; *Dist. Mgr.:* Rattan Dhar

PLAINVIEW BATTERIES, INC., 23 Newtown Rd., Plainview, NY 11803, Tel: 516-249-2873, FAX: 516-249-2876; *Sls. Mgr.:* B. Erde ..... **D•1476-1479**

PLAINVIEW ELECTRONICS, See Plainview Battieries, Inc.

PLANAR SYSTEMS, INC., 1400 N.W. Compton Dr., Beaverton, OR 97006-1992, Tel: 503-690-1100, TELEX: 551961 Planer Syst, FAX: 503-645-7024; FSC No.: 5Z179; Empl.: 121; *Sls. Mgr.:* Jeff Hopkins

PLANT SPECIALTIES, INC., P.O. Box 110537, Carrollton, TX 75011-0537, Tel: 214-245-9673, FAX: 214-245-9673; *Sls. Mgr.:* J. E. Bryer

PLASMA RESEARCH CORP., 5675 Chappell Pl., Oakland, CA 94619, Tel: 415-530-1468, FAX: 415-530-2811; FSC No.: 8Y067; Empl.: 7

PLASTIC CAPACITORS, INC., 2623 N. Pulaski Rd., Chicago, IL 60639, Tel: 312-489-2229, FAX: 312-489-0496; FSC No.: 99120; Empl.: 90; *Sls. Mgr.:* Thomas J. Brown; *Dist. Mgr.:* Thomas J. Brown

PLASTIC FORMING, 20 S. Bradley Rd., Woodridge, CT 06525, Tel: 203-397-1338, TELEX: 963437, FAX: 203-389-0420; Empl.: 80; *Sls. Mgr.:* Bruce J. Dokurno

PLASTICORP, 24105 S. Frampton Ave., Harbor City, CA 90710, Tel: 213-539-9530, FAX: 213-539-8325; Empl.: 120; *Sls. Mgr.:* Robert Hurley

PLASTIMATIC, INC., Glynwed Int'l., 3 Oak Rd., Fairfield, NJ 07004, Tel: 201-575-0038, FAX: 201-575-8748; Empl.: 95; *Sls. Mgr.:* Art Lappine

PLASTOID CORPORATION, 45 Gingerbread Castle Rd., Hamburg, NJ 07419, Tel: 201-827-7141, FAX: 201-827-7141 (ext 52); Empl.: 200

PLASTRON CORP., 429 S. Evergreen St., Bensenville, IL 60106, Tel: 708-595-2212, FAX: 708-595-2599; Empl.: 245; *Sls. Mgr.:* Don Hennings

PLATO PRODUCTS, INC., 2120 Auto Center Dr., Glendora, CA 91740, Tel: 818-967-3821, TELEX: 287291, FAX: 714-592-7062; FSC No.: 32399; Empl.: 75; *Sls. Mgr.:* Walter Schaub

PLESSEY ELECTRIC SYSTEMS CORP., See GEC-Marconi

PLETRONICS, INC., 19015 36th Ave. West, Ste. H, Lynnwood, WA 98036, Tel: 206-776-1880, FAX: 206-776-2760; Empl.: 11; *Sls. Mgr.:* Les Podgorny; *Dist. Mgr.:* Les Podgorny ..... **A•1437-1443**

Local Sales Offices & Reps

AL	Huntsville, MacKay, Smith & Assocs.	205-539-8000
AZ	Phoenix, Sanford Sls. Assocs.	602-957-3570
CA	Mission Viejo, Jay Mktg. Assocs.	714-768-7519
CA	Pleasanton, Moulthrop	415-463-0450
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CO	Aurora, Electrodyne	303-695-8903
FL	Ft. Lauderdale, MacKay, Smith & Assocs.	305-973-3324
CT	N. Haven, Radix	203-239-3611
FL	Madeira Beach, MacKay, Smith & Assocs.	813-530-1873
FL	Orlando, MacKay, Smith & Assoc.	407-423-4353
FL	Orlando, MacKay, Smith & Assocs.	407-423-4353
GA	Tucker, MacKay, Smith & Assoc.	404-496-9913
GA	Tucker, MacKay, Smith & Assocs.	404-496-9913
IL	Downers Grove, Golten Assocs.	708-512-0093
MD	Baltimore, Chesapeake Ind. Mktg.	301-653-0476
MA	Randolph, Bengal	617-961-4120
MN	St. Paul, Countryman	612-645-9151
NJ	Springfield, Radix	201-467-4970
NC	Raleigh, MacKay, Smith & Assocs.	919-847-2277
OH	Centerville, Omega	513-434-5507
OH	Cleveland, Omega Sls.	216-360-9400
OH	Shaker Hgts., Omega	216-751-9600
OR	Oregon City, Halbar PNW, Inc.	503-656-3714
TX	Austin, Sage Mktg.	512-335-0300
TX	Bedford, Sage Mktg.	817-267-7781
UT	Salt Lake City, Electrodyne	801-264-8050
WA	Redmond, Halbar	206-882-0990

Local Distributors

AZ	Phoenix, Arizona Comps	602-269-5655
CA	El Segundo, Force	213-772-1324
CA	San Diego, Kent Elctrns.	619-471-9561
CA	Santa Clara, Force	408-748-1324
CA	Santa Clara, Kent Elctrns.	408-727-9810
CA	Santa Clara, Pyramid	408-727-9810
CA	Sunnyvale, Capsco	408-734-3020
CA	Sunnyvale, Target	408-733-0384
CA	Torrance, Kent Elctrns.	213-320-2700
CA	Yoriba Linda, Target Elctrns.	714-692-1630
CT	Norwalk, Cobra Comps.	203-847-6442
GA	Norcross, Century Elctrns.	404-729-2522
FL	Sunrise, All American	800-432-6838
IL	Downers Grove, Golten Assocs.	708-512-0093
MD	Beltsville, PSI	301-937-4960
MD	Gaithersburg, Axis Elctrns.	301-840-9640
MA	Norwood, Gerber Elctrns.	619-796-6000
MA	Wakefield, All American	617-246-2300
MN	Fridley, Voyager	612-571-7766
NJ	Hopelawn, Dove Elctrns.	201-324-7830
NY	Mt. Vernon, All American	800-926-6668
NY	Mt. Vernon, QAR/All American	1-800-456-2626
NY	Stony Brook, Dove Elctrns.	516-689-7733
NC	Raleigh, Century Elctrns.	919-782-2116
OH	Cincinnati, Schuster Elctrns.	513-489-1400
OH	Twinsburg, Schuster Elctrns.	216-425-8134
PA	Norristown, Century Elctrns.	215-631-5404
TX	Richardson, Ewing	800-966-9738
WA	Redmond, Kent Elctrns.	206-883-7200
WA	Redmond, Priebe	206-881-2363
WA	Woodinville, Capsco	206-885-5283

PLITRON, 250 Wildcat Rd., Downsview, Ont., CAN M3J 2N5, Tel: 416-667-9914, FAX: 416-667-8928; Empl.: 25; *Sls. Mgr.:* Brad Jolly ..... **A•2368-2369**

Local Sales Offices & Reps

CA	Burbank, De Angelo, Rothman & Co.	818-504-2425
FL	Oviedo, Comps. Co.	407-366-7399
FL	Tamarac, Southtech Instrs.	305-762-5120
NJ	Rahway, R.E. Breuer	201-388-5045
IL	Schaumberg, McNulty & Assocs.	708-980-9868
NC	Raleigh, Eastern Elctrns.	919-876-7591
OH	Dayton, J.C. Hofstetter Co.	513-296-1010
PA	Pittsburg, J. C. Hofstetter	513-296-1010
Can	Toronto, Plitron	416-667-9914

PLUMER PRECISION OPTICS, 601 Montgomery Ave., Pennsburg, PA 18073, Tel: 215-679-6272, FAX: 215-679-2277; Empl.: 180; *Sls. Mgr.:* Joe Tiberii

PMC/BETA LTD. PARTNERSHIP, 4 Tech Circle, Natick, MA 01760, Tel: 617-237-6920, FAX: 508-651-9762; Empl.: 25; *Sls. Mgr.:* Jack Newton

PMI MOTION TECHNOLOGIES, Kollmorgen Corporation, 49 Mall Dr., Commack, NY 11725-5703, Tel: 516-864-1000, FAX: 516-864-2084; Empl.: 175; *Sls. Mgr.:* Peter Dougherty

PMT DIVISION, Ametek, Inc., 820 Pennsylvania Blvd., Feasterville, PA 19053, Tel: 215-355-6900, FAX: 215-355-2937; Empl.: 125; *Sls. Mgr.:* James Snyder

POCO SLS., Porter Co., 8925 Fullbright St., Chatsworth, CA 91311, Tel: 818-700-8727, FAX: 818-700-8453; FSC No.: 69-1603; Empl.: 8

POINT 4 DATA CORP., 15442 Del Amo Ave., Tustin, CA 92680, Tel: 714-259-0777, FAX: 714-259-0921; Empl.: 50; *Sls. Mgr.:* Mr. Ted Cooper; *Dist. Mgr.:* Mr. Ted Cooper

POLARA ENGINEERING INC., 4115 W. Artesia Ave., Fullerton, CA 92633, Tel: 714-521-0900, TELEX: 688489, FAX: 714-522-8001; Empl.: 62

POLAROID CORPORATION, Polarizer Div., 1 Upland Rd., Norwood, MA 02062, Tel: 800-225-2770, FAX: 617-446-4600

POLE/ZERO CORPORATION, 4480 Lake Forest Dr. Ste. 308, Cincinnati, OH 45242, Tel: 513-563-1133, FAX: 513-563-4345; *Sls. Mgr.:* Joseph J. Janning

POLYCASE PRODS., ECP Corp., 4726 Superior Ave, Cleveland, OH 44103, Tel: 216-391-0444, FAX: 216-391-2891; Empl.: 14 ..... **C•1078**

Local Distributors

AL	Huntsville, Allied Elctrns.	205-721-3500
AZ	Phoenix, Allied Elctrns.	602-437-9080
CA	Fremont, Allied Elctrns.	415-770-0590
CA	Torrance, Allied Elctrns.	213-373-8828
CO	Englewood, Allied Elctrns.	303-790-1664
CT	Cheshire, Allied Elctrns.	203-272-7730
FL	Casselberry, Allied Elctrns.	407-831-3331
FL	Pompano Beach, Allied Elctrns.	305-978-3008
GA	Norcross, Allied Elctrns.	414-446-8595
IL	Des Plaines, Allied Elctrns.	312-803-1040
IN	Indianapolis, Allied Elctrns.	317-875-0448
MD	Columbia, Allied Elctrns.	301-381-1560
MA	Billerica, Allied Elctrns.	508-667-7921
MI	Livonia, Allied Elctrns.	313-462-0190
MN	Eden Prairie, Allied Elctrns.	612-829-7554
NJ	Fairfield, Allied Elctrns.	201-227-8776
NJ	Mt. Laurel, Allied Elctrns.	609-234-7769
NY	Mineola, Allied Elctrns.	516-248-2360
NC	Raleigh, Allied Elctrns.	919-876-5845
OH	Worthington, Allied Elctrns.	614-785-1270
PA	Pittsburgh, Allied Elctrns.	412-367-4124
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Fort Worth, Allied Elctrns.	1-800-433-5700
WA	Seattle, Allied Elctrns.	206-547-2827
WI	New Berlin, Allied Elctrns.	414-796-1280

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POLY CIRCUITS, INC., 215 Park St, Bensenville, IL 60106, Tel: 708-860-3560, FAX: 708-860-5350; Empl.: 90; *Sls. Mgr.:* Joel Dryer

POLYFET RF DEVICES, 1090 Lawrence Dr. No. 101, Newbury Park, CA 91320, Tel: 805-498-4552, FAX: 805-498-2230; Empl.: 9; *Sls. Mgr.:* S.K. Leong

POLYFLON COMPANY, Crane Co., 35 River Street, New Rochelle, NY 10801, Tel: 914-636-7222, FAX: 914-633-3664; Empl.: 32; *Sls. Mgr.:* Joseph A. Seminoro

POLYGENEX INTERNATIONAL INC., 105 Eaton Place, Cary, NC 27513, Tel: 919-380-8100, FAX: 919-380-9556; *Sls. Mgr.:* J.D. McGarry

POLYPHASE INSTRUMENT, 175 Commerce Dr., Ft. Washington, PA 19034, Tel: 215-643-6950, FAX: 1-215-643-5237; FSC No.: 98330; Empl.: 160; *Sls. Mgr.:* Paul Stevens

PolyPhaser Corporation
FAX: 702-782-4476

POLYPHASER CORPORATION, 2225 Park Place, P.O. Box 9000, Minden, NV 89423-9000, Tel: 702-782-2511, 800-325-7170, TELEX: 272718 PolyPhaser; FSC No.: 61114; Empl.: 45 ..... **B•1385**

Local Sales Offices & Reps

CA	Costa Mesa, Tech Mktg. Assoc., Inc.	714-979-0412
CO	Aurora, Electro-Tek Sls., Inc.	303-343-8020
FL	Coral Springs, Cemco	305-753-6777
KS	Lenexa, Maury E. Bettis Co.	913-541-9552
MI	Rochester Hills, Webster Assocs., Inc.	313-375-0420
MN	Stillwater, Ned Gordon & Assocs.	612-430-1572
NV	Minden, PolyPhaser Corp.	702-782-2511
NH	Manchester, Assocd. Sys.	603-472-2297
TX	Rowlett, Horizon Comm. Sls. Co.	214-475-1179
WA	Kirkland, Manon Engrg.	206-827-7449

Local Distributors

CA	Hayward, Talley Elctrns.	415-783-2111
CA	Sacramento, Sacramento Elctrns.	916-441-4821
CO	Aurora, Electro-Comm Distrs.	303-343-8937
FL	Melbourne, Technical Equip. Dist., Inc.	407-259-2711
HI	Honolulu, Honolulu Elctrns.	808-949-5564
IL	Joliet, Primus Elctrns. Corp.	815-436-8945
IL	Libertyville, Harger Lightning Protection	708-362-4848
MD	Hunt Valley, Tessco	301-785-5300
MN	St. Paul, Pulstar Dist., Inc.	612-645-3411
NV	Minden, PolyPhaser Corp.	702-782-2511
NJ	Clarksboro, W.R. Block & Assocs.	800-421-7170
NC	Greensboro, West Antenna	919-621-2473
OH	Cincinnati, Cartwright Comms. Co.	513-489-1755
TX	Rowlett, Horizon Comm. Sls. Co.	214-475-1179
EXP	Minden, PolyPhaser Corp.	702-782-2511
Can	Aurora, Ont., Sinclabs, Inc.	416-841-0624

POLY-PLANAR INC., 1800 Mearns Rd., Unit J - P.O. Box 2578, Warminster, PA 18974, Tel: 215-675-7805, FAX: 215-675-7920; Empl.: 12

POLYPLY INC., Rd. No. 1, Route 5 South, Amsterdam, NY 12010, Tel: 518-843-3900, FAX: 518-843-5829

POLYTRON DEVICES, INC
FAX: 201-345-1264

POLYTRON DEVICES, INC., Box 398 - River St. Sta., Paterson, NJ 07544, Tel: 201-345-5885; Empl.: 26 ..... **D•1966-1973**

Local Sales Offices & Reps

CA	San Jose, P & M Elctrns.	408-287-0402
NY	Canandaigna, Mamula Sls.	716-394-5560

POLYTRONIX, INC., 805 Alpha Dr., Richardson, TX 75081, Tel: 214-238-7045, FAX: 214-644-0805; Empl.: 65

POMFRET RESEARCH OPTICS, P. O. Box 1265, Orange, VA 22960, Tel: 703-854-4350; Empl.: 5

POMONA ELECTRONICS, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, Tel: 714-623-3463, FAX: 714-629-3317; FSC No.: 05276; Empl.: 170; *Sls. Mgr.:* Thomas Barber; *Dist. Mgr.:* Thomas Barber ..... **C•1493-1499**

Local Sales Offices & Reps

AL	Hazel Green, Braden & Assocs.	205-828-6290
AZ	Phoenix, More Sls.	602-788-9181
AR	Little Rock, Erickson Sls., Inc.	501-455-0618
CA	Burbank, Darco	818-504-2425
CA	Irvine, Vale Elctrn. Assocs.	714-551-4004
CA	Santa Clara, Engrg. Assocs. Corp.	408-988-5001
CA	So. San Francisco, Carelli/EMA	415-873-2524
CO	Broomfield, Connors Co.	303-466-9628
FL	Maitland, EIR Inc.	407-660-9600
IL	Palatine, W. M. Linz	708-705-8555
IN	Indianapolis, Blind Elctrn. Sls. Co.	317-241-3742
IA	West Des Moines, Nevco	515-225-9866
LA	Chalmette, Erickson Sls., Inc.	504-271-1976
MD	Baltimore, David S. Linz, Inc.	301-882-6289
MA	Burlington, Gerber Sls. Corp.	617-229-1150
MI	Jenison, C. A. Geer Co.	616-534-9449
MI	Kentwood, C. A. Geer Co.	616-534-9449
MN	Minneapolis, Hei-lite Sls., Inc.	612-550-0506
OH	Cleveland, Marlow Assocs.	216-831-8232
MO	Crestwood, Nevco, Inc.	314-843-7406
NJ	Franklin, D. F. Tobias & Co.	201-209-7255
OR	Beaverton, Eclipse Mktg. Grp. Ltd.	503-642-1661
PA	Philadelphia, David S. Linz, Inc.	215-379-0734
NC	Raleigh, Pinnacle Mktg.	919-878-4658
TX	Dallas, Erickson Sls., Inc.	214-739-5833
TX	Houston, Erickson Sls., Inc.	713-266-1604
TX	Round Rock, Erickson Sls., Inc.	512-244-3068
WA	Redmond, Eclipse Mktg. Grp., Ltd	206-885-6991
WA	Spokane, Eclipse Mktg. Grp., Ltd.	509-922-3972
EXP	CA, Tarzana, Nate Beckerman & Co., Inc.	818-708-0021
Can	Pickering, AC Simmons & Sons	416-739-8041

PORTASOL, Oglesby and Botler Ltd., 7422 Carmel Executive Park, Charlotte, NC 28226, Tel: 704-543-6239, FAX: 704-543-6839; Empl.: 100; *Sls. Mgr.:* Tom Carbott; *Dist. Mgr.:* Tom Carbott

PORTESCAP U.S., INC., 36 Central Ave., Hauppauge, NY 11788, Tel: 516-234-3900, FAX: 516-234-3986; Empl.: 16

POSITRONIC INDUSTRIES, INC., 423 N. Campbell St., P.O. Box 8247, Springfield, MO 65801, Tel: 417-866-2322, TELEX: 436445, FAX: 417-866-4115; FSC No.: 28198; Empl.: 300

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POTRANS INTERNATIONAL INC., Potrans Electrical Corp., Ltd., 17935 Sky Park Circle No. H, Irvine, CA 92714, Tel: 714-975-1222, TELEX: 244319; Empl.: 300; *Sls. Mgr.:* Chris Witham ..... **D•1974-1976**

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs., Inc.	205-881-1096
AZ	Phoenix, More Sls.	602-788-9181
CA	Santa Clara, Premier Tech.	408-736-2260
CO	Boulder, Promotional Technigs.	303-447-2474
FL	Tampa, APM Assoc.	813-447-2474
GA	Norcross, Interep Assocs., Inc.	404-449-8680
IL	Chicago, Rendell Sls. Co.	312-539-1820
IN	Carmel, Frank E. Kahsar Sls.	317-844-9353
MA	Burlington, New Tech Solutions	617-229-8888
MI	Spring Lake, Frank E. Kahsar Sls.	616-846-7590
MI	Warren, Frank E. Kahsar Sls.	313-795-3530
MN	Minneapolis, Holmgren Assocs.	612-786-7641
NH	Merrimack, New Tech Solutions	603-424-8149
NM	Albuquerque, More Sls.	505-265-6265
NY	Skaneateles, Empire Tech. Assocs.	315-685-3077
OH	Cincinnati, Frank E. Kahsar Sls.	513-922-3133
OK	Tulsa, Advance Tech. Sls.	918-664-0482
PA	Wexford, Frank E. Kahsar Sls.	412-935-8561
TN	Greenville, Interep Assocs.	615-639-3491
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AL Huntsville, Cartwright & Bean 205-830-1540
AZ Phoenix, Howe & Howe Sls. 602-264-7971
CA Los Altos, Recht Assocs. 415-964-6321
CA San Diego, CERCO 619-792-5555
CA Santa Ana, Jones & McGeoy Sls., Inc. 714-547-6466
CO Littleton, Simpson Assocs. 303-794-8381
CT Wallingford, John E. Boeing Co. 203-265-1318
FL Apopka, Cartwright & Bean 407-889-9100
FL Deerfield Beach, Cartwright & Bean ... 305-429-3400
GA Norcross, Cartwright & Bean 404-368-0160
IL Rolling Meadows, Sumer, Inc. 708-991-8500
IN Fort Wayne, R. O. Whitesell & Assocs. 219-432-5591
IN Indianapolis, R. O. Whitesell & Assocs. 317-876-9000
IN Kokomo, R. O. Whitesell & Assocs. ... 317-457-9127
IN Princeton, Potter & Brumfield- S & SW 812-386-2211
IN Princeton, Potter & Brumfield-N & NW U.S. 812-386-2130
IA Cedar Rapids, Dy-Tronix, Inc. 319-377-8275
KS Leawood, Dy-Tronix, Inc. 913-339-6333
KS Wichita, Dy-Tronix, Inc. 316-838-0884
KY Versailles, R. O. Whitesell & Assocs. .. 606-873-1182
LA Covington, Cartwright & Bean 504-892-1780
MD Baltimore, Micro-Comp 301-644-5700
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MI Grand Blanc, R. O. Whitesell & Assocs. 313-695-0770
MI Grand Rapids, R. O. Whitesell & Assocs. 616-942-5420
MI Southfield, R. O. Whitesell & Assocs. .. 313-559-5454
MI St. Joseph, R. O. Whitesell & Assocs. 616-983-7337
MN Edina, Mel Foster Tech. Sls. 612-941-9790
MS Jackson, Cartwright & Bean 601-981-1170
MO Bridgeton, Dy-Tronix, Inc. 314-291-4777
NJ Medford, The McCoy Grp., Inc. 609-953-0770
NM Albuquerque, C. T. Carlberg & Assocs. 505-899-2155
NY Kingston, Micro-Tech Mktg. Inc. 914-338-7588
NY Melville, Comtronic Assocs. 516-249-0505
NY N. Syracuse, Micro-Tech Mktg. Inc. ... 315-458-5254
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UT Midvale, Simpson Assocs. 801-566-3691
WA Seattle, Northmar, Inc. 206-524-5170
WI Brookfield, Sumer, Inc. 414-784-6641
PR San Juan, Electronic Tech. Sls. 809-798-1300
Can Mississauga, Ont., Siemens Elec. Ltd. 416-564-1995

POTTER CO., See Pulse Engineering

POTTER INSTRUMENT, (PSI-Peripheral Support), 345 Kansas St., P.O. Box 892, El Segundo, CA 90245, Tel: 213-322-9370, TELEX: 317928, FAX: 213-322-9190; FSC No.: 95-2800481; Empl.: 20; *Sls. Mgr.:* T. O. McMahon

POWERBOX INC., 1503 Spruce St., Boulder, CO 80302, Tel: 303-444-1461, 800-444-1461, FAX: 303-444-3135; *Sls. Mgr.:* James Jones ..... **C•1079**

Local Sales Offices & Reps

MN St. Paul, Heyda/Hanks Assocs. 612-484-8531
Can Mississauga, Ont., Hi-Pac Enclosures 416-279-4860

POWERCARD CORP., 393 Totten Pond Rd., Waltham, MA 02159, Tel: 617-890-6789, FAX: 617-890-1390; *Sls. Mgr.:* Fredric Cohen

POWER COMPONENTS CO., Vanguard Electronics Co., 1480 W. 178th St., Gardena, CA 90248, Tel: 213-323-8120, TWX: 910-346-7067, FAX: 213-329-8427; FSC No.: 213-329-8427; *Sls. Mgr.:* Avi Kandola

POWER CONVERSION, INC., Hawker Siddeley Group, Ltd.-London, England, 280 Midland Avenue, Saddle Brook, NJ 07662, Tel: 201-796-4800, TELEX: 130292, FAX: 201-796-5777; Empl.: 1000; *Sls. Mgr.:* James Sullivan, V.P. Sls.; *Dist. Mgr.:* Gail Halvorsen ..... **D•1480-1482**

Local Sales Offices & Reps

CA Anaheim, Westrep 714-527-2822, FAX:714-527-3868
CA Hayward, Pacific Mktg., Inc. 415-887-1620, FAX:415-887-7595
CO Parker, High Plains Mktg. 303-841-6464,FX, 303-841-6262
FL Tampa, SRT Mktg. 813-884-4805, FAX:813-882-9149
GA Atlanta, Naylor Assocs., Inc. 404-373-5036, FAX:404-373-5052
IL Des Plaines, Esco Assocs. 708-298-5310, FAX:708-298-3833
MA Burlington, Tritek, Inc. 617-272-4550, FAX:617-270-9147
MN Minnetonka, Mill-Tech Sls., Inc. 612-933-8090, FAX:612-933-2353
NJ Haddonfield, M & S Assocs., Inc. 609-429-7055, FAX:609-795-1493
NY Great Neck, F & F Metro, Inc. 516-482-4080, FAX:516-482-4589
NY Newark, W-L Sls. 315-331-1645, FAX:315-331-2143
NC Cornelius, Naylor Assocs., Inc. 704-892-1366, FAX:704-892-9758
NC Durham, Naylor Assocs., Inc 919-544-6630, FAX:919-544-7211
OH Dayton, Five Star Elctrns., Inc. 513-299-1718, FAX:513-299-1345
OH Solon, Five Star Elctrns., Inc. 216-349-1611, FAX:216-349-0381
OK Tulsa, Comptech Sls. 918-622-7744, FAX:918-660-0340
OR Albany, Henry Sharpe 503-928-9221, FAX:503-928-5604
TX Austin, Comptech Sls. 512-343-0300, FAX:512-345-2530
TX Harlingen, Comptech Sls. 512-428-7503, FAX:512-345-2530
TX Houston, Comptech Sls. 713-492-0005, FAX:713-492-6116
TX Irving, Comptech Sls. 214-751-1181, FAX:214-550-8113
WA Redmond, Projects Intl. 206-883-8212
Can Ontario, Ed Irving 519-822-9795, FAX:519-763-1931

Local Distributors

CA Costa Mesa, Battery Specialties 714-755-0888, FAX:714-755-0889
CA Mountainview, Energy Sls., Inc. 415-969-0800, FAX:415-961-2000
CA San Diego, Tauber Elctrns. 619-274-7242, FAX:619-274-2220
CO Denver, Cargo Batteries 303-296-8763, FAX:303-295-7125
MD Beltsville, Mark Elctrns. Supp. 301-595-5040, FAX:301-937-0491
MA Sandwich, JV/EPC Elctrns., Inc. 508-833-0700
MN Minneapolis, Stark Elctrns. 612-333-3361, 800-334-6154
NJ Bellmawr, Mid-Atlantic Elctrns. Corp. 609-931-5303,F,609-931-4928
NY Bohemia, Lamp Technlg., Inc. 516-567-1800, FAX:516-567-1806
NY Farmingdale, Delta Concepts 516-845-1294, FAX:516-293-0493
NY Plainview, Plainview Batteries 516-249-2873, FAX:516-249-2876
WA Redmond, Energy Sls. 206-883-2343, FAX:206-867-0606
WI Fond-Du-Lac, Fedco Elctrns. 414-922-6490, FAX:414-922-6750

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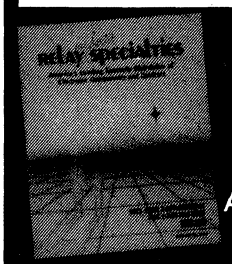
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POWERCUBE CORP., Sub. Unitrode Corp., 8 Suburban Pk. Dr., Billerica, MA 01821, Tel: 617-667-9500, FAX: 508-667-6280; FSC No.: 31557; Empl.: 150; *Sls. Mgr.:* Roger LaFontaine

POWER DESIGNS

FAX: 516-333-6512

POWER DESIGNS, INC., 1700 Shames Dr., Westbury, NY 11590, Tel: 516-333-6200, TWX: 510-222-6561; Empl.: 48; *Sls. Mgr.:* Mary Loop ..... **D•1978-1986**

Local Distributors

AZ	Phoenix, U.S. Instr. Rentals	602-257-1345
CA	Los Angeles, EIL Instrs.	213-685-7020
CA	N. Hollywood, O'Halloran Assocs.	213-877-0173
CA	Palo Alto, O'Halloran Assocs.	415-969-1600
CA	Santa Clara, EIL Instrs.	408-727-0396
CO	Denver, EIL Instrs.	303-534-4160
CT	Middletown, EIL Instrs.	203-346-6646
FL	Palm Bay, EIL Instrs.	305-725-8300
GA	Atlanta, U.S. Instr. Rentals	404-955-4473
IL	Chicago, EIL Instrs.	312-430-2292
IN	Indianapolis, EIL Instrs.	317-545-1373
KS	Kansas City, U.S. Instr. Rentals	913-677-0011
KY	Louisville, EIL Instrs.	502-454-3420
MD	Sparks, EIL Instrs.	301-771-4800
MA	Burlington, EIL Instrs.	617-272-9450
MI	Detroit, U.S. Instr. Rentals	313-493-1919
MN	Minneapolis, U.S. Instr. Rentals	612-881-3743
MO	St. Louis, U.S. Instr. Rentals	314-454-0210
NJ	Belmar, Accutest Instrs.	201-681-6560
NJ	Rockaway, A&J Assocs.	201-625-3169
NM	Albuquerque, U.S. Instr. Rentals	505-884-0529
NY	Great Neck, The Instr. Mart	516-487-7430
NY	Hauppauge, EIL Instrs.	516-231-6333
OH	Cincinnati, U.S. Instr. Rentals	513-863-4446
OH	Dayton, EIL Instrs.	513-435-2134
OK	Oklahoma City, U.S. Instr. Rentals	405-525-2659
PA	Philadelphia, EIL Instrs.	609-488-0474
TX	Dallas, EIL Instrs.	214-931-1236
TX	Houston, EIL Instrs.	713-271-3100
UT	Salt Lake City, U.S. Instr. Rentals	801-582-0116
VA	Springfield, EIL Instrs.	703-569-2611
WA	Springfield, EIL Instrs.	206-575-1888
Can	Toronto, EIL Instrs.	416-624-6660

POWER DEVICES INC., 27071 Cabot Rd., Bldg. 114, Laguna Hills, CA 92653, Tel: 714-582-6712, FAX: 714-582-6722; Empl.: 10; *Sls. Mgr.:* G. E. Flynn

Power Dynamics, Inc.

FAX: 201-736-8930

POWER DYNAMICS INC., 59 Lakeside Ave., P.O. Box 539, West Orange, NJ 07052, Tel: 201-736-5722, TELEX: 666173(PDI); FSC No.: 60046; *Sls. Mgr.:* James Papianni; *Dist. Mgr.:* Lyle Scott ..... **A•1628-1631; B•1764; C•1500-1506, 1592, 1814; D•1484-1485**

Local Sales Offices & Reps

CA	Laguna Hills, David Budge & Assoc.	714-582-8720
CA	San Diego, Bart Budge Assocs.	619-272-8630
CA	San Diego, David Budge Assocs.	619-272-8630
CA	San Jose, Ruppert Sls.	408-998-8717
CO	Denver, West Inc.	303-477-1134
FL	Ft. Lauderdale, Stock Elctrns.	305-978-9875
GA	Lilburn, Adams Elctrns.	404-925-9115
IL	Palatine, Golbeck & Milota Assocs., Inc.	312-705-0602
IN	Indianapolis, L.M. DeVoe Assocs.	317-842-3245
KS	Shawnee Mission, Microtronics, Inc.	913-262-1444
MI	Grand Rapids, R.P. Urban Assocs.	616-245-0511
MN	Bloomington, Horizon Technlgs.	612-884-6515
MO	St. Charles, Microtronics, Inc.	314-946-8500
NH	Amherst, D.A. Crowley & Assocs	603-673-7050
NJ	Audubon, DAS Assocs.	609-546-1133
NJ	Pt. Pleasant, Jade Mktg.	201-899-8108
NJ	Audubon, D.A.S. Assocs.	609-546-1133
NY	Marcellus, Mullahy-Welch Sls.	315-673-3891
NY	Rochester, Mullahy-Welch Sls.	716-244-1100
NC	Raleigh, Barker Assocs.	919-876-0282
OH	Dayton, Shamrock Sls. Inc.	513-258-1227
OH	Worthington, Shamrock Sls. Inc.	614-888-7638
OR	Tigard, Electronic Comp. Sls.	503-245-2342
MI	Detroit, R.P. Urban Assocs.	313-535-2355
TX	Dallas, Rem-Air Comp.	214-234-1069
UT	Murray, Aspen Sls., Inc.	801-265-8365
UT	Salt Lake City, Aspen Sls., Inc.	801-467-2401
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
Can	Downsview, Tienkay, Inc.	416-736-1221

Local Distributors

AR	Ft. Smith, Radio, Inc.	501-646-5200
CA	El Segundo, Force Elctrns.	714-522-1324
CA	Livermore, Fuse-Com	415-449-1213
CA	San Diego, Fuses Unlimited/Western Fuse	619-569-9620
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	San Jose, Rose Elctrns.	408-943-0200
CA	Santa Clara, Force Elctrns.	408-748-1324
CA	So. San Francisco, Peters-DeLaet, Inc.	415-873-9595
CA	Van Nuys, Fuses Unlimited	818-786-8111
CO	Arvada, Denver Wintronics	303-431-7161
CT	Hamden, Connector Co.	203-288-0044
CT	Wallingford, Sager Elect. Supp. Co.	203-265-4600
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Ft. Lauderdale, Stock Elctrns.	305-978-9875
GA	Atlanta, KSM Elctrns.	404-458-2013
IL	Cary, Gama Elctrns.	708-639-3322
IL	Crystal Lake, Sub-Sem	312-782-3954
MA	Canton, Impact Sls.	617-821-1500
MA	Hingham, Sager Elect. Supp. Co.	508-749-4700
MA	Marlboro, Now Elctrns.	508-460-0187
MN	Hibbing, Minn Tech Elctrns.	218-262-5228
TX	Dallas, Wofford Elec.	214-320-0294
NH	Salem, Sager Elctr.	603-898-1348
NJ	Kenilworth, Federated Purchaser Co.	201-272-0505
NY	Hauppauge, Sager Elctrns	516-348-1300
NY	Johnson City, Help Elctrns.	607-729-3528
NY	Pennyan, Advcom Technlg.	716-396-9050
NC	Raleigh, Sager Svc. Plus Elctrns.	919-850-9550
OH	Cincinnati, Schuster Elctrns	513-489-1400
OH	Twinsburg, Schuster Elctrns	216-425-8134
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Tulsa, Radio, Inc	918-587-9123
OR	Beaverton, Micro Power Elctrns.	503-626-7086
PA	Bristol, Aim Elctrns	215-785-3500
TX	Austin, Wofford Elctrns.	512-339-1131
OR	Beaverton, Rose Elctrns.	503-629-9288
TX	Dallas, Off The Shelf Comps.	214-247-0052
TX	Farmers Branch, Force Elctrns.	214-247-9955
TX	Houston, Force Elctrns.	713-561-8644
TX	Houston, Wofford Elctrns.	713-847-3583
TX	Richardson, Off The Shelf Comps.	214-238-0808
WI	Milwaukee, Progressive Image	414-321-4722
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Redmond, Energy Sls.	206-883-2343
WA	Redmond, Fuse-Com	206-881-2442
Can	Downsview, Ont., PS Comps.	416-665-9546

POWER ELECTRONIC COMPONENTS, INC., PEC, Inc, 3408 Kamer Miller Rd., New Albany, IN 47150, Tel: 812-941-9205, 800-245-0193, FAX: 812-941-9205; *Dist. Mgr.:* Brenda DeSpain

POWEREX

FAX: 412-925-4393

POWEREX, Westinghouse, GE, Mitsubishi, Hillis St., Youngwood, PA 15697, Tel: 412-925-7272, TWX: 510-468-2840; Empl.: 550; *Dist. Mgr.:* Kathy Cullen ..... **A•2117**

Local Sales Offices & Reps

AZ	Chandler, Lindberg Co.	602-786-9115
CA	Agoura Hills, Westpower Assocs.	818-706-2550
CA	Laguna Hills, Westpower Assocs.	714-582-6716
CA	Santa Clara, Engineering Assocs. Corp.	408-988-5001
CO	Denver, Lindberg Co.	303-758-9033
CO	Westminster, Jerry Wolfgang	303-252-0215
CT	Southington, The Orion Grp.	203-621-8371
FL	Maitland, EIR, Inc.	407-660-9600
GA	Alpharetta, Southeast Power Comps.	404-664-5460
GA	Norcross, Southeast Power Comps.	404-448-2458
IL	Naperville, L&W Power Corp.	708-416-8838
IN	Carmel, Giesting & Assocs.	317-844-5222
IA	Cedar Rapids, Dy-Tronix, Inc.	319-377-8275
KS	Leawood, Dy-Tronix, Inc.	913-339-6333
KS	Wichita, Dy-Tronix, Inc.	316-838-0884
KY	Versailles, Giesting & Assocs.	606-873-2330
MA	Newton, Ed Freeley	617-630-9512
MA	Peabody, The Orion Grp.	508-532-6266
MI	Plymouth, L&W Power Corp.	313-451-1150
MN	Minneapolis, PSI Co.	612-944-8545
MO	Bridgeton, Dy-Tronix, Inc.	314-291-4777
NJ	Ringwood, J&L Sls. Assocs., Inc.	201-962-6315
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NY	Ronkonkoma, J&L Sls. Assocs., Inc.	516-737-2801
NY	Wappinger Falls, Bob Dean, Inc.	914-297-6406
NC	Charlotte, Southeast Power Comps.	704-846-8532
NC	Greensboro, Southeast Power Comps.	919-854-9410
NC	Henderson, Southeast Power Comps.	919-438-4450
OH	Cincinnati, Giesting & Assocs.	513-385-1105
OH	Cleveland, Giesting & Assocs.	216-261-9705
OH	Columbus, Giesting & Assocs.	614-459-4800
OK	Tulsa, NOVA Mktg.	918-660-5105
OR	Tigard, Vantage Corp.	503-620-3280
PA	Hatboro, Delta Tech. Sls., Inc.	215-957-0600
PA	Pittsburgh, Bear Mktg.	412-531-2002
PA	Youngwood, Bob Hirche	412-925-4468
PA	Youngwood, Powerex, Inc.-USA/Intl.	412-925-7272
TX	Austin, NOVA Mktg., Inc.	512-343-2321
TX	Dallas, NOVA Mktg., Inc.	214-750-6082
TX	Houston, NOVA Mktg., Inc.	713-988-6082
VA	Roanoke, Southeast Power Comps.	703-774-8478
WA	Bellevue, Vantage Corp.	206-455-3460
WI	Elm Grove, L&W Power Corp.	414-782-0799
Can	Montreal, Que., GMA Assocs.	514-335-9572
Can	Ottawa, Ont., GMA Assocs.	613-838-4480
Can	Toronto, Ont., GMA Assocs	416-671-8111
Can	Vancouver, B.C., Blakewood Elec. Sys., Inc.	604-273-9910

Local Distributors

AL	Birmingham, Industrial Elec. Supp. Co.	205-951-4601
AL	Huntsville, Hamilton/Avnet	205-837-7210
AL	Huntsville, Time Elctrns.	205-721-1133
AZ	Chandler, Hamilton/Avnet	602-961-6411
AZ	Tempe, Time Elctrns.	602-967-2000
CA	Agoura Hills, Almo Elctrns.	818-991-3984
CA	Agoura Hills, Time Elctrns.	818-707-2890
CA	Chatsworth, Time Elctrns.	818-998-7200
CA	Costa Mesa, Hamilton Electro Corp.	714-754-6097
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2000
CA	Gardena, Hamilton/Avnet	213-217-6888
CA	Roseville, Hamilton/Avnet	916-781-6614
CA	San Diego, All American	619-268-1505
CA	San Diego, Hamilton/Avnet	619-571-7510
CA	San Diego, Time Elctrns.	619-586-1331
CA	San Jose, All American	408-943-1200
CA	San Jose, Almo Elctrns.	408-436-8822
CA	Santa Ana, Almo Elctrns.	714-757-0444
CA	Sunnyvale, Hamilton/Avnet	408-743-3610
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, All American	213-320-0240
CA	Torrance, Time Elctrns.	213-320-0880
CA	Tustin, Time Elctrns.	714-669-0100
CA	Woodland Hills, Hamilton/Avnet	818-594-0404
CO	Englewood, Hamilton/Avnet	303-799-7800
CO	Englewood, Time Elctrns.	303-799-8851
CT	Cheshire, Time Elctrns.	203-271-3200
CT	Danbury, Hamilton/Avnet	203-797-2800
CT	East Haven, J. V. Elctrns.	203-469-2321
CT	Wallingford, GRS Midan Elects.	203-265-2077
FL	Ft. Lauderdale, Hamilton/Avnet	305-971-2900
FL	Ft. Lauderdale, Time Elctrns.	305-484-7778
FL	Miami, All American	305-621-8282
FL	Orlando, Time Elctrns.	407-841-6565
FL	St. Petersburg, Hamilton/Avnet	813-573-3930
FL	Winter Park, Hamilton/Avnet	407-628-3888
GA	Norcross, Hamilton/Avnet	404-447-7507
GA	Norcross, Time Elctrns.	404-448-4448
IL	Bensenville, Hamilton/Avnet	312-860-7700
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Elmhurst, Semiconductor Specialists, Inc.	708-279-1000
IL	Schaumberg, Time Elctrns.	708-308-3000
IL	Schaumburg, QPS Elect., Inc.	708-884-6620
IN	Carmel, Hamilton/Avnet	317-844-9333
IN	Ft. Wayne, Bell Inds.	219-423-3422
IN	Hammond, WESCO	312-454-6970
IN	Indianapolis, Bell Inds.	317-875-8200
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
IA	Cedar Rapids, Hamilton/Avnet	319-362-4757
KS	Lenexa, Hamilton/Avnet	913-888-1055
KY	Lexington, Hamilton/Avnet	606-259-1475
MD	Columbia, GRS Elctrns.	301-995-6744
MD	Columbia, Hamilton/Avnet	301-995-3500
MD	Columbia, Time Elctrns.	301-964-3090
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Peabody, Hamilton/Avnet	508-531-7430
MA	Peabody, Time Elctrns.	508-532-6200

MI Grand Rapids, Hamilton/Avnet 616-243-8805
MI Madison Heights, Galco Elctrns. 313-542-9090
MI Novi, Hamilton/Avnet 313-347-4270
MN Edina, Time Elctrns. 612-835-1250
MN Minnetonka, Hamilton/Avnet 612-932-0600
MO Chesterfield, Hamilton/Avnet 314-537-1600
MO Manchester, Time Elctrns. 314-391-6444
NJ Camden, GRS Elctrns. 609-964-8560
NJ Cherry Hill, Hamilton/Avnet 609-424-0100
NJ East Hanover, Delburn Elctrns., Inc. 201-884-0800
NJ Fairfield, Hamilton/Avnet 201-575-3390
NJ Marlton, Time Elctrns. 609-596-6700
NJ Wayne, Time Elctrns. 201-882-4611
NM Albuquerque, Hamilton/Avnet 505-345-0001
NM Albuquerque, Harrison Equip. Co. 505-291-9951
NY East Syracruse, Time Elctrns. 315-432-0355
NY Fairport, Time Elctrns. 716-383-8853
NY Freeport, Semtex Inds. Corp. 516-223-0200
NY Hauppauge, Hamilton/Avnet 516-231-9800
NY Hauppauge, Time Elctrns. 516-273-0100
NY Plainview, ACI Elctrns. 516-293-6630
NY Rochester, Hamilton/Avnet 716-475-9130
NY Rome, Rome Elctrns. 315-337-5400
NY Syracruse, Hamilton/Avnet 315-437-2641
NY Westbury, Hamilton/Avnet 516-997-6868
NC Charlotte, Electronics Mktg. Corp. 704-394-6195
NC Charlotte, Time Elctrns. 704-522-7600
NC Raleigh, Hamilton/Avnet 919-878-0810
OH Cincinnati, Hughes Peters 513-351-2000
OH Cleveland, CAM/RPC Elctrns. 216-461-4700
OH Cleveland, Darrah Elec. 216-631-0912
OH Columbus, Electronics Mktg. Corp. 614-299-4161
OH Columbus, Hughes Peters 614-294-5351
OH Dayton, Electronics Mktg.Corp. 513-439-4711
OH Dayton, Hamilton/Avnet 56 513-439-6732
OH Dayton, Hamilton/Avnet 64 513-439-6700
OH Dublin, Time Elctrns. 614-761-1100
OH Highland Heights, Electronics Mktg.Corp. 216-442-3441
OH Solon, Hamilton/Avnet 216-349-5100
OH Westerville, Hamilton/Avnet 614-882-7004
OK Tulsa, Altair Co. 918-252-5781
OK Tulsa, Hamilton/Avnet 918-252-7297
OR Beaverton, Hamilton/Avnet 503-627-0201
OR Portland, Dunn Elctrns. 503-285-0214
OR Portland, Time Elctrns. 503-684-3780
PA Pittsburgh, CAM/RPC Elctrns. 412-782-3770
PA Pittsburgh, Hamilton/Avnet 412-281-4150
TX Addison, Hamilton/Avnet 214-308-8140
TX Austin, Hamilton/Avnet 512-837-8911
TX Austin, Harrison Equip. Co. 512-258-1320
TX Austin, Time Elctrns. 512-339-3051
TX Brownsville, Harrison Equip. Co. 512-548-2376
TX Dallas, Harrison Equip. Co. 214-239-2750
TX El Paso, Harrison Equip. Co. 915-598-3406
TX Houston, Altair Co. 713-462-3029
TX Richardson, Altair Co. 214-231-5166
TX Stafford, Hamilton/Avnet 713-240-7733
TX Stafford, Harrison Equip. Co. 713-879-2750
UT Salt Lake City, Hamilton/Avnet 801-972-2800
UT West Valley, Time Elctrns. 801-973-8181
VA Charlottesville, Virginia Elec. Comps. .. 804-296-4184
WA Redmond, Hamilton/Avnet 206-881-6697
WA Redmond, Time Elctrns. 206-882-1600
WV Charleston, McJunkin Corp. 304-348-5211
WI Mequon, Taylor Elec. Co. 414-241-4321
WI Milwaukee, Marsh Elctrns. 414-475-6000
WI Waukesha, Hamilton/Avnet 414-784-4510
WY Gillette, WESCO 307-687-0014
Can Burnaby, BC, Hamilton/Avnet 604-420-4101
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Can Nepean, Ont., ITT/Multicomps. 613-596-6980
Can St. Laurent, Que., Hamilton/Avnet 514-335-1000
Can St. Laurent, Que., ITT/Multicomps. 514-335-7697
Can Stoney Creek, Ont., Westinghouse Canada, Inc. 416-664-3300
Can Willowdale, Ont., Electro Sonic, Inc. ... 416-494-1666
Can Winnipeg, Manitoba, ITT/Multicomps. 204-786-8401

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POWER GENERAL, Unitrode Corp., 152 Will Dr., Canton, MA 02021, Tel: 617-828-6216; Empl.: 300; *Sls. Mgr.:* Steve Forrester ..... **D•1987**

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AL Huntsville, Elec. Mktg. Assoc., Inc. 205-880-8050
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CA Buena Park, Cypress Elctrns. 714-521-5230
CA San Diego, Cypress Elctrns. 619-535-0018
CA San Diego, Westrep 619-566-6580
CA Santa Clara, Westrep 408-988-8833
CO Englewood, Delltron Co. 303-741-2122
CT Wallingford, APEX Assocs. 203-267-6914
FL Altamonte Springs, Vantage Comp. ... 407-682-1199
FL Margate, EPM Corp. 305-977-0331
FL Orlando, EPM Corp. 407-425-6149
GA Atlanta, Elec. Mktg. Assoc., Inc. 404-448-1215
IL Itasca, Beta Technlg. Sls. 708-250-9586
IN Indianapolis, Schuster Elctrns. 317-253-9065
IA Cedar Rapids, Dee Elctrns. 319-365-7551
IA Cedar Rapids, Spectrum Sls. 319-366-0576
KS Overland Pk., SPECTRUM Sls. 913-648-6811
MD Columbia, Sager 301-995-6580
MA Canton, Power Gen. 617-828-6216
MA Westwood, APEX Assocs. 617-444-8070
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MN Eden Prairie, Com-Tek Sls. 612-941-7181
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MO Hazelwood, Spectrum Sls. 314-921-1313
NJ Clifton Parks, Net Sls. 518-371-6864
NY Cortland, Net Sls. Co. 607-756-6592
NY Great Neck, F & F Metro, Inc. 516-482-4080
NY Victor, Net Sls. Co. 716-924-1844
NC Raleigh, Elec. Mktg. Assoc., Inc. 919-847-8800
OH Cincinnati, RS Elec. 513-793-2450
OH Cleveland, Schuster Elctrns. 216-425-8134
OH Cleveland, Schuster Elec. 216-425-8134
OH Columbus, McFadden Sls. 614-761-3177
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OR Portland, Venture Elctrns., Inc. 503-624-0617
PA Mars, Sager 412-772-2233
SC Greenville, EMA, Inc. 803-233-4637
TX Austin, Tesco, Inc. 512-834-8374
TX Dallas, Tesco, Inc. 214-553-1200
TX Houston, Tesco, Inc. 713-690-4909
TX Stafford, Southwest Elctrns. 713-240-4000
UT American Fork, Delltron Co. 801-263-9413
VA Sterling, Beacon North .. 800-877-3747,703-478-2480
WA Bellevue, Venture Elctrns. 206-454-4594
WI Milwaukee, Beta Technlg. Sls., Inc. 414-543-6609
Can Burnaby, B.C., Kaytronics Vancouver .. 604-294-2000
Can Concord, Ont., Kaytronics Inc.-Toronto 416-669-2262
Can Edmonton, I.T.T. Multicomp. 403-436-9555
Can Kanata, Ont., Kaytronics Inc.-Ottawa .. 613-564-0080
Can Montreal, Que., Kaytronics 514-745-5800
Can Ottawa, I.T.T. Multicomp. 613-596-6980
Can Winnipeg, I.T.T. Multicomp. 204-697-2300

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AL Huntsville, Cypress Elctrns. 800-526-6231
AZ Tempe, Cypress Elctrns. 602-966-2256
CA Buena Park, Cypress Elctrns. 714-521-5230
CA San Diego, Cypress Elctrns. 619-535-0018
CA Santa Clara, Cypress Elctrns. 408-980-2500
CO Englewood, Cypress Elctrns. 303-792-5829
CT Wallingford, Sager 203-265-4600
FL Deerfield Beach, Vantage Comps., Inc. 305-429-1001
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IA Cedar Rapids, Dee Elctrns. 319-365-7551
KS Kansas City, Olive Elctrns 913-362-1923
KS Overland Park, RS Elctrns. 913-362-1923
MD Columbia, Vantage Comp. 301-720-5100
MA Andover, Vantage Comp. 508-687-3900
MA Hingham, Sager 617-749-6700
MI Grand Rapids, RS Elctrns. 616-241-3483
MI Livonia, RS Elctrns. 313-525-1155
MN Eden Prairie, Cypress Elctrns. 612-934-2104
MO St. Louis, Olive Elctrns. 314-997-7709
NH Salem, Sager 603-898-2741
NY Buffalo, Summit Distrs. 716-887-2800
NY Hauppauge, Fairmont Elec. 516-231-3313
NY Hauppauge, Sager 516-348-1300
NC Raleigh, Sager 919-850-9550
OH Cincinnati, Schuster Elctrns. 513-489-1400
OR Beaverton, Cypress Elctrns. 503-223-8900
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TX Dallas, Cypress Elctrns. 214-255-0065
TX Stafford, Southwest Elctrns. 713-240-4000
WA Bothell, Cypress Elctrns. 206-483-1144
WI New Berlin, NEP Elctrns. 414-785-9100
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POWER MAGNE-TECH CORPORATION, 441 High Street, Perth Amboy, NJ 08861, Tel: 908-826-4700, FAX: 908-826-4706; Empl.: 65; *Sls. Mgr.:* Arthur Zuckerman; *Dist. Mgr.:* Arthur Zuckerman ..... **A•2371**

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POWER/MATE CORPORATION, 2727 Kurtz St., San Diego, CA 92110, Tel: 800-843-8544, 619-299-3800, TWX: 910-335-1241, FAX: 619-291-2584; Empl.: 175

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CO Denver, Quorum 3 303-799-8100
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FL Boca Raton, Electrocraft 407-394-9686
FL Clearwater, Electrocraft 813-573-2277
GA Norcross, Montgomery Mktg. Inc. 404-447-6124
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IN Carmel, Technlg. Mktg. Corp. 317-844-8462
MN Edina, G.P. Sls., Inc. 612-831-2362
IN Ft. Wayne, Technlg. Mktg. Corp. 219-432-5553
IA Cedar Rapids, J.R. Sls. Engrg. 319-393-2232
KS Lenexa, Midwest Tech. Sls. 913-888-5100
KY Louisville, Technlg. Mktg. Corp. 502-893-1377
MD Baltimore, Eastern Comps. Sls. 800-223-3851
MA Waltham, Datcom, Inc. 617-891-4600
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OK Tulsa, Advance Tech. Sls. 918-664-0482
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PA W. Conshohocken, Eastern Comp. Sls. 215-825-8610
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UT Salt Lake City, Quorum 3 801-943-9227
VA Redmond, Pacific Mktg. Specialist 206-882-3144
WI Milwaukee, M. Gottlieb & Assocs. 414-546-4466

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AZ Phoenix, Sterling Elctrns. 602-268-2121

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AZ Tempe, Capstone Elctrns. 602-437-0172
AR Ft. Smith, Carlton-Bates 501-646-8201
AR Little Rock, Carlton-Bates 501-562-9100
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CA Gardena, Bell Inds. 213-515-1800
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WA Richard, Radar Elec. 509-943-8836
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CA Sacramento, Bell Inds. 916-652-0414
CA San Diego, Bell Inds. 619-268-1277
CA San Diego, Capstone Elctrns. 619-277-7767
CA San Diego, FLW 619-434-5251
CA San Jose, Compumech Elctrns. 408-945-9100
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CA Sunnyvale, Bell Inds. 408-734-8570
CA Sunnyvale, Capstone Elctrns. 408-453-9804
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CA Tustin, Capstone Elctrns. 714-730-0349
CO Aurora, Capstone Elctrns. 303-790-7644
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CO Englewood, Sterling Elctrns. 303-792-3939
CT New Haven, Greene-Shaw Co. 203-265-3333
CT Norwalk, Capstone Elctrns. 203-265-4001
CT Norwalk, Pioneer Elctrns. 203-853-1515
CT Wallingford, Sterling Elctrns. 203-265-9535
FL Altamonte Springs, Pioneer Elctrns. ... 407-834-9090
FL Deerfield Bch, Pioneer Elctrns. 305-428-8877
FL Ft. Lauderdale, Capstone Elctrns. 305-492-1211
FL Lake Mary, Capstone Elctrns. 407-333-9758
FL Largo, Bell Inds. 813-541-4434
FL Miami, Elctrn. Equip. Co. 305-526-6000
FL Tampa, Elctrn. Equip. 813-988-0810
GA Norcross, Bell Inds. 404-662-0923
GA Norcross, Capstone Elctrns. 404-623-3643
GA Norcross, Pioneer Elctrns. 404-448-1711
ID Boise, Radar Elec. 208-336-2227
IL Addison, Pioneer Elctrns. 312-495-9680
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MI Grand Rapids, Pioneer 616-698-1800
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MN Edina, Capstone Elctrns. 612-832-0066
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MO St. Louis, R. S. Olive Elec. 314-997-7709
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NE Omaha, Scott Elctrns. 402-734-6750
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NY Rochester, Zeller Elctrns. 716-254-8840
NY Woodbury, Pioneer Elctrns. 516-921-8700
NC Charlotte, Pioneer Elctrns. 704-527-8188
NC Raleigh, Capstone Elctrns. 919-954-0600
OH Centerville, Capstone Elctrns. 513-435-8815
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OH Cleveland, Pioneer Elctrns. 216-587-3600
OH Dayton, Bell Inds. 513-435-8660
OH Dayton, Bell Inds. (Military) 513-434-8231
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TN Nashville, Bell Inds. 615-367-4400
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TX Texarkana, Carlton-Bates 214-792-6923
UT Midvale, Bell Inds. 801-255-9611
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VA Herndon, Sterling Elctrns. 703-742-8400
VA Richmond, Sterling Elctrns. 804-226-2190
WA Bellevue, Bell Inds. 206-747-1515
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WA Seattle, Radar Electric 206-282-2511
WA Spokane, Radar Elec. 509-747-3053
WI Brookfield, Capstone Elctrns. 414-792-1170
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GA Marietta, B C Elctrn. Sls., Inc. 404-565-2088
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IN Fishers, Carter Techn., Inc. 317-842-9277
MD Lanham, W. A. Brown Equip. Corp. 301-577-6105
MA Marlborough, Digital Sls. Assocs., Inc. 508-480-0516
MI Farmington Hills, Carter Techn., Inc. ... 313-477-7700
MN Minneapolis, R J, Inc. 612-866-3661
NM Albuquerque, Hanna-Hill, Inc. 505-268-0950
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NY Great Neck, Mos Assocs. 516-487-3966
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IL Chicago, Rendell Sls. Co. 312-539-1820
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NJ Dumont, John Hart 201-385-5595
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FL Altamonte Springs, TNR Tech. 800-346-0601
GA Decatur, Emergency Lighting Srvc. 404-981-2288
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OH	Cleveland, Security Prods. Co.	216-451-1400
TX	Austin, Galtronics	512-837-7470
TX	Ft. Worth, Allied Elctrns.	800-433-5700
VA	Tabb, Battery Outlet	804-867-8280
WA	Redmond, Energy Sls.	206-883-2343

POWER STAR, INC., P.O. Box 18701, Irvine, CA 92713, Tel: 714-261-5377, 800-854-9420, FAX: 714-261-5381; Empl.: 11

POWER SUPPLY CONCEPTS INC., 1 Commerical Dr., Florida, NY 10921, Tel: 914-651-5000, FAX: 914-651-5050 ..... **D•2004-2005**

power SWITCH Corp.

FAX: 201-478-8201

POWER SWITCH CORPORATION, 17 Vreeland St., Lodi, NJ 07644, Tel: 201-478-5788; Empl.: 33; *Sls. Mgr.:* Danice Donito ..... **D•2007-2011**

Local Sales Offices & Reps

CA	Camarillo, The Tricamo Co.	805-388-0039
CA	Pleasanton, Canyon Sls.	415-846-7254
CO	Denver, West Inc.	303-477-8180
FL	Palm Bay, VM2 Mktg.	407-984-1918
IL	Berkeley, ESA Tech. Mktg.	708-544-0120
IN	Indianapolis, Wilson Tech Sls. Inc.	317-872-2513
MA	Tyngsboro, CompTech	508-649-3030
MN	Minneapolis, Electro-Serv	612-338-3475
MO	Grandview, R. R. Burton Assocs.	816-763-5385
MO	St. Louis, G.M. Brown & Assoc.	314-741-4424
TX	Lewisville, Jim Hughes Co.	214-221-1536
OH	Cleveland, Bradcor Elctrns.	216-671-1200
OH	Dayton, Bradcor Elctrns.	216-671-1200
PA	Dresher, CMS Mktg.	215-885-4424
Can	Mississauga, Andy Baumen Assoc.,Ltd.	416-828-2600

POWER SYSTEMS, INC., 45 Griffin Rd., South, Bloomfield, CT 06002, Tel: 203-726-1300, FAX: 203-726-1495; FSC No.: 50463; Empl.: 310; *Sls. Mgr.:* Leon Gedacht ..... **D•2012**

Local Sales Offices & Reps

AL	Decatur, Hedrick, Walker & Assoc.	205-350-3441
AZ	Phoenix, Tech Sls.	602-246-1614
CA	La Habra, Cygnus Sls. Engrg. Corp.	213-691-2993
CA	Los Altos, Recht Assocs.	415-964-6038
CO	Englewood, Elctrn. Comp. Sls.	305-762-9576
FL	Mt. Dora, Hedrick, Walker & Assoc.	904-735-2600
FL	Riviera Bch., Hedrick, Walker & Assoc.	407-842-5015
GA	Dunwoody, Hedrick, Walker & Assoc.	404-390-9718
MA	Needham Hgts., Todino Engrg. Sls.	617-444-7925
MO	Kansas City, EPI Inc.	816-523-8911
MO	St. Louis, EPI, Inc.	314-962-1411
NJ	Marlton, BGR Assocs.	609-683-1020
NJ	S. Orange, Kahgan Brody Assocs.	201-763-6038
NY	Fayetteville, H.C. Johnson Agencies, Inc.	315-637-1143
NY	Hempstead, Kahgan Brody Assocs	516-538-2300
NY	Rochester, H.C. Johnson Agencies, Inc.	716-586-0777
NC	Carrboro, Hedrick, Walker & Assoc.	919-967-6725
OH	Cleveland, Elctrn. Comps., Inc.	216-331-5330
OH	Columbus, Elctrn. Comps., Inc.	614-231-2318
OH	Miamisburg, Elctrns. Comps.	513-866-3340
OH	West Lake, Elctrn. Comps., Inc.	216-835-4856
TX	Seagoville, Delta Comps., Inc.	214-287-6333
VA	Falls Church, S-J Chesapeake	703-533-2233
WA	Kirkland, Northwest Comps. Sls.	206-828-2104
WA	Vancouver, Northwest Comp. Sls.	206-695-1331

POWER SYSTEMS & CONTROLS, INC., 3206 Lanvale Ave., Richmond, VA 23230, Tel: 804-355-2803, FAX: 804-358-0498; Empl.: 55

POWER SYS. GRP., Rantec Div., Emerson Elec. Co., 9401 Oso Ave., Chatsworth, CA 91311, Tel: 818-885-8223, TWX: 910-493-1247; FSC No.: 04971; Empl.: 265; *Sls. Mgr.:* Fred Silver

POWERTEC

A DIVISION OF ASTEC AMERICA, INC.

POWERTEC POWER SUPPLIES, INC., DIV. OF ASTEC AMERICA, See Astec America

POWERTECH, INC., 0-02 Fairlawn Ave., Fairlawn, NJ 07410, Tel: 201-791-5050, TELEX: 353970; FSC No.: 32953; Empl.: 49; *Sls. Mgr.:* C. Sokolowski

POWER TECHNOLOGY COMPONENTS, A Div. of Microsemi Corp., 23201 S. Normandie Ave., Torrance, CA 90501, Tel: 213-534-3737, FAX: 213-530-5609; *Sls. Mgr.:* Robert Veeck

POWER TECHNOLOGY, INC., P.O. Box 191117, Little Rock, AR 72219-1117, Tel: 501-568-1995, FAX: 501-568-1994; Empl.: 85; *Sls. Mgr.:* John Webb

POWER TEN, INC., 486 Mercury Dr., Sunnyvale, CA 94086, Tel: 408-738-5959, FAX: 408-738-4326; FSC No.: 61987; *Sls. Mgr.:* Vince Mutascio ..... **D•2013**

Local Sales Offices & Reps

AL	Huntsville, Scientific Devices-SE	205-536-1969
AZ	Phoenix, Jayson Co., Inc.	602-867-1964
CA	Los Alamitos, Power Specialists	213-594-9418
CA	San Diego, Power Specialists	619-726-4799
FL	Orlando, Scientific Devices-SE	407-841-8180
IL	Arlington Hgts., Comtel Midwest Co.	708-392-4040
IN	Indianapolis, Comtel Midwest Co.	317-253-1681
KS	Shawnee Mission, Comtel Midwest Co.	913-268-0762
MD	Hunt Valley, Elctrn. Resources, Inc.	301-584-8157
MA	Westford, ICS Assocs.	508-692-3545
MN	Wayzata, Comtel Midwest Co.	612-476-1551
MO	Manchester, Comtel Midwest Co.	314-227-7220
NM	Aluquerque, Fry-Gates	505-262-1525
NC	Raliegh, Scientific Devices-SE	919-859-0868
PA	West Chester, Elctrn. Resources, Inc.	215-431-0198
TX	Austin, Eberts Elctrns. Sls.	512-258-1067
TX	Latexo, Eberts Elctrns. Sls.	409-687-4342
VA	Norfolk, Elctrn. Resources, Inc.	804-583-4859
WA	Bellevue, A. J. Smith Co.	206-746-6770
WI	New Berlin, Comtel Midwest Co.	414-544-6042
Can	N. Vancouver, BC, Jerome & Francis	604-986-1286
Can	Toronto, Duncan Instruments	416-742-4448

POWER TEST DIVISION, INC., Subsidiary of Analogic Corp., 1701 Rollins Rd., Burlingame, CA 94010, Tel: 415-692-8001, FAX: 415-692-8044; *Sls. Mgr.:* Tom Mahr

POWERTREND, INC., 1111 Rancho Conejo Blvd., Ste. 401, Newbury Pk., CA 91320-1415, Tel: 805-496-2945, FAX: 805-498-6880; *Sls. Mgr.:* R. Jones

POWER TRENDS, INC., 1101 N. Raddant Rd., Batavia, IL 60510, Tel: 708-406-0900, FAX: 708-406-0901; Empl.: 12; *Sls. Mgr.:* Don Matthiesen

Powertron

FAX: 516-883-7155

POWERTRON CORPORATION, Industrial Test Equipment Co., Inc., 21 Yennicock Ave., Port Wash., NY 11050, Tel: 516-883-1700; Empl.: 6; *Sls. Mgr.:* Barbara Assa ..... **D•1266, 2204-2205**

POWERTRON, Contraves Goerz Corp., 3821 Barranger Dr., Charlotte, NC 28210, Tel: 704-525-8962, TELEX: 572-444

POWERTRON CORP., Rte. 15, P.O. Box 932, Dept. E, Sparta, NJ 07871, Tel: 201-579-5599, TELEX: 136198; *Sls. Mgr.:* William E. Cannon; *Dist. Mgr.:* William E. Cannon

POWR-UPS CORP., Brookhaven R&D Plaza, 1 Roned Rd., Shirley, NY 11967, Tel: 516-345-5700, 1-800-333-POWR, FAX: 516-345-3106; Empl.: 50; *Sls. Mgr.:* Mary Del Rios

PPC PRODUCTS CORPORATION, 7516 Central Industrial Dr., Riviera Beach, FL 33404, Tel: 407-848-9606, TWX: 510-952-7611; FSC No.: 33178; Empl.: 75; *Sls. Mgr.:* Nick Emick

PPD

FAX: 919-781-4980

PPD, INC., 6001 Resco Ct., Raleigh, NC 27613, Tel: 919-781-3955; Empl.: 25 ..... **A•1130-1137; B•1386-1387**

Local Sales Offices & Reps

NC	Raleigh, Godwin Assocs.	919-878-8000

PPM, INC., 5835 Harper Rd., Cleveland, OH 44139, Tel: 216-349-2300, FAX: 216-349-2302; FSC No.: 29504; Empl.: 20; *Sls. Mgr.:* A. L. Bletcher ..... **D•1311**

Local Sales Offices & Reps

AL	Huntsville, Jim Springer, Inc.	205-883-4163
AZ	Phoenix, J. Smith & Assocs.	602-267-0981
CA	Montrose, Luscombe Engrg. Co.	818-249-9000
CO	Colorado Springs, J. Smith & Assocs.	719-597-5343
MI	Ferndale, Tiby Co.	313-547-3550
NM	Albuquerque, J. Smith & Assocs.	505-345-6501
OH	Cleveland, Tiby Co.	216-371-5335
OH	Dayton, Tiby Co.	513-277-3822

PRACTICAL AUTOMATION, INC., 2 Research Dr., Shelton, CT 06484, Tel: 203-929-5381, TELEX: 6813310, FAX: 203-929-9941; Empl.: 150; *Sls. Mgr.:* R. M. Banzaca

PRD ELCTRNS., DIV. OF HARRIS CORP., see Harris Corp., PRD Electronics Div.

PRECICONTACT, INC., 835 Wheeler Way, Langhorne, PA 19047, Tel: 215-757-1202, TELEX: 83-4253, FAX: 215-757-8025; FSC No.: 60197; Empl.: 60; *Sls. Mgr.:* Paul F. Ruo

PRECI-DIP, See Mill-Max Mfg. Corp.

PRECISE SENSORS, INC., 235 West Chestnut Ave., Monrovia, CA 91016, Tel: 818-358-4578, FAX: 818-358-3546; Empl.: 35

PRECISION COMPONENTS, INC., 1110 W. National Ave., Addison, IL 60101, Tel: 312-543-6400, FAX: 312-628-8788

PRECISION CONTROL MANUFACTURING, INC., 1509-B Queen Anne Ave. N., Seattle, WA 98109, Tel: 206-281-9380; FSC No.: 64782; Empl.: 5; *Sls. Mgr.:* Steve L. Deters ..... **A•2062**

Local Sales Offices & Reps

WA	Seattle, Precision Control Mfg., Inc.	206-281-9380

Local Distributors

CA	Granada Hills, Lion Elctrn., Inc.	818-363-0993

PRECISION DIGITAL CORP., 15 Mercer Road, Natick, MA 01760, Tel: 508-655-7300, FAX: 508-655-8990; *Sls. Mgr.:* Jeffrey Peters

PRECISION ELECTRONIC HARDWARE, INC., 987 Woodtick Road, Waterbury, CT 06705, Tel: 203-754-0779, FAX: 203-755-7996; Empl.: 25; *Sls. Mgr.:* Jeffrey A. Balko

PRECISION ELECTRONICS, 9101 King Ave., Franklin Park, IL 60131, Tel: 708-678-5350, FAX: 708-678-0511; Empl.: 25; *Sls. Mgr.:* William Stow

PRECISION ELECTRO-OPTICS, INC., 30 Commerce St., Box 1039, Chatham, NJ 07928, Tel: 201-635-8811, FAX: 201-635-0437; FSC No.: OG1WB-Cage Code; Empl.: 8; *Sls. Mgr.:* Jim Ingram

PRECISION EXTRUSIONS, INC., Box 120, Bensenville, IL 60106, Tel: 708-766-0340, FAX: 708-766-0495; Empl.: 185; *Sls. Mgr.:* Richard Ziehm

PFT

FAX: 219-253-6570

PRECISION FABRICATION TECHNOLOGIES, INC., State Road 16 W., Monon, IN 47959, Tel: 1-800-558-7297, 219-253-6666; Empl.: 100; *Sls. Mgr.:* Joseph Rogers; *Dist. Mgr.:* Duane Nagel ..... **C•1081-1089**

Local Sales Offices & Reps

CA	Saratoga, Edward King & Assocs.	408-741-0434
CT	Old Saybrook, FJS Assocs.	203-388-5374
MI	Livonia, Amtech Reps.	313-474-8300
FL	Orlando, Aurora-Schmitt Assoc.	800-232-9005
IL	Cary, Bob Burns & Assocs.	708-516-3322
MA	Burlington, FJS Assocs.	617-273-5959
NJ	Medford, Champion Elctrn. Sls.	609-983-0932
NY	Hauppauge, Schmitt Mktg. Corp.	516-434-1313
OR	Portland, Caruso & Co.	503-620-0375
TX	Austin, S.W. Mktg. Assoc.	512-255-8010
TX	Dallas, S.W. Mktg. Assocs.	214-341-8631
TX	Houston, S.W. Mktg. Assocs.	713-537-8166
WA	Bellevue, Caruso & Co.	206-455-8811
WI	Colgate, Rep One & Assocs.	414-628-4016
WI	Madison, Rep One & Assoc.	608-246-8889

Local Distributors

CA	Chatsworth, Marshall Inds.	818-407-4150
CA	Costa Mesa, Marvac Elctrns.	714-540-3280
CA	Irvine, Marshall Inds.	714-458-5394
CA	Milpitas, Zack Elctrns.	408-942-5432
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Santa Clara, Context Engrg.	408-748-8676
IL	Champaign, Klaus Radio	217-356-1896
MD	Rockville, Capitol Radio	301-881-2270
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Northboro, Papi Supp.	508-393-8564
MI	Grand Rapids, S F Elctrn. Supp.	616-459-0216
MI	Livonia, LWC Distributors	313-464-7700
NY	Hauppauge, Broadline Elctrns.	516-231-4100
NY	New York City, Martin Audio	212-541-5900
OR	Portland, Radar Elec.	503-232-8353
TX	Austin, Altex Elctrns.	512-832-9131
TX	Fort Worth, Allied Elctrns.	817-595-3500
TX	San Antonio, Altex Elctrns.	512-828-0503
VA	Annandale, Arcade Elctrns.	703-256-4610
VA	Richmond, Norfolk Wire	804-355-1100
VA	Virginia Beach, Norfolk Wire	804-449-3449
WA	Seattle, Radar Elec.	206-282-2511
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, NEP Elctrns.	414-785-9100

PRECISION FILTERS, INC.

FAX: 607-277-4466

PRECISION FILTERS, 240 Cherry St., Ithaca, NY 14850, Tel: 607-277-3550, TELEX: 646846; FSC No.: 66-II-F & 66-II-I; Empl.: 95; *Sls. Mgr.:* D. F. Chandler ..... **A•1650, 1706-1707; D•1015, 1192-1193**

Local Sales Offices & Reps

AZ	Tempe, Hannah-Hill	602-431-1771
CA	Chatsworth, Technologies West	818-349-2001
IL	Matteson, Instrumentation Sls. Inc.	708-720-0705
CA	Pleasonton, SECCO Sales, INC.	415-484-1030
CO	Denver, Hannah-Hill, Inc.	303-424-5390
AZ	Tempe, Hannah-Hill, Inc.	602-431-1771
DC	Arlington, Gans & Pugh	703-527-3262
FL	Orlando, Microspec	407-898-3504
GA	Lilburn, Microspec	404-921-3840
IL	Matteson, Instrumentation Sales. Inc.	708-720-0705
IN	Indianapolis, RDP Corp.	317-243-8788
MD	W. Friendship, Gans & Pugh Assocs.	301-442-2189
MA	Boston, Ellis Assocs.	617-367-2170
MI	Farmington Hills, RDP Corp.	313-471-0685
NH	Manchester, Ellis Assocs.	603-623-0185
NM	Albequerque, Hannah-Hill, Inc.	505-268-0950
NY	Amherst, Reliable Measurement	716-892-9484
NY	Port Chester, Radiation Elctrns.	914-937-2300
OH	Dayton, RDP Corp.	513-253-6175
OH	Richfield, RDP Corp.	216-659-3138
OK	Oklahoma City, Abcor, Inc.	405-749-1600
PA	North Wales, Gans & Pugh Associates, Inc.	215-699-6655
PA	Pittsburg, RDP Corp.	412-487-2217
SC	Rock Hill, Microspec	803-366-3015
TN	Nashville, Microspec	615-383-4064
TX	Houston, ABCOR, Inc.	713-486-9251
UT	West Valley City, Hannah-Hill, Inc.	801-364-0606
VA	Herndon, Gans & Pugh Assocs.	703-709-0305
WA	Bellevue, Syntek	206-462-7700

PRECISION GRAPHICS INC., 59 La Grange St., Raritan, NJ 08869, Tel: 908-707-8880, FAX: 908-707-8884; Empl.: 36; *Sls. Mgr.:* David K. Weissman

PRECISION IMAGE CORPORATION, 501 Chesapeake Dr., Redwood City, CA 94063, Tel: 415-366-8900, 1-800-338-3377, FAX: 415-366-2149; Empl.: 70; *Sls. Mgr.:* Mr. Rene Carillo; *Dist. Mgr.:* Mr. Rene Carillo

PRECISION INTERCONNECT, 16640 SW 72nd Ave., Portland, OR 97224, Tel: 503-620-9400, TELEX: 36-0963; FSC No.: 60381; Empl.: 295; *Sls. Mgr.:* Alex Guletsky

PRECISION LAMP, INC., 681 Portal St., Cotati, CA 94931, Tel: 707-792-0333, FAX: 707-792-2738; FSC No.: FSCM 58451; Empl.: 65

PRECISION MECHANISMS, 50 Bond St., Westbury, NY 11590, Tel: 516-ED3-5955, FAX: 516-333-5956; FSC No.: 08127; Empl.: 25; *Sls. Mgr.:* Leon N. Canick

PRECISION METAL PRODUCTS CO., Centennial Indl. Pk., Peabody, MA 01961-6026, Tel: 508-532-5500, FAX: 508-532-9403; FSC No.: 86577; Empl.: 54; *Sls. Mgr.:* Robert A. Degnan

PRECISION MONOLITHICS INC. SUBSIDIARY OF BOURNS INC., 1500 Space Park Dr. PO Box 58020, Santa Clara, CA 95052-8020, Tel: 408-727-1500, 800-843-1515, TELEX: 71-371-9541, ESYLNK: 408-727-1550; Empl.: 1000; *Sls. Mgr.:* Peter Smyth; *Dist. Mgr.:* Cindy Joyce

PRECISION PAPER TUBE CO., 1033 South Noel Ave, Wheeling, IL 60090, Tel: 708-537-4250, FAX: 708-537-5777; Empl.: 250

PRECISION POWER SYSTEMS, 1840 Industrial Circle, Longmont, CO 80501, Tel: 303-443-6250, FAX: 303-678-8360; Empl.: 110; *Sls. Mgr.:* Linda Tholen

FAX: 319-394-9280

PRECISION RESISTIVE PRODUCTS, INC., P.O. Box 189, Highway 61 South, Mediapolis, IA 52637, Tel: 319-394-9131; Empl.: 65; *Sls. Mgr.:* Oscar Cline; *Dist. Mgr.:* Oscar Cline ..... **A•1976-1977**

Local Sales Offices & Reps

AL	Huntsville, Hughes & Assocs.	205-533-9108
CA	Burbank, Darco	818-504-2425
CA	Mountain View, Frauman Assoc.	415-964-9464
CA	San Diego, Darco	714-639-5698
CO	Grand Junction, Krebil Comp. Sls.	303-243-8220
MA	Lexington, Jesco, Inc.	617-893-1598
MN	Minneapolis, Intl. Sls. Co.	612-831-8423
TX	Rowlett, Campion Sls. Co.	214-475-8313

PRC

FAX: 813-546-9515

PRECISION RESISTOR CO., INC., 10601 75 St. N., Largo, FL 34647-1421, Tel: 813-541-5771, TELEX: 821788; FSC No.: 48615; Empl.: 45; *Sls. Mgr.:* Arleen Reid ..... **A•1978-1981**

PRECISION SPECIALTIES, INC., 19414 Londelius St., Northridge, CA 91324, Tel: 818-349-9774, FAX: 818-349-4367; FSC No.: 66785; Empl.: 10

PRECISION TECH. SEWING, 921 E. Charleston Rd., Palo Alto, CA 94303, Tel: 415-856-2128, FAX: 415-856-1638

PRECISION TUBE, Church Rd. & Wissahickon, N. Wales, PA 19454, Tel: 215-699-5801, FAX: 215-699-0761; FSC No.: 82413; Empl.: 240; *Sls. Mgr.:* William J. McNeil

PREFERRED ELECTRONICS, INC., Main Line Dr., P.O. Box 248, Westfield, MA 01086, Tel: 413-568-2301, 1-800-553-6374, TELEX: 955-329, FAX: 413-562-7275; Empl.: 225

PREH ELECTRONIC INDUSTRIES, INC., 470 E. Main St., Lake Zurich, IL 60047-2578, Tel: 708-438-4000, FAX: 708-438-5522; FSC No.: 36-3193682; Empl.: 7; *Sls. Mgr.:* Ken Wood; *Dist. Mgr.:* Bob Van Orden ..... **B•1765, 1827-1829; C•1508-1509**

Local Sales Offices & Reps

AL	Huntsville, Hughes Assocs.	205-533-9108
AZ	Phoenix, More Sls., Inc.	602-788-9181
CA	Irvine, Balzer/Wolf Assocs.	714-261-6877
CA	Mtn. View, Bart Budge Assocs.	415-961-0940
CO	Arvada, Arrowhead CSI/ Sls.	303-423-5597
CT	Cheshire, MacInnis	203-272-8877
FL	Miami, Indl. Comps.	305-477-0387
GA	Norcross, Hughes Assocs.	404-662-1587
IL	Des Plaines, Essco Assocs.	708-298-5310
MD	Columbia, L. D. Lowery, Inc.	301-381-0225
MA	Norwood, MacInnis Co.	617-762-8090
MI	Farmington Hills, R.C. Merchant	313-476-4600
MN	Bloomington, Electronic Sls. Agy.	612-884-8291
MS	Corinth, Hughes Assocs.	601-287-2915
MO	St. Louis, Jim Amberg	314-946-5777
NJ	Berkley Heights, Cambridge/Allen	201-464-0203
NC	Cary, Hughes Assocs.	919-467-7029
OH	Cincinnati, Bob Gilbert & Assocs.	513-574-1932
OR	Portland, SPS Elctrns.	503-297-6919
PA	Broomall, L.D. Lowery Inc.	215-356-5300
TN	Jonesboro, Hughes Assocs.	615-753-2719
TX	Round Rock, Encore Tech. Comps.	214-418-0188
UT	Salt Lake City, Arrowhead CSI/Sls.	801-268-8440
WA	Redmond, SPS Elctrns.	206-885-5257
Can	Markham, Ont., Avotronics Ltd.	416-475-2024

Local Distributors

AL	Huntsville, Hammond Elctrns.	205-830-4764
CA	Belmont, LoDan Elctrns. Inc.	415-592-4600
CA	Compton, Harper S.I.D.	213-979-5090
CA	Gardena, California Switch & Signal	213-770-2330
CA	San Carlos, LoDan Elctrns.	415-592-4600
CA	San Diego, California Switch	619-231-6740
CA	San Diego, Harper S.I.D.	619-578-2500
CA	San Jose, Harper S.I.D.	408-943-9490
CO	Arvada, Denver Beta Wintronic	303-431-7161
CT	Norwalk, Cobra Comps.	203-847-6442
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Largo, LoDan Elctrns., Inc.	813-586-2851
FL	Orlando, Hammond Elctrns.	407-849-6060
GA	Norcross, Hammond Elctrns.	404-449-1996
IL	Arlington Hgts., LoDan Elctrns.	312-398-5311
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Indianapolis, P.E.I. Genesis	317-879-0700
MA	Hingham, Sager Elctrl. Supp. Co.	617-749-6700
MA	Westborough, In Stock Prods. Co.	617-870-5750
MN	New Brighton, Parts 1	612-633-8079
MO	Jackson, Rapco Inds.	314-243-1433
NJ	Camden, Gen. Radio Supp. Co.	609-964-8560
NY	Bohemia, Key Comps.	516-567-7500
NY	Hempstead, Elctrn. Equip.	516-538-5510
NY	Rochester, Whirlwind Music Distrs.	716-663-8820
NC	Greensboro, Hammond Elctrns.	919-275-6391
OR	Beaverton, Component Resources	503-641-8488
PA	Harrisburg, Cumberland Elctrns.	717-232-5999
PA	Philidelphia, P.E.I. Genesis	215-673-0400
SC	Greenville, Hammond Elctrns.	803-232-0872
TX	Richardson, Off The Shelf Comps.	214-238-0808
WA	Seattle, Radar Elec.	206-282-2511
Can	London, Ont., C. M. Peterson Co. Ltd.	519-434-3204
Can	Scarborough, Ont., Carsten Elctrns. Ltd.	416-495-9999
Can	Willowdale, Ont., Electrosonic Inc.	416-494-1666

PREMA PRECISION ELECTRONICS, INC., 4650 Arrow Hwy. Suite E-5, Montclair, CA 91763, Tel: 714-621-7292, FAX: 714-625-2098

FAX: 212-993-9211

PREMIER METAL PRODS. CO., 381 Canal Pl., Bronx, NY 10451, Tel: 212-993-9200; Empl.: 75; *Sls. Mgr.:* Anthony E. Bozza ..... **C•1090-1091**

Local Sales Offices & Reps

AZ	Tempe, Scientific Dvcs.	602-730-9774
CA	Fontana, Premier Metal	714-829-3089
CA	Huntington Bch., Scientific Dvcs.	714-840-3501
CA	San Jose, Scientific Dvcs.	408-554-0455
CO	Denver, AKI Enterprises	303-338-4488
CT	East Haven, Eagle Assocs.	203-467-6542
GA	Marietta, Adams & Assocs.	404-973-0853
IL	W. Chicago, May Assocs.	708-293-7763
KS	Kansas City, Delltron Co.	816-436-6445
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MA	Needham, Eagle Assocs.	617-444-3446
MI	Brighton, Electronic Sources	313-227-3598
MN	Minneapolis, J.E.M. Anderson Co.	612-823-6459
MO	Florissant, Delltron Co.	314-839-0033
NM	Albuquerque, Brytec-Scientific Devices	505-883-3668

NY	New Hyde Park, Harris & Aldrich Sls.	516-488-2622
NY	Yonkers, Sonkin Assocs.	914-968-8282
NC	Greenboro, Adams & Assocs.	919-272-6838
OH	Cleveland, Del Steffen & Assoc.	216-461-8333
PA	Penndel, Delta Mktg.	215-750-1440
TX	Richardson, Spectra Sls. Corp.	214-234-3600
WA	Redmond, Scientific Dvcs	206-885-0004
EXP	FL, Ft. Lauderdale, GM Intl.	305-434-6617
	Local Distributors	
AZ	Phoenix, Dalis Elctrns.	602-275-2885
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	San Jose, Quement Elctrns.	408-998-5900
CA	San Jose, Rose Elctrns.	408-943-0255
CT	Wallingford, Sager Elctrl. Supp.	203-265-4600
ID	Boise, Radar Elec.	208-336-2227
IL	Skokie, Anixter	708-677-2600
LA	Baton Rouge, Menard Elctrns.	504-355-0323
MD	Baltimore, Resco	301-823-0070
MA	Hingham, Sager Electrical Supp.	617-749-6700
MI	Ann Arbor, Purchase Radio Supp.	313-668-8696
MO	St. Louis, Gateway Elctrn. Supp.	314-427-6116
NJ	Cranford, Garden State Indl. Elec.	201-272-6400
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Hauppauge, Broadline Elec. Dist.	516-231-4100
NY	Hempstead, Davis Elctrn. Corp.	516-483-9200
NY	LIC, H. L. Dalis Inc.	212-361-1100
NY	New York, Martin Audio/Video Corp.	212-541-5900
NY	Portchester, Wise Comps.	914-939-8600
NY	Rochester, Simcona Elctrn. Corp.	716-328-3230
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Warren, Rem Elctrns.	216-248-1636
OR	Portland, Radar Elec.	503-232-3404
PA	Horsham, Toner Cable Equip.	215-675-2053
PA	West Chester, West Chester Elec. Supp.	215-696-7500
SC	Charleston, Wholesale Indl. Elec.	803-722-2634
TN	Clarksville, Randolph Hale & Matthews	615-647-2325
TN	Cookeville, Randolph & Parks	615-526-6184
TN	Nashville, Randolph & Rice	615-255-5601
TN	Tullahoma, Randolph Rice & Williams	615-455-4531
TX	Ft. Worth, Swieco Inc.	817-335-6521
TX	Houston, Lenert Co.	713-225-1465
VA	Arlington, Arlington Elctrns.	703-524-2412
WA	Richland, Radar Elec.	509-943-8336
WA	Seattle, Radar Elec. Co.	206-282-2511

PREMIER MICROWAVE, 35 New Broad St, Port Chester, NY 10573, Tel: 914-939-8900, FAX: 914-939-9239; FSC No.: 15870; Empl.: 65; *Sls. Mgr.:* Mel Radner

PREM

FAX: 815-385-8578

PREM MAGNETICS, INC., 3521 N. Chapel Hill Rd., McHenry, IL 60050, Tel: 815-385-2700; FSC No.: 20462; Empl.: 180; *Sls. Mgr.:* D. Hertel ..... **A•1250-1253, 2372-2383**

PRES-AIR-TROL CORP., 1009 Boston Post Rd., Mamaroneck, NY 10543, Tel: 914-698-2026, 800-431-2625 (outside NY), FAX: 914-698-9456; Empl.: 25; *Sls. Mgr.:* Doug Robinson ..... **B•1766**

PRESCO, INC., 8 Lunar Drive, Woodbridge, CT 06525, Tel: 203-397-8722, FAX: 203-389-1129; Empl.: 11

PRESIDIO COMPONENTS, INC., 7185 Construction Ct, San Diego, CA 92121, Tel: 619-578-9390, FAX: 619-578-6225; FSC No.: 60212

PRESS-ON PRODUCTS, 21 Factory Rd., Addison, IL 60101, Tel: 708-628-2255, FAX: 708-543-4414; Empl.: 20; *Sls. Mgr.:* T. Cummins

PRESSURE CONTROLS, INC., 406 Cortlandt St, Belleville, NJ 07109, Tel: 201-751-5002, FAX: 201-751-9653; FSC No.: 52193; Empl.: 15; *Sls. Mgr.:* P. Emmarco

PRESSURE SYSTEMS, INC., 34 Research Dr., Hampton, VA 23666, Tel: 804-865-1243, TELEX: 901406, FAX: 804-766-2644; Empl.: 98; *Sls. Mgr.:* J. S. Yakshe

PRIMELINE, Soltec Corporation, P. O. Box 670, San Fernando, CA 91341-0670, Tel: 818-365-0101, TELEX: 494-3094 SOLTEC UI, FAX: 818-365-7839; *Sls. Mgr.:* Byron McIntire

PRIME POWER, A Prime Technology Co., Twin Lakes Rd., P.O. Box 185, N. Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092, FAX: 203-481-8937; *Sls. Mgr.:* J. L. Jamieson

PRIME TECHNOLOGY, INC., See General Resistance, A Prime Technology Co.

PRIMO COMPANY LIMITED, 25-1, 6-Chome, Mure, Mitakashi, Tokyo, Japan 181, Tel: 0422-43-3121; FSC No.: 0422 49 8865; Empl.: 391; *Sls. Mgr.:* H. Ikoma; *Dist. Mgr.:* S. Mizutani

PRINCETON CASE CO., INC., 667 Lehigh Ave., Union, NJ 07083, Tel: 908-687-1750, FAX: 908-687-1755; Empl.: 60; *Sls. Mgr.:* S. E. Parker

PRINCETON ELECTRONIC PRODUCTS, 2549 U.S. Highway 1, North Brunswick, NJ 08902, Tel: 908-297-4448, FAX: 908-821-5950; Empl.: 29; *Sls. Mgr.:* H. Center; *Dist. Mgr.:* H. Center

PRINCO INSTRUMENTS, INC., 1020 Industrial Hwy., Southampton, PA 18966; FSC No.: 48620; Empl.: 70; *Sls. Mgr.:* G. G. Pfaff

PRINTER PRODUCTS, 25 Denby Road, Boston, MA 02134, Tel: 617-254-1200, FAX: 617-254-6848; Empl.: 200; *Sls. Mgr.:* Bruce Burgess; *Dist. Mgr.:* Bruce Burgess

PRO BATTERY, INC., 3941 Oakcliff Indl. Ct., Atlanta, GA 30340, Tel: 800-451-7171, FAX: 404-449-5457; Empl.: 35; *Sls. Mgr.:* Neal A. Zucker

PROBE MASTER, INC., 4898 Ronson Ct, San Diego, CA 92111, Tel: 619-560-9676, 800-772-1519, FAX: 619-560-7354; *Sls. Mgr.:* Dick Press

PROBE-RITE, INC., P.O. Box 242, Santa Clara, CA 95052, Tel: 408-727-0100, FAX: 408-243-7219; *Sls. Mgr.:* Frank J. Ardezzone

PRO COM TECHNOLOGY INC., 28 Commerce Dr., Farmingdale, NY 11735, Tel: 516-293-4443, 800-762-3785, FAX: 516-293-4456; Empl.: 11; *Sls. Mgr.:* Alan Spiegel

PRODELIN CORPORATION, P.O. Box 368, Conover, NC 28613, Tel: 704-464-4141, FAX: 704-464-5725; Empl.: 100; *Sls. Mgr.:* Dan Johnson

PRODIGIT ELECTRONICS, 9301-101 Jordan Ave., Chatsworth, CA 91311, Tel: 818-341-6987, FAX: 818-341-5726; Empl.: 100; *Sls. Mgr.:* Daniel Erb ..... **D•2003**

PRODUCTION AUTOMATION, INC., 3160 De la Cruz Blvd. Ste. 210, Santa Clara, CA 95054, Tel: 408-980-9880, FAX: 408-980-8018; Empl.: 4; *Sls. Mgr.:* Bill Minnick; *Dist. Mgr.:* Bill Minnick

PRODUCTRONICS INC., 7616 Disalle Blvd., Fort Wayne, IN 46825, Tel: 219-489-8201, FAX: 219-489-6573; Empl.: 4; *Sls. Mgr.:* Bernard James

PRODUCTS ENGRG. CORP., 503 S. Vincent Ave., Azusa, CA 91702, Tel: 818-969-5879, TELEX: 910-587-1559, FAX: 818-969-9381; FSC No.: CAGE 3S621; Empl.: 45; *Sls. Mgr.:* Richard Mitchell

PRODUCTS FOR RESEARCH, 88 Holten St., Danvers, MA 01923, Tel: 508-774-3250, FAX: 617-245-1628; Empl.: 17; *Sls. Mgr.:* Skip Moccia

PTI PRODUCT TECHNOLOGY INC.

FAX: 714-474-1340

PRODUCT TECHNOLOGY, INC., 2811-B McGaw Avenue, Irvine, CA 92714, Tel: 714-474-8998; FSC No.: 1Z295; Empl.: 45 ..... **C•1661, 1684**

	Local Sales Offices & Reps	
AL	Huntsville, Mec-Elec	205-881-1522
AZ	Tempe, Integrated Tech. Sls.	602-968-5118
CA	San Diego, Qualtronics	619-695-0118
OH	Cincinnati, Bob Gilbert & Assocs.	513-574-1932
TX	Dallas, Passive Comps. Assocs.	214-824-6162
UT	Salt Lake City, Sierra Tech. Sls.	801-566-9719
	Local Distributors	
AZ	Scottsdale, Added Value	602-951-9788
CA	San Diego, Added Value	619-558-8890
CA	Tustin, Added Value	714-259-8258
CA	Visalia, Added Value	209-734-8861
CA	Westlake Village, Added Value	818-889-2861
CO	Wheat Ridge, Added Value	303-422-1701
TX	Austin, Added Value	512-454-8845
TX	Dallas, Added Value	214-404-1144
UT	West Valley City, Added Value	801-975-9500

PROF. A/V & SPECIALTY PROD. DIV., 223-5N-01, St. Paul, MN 55144-1000, Tel: 612-733-7644, FAX: 612-737-5583; Empl.: 38,351

PROFESSIONAL ENGINEERING SYSTEMS, 425 Parkway Dr., Erie, PA 16511-1051, Tel: 814-453-5452

PROGRAMMABLE DEVICES, INC., 155-T New Boston St., Woburn, MA 01801, Tel: 617-935-9530, FAX: 617-935-3654; Empl.: 10

PTS FREQUENCY SYNTHESIZERS

FAX: 508-486-4495

PROGRAMMED TEST SOURCES, 9 Beaver Brook Road, P.O. Box 517, Littleton, MA 01460, Tel: 508-486-3008; FSC No.: 66381; Empl.: 30 ..... **D•1312**

PRB LINE®

FAX: 1-800-635-8101

PROJECTOR RECORDER BELT CORP., Route 3 Highway 59 P.O. Box 176, Whitewater, WI 53190, Tel: 1-800-533-9654; Empl.: 30; *Sls. Mgr.:* Ed Wetzel; *Dist. Mgr.:* Nancy Smith ..... **C•1597**

	Local Sales Offices & Reps	
CA	Burlington, William Purdy Co.	415-347-7701
CA	Santa Ana, Mike Roth Sls.	714-647-0606
CO	Colorado Springs, Norris & Co.	303-576-8697
FL	Maitland, Hawkins-Frederickson Assocs., Inc.	407-831-2474
GA	Roswell, HW Phillips	404-992-3070
IL	Addison, Elctrn. Specialists	708-250-9080
IA	W. Des Moines, Nevco	515-225-9866
MA	Milford, Jonel Sls. Assoc.	508-478-4650
MI	Southfield, Robert Milsk Co.	313-354-3310
MN	Excelsior, Procon	612-937-6024
NY	Victor, Imco	716-924-3671
OH	Stow, J.W. Lehner Co.	216-686-1965
OR	Beaverton, Pacific Mktg. Grp.	503-641-9373
TX	Rowlett, Campion Sls.	214-475-8313
VA	Charlottesville, Crown Assocs.	804-293-6373
Can	Dorval, Quebec, ECG Canada	514-685-5800

PROJECT RESOURCES INC., 16 Kendrick Rd., Wareham, MA 02571, Tel: 508-295-7444, FAX: 508-295-7497; FSC No.: OEF11; Empl.: 18; *Sls. Mgr.:* T.R.Egan

PROJECTS UNLIMITED, 3680 Wyse Rd., Dayton, OH 45414, Tel: 513-890-1918, FAX: 513-890-4911; Empl.: 61; *Sls. Mgr.:* Greg Kimpton ..... **D•1050-1052**

	Local Sales Offices & Reps	
AL	Huntsville, ElectroSales, Inc.	205-830-2715
AZ	Scottsdale, Williams Assocs.	602-947-4297
CA	Irvine, Cal Rep	714-250-0567
CA	San Jose, Comtech Mktg.	408-294-3330
CO	Commerce City, Williams Assocs.	303-289-5647
CT	Seymour, Sturdy Corp.	203-888-1480
FL	Lakeland, Munday Sls. Co.	813-858-5606
GA	Atlanta, ElectroSales, Inc.	404-394-1122
IL	Downers Grove, Golten Assocs. Inc.	708-512-0093
IN	Indianapolis, The J. C. Hofstetter Co.	317-897-7914
KS	Overland Park, Thomas L. Dowell	913-599-1100
MA	Wellesley Hills, Sturdy Corp.	617-235-2330
MN	Edina, G.P. Sls.	612-831-2362
MO	St. Louis, Thomas L. Dowell	314-849-4234
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Patchogue, Optimum Sls.	516-758-0644
NC	Raleigh, Tingen Tech. Sls., Inc.	919-870-6670
OH	Dayton, J.C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
PA	Valley Forge, Providence Mktg.	215-935-3300
TX	Richardson, Eagle Mktg.	214-238-5383

IA Cedar Rapids, Thomas L. Dowell & Assocs. 319-364-3880
WA Redmond, Doran Sls. Assocs., Inc. 206-885-1885
Can Islington, Ont., D.T. Shaw Co., Ltd. 416-231-3494
Can Montreal, Que., D.T. Shaw Co. Ltd. 514-332-1163
Can Vancouver,B.C., F.D. Bolton, Ltd. 604-736-0351
Can Winnipeg, Man., F.D. Bolton, Ltd. 204-774-5708

Local Distributors

CA San Jose, Speakers Unlimited 408-453-5698
CA Santa Clara, Pyramid Elctrns. 408-727-9810
CA Torrance, Pyramid Elctrns. 213-320-2700
CO Commerce City, Waco Elctrns. 303-289-4743
FL Lakeland, A-A Elec. 813-665-6941
GA Norcross, A-A Elec. 404-449-8670
IL Bensonville, Voyager Elctrns. Corp. ... 708-860-1300
MA Hingham, Hingham Bay 617-740-1900
MO St. Louis, Beckwith Elctrns. 314-343-6463
NY Rochester, Ray Baker Elctrns. 716-586-9164
MN Fridley, Voyager Elctrns. Corp. 612-571-7766
OH Dayton, Electro Supp. 513-299-5020
PA McKean, Advacom 814-476-7774
TX Austin, Southwest Elctrns. 512-837-8971
TX Stafford, Southwest Elctrns. 713-240-4000
TX Dallas, S.W. Elctrns. 214-234-3050
WA Redmond, Pyramid Elctrns. 206-883-7200
Can Willowdale, Ont., Electro Sonic 416-494-1666

PRO-LOG CORP., 2555 Garden Road, Monterey, CA 93940, Tel: 408-372-4593, TWX: 910-360-7082; Empl.: 120; *Sls. Mgr.:* Dick Thomas; *Dist. Mgr.:* Pat Laughlin

PROLOGIC SYSTEMS, 557-0 Burbank St., Broomfield, CO 80020, Tel: 303-460-0103, FAX: 303-469-5565; Empl.: 9

PROMAX-JOHNTON ELECTRONIC CORP., 17935 Sky Park Circle, Ste. H, Irvine, CA 92714, Tel: 714-975-1245, FAX: 714-975-1390; Empl.: 12; *Sls. Mgr.:* Dave Cooper

PROTEK INC., P.O. Box 59, Norwood, NJ 07648, Tel: 201-767-7242, FAX: 201-767-7343; *Sls. Mgr.:* Alex Orloff

PROTO STAMPING CORP., 811 Kaynyne St., Redwood City, CA 94063, Tel: 415-365-0498, FAX: 415-366-6329; Empl.: 35; *Sls. Mgr.:* Dave Anstead

PROTO SYSTEMS, 625 Sims Industrial Blvd., Alpharetta, GA 30201, Tel: 404-475-1330, 800-331-1797, FAX: 404-442-9751; FSC No.: FU 718; Empl.: 155; *Sls. Mgr.:* Keith Koehle

PROTOTEK, INC., 25 Standen Dr., Hamilton, OH 45015, Tel: 513-874-5094, FAX: 513-874-2252; FSC No.: 60813; Empl.: 45; *Sls. Mgr.:* Ron Nabors

PTC INDUSTRIES, INC., 5721 Research Drive, Huntington Beach, CA 92649, Tel: 213-598-9547, 714-891-7561, FAX: 714-373-0269; Empl.: 14; *Sls. Mgr.:* Steve Varonka

PTC TRANSFORMERS, P.O. Box 397, Rising Sun Road, Bordentown, NJ 08505, Tel: 609-298-8200, FAX: 609-298-8235; FSC No.: 05853; Empl.: 30; *Sls. Mgr.:* C. W. Harrison

PTS CORPORATION, Box 272, Bloomington, IN 47401, Tel: 812-824-9331; Empl.: 350; *Sls. Mgr.:* Jeff Hamilton; *Dist. Mgr.:* David Melwid

PTX-PENTRONIX INC., 1737 Cicotte, Lincoln Park, MI 48146, Tel: 313-388-3100, TELEX: 23-0398, FAX: 313-388-9171; Empl.: 21; *Sls. Mgr.:* J. Schultz

Z-LINE®

FAX: 714-641-9062

PULIZZI ENGINEERING, INC., 3240 S. Susan St., Santa Ana, CA 92704-6865, Tel: 714-540-4229; FSC No.: 70513; Empl.: 35; *Sls. Mgr.:* Roger A. Lea; *Dist. Mgr.:* Roger A. Lea ..... **D•2224-2228**

Local Sales Offices & Reps

CA Anaheim, Alpha Elctrn. Sls. 714-665-6580
CA Los Angeles, Power Partners 213-215-0800
CA Los Gatos, Norwest Elctrns. 408-395-1190
CA Santa Ana, Pulizzi Engrg., Inc. 714-540-4229
CT Westford, I.C.S. Assocs., Inc. 508-692-3545
IL Bensenville, E.S.I. 708-766-3667
IL Bensenville, R.L. Lang & Assoc. 312-766-3667
MD Columbia, L.G. White & Co., Inc. 301-290-8880
MD Silver Spring, L. G. White & Co., Inc. ... 301-792-0660
MA Westford, ICS Assocs., Inc. 508-692-3545
MO Bridgeton, BC Elctrn. Sls., Inc. 314-739-6683
MD Silver Spring, L.G. White 301-792-0660
OR Beaverton, Temper Tech. Mktg. 503-292-8201
PA Valley Forge, J.E. Cuesta & Co. 215-935-0400
Can Lac-Carre, Que., V.V.M. REG. 514-766-9270

Local Distributors

CA San Jose, Dansco Comp. Sls., Inc. 408-292-9740

PULNIX AMERICA, INC., 770 Lucerne Dr., Sunnyvale, CA 94086, Tel: 408-733-1560, TELEX: 172541 Pulnix America; *Sls. Mgr.:* Richard Hofmeister

PULSE INSTRUMENTS CO., 1234 Francisco, Torrance, CA 90502, Tel: 213-515-5330, FAX: 213-515-0068; Empl.: 30; *Sls. Mgr.:* Ron Perry

PUREDATA, 180 West Beaver Creek Rd., Richmond Hill, Ont., Canada L4B 1B4, Tel: 416-731-6444, FAX: 416-731-7017; Empl.: 150; *Sls. Mgr.:* Alex Kosarow, Cdn. Sls.; *Dist. Mgr.:* Dennis Robinson, US Sls.

PYLE INDUSTRIES, INC., 501 Center St., P.O. Box 620, Huntington, IN 46750, Tel: 219-356-1200, FAX: 219-356-2830; Empl.: 375; *Sls. Mgr.:* Tom Pyle; *Dist. Mgr.:* Mark Pyle, Natl. Sls. Mgr.

PYLE-NATIONAL, INC. LPL CO., 1334 N. Kostner Ave., Chicago, IL 60651, Tel: 312-342-6300 x210, TELEX: 25251, TWX: 910-221-0335, FAX: 312-342-0872; FSC No.: 49367; Empl.: 650; *Sls. Mgr.:* Mike Carroccia, V.P. Sls./Mktg.

PYLON CO., See Augat/Pylon Corp., Inc.

PYLON ELEX DEVELOPMENT CO. LTD., 2300 Victoria, Lachine, PQ, Canada H8S 1Z3, Tel: 514-637-1186, FAX: 514-636-1970; Empl.: 50; *Sls. Mgr.:* J. Guay

PYROCOM CO., 924 N. 143rd St., Seattle, WA 98133, Tel: 206-365-3535, FAX: 206-365-0402; *Sls. Mgr.:* Bill Kurtz

PYROFERRIC INTERNATIONAL, INC., 200 Madison St., Toledo, IL 62468, Tel: 217-849-3300, TWX: 910-663-0616, FAX: 217-849-2544; Empl.: 50; *Sls. Mgr.:* S. John Horner

Local Sales Offices & Reps

AZ Phoenix, Charles T. Fink & Assocs., Ltd. 602-992-9884
CA Alhambra, Deniston/JDA, Inc. 818-289-2844
CA Santa Clara, C. B. King Assocs. 408-988-7551
NY Commack, Marvin Scheck 516-864-9676
OH Shaker Hgts., Don Gype Co. 216-291-0103
TX Dallas, S.W. Elctrn. Ind., Inc. 214-690-9881
VA Roanoke, A.B. Kreger Co. 703-989-4738

PYROFILM RESISTOR CO., See KDI Electronics

PYROHM, INC., 24268 Indoplex Circle, Farmington Hills, MI 48018, Tel: 313-478-5060; *Sls. Mgr.:* Charles R. Berry

Q-CARD, INC., 2 Chellis Ct., Owings Mills, MD 21117-1634, Tel: 410-581-0112; *Sls. Mgr.:* Larry Nickel

QMI/NIEC, 12900 Rolling Oaks Rd., Twin Oaks, CA 93518, Tel: 805-867-2555, FAX: 805-867-2698 ..... **A•2126**

Local Sales Offices & Reps

AL Huntsville, EMA, Inc. 205-830-4030
CA Laguna Hills, 4-Star Elctrn. Comp. Sls. 714-583-9781
CA San Jose, Ruppert Sls. & Engrg., Inc. .. 408-998-8717
FL Boca Raton, Tech Sls. Specialists, Inc. 407-391-3718
GA Roswell, EMA, Inc. 404-992-7240
IL Rolling Meadows, Eagle Tech. Sls. Inc. 708-991-0700
MI Livonia, Leading Edge Sls. Corp. 313-478-6700
MN Prior Lake, Gleason Assoc., Inc. 612-447-7020
NJ No. Fairfield, Metro Logic Corp. 201-575-5585
NJ So. Medford, CEF Assocs. 609-953-3417
NY Syracuse, Murcan Sls. Corp. 315-455-8807
NC Raleigh, EMA, Inc. 919-846-6888
OH Columbus, The Tom Mulligan Co., Inc. 614-457-2242
TX Dallas, Electra Reps., Inc. 214-248-3852
WA Bellevue, N R Schultz Co. 206-746-1890

QSI CORPORATION, 2212 So. W. Temple No. 46, Salt Lake City, UT 84115, Tel: 801-466-8770, FAX: 801-466-8792; Empl.: 10; *Sls. Mgr.:* Gerri Mackey

Local Sales Offices & Reps

CT Orange, Isdale Assocs. 203-387-2704

Q-TECH CORP., 10150 W. Jefferson Blvd., Culver City, CA 90232-3510, Tel: 213-836-7900, TELEX: 69-6140, FAX: 213-836-2157; FSC No.: 51774; Empl.: 140; *Sls. Mgr.:* Sandra Rappaport ..... **A•1444-1447**

Local Sales Offices & Reps

AZ Tempe, Piper Sls. Co. 602-949-0048
CA Hermosa Beach, Quattro Sls. Assoc., Inc. 213-372-4221
CA Moorpark, Quattro Sls. Assoc., Inc. 805-523-2978
CA San Diego, Quattro Sls. Assoc., Inc. ... 619-581-3093
CA San Jose, Blue Elctrn. Sls. 408-345-0260
CA San Juan Capistrano, Quattro Sls. Assoc., Inc. 800-735-4510
CO Parker, Howard Assoc. 303-841-5755
CT Canterbury, The Cygnus Sls. Co., Inc. 203-546-6322
IL Northbrook, Allied Comp. Reps., Inc. .. 708-498-6658
IN Fort Wayne, TX Sales Inc. 219-489-4447
MD Baltimore, R.A. Wafer Assocs. 602-949-0048
MA Tewksbury, The Cygnus Sls. Co., Inc. 508-640-0001
MO St. Louis, Abrams & Assoc. 314-569-0447
NJ Glen Gardner, F & M Tech. Sls. 201-537-7888
NJ Paramus, Eltech Sls. 201-967-1309
NM Albuquerque, Piper Sls. Co. 505-828-1300
TN Winchester, C.J. Sls. 615-967-2156
TX Austin, Texoma Technical Sales, Inc. 512-441-1771
TX Houston, Texoma Technical Sales, Inc. 713-462-1432
VT So. Burlington, The Cygnus Sls. Co., Inc. 802-862-7754

QUAD DESIGN TECHNOLOGY, INC., 1385 Del Norte Road, Camarillo, CA 93010, Tel: 805-988-8250, FAX: 805-988-8259; Empl.: 16; *Sls. Mgr.:* Ron Lee; *Dist. Mgr.:* Jack Weaver

QUALCOMM, INC., 10555 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-587-1121, FAX: 619-452-9096; Empl.: 400; *Sls. Mgr.:* James Madsen; *Dist. Mgr.:* James Madsen

Qualidyne

FAX: 619-429-1011

QUALIDYNE SYSTEMS, INC., Lambda Group of Unitech, plc, 3055 Del Sol Blvd., San Diego, CA 92154, Tel: 619-575-1100; Empl.: 400; *Sls. Mgr.:* Barry A. Chenes ..... **D•2014-2019**

QUALITEC TECHNOLOGIES, INC., 43064 Christy St., Fremont, CA 94538, Tel: 415-498-1046, FAX: 415-498-5938; Empl.: 130; *Sls. Mgr.:* Kevin Daniels ..... **D•1313**

QUALITY AUTOMATION, INC., 1600 E. South Anaheim Blvd., Anaheim, CA 92805, Tel: 714-491-8535, FAX: 714-491-0417; Empl.: 22; *Sls. Mgr.:* Joe George; *Dist. Mgr.:* Joe George

QUALITY COMPONENTS, INC., P.O. Box 113, St. Marys, PA 15857, Tel: 814-834-2817, FAX: 814-834-9141; Empl.: 95; *Sls. Mgr.:* Michael Renaud, Mktg. Mgr.

QUALITY MICROWAVE INTERCONNECTS, INC., 301 Ballardvale St., Wilmington, MA 01887, Tel: 508-988-9090, FAX: 508-988-9393; FSC No.: 64023; Empl.: 30; *Sls. Mgr.:* Paul M. Tusini ..... **A•1824-1826**

Local Sales Offices & Reps

AL Huntsville, Bolton Assoc. 205-880-1164
AZ Tempe, Cain Technlg. 602-966-4322
CA Cupertino, Dura Sls. 408-255-2084
CA Van Nuys, Cain Technlg. 818-904-9392
CO Englewood, Cain Technlg. 303-220-8118
FL Orlando, Bolton Assoc. 407-856-0612
FL Pompano Beach, Bolton Assoc. 305-975-7245
FL St. Petersburg, Bolton Assoc. 813-864-2294
IN Park Ridge, Probe Elctrns. 708-696-2828
MD Laurel, Elec. Mktg. Assoc. 301-953-7800
MA Teskwbury, Sequel Assoc. 508-851-4010
MN New Hope, Baltz Assoc. 612-546-8520
NJ Deptford, Elec. Mktg. Assoc. 609-227-0925
NJ Linden, El-Tech Sls. 201-925-6162
NJ Paramus, El-Tech Sls. 201-967-1309
NY Syracuse, Em-Tech Assocs. 315-437-6410
SC Greenwood, Bolton Assoc. 803-223-4018
TX Garland, Cary McMahill Assoc. 214-681-1414
VA Abingdon, Bolton Assoc. 703-676-0500
WA Seattle, Data Com 206-285-2525
EXP Stamford, Dage Corp. 203-324-3123
Can Montreal, Que., Solid State Engrg. 514-481-3313

Local Distributors

CA Westlake Village, Sertek, Inc. 818-707-2872
MA Tewksbury, Sequel Sls. 508-851-4010

QUALITY POWER SYSTEMS, INC., 2400 S. Texas Ave., Pearland, TX 77581, Tel: 713-997-1700, 800-992-1701, FAX: 713-997-1907; Empl.: 20; *Sls. Mgr.:* Clarence Oliver

QUALITY RESEARCH COMPANY, North 11424 Judkins Lane, Spokane, WA 99207-9632, Tel: 509-924-6895; Empl.: 6; *Sls. Mgr.:* Jon Roath

QUALITY TECHNOLOGIES, 3400 Hillview Ave., Palo Alto, CA 93404, Tel: 415-493-0400, FAX: 415-493-7055; Empl.: 2000; *Sls. Mgr.:* Bob Taber; *Dist. Mgr.:* Candace Johnson

QUALITY THERMISTOR, 2147 Centurion Pl., Boise, ID 83709, Tel: 208-377-3373, FAX: 208-376-4754; FSC No.: 56866; Empl.: 45; *Sls. Mgr.:* John Mahoney ..... **B•1830, 1858-1859**

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EXP Oradell, NJ, Sylvan Ginsbury Ltd. 201-261-3200

QUALOGY INC., 109 Bonaventura Dr., San Jose, CA 95134, Tel: 408-434-5200, FAX: 408-434-5242; Empl.: 25; *Sls. Mgr.:* Mike Sills

QUALISTAR CORP., 9621 Irondale Ave., Chatsworth, CA 91311, Tel: 818-882-5822, TELEX: 510-600-2569, ESYLNK: 6289-9796, FAX: 818-882-4081; Empl.: 50

QUALTEK ELECTRONICS CORP., 7158 Industrial Pk. Blvd., Mentor, OH 44060, Tel: 216-951-3300, TELEX: 985319, FAX: 216-951-7252; Empl.: 75; *Sls. Mgr.:* Laura Yano/Regional Sls. Mgr.; *Dist. Mgr.:* Laura Yano/Regional Sls. Mgr.

QUAM-NICHOLS CO., 234 E. Marquette Rd., Chicago, IL 60637, Tel: 312-488-5800, FAX: 312-488-6944; Empl.: 200; *Sls. Mgr.:* William G. Little; *Dist. Mgr.:* Greg Johns ..... **D•1054-1055**

Local Sales Offices & Reps

AZ Mesa, Yocum Mktg. 602-834-3334
CA Belmont, Brian Trankle & Assocs. 415-595-4004
CA Gardena, Bidwell-Schwartz Assocs. ... 213-770-0300
UT Salt Lake City, Pro Tech Mktg. 801-943-8331
FL Orlando, Cartwright & Bean of FL 407-422-4531
GA Norcross, Cartwright & Bean of GA ... 404-368-0160
IL Mt Prospect, The Dombrow Co. 312-253-3326
IL North Brook, Levy, Grams, & Lassers 708-272-8500
IN Carmel, Green-Wissler Sls.,Inc. 317-843-5785
KS Prairie Village, R. W. Kunz & Assocs., Inc. 913-648-3535
MA Chicopee, Repworks, Inc. 413-533-0845
MN Edina, Mel Foster Techn. Sls. Inv. 612-941-9790
NJ Rahway, R. E. Breuer CO. 201-388-5045
NY Roslyn Hgts., Hudson Mktg. Inc. 516-625-0002
NY Syracruse, The Lewis & Dunnigan Co., Inc. 315-446-5522
OH Stow, J. W. Lehner Co. 216-686-1965
PA Broomall, Lowery Assocs. Co. 215-356-5300
TN Menphis, Cartwright & Bean of TN 901-362-8345
TX Dallas, J. Y. Schoonmaker CO., Inc. ... 214-349-4650
WA Seattle, Vector Manufacturers' Rep. ... 206-368-8400
EXP Yonkers, NY, Roburn Agencies, Inc. ... 914-968-1016
Can Waterloo, Ont., McBride Loudspeaker Source, Ltd. 519-884-3500
MI Southfield, Robert Milsk Co. 313-354-3310

QUAN-TECH, Stansbury Industries Inc., P.O. Box 28, Rte. 206, Flanders, NJ 07836, Tel: 201-927-1766, TWX: 710-987-7500; FSC No.: 63921; *Sls. Mgr.:* Richard A. Stansbury

QUANTRONIX, 49 Wireless Blvd., P.O. Box 9014, Smithtown, NY 11788, Tel: 516-273-6900, TELEX: 685-2167, FAX: 516-273-6958; Empl.: 175; *Sls. Mgr.:* R. J. Bruno; *Dist. Mgr.:* R. J. Bruno

QUANTUM BATTERIES, INC., 2772 Loker Ave. West, Carlsbad, CA 92008, Tel: 619-438-2202, TELEX: 01830, FAX: 619-438-0694; FSC No.: 01830; Empl.: 30; *Sls. Mgr.:* Gregg Kuehn; *Dist. Mgr.:* Terry Nielsen

QUANTUM CHROMODYNAMICS, INC., 2401 208th Street Unit 9, Torrance, CA 90501, Tel: 213-320-5717, FAX: 213-320-5848; Empl.: 3; *Sls. Mgr.:* David L. Hills

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QUANTUM DATA INC., 2111 Big Timber Road, Elgin, IL 60123, Tel: 708-888-0450, TELEX: 206725; Empl.: 23; *Sls. Mgr.:* Bill Down ..... **D•1315**

QUANTUM ELECTRONICS, INC., 31 Industrial Park Rd., Lewistown, PA 17044, Tel: 717-242-1132, FAX: 717-248-8680; Empl.: 20; *Sls. Mgr.:* Kit C. Kennedy

QUANTUM SCIENTIFIC INC., PO Box 219, Station J, Toronto, Ont M4J4Y1, Tel: 416-239-3363, 800-268-6000, FAX: 416-239-5791; Empl.: 10; *Sls. Mgr.:* Michael G. Sargeant

QUARTZITE PROCESSING, INC., 6 Holyoke St., Malden, MA 02148, Tel: 617-322-3611, FAX: 617-322-9623; Empl.: 11; *Sls. Mgr.:* P. S. Yanofsky

QUATECH INC., 662 Wolf Ledges Pkwy., Akron, OH 44311, Tel: 216-434-3154, TELEX: 5101012726, FAX: 216-434-1409; Empl.: 25; *Sls. Mgr.:* Michael Cenker; *Dist. Mgr.:* Michael Cenker

Q.V.S., INC., 20 North 15th St., East Orange, NJ 07017, Tel: 201-673-3996, FAX: 201-673-3997; FSC No.: 89820; Empl.: 45

QWINT DATA, INC., 333 Corporate Woods Parkway, Vernon Hills, IL 60061, Tel: 708-913-8765, TELEX: 27-0498, FAX: 708-913-8766; Empl.: 140; *Sls. Mgr.:* Tom O'Boyle

RACAL-DANA INSTRS. INC., 4 Goodyear St., Irvine, CA 92718, Tel: 714-859-8999; FSC No.: 21793; Empl.: 230

RACAL-GUARDATA, INC., 480 Spring Pk. Pl., Ste. 900, Herndon, VA 22070, Tel: 703-471-0892, FAX: 703-437-9333; FSC No.: 56496; Empl.: 30; *Sls. Mgr.:* Thomas Mitchell, VP

RACAL-MILGO, 1601 N. Harrison Parkway, Sunrise, FL 33323-2899, Tel: 305-846-1601, 800-327-4440, TWX: 510-955-4145, FAX: 305-846-4942; Empl.: 2800; *Sls. Mgr.:* H. Cheli

RACET COMPUTES, LTD., 3150 E. Birch St., Brea, CA 92621, Tel: 714-579-1725, TELEX: 701160, TWX: RACET UD, FAX: 714-579-3183; Empl.: 25; *Sls. Mgr.:* Michael Dendo, V.P. Sls.; *Dist. Mgr.:* Michael Dosch

RACORE COMPUTER PRODUCTS, INC., 170 Knowles Drive., Los Gatos, CA 95030, Tel: 408-374-8290, FAX: 408-374-6653; *Sls. Mgr.:* Joseph W. Rooney; *Dist. Mgr.:* Joseph W. Rooney

RADIAL CONTROLS, 2555 E. 55th Place, Indianapolis, IN 46220, Tel: 317-255-2796; Empl.: 25; *Sls. Mgr.:* R. L. Newsom

RADIALL, INC., 150 Long Beach Blvd., Stratford, CT 06497, Tel: 203-386-1030, TELEX: 311796, FAX: 203-375-3808; Empl.: 30; *Sls. Mgr.:* Peter Dionisio; *Dist. Mgr.:* Peter Dionisio

RADIANT COMMUNICATIONS CORP., 5001 Hadley Rd. P.O. Box 867, South Plainfield, NJ 07080, Tel: 908-757-7444, TELEX: 908-757-8666; Empl.: 10; *Sls. Mgr.:* Gene Thaw

RADIOMETRICS MIDWEST CORP., 2200 S. Main St., Lombard, IL 60148, Tel: 708-932-7262; FSC No.: Cage Code 1Z075 SIC Code 8748 Ext. 0021; Empl.: 5

RADIO RESEARCH INSTRUMENT CO., INC., 584 North Main Street, Waterbury, CT 06704-3506, Tel: 203-753-5840, TELEX: 962444 RADAR DURY, FAX: 203-754-2567; FSC No.: 57174; *Sls. Mgr.:* E. B. Doyle

RADIO SWITCH CORP., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746, Tel: 908-462-6100, TELEX: 908-409-6695; FSC No.: 74217; Empl.: 40; *Sls. Mgr.:* J. L. Bernard

RADIO TELEVISION PRODUCTS CORP., 2702 Washington Ave. N., Douglas, AZ 85607, Tel: 602-364-4438, FAX: 602-364-4430; FSC No.: 5950; Empl.: 120; *Sls. Mgr.:* W. J. McGaw

RADIX WIRE CO., 26260 Lakeland Blvd., Cleveland, OH 44132, Tel: 216-731-9191, FAX: 216-731-7082; Empl.: 90; *Sls. Mgr.:* Peter B. Thurstone, Mktg. Admin.; *Dist. Mgr.:* Peter B. Thurstone, Mktg. Admin.

RADSTONE TECHNOLOGY, 20 Craig Rd., Montvale, NJ 07645, Tel: 201-391-2700, 800-368-2738, FAX: 201-391-2899; *Sls. Mgr.:* Larry Abzug

RAF ELECTRONIC HARDWARE, 95 Silvermine Rd., Seymour, CT 06483, Tel: 203-888-2133, FAX: 203-888-9860; FSC No.: 55566; Empl.: 120; *Sls. Mgr.:* William R. Bailey, Jr.; *Dist. Mgr.:* Dave Granger/John Capece

Distributor

RAG ELECTRONICS, INC., 21418 Parthenia St., Canoga Park, CA 91304, Tel: 818-998-6500, 800-732-3457 ..... 624, 628, 658, 681,696, 697, 721, 799, 801, 803

RAGEN CORP., Systems Div., 9 Porete Ave., N. Arlington, NJ 07032, Tel: 201-997-1000, FAX: 201-997-6948; Empl.: 400

RAGEN DATA SYSTEMS, INC., Subsidiary of Meggit U.S.A., 3 Oval Dr., Central Islip, NY 11722, Tel: 516-234-3800, TELEX: 685-2305, TWX: 510-227-4901; FSC No.: 13068; Empl.: 180; *Sls. Mgr.:* Roberta Marino

RALTRON ELECTRONICS, 2315 N.W. 107th Ave., Miami, FL 33172, Tel: 305-593-6033, TELEX: 441588, FAX: 305-594-3973; Empl.: 12; *Sls. Mgr.:* Alexander Wolloch; *Dist. Mgr.:* Alexander Wolloch

RAMCOM SYSTEMS, 3007 Washington Blvd., Ste. 205, Marina Del Rey, CA 90292, Tel: 213-827-4432; *Sls. Mgr.:* Ralph Tisdale

RAMTRON CORP., 1850 Ramtron Dr., Colo. Springs, CO 80921, Tel: 719-481-7000, 800-FRAM, FAX: 719-481-9170; Empl.: 100; *Sls. Mgr.:* Don Carrigan; *Dist. Mgr.:* John van Conant

RANK BRIMAR INC., 227 Technology Circle, Scotts Valley, CA 95066, Tel: 408-438-6440, FAX: 408-438-6334; FSC No.: 60750; *Sls. Mgr.:* David Hurst

RANSCO INDUSTRIES, INC., Sub. Despatch Ind., Inc., 1400 E. Statham Pkwy., Oxnard, CA 93033, Tel: 805-487-7777, TELEX: 6-59235; Empl.: 140; *Sls. Mgr.:* Robert Briner

RANTEC MICROWAVE & ELECTRONICS, Esco Electronics, 9401 Oso Ave., Chatsworth, CA 91311, Tel: 818-885-8223, FAX: 818-993-7780; FSC No.: 04971; Empl.: 500ò; *Sls. Mgr.:* Gerry White

Local Sales Offices & Reps

CA Chatsworth, Rantec 818-885-8223
CA Los Altos, Caine & White 415-948-6533
FL Orlando, Holmes & Assocs. 407-281-0067
NH Pelham, Rantec 603-635-3503
NY Yonkers, Sonkin & Assocs. 914-968-8282
TX Dallas, Kemp Engrg. 214-931-7100
VA Sterling, Beacon North 703-478-2480
WA Bellevue, Caine & Sweet 206-462-2118

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Local Sales Offices & Reps

GA Marietta, Electro Comp Sls., Inc. 404-922-2344
MA Natick, Wayland Engrg. Sls. 508-655-6080

RAPIDSUN, See Motion Control Grp., American Precision Inds.

RAPIDSYN DIVISION, 3229 Roymar Rd., Oceanside, CA 92054, Tel: 619-439-7500, TELEX: 18-1196; FSC No.: 32423; Empl.: 50; *Sls. Mgr.:* Mike Turner

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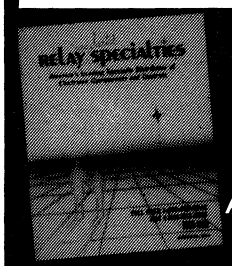
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RASTER GRAPHICS, INC., P. O. Box 5157, Bend, OR 97701, Tel: 503-388-2584, FAX: 503-389-8249

RATELCO, Power Systems, 1260 Mercer, Dept. EEM, Seattle, WA 98109-5589, Tel: 206-624-7770, FAX: 206-382-5447; FSC No.: 14259; Empl.: 160; *Sls. Mgr.:* D. Terpstra

RAULAND-ZENITH ELECTRONICS CORP., 2407 W. North Ave., Melrose Pk., IL 60160, Tel: 708-450-8992, TELEX: 72-1488, FAX: 708-450-8393; Empl.: 2300

RAYOVAC CORPORATION, 601 Rayovac Drive, Madison, WI 53711-0960, Tel: 608-275-4692, TELEX: 190428, FAX: 608-275-4994; FSC No.: 6135; Empl.: 2000; *Sls. Mgr.:* Jeff Heberlein

RAY PROOF, Shielding Systems Corp., 50 Keeler Ave., P.O. Box 5060, Norwalk, CT 06856-5060, Tel: 800-243-5704, TELEX: 96-5812; *Sls. Mgr.:* Brian F. Lawrence, V.P. Mktg. & Sls.

RAYTEK, INC., Box 1820, Santa Cruz, CA 95060-1820, Tel: 408-458-1110, FAX: 408-458-1239; *Sls. Mgr.:* S. Brager; *Dist. Mgr.:* Stuart Brager

RAYTHEON CO., 465 Centre St., Quincy, MA 02169, Tel: 617-479-5300, TWX: 710-337-1020; *Sls. Mgr.:* R. Whitt

RAYTHEON CO., Laser Products, 465 Centre St., Quincy, MA 02169, Tel: 617-479-5300, TELEX: 92-3455, TWX: 710-324-6568, FAX: 617-479-5300 (ext. 2359); Empl.: 1000; *Sls. Mgr.:* B. Werschler

RAYTHEON CO., Microwave & Power Tube Div., 190 Willow St., Waltham, MA 02254, Tel: 617-899-8400, TWX: 710-324-8400, FAX: 617-899-5451; *Sls. Mgr.:* J. Hieber

RAYTHEON SEMICONDUCTOR, 350 Ellis St., Mountain View, CA 94043, Tel: 415-966-7639, TWX: 910-379-6484, FAX: 415-966-7620; FSC No.: 07933; Empl.: 1,000; *Sls. Mgr.:* R. Johnson, Natl. Sls. Mgr.; *Dist. Mgr.:* R. Johnson, Natl. Sls. Mgr.

RAYTHEON/TAG SEMICONDUCTORS LTD., 43 Third Ave., Burlington, MA. 01803, Tel: 617-272-3704 (3705), FAX: 617-272-1280; Empl.: 7; *Sls. Mgr.:* B. Cavender; *Dist. Mgr.:* Pat Mobilia

RCA SOLID STATE DIV., See GE/RCA Solid State Div.

RCD COMPONENTS, INC., 520 E. Industrial Pk. Dr., Manchester, NH 03109, Tel: 603-669-0054, FAX: 603-669-5455; Empl.: 400 ..... **A•1254, 1595, 1982**

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AL	Huntsville, ACM	205-881-5493
AZ	Scottsdale, TC Electrns.	602-944-5153
CA	Campbell, Shur Sls.	408-374-5577
CA	Laguna Hills, 4-Star	714-583-9781
CO	Denver, Purdy Co.	303-790-2211
FL	Palm Beach Gdns., Graham & Assocs.	407-622-4049
IL	Downers Grove, Golten & Assocs.	708-512-0093
MA	Needham, Ray Perron Co.	617-449-6162
MI	Brighton, A/P Assoc.	313-229-6650
MN	Plymouth, Twist Co.	612-550-0922
MO	Florissant, Delltron	314-839-0033
NJ	Leonia, Peter E. Schmitt	201-944-1096
OH	Cincinnati, Campisano	513-574-7111
NY	N. Syracuse, Advance Comps.	315-699-2671
TX	Richardson, Pro Comp. Sls.	214-669-1500
WA	Kirkland, Northwest	206-828-2104
WI	Colgate, Rep One	414-628-4016
Can	Ontario, Haltronics	416-844-2121

Local Distributors

CA	Fountain Valley, Component Ctr.	714-979-0433
CA	San Diego, Mock III	619-693-8230
CA	San Diego, Neumann Elctrns.	619-695-3005
CA	San Diego, Southland Comp.	619-673-3800
CA	San Jose, Centrex	408-379-0800
CA	San Jose, Compass Comps.	408-432-7575
CO	Englewood, Indelco	303-694-9756
CT	Danbury, Heiland	203-265-9900
CT	Wallingford, Greene Shaw	203-265-3333
CT	Wallingford, Midstate	800-243-1043
FL	Melbourne, Pridmore	407-727-2491
FL	Tampa, Reptron	813-855-4656
FL	W. Palm Beach, Atlantic Elctrns.	813-531-5900
IL	Lisle, Components, Inc.	708-852-7707
IL	Schaumberg, Reptron	708-882-1700
IL	Franklin Pk., Stetco	708-671-4208
IN	Wakarusa, Earlynn	219-862-2425
IA	Cedar Rapids, DEE	319-365-7551
MD	Gaithersburg, Axis Electronics	301-840-9640
MA	Billerica, Baldwin	800-645-5608
MN	Eitzen, Capacitors Assoc.	507-495-3306
MA	Newton, Greeneshaw	617-969-8900
MA	Wilmington, Heilind Elctrns.	508-657-4870
MA	Wilmington, North Star Elctrns.	508-657-5155
MI	Livonia, Reptron	313-525-2700
MN	Roseville, Parts One	612-633-8079
NC	Raleigh, Sager	919-850-9550
NH	Nashua, Brevan Elctrns.	603-889-7230
NY	Bohemia, Key Comps. Inc.	516-567-7500
NY	Bohemia, RBD Elctrns.	516-589-7717
NY	Ronkonkoma, Baldwin	800-645-5600
NY	Ronkonkoma, Compucon	516-981-8810
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OH	Worthington, Reptron	614-436-6675
PA	McKean, Advacom	814-476-7774
PA	Reading, Barbey Elctrns.	215-376-7451
TX	Ft. Worth, Allied Elctrns.	800-433-5700
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WI	New Berlin, NEP	414-785-9100
Can	Ontario, Paltronics	416-844-2121

R. C. ELECTRONICS INC., 6464 Hollister Ave, Goleta, CA 93116, Tel: 805-685-7770, FAX: 805-685-5853; Empl.: 20; *Sls. Mgr.:* Chao-Sun Pang; *Dist. Mgr.:* Chao-Sun Pang

RCL-SHALLCROSS, INC., U.S. Hwy. 70 East, Smithfield, NC 27577, Tel: 919-934-5181, TWX: 510-939-1463, FAX: 919-934-5186; FSC No.: 54294; Empl.: 150; *Sls. Mgr.:* Steve Wade

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R-COLUMBIA PRODS. CO., INC., 2008 St. Johns Ave., Highland Park, IL 60035, Tel: 708-432-7915, FAX: 708-432-9181; Empl.: 20

RDI ELECTRONICS

FAX: 914-632-7464

RDI ELCTRNS., INC., 56 Harrison St., New Rochelle, NY 10801, Tel: 914-632-7274; Empl.: 9; *Sls. Mgr.:* Barry Miller ..... **A•2063; B•1767; C•1510-1511, 1815; D•1057**

Local Sales Offices & Reps

CA	Newport Beach, SPA	714-863-1193
CA	San Jose, Comtech Mktg.	408-249-3330
FL	Longwood, M & H Assocs.	407-332-7912
MD	Baltimore, L.H. Kolman & Co. Inc.	301-828-0212
MA	S. Easton, Intek Sls.	508-238-9283
MI	Adrian, Elctrnc. Salesmasters, Inc.	216-831-9555
MN	Minneapolis, OEM Elctrl. Sls., Inc.	612-884-7509
MO	Kansas City, Weisler & Assocs.	816-421-1703
NY	Hicksville, J. Square Mktg., Inc.	516-935-3200
OH	Beachwood, Elctrnc. Salesmasters, Inc.	216-831-9555
OR	Vancouver, Elctrnc. Mktg. Grp., Inc.	503-684-5935
WA	Redmond, Elctrnc. Mktg. Grp., Inc.	206-882-0962

REACTEL, INC., 687-K Lofstrand Ln., Rockville, MD 20850, Tel: 301-279-5535, FAX: 301-340-7304; FSC No.: 60458; Empl.: 30; *Sls. Mgr.:* Manny Assurian

READE ADVANCED MATERIALS, PO Drawer 15039, Riverside, RI 02915-0039, Tel: 401-433-7000, FAX: 401-433-7001; FSC No.: OA9E1; Empl.: 30; *Sls. Mgr.:* Charles Reade; *Dist. Mgr.:* Bethany Cochran

RECOGNITION CONCEPTS,INC., P.O. Box 8510, Incline Village, NV 89450, Tel: 702-831-0473, TELEX: 753168, FAX: 702-831-8035; Empl.: 48

THE RECORDER COMPANY, P.O. Box 8, San Marcos, TX 78667, Tel: 512-629-1400, FAX: 512-353-5333; Empl.: 11; *Sls. Mgr.:* Floyd Mackenzie; *Dist. Mgr.:* Floyd Mackenzie

RECORDER SYS. DIV., See Gulton Instruments Div.

RECORTEC, INC., 1290 Lawrence Station Road, Sunnyvale, CA 94089, Tel: 408-734-1290, FAX: 408-734-2140; *Sls. Mgr.:* S. Giacomo

RECOTON CORP., 46-23 Crane St., Long Island City, NY 11101, Tel: 718-392-6442, TELEX: 236047 RCTN, FAX: 718-784-1080; Empl.: 300; *Sls. Mgr.:* Peter Dayton, VP, Sls.

REDCO, 3000 Arrowhead Dr., Carson City, NV 89706, Tel: 702-882-3100, FAX: 702-882-8385; Empl.: 45; *Sls. Mgr.:* Mitch Watts

REDINGTON COUNTERS, 130 Addison Rd., Windsor, CT 06095, Tel: 203-688-6205, FAX: 203-688-1591; *Sls. Mgr.:* Dennis O'Shea; *Dist. Mgr.:* Dennis O'Shea

REDLAKE CORP., 15005 Concord Circle, Morgan Hill, CA 95037, Tel: 408-779-6464, FAX: 408-778-6256; Empl.: 22; *Sls. Mgr.:* J. Stephen Wood

RED SQUARE COMPANY, 11770 Warner Ave., Ste. 226, Fountain Valley, CA 92708, Tel: 714-751-1373; *Sls. Mgr.:* Ed Burg

REEVE ELECTRONICS, Mellish E. Murray, 1715 W. Carroll Ave., Chicago, IL 60612, Tel: 312-670-0150; Empl.: 25; *Sls. Mgr.:* Ed Martinez

REEVES-HOFFMAN
DIVISION DYNAMICS CORPORATION OF AMERICA

FAX: 717-243-0079

REEVES-HOFFMAN DIV., Dynamics Corporation of America, 400 W. North St., Carlisle, PA 17013, Tel: 717-243-5929; Empl.: 340; *Sls. Mgr.:* Mark Laser ..... **A•1448-1451, 1740-1741**

Local Sales Offices & Reps

AZ	Phoenix, Chaparral Elctrns.	602-996-5909
CA	Newbury Park, Westaironics	805-499-9844
CO	Boulder, R.G. Entprs.	303-447-9211
FL	Tampa, APM Assocs.	813-886-2457
IL	Des Plaines, ESCO Assocs.	708-298-5310
MD	Ellicott City, Nelson Elctrns.	301-747-7887
MA	Wakefield, H. Jappe Co.	617-245-9359
MN	Minneapolis, Intl. Elctrns.	612-571-0000
NJ	Flanders, K&R Engrg. Corp.	201-584-5235
OH	Cincinnati, Tri-State Mktg.	513-761-7993
PA	Hatboro, AQS Electro	215-674-4421
TX	Irving, Kite Elctrns. Sls.	214-986-0321
EXP	London, England, Reeves-Hoffman U.K.	4484442848
Can	Rexdale, Ont., Myelco, Inc.	416-674-1636

REGAL ALJOY WIRE & CABLE, North Village Green, Levittown, NY 11756, Tel: 516-735-4871; Empl.: 6; *Sls. Mgr.:* Alan Edelstein

FAX: 708-789-0614

REGDON SOLENOID, INC., 401 Plaza Drive, Westmont, IL 60559, Tel: 708-789-0600; FSC No.: 27190; Empl.: 65; *Sls. Mgr.:* David K. Conroy ..... **B•1634-1637**

Local Sales Offices & Reps

AZ	Phoenix, Wistech Controls	602-243-4361
CA	Los Altos, J. W. Wilhoit	415-961-3660
CA	Valencia, DJM Elctrns. Inc.	805-254-2677
CO	Denver, Neil Binge & Assocs.	303-698-1481
CT	Woodbury, Mark-Rep Assocs.	203-263-3047
FL	Maitland, EIR, Inc.	305-660-9600
IL	Downers Grove, Richmar Elect. Corp.	312-968-0118
IL	Westmont, Regdon Solenoid, Inc.	708-789-0600
IN	Indianapolis, Richmar Elctrns.	317-577-9950
IA	Iowa City, Richmar Elctrns.	319-354-8894
MA	Mattapoisett, Mark-Rep Assocs.	508-758-2318
MI	Ada, Erin Engrg.	616-676-0665
MN	Hopkins, S. J. Collins & Assocs.	612-933-7661
NH	Plaistow, Mark-Rep Assocs.	603-382-9563
NJ	Red Bank, Varrelman-Gorman Co.	201-219-0088
NY	E. Rochester, William Kreger Assocs.,Inc.	716-381-4430
OH	New Lebanon, J.N. Bailey & Assocs.	513-687-1325
OR	Portland, D.A. Sullivan Co.	503-292-2448
PA	Huntingdon Valley, Edwin Leiby & Assocs.	215-659-8938
TX	Plano, K & H Sales	214-423-6520
WI	Butler, Richmar Elctrns.	414-781-1730

Local Distributors

CA	San Carlos, Logan Elctrn. Supp.	415-594-0700
MA	Lynn, Land Elctrns.	617-592-2220
NJ	Oakland, Relay Specialties	201-337-1000

REGENT CONTROLS, INC., 39 Fanny St., P.O. Box 767, Shelton, CT 06484-0767, Tel: 203-924-2924, FAX: 203-924-2928; Empl.: 35; *Sls. Mgr.:* Lora C. Murphy

REGULUS SYSTEMS, 859 Canis Lane, Foster City, CA 94404, Tel: 415-593-4197

REICH ASSOCIATES, INC., Rt. 4, Box 4620, Lakehills, TX 78063, Tel: 512-751-3220, FAX: 512-751-3054; FSC No.: 55916; Empl.: 20; *Sls. Mgr.:* W. Reich

RE INSTRUMENTS CORP., 31029 Center Ridge Rd., Westlake, OH 44145, Tel: 216-871-7617, FAX: 216-871-4303; Empl.: 15; *Sls. Mgr.:* P. A. Bosworth

REKCO, INC., See LEM/Rekco

RELAY SERVICE CO., 1300 N. Pulaski Rd., Chicago, IL 60651, Tel: 312-252-2700, FAX: 312-252-0300; Empl.: 25; *Sls. Mgr.:* Chas. H. Badger

Local Sales Offices & Reps

AZ	Glendale, Sunbird Inds., Inc.	602-439-0134
CA	Vista, Sado Sls.	714-672-4521
CO	Monument, Sunbird Inds., Inc.	719-481-2900
CT	Bethany, Reps. Corp.	203-393-0024
IL	Downers Grove, Golten Assocs.	708-512-0093
IN	Ft. Wayne, Naunas Sls.	219-432-4792
MA	Wellesley, Reps. Corp.	617-237-6476
NY	New Rochelle, Repco Assocs.	914-235-6405
OH	Cleveland, John O. Olsen	216-838-0510
OR	Beaverton, Cascade Sls. Co.	503-626-7978
PA	Glenside, Shelmar Elctrns. Corp.	215-885-0800
PA	Pittsburgh, John O. Olsen	412-381-4254
TX	Lewisville, Elctrn. Prod. Reps.	214-436-4772
UT	Ogden, Sunbird Inds., Inc.	801-479-8602

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RELAY SPECIALTIES, 17 Raritan Rd., Oakland, NJ 07436, Tel: 201-337-1000, TELEX: 642751; Empl.: 48; *Sls. Mgr.:* S. R. Gershberg ..... **B•1566** 611, 617, 619, 635 636, 641, 650, 652, 689, 692, 700, 736, 738, 763, 772, 803

Local Sales Offices & Reps

CA	Los Alamitos, The Rep House	213-598-3379
CT	Manchester, Vin-Tech, Inc.	203-646-3007
MD	Glen Burnie, Faion Lott & Co., Inc.	301-744-4611
MI	Dearborn, Pitcher Poulin Inc.	313-582-5450
MN	Minneapolis, Engrg. Prods. Assocs.	612-835-9022
NJ	Haddon Hgts., Walt Woodward	609-547-5000

RELCO PRODUCTS, 5594 E. Jefferson Ave., Denver, CO 80237, Tel: 303-756-1143; FSC No.: 14454; Empl.: 7

RELIABILITY, INCORPORATED, P. O. Box 218370, Houston, TX 77218, Tel: 713-492-0550, FAX: 713-492-0615; *Sls. Mgr.:* Len Moscovitz; *Dist. Mgr.:* Mike Tenore/Steve Popst

RELIANCE COMM/TEC, Reliance Electric, P.O. Box 17438, Cleveland, OH 44117, Tel: 800-245-4501

RELIANCE ELECTRIC CO., Marketing Info Center, P.O. Box 17438, Cleveland, OH 44117, Tel: 800-245-4501

RELIANCE PLASTICS & PACKAGING, 217 Brook Ave., Passaic, NJ 07055, Tel: 201-473-7200, FAX: 201-473-1023; Empl.: 60; *Sls. Mgr.:* Hale Smith

RELM COMMUNICATIONS, INC., 7707 Records Street, Indianapolis, IN 46226, Tel: 317-545-4281, FAX: 317-545-2170; Empl.: 300; *Sls. Mgr.:* John Biljan

REMEE PRODUCTS CORP., 186 North Main Street, Florida, NY 10921, Tel: 914-651-4431, FAX: 914-651-4160; FSC No.: 4R362; Empl.: 135; *Sls. Mgr.:* Ken Pimental; *Dist. Mgr.:* Ken Pimental

REMTEK CORPORATION, 46107 Landing Parkway, Fremont, CA 94538, Tel: 415-490-3999, FAX: 415-659-1849; Empl.: 40; *Sls. Mgr.:* Lynne Deegan; *Dist. Mgr.:* Robert T. Collins

RENARD MANUFACTURING COMPANY, INC., 3305 N.W. 79th Ave., Miami, FL 33122-1015, Tel: 305-592-1500, TELEX: 989326, ESYLNK: 62929141, FAX: 305-593-9990; *Sls. Mgr.:* S. Simerly

RENATA U. S., 2263-C Valdina Street, Dallas, TX 75207, Tel: 214-630-2563,800-527-0719, FAX: 214-630-2568; Empl.: 300; *Sls. Mgr.:* Joseph M. Ensminger Sls. Mgr.

RENCO ENCODERS INC., 26 Coromar Dr., Goleta, CA 93117-3094, Tel: 805-968-1525, FAX: 805-685-7965; FSC No.: 34479; Empl.: 100; *Sls. Mgr.:* Sid Russell; *Dist. Mgr.:* Sid Russell

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Local Sales Offices & Reps

AL	Huntsville, Spears & Assocs.	205-461-0881
AZ	Phoenix, Moss Mktg.	602-433-9349
CA	Arcadia, Van Gott & Assoc.	818-445-9728
CA	La Jolla, Coastal Elctrn. Sls.	619-459-4148
CA	Santa Clara, Cummings & Assoc.	408-247-8656
CO	Aurora, Moss Mktg.	303-340-8535
CT	East Hampton, Apex Assocs.	203-269-8401
GA	Norcross, Spears & Assocs.	404-270-5661
MA	Needham, Apex Assocs.	617-444-8070
NY	Commack, Mars Engrg.	516-864-8676
NC	Raleigh, Spears & Assocs.	919-790-7606
UT	Salt Lake City, Moss Mktg.	801-363-5875
FL	Indian Harbor Bch., Post Mktg.	407-777-0994
IA	Davenport, Rush & West Assocs.	319-388-9494
KS	Olathe, Rush & West Assocs.	913-764-2700
MD	Baltimore, Eltron Sls. Ltd.	301-426-6637
MI	Grosse Point Pk., Greiner Assocs.	313-499-0188
OH	Westlake, Baehr Greenleaf & Assocs.	216-892-1770
OR	Hillsboro, Temco Northwest	503-645-2030
PA	Warrendale, Baehr Greenleaf & Assocs.	412-934-3088
TX	Dallas, Electra Reps	214-248-3852
VA	Front Royal, Eltron Sls. Ltd.	703-635-7201
WA	Bothell, Temco Nortwest	206-481-6150
WI	Milwaukee, Bert Wartchow Assocs.	414-964-0942
Can	Montreal, Que, Eli Manis, Inc.	514-484-2923

REN ELECTRONICS CORPORATION, C.C.G., An Insico Co., 755 New Ludlow Rd., S. Hadley, MA 01075, Tel: 413-536-1800, TELEX: 315617, FAX: 413-536-8425; FSC No.: 70143; Empl.: 75; *Sls. Mgr.:* S. W. Pai, Div. Mgr.

REPRODUCTION TECHNOLOGIES INC., P.O. Box 790, Bristol, IN 46507-0518, Tel: 219-848-5233, TELEX: 510 600 2378 R T I, FAX: 219-848-5333; Empl.: 10; *Sls. Mgr.:* Maxine Beasey

REPUBLIC ELECTRONICS CO., 200 Wireless Blvd., Hauppauge, NY 11788, Tel: 516-273-9800, FAX: 516-273-9820; FSC No.: 95750; Empl.: 145; *Sls. Mgr.:* Sy Newman, Mktg. Mgr.

RESEARCH DEVICES, INC., 121 Ethel Rd., Piscataway, NJ 08854, Tel: 908-572-4800, TELEX: 467058, FAX: 908-572-4808; Empl.: 25; *Sls. Mgr.:* Michael Schneider

RESEARCH SPECIALISTS, 1816 Settlers Oval, Cleveland, OH 44145, Tel: 216-871-8909; Empl.: 10; *Sls. Mgr.:* Tim Howard

RESISTANCE TECHNOLOGY INC., 1260 Red Fox Rd., St. Paul, MN 55112, Tel: 612-636-9770, FAX: 612-636-8944; *Sls. Mgr.:* Roger H. Falde

FAX: 708-863-4272

RESISTORS, INC., 5226 W. 26th St., Chicago, IL 60650, Tel: 708-652-7555; Empl.: 35; *Sls. Mgr.:* Theresa McGraw

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CA	Santa Clara, K M Entprs.	408-986-1458

FAX: 408-982-0210

RESONANT POWER TECHNOLOGY, 3350 Scott Boulevard, Bldg.5302, Santa Clara, CA 95054, Tel: 408-982-0200; FSC No.: 0BZ13; Empl.: 10; *Sls. Mgr.:* Dan H. Burgoon ..... **D•2024-2025**

Local Sales Offices & Reps

FL	Land O Lakes, AJ'S Power Source	813-996-2583
NH	Salem, OEM Marketing & Sales	603-893-0009
TX	Richardson, Jim Gray & Associates	214-699-9976

R.F. ELECTRONICS, INC., 1091 Duryea Ave., Irvine, CA 92714-5517, Tel: 714-263-0661, FAX: 714-263-0662; Empl.: 18; *Sls. Mgr.:* Michael Welter; *Dist. Mgr.:* Michael Welter

RFI CORPORATION, 100 E. Pine Aire Dr., Bay Shore, NY 11706, Tel: 516-231-6400, TWX: 510-227-6233, FAX: 516-231-6465; FSC No.: 13619; Empl.: 140; *Sls. Mgr.:* Dave Radford ..... **A•1633**

Local Sales Offices & Reps

CA	Alhambra, M.W. Riedel Co.	213-283-7694
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
FL	Clearwater, Tech-Rep Assocs.	813-572-9900
FL	Ft. Lauderdale, Tech Rep Assocs.	305-791-2708
FL	Merritt Island, Tech-Rep Assocs.	407-453-3313
FL	Winter Springs, Tech-Rep Assocs.	407-699-4010
IN	Ft. Wayne, Naunas Sls. Co.	219-432-4792
KS	Lenexa, Midtec Assocs., Inc.	913-541-0505
MD	Rockville, Mechtronics Sls.	301-340-2130
MA	Burlington, Tritek, Inc.	617-272-4550
MO	St. Louis, Midtec Assocs., Inc.	314-275-8666
NM	Albuquerque, M.G. Elctrns.	505-255-1638
NY	Buffalo, Upstate Engrg. Sls.	716-632-0011
NY	Great Neck, Trionic Assocs.	516-466-2300
NY	Rochester, Upstate Engrg.Sls.	716-225-2383
NY	Ronkonkoma, Compucon Distrs., Inc.	516-981-8810
NY	Utica, Upstate Engrg.Sls.	315-797-6721
NC	Winston-Salem, Murcota Corp.	919-722-9445
PA	Glenside, Koebert Assocs.,Inc.	215-887-2310
TX	Garland, McBride Sci. Sls.	214-494-5000
Can	Bedford, N.S., Norgay Entprs. Ltd.	902-835-8530
Can	Neapean, Ontario, Norgay Entprs. Ltd.	613-745-4051
Can	Richmond B.C., Norgay Entprs. Ltd.	604-275-1121
Can	Toronto, Ontario, Norgay Entprs. Ltd.	416-234-8966
Can	Westmount, Quebec, Norgay Entprs. Ltd.	514-932-3233

Local Distributors

IL	Des Plaines, Compucon Distrs., Inc.	312-827-9444
MA	Reading, Compucon Distrs., Inc.	617-944-6875

RF INDUSTRIES, Celltronics, 10040 Mesa Rim Rd., San Diego, CA 92121, Tel: 619-587-0656, FAX: 619-587-0049

RFL INDS., INC., (DBA) Dowty Elctrns. Co., PO Box 250 Prospect St., Brandon, VT 05733, Tel: 802-247-6811, FAX: 802-247-3946; Empl.: 130; *Sls. Mgr.:* Dan Boutin; *Dist. Mgr.:* Dan Boutin

RF MONOLITHICS, INC., 4441 Sigma Rd., Dallas, TX 75244, Tel: 214-233-2903, TELEX: 463-0088, FAX: 214-387-8148; FSC No.: 2U874; Empl.: 120; *Sls. Mgr.:* C. Baker

R.F. POWER LABS., INC., Kalmus Engrg. Labs., Inc., 21820 -87th S.E., Woodinville, WA 98072, Tel: 206-481-8833, FAX: 206-486-1002; FSC No.: 057143; Empl.: 17; *Sls. Mgr.:* Jeannie Olson

RGB SPECTRUM, 2550 Ninth St., Berkeley, CA 94710, Tel: 415-848-0180, FAX: 415-848-0971; Empl.: 30; *Sls. Mgr.:* Lucien E. Long; *Dist. Mgr.:* Lucien E. Long

RHETOREX, INC., 1671 Deli Ave. No. 208, Campbell, CA 95008, Tel: 408-370-0881, FAX: 408-370-1171; Empl.: 15; *Sls. Mgr.:* Michael Ross

RHG ELECTRONICS LABORATORY, INC., 161 E. Industry Ct., Deer Park, NY 11729, Tel: 516-242-1100, FAX: 516-242-1222; Empl.: 205; *Sls. Mgr.:* David E. Krautheimer

RHOMBUS INDUSTRIES, 15801 Chemical Ln., Huntington Bch., CA 92649-1595, Tel: 714-898-0960, TWX: 910-596-1826, FAX: 714-896-0971; FSC No.: 16714; Empl.: 60; *Sls. Mgr.:* Jim Earley; *Dist. Mgr.:* Jim Earley

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RICHARD-LEE CO., 3 Quine St., Cranford, NJ 07016, Tel: 201-276-0710, FAX: 201-276-6179; Empl.: 13

RICHARDS, ARKLAY S., CO., INC., 72 Winchester St., Newton Highlands, MA 02161-1796, Tel: 617-527-4385, FAX: 617-964-3746; *Sls. Mgr.:* L. K. Richards

RICHARDSON ELECTRONICS, LTD., 40W267 Keslinger Rd., LaFox, IL 60147, Tel: 800-323-1770, 708-208-2200, FAX: 708-208-2550; FSC No.: 5L804; Empl.: 625; *Sls. Mgr.:* Chris Cane; *Dist. Mgr.:* Chris Cane

RICHCO PLASTIC CO., P.O. Box 804238, Chicago, IL 60680, Tel: 312-539-4060, FAX: 312-539-6770; FSC No.: 06915; Empl.: 400; *Sls. Mgr.:* Ted E. Pavoris; *Dist. Mgr.:* Ted Pavoris

RIDGE TOOL CO., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036, Tel: 216-323-5581, TELEX: 0243420, FAX: 216-323-5204; *Dist. Mgr.:* John Drew

RITTAL CORP., 3100 Upper Valley Pike, Springfield, OH 45504-9807, Tel: 800-477-4000, TELEX: 513-390-5599; Empl.: 150

RITZ ELECTRONICS/RELCO, 196 Queen St. N., New Dundee, Ont., Canada NOB 2EO, Tel: 519-696-2616, FAX: 519-696-2670; Empl.: 30; *Sls. Mgr.:* Leonard Snow; *Dist. Mgr.:* Leonard Snow ..... **C•1092; D•2027**

Local Sales Offices & Reps

CA	Torrance, U.S. Power Converting Co.	213-316-9984
KS	Wichita, US Power/Relco Midwest	316-722-6440
Can	New Dundee, Ont., Ritz Elctrns.	519-696-2616

Local Distributors

CA	Torrance, Leonard Snow & Assocs./U.S. Power	213-316-9984
KS	Wichita, US Power/Relco Midwest	316-722-6440
Can	New Dundee, Ont., Ritz Elctrns.	519-696-2616

RJF INTERANTIONAL CORP., 3875 Embassy Pkwy., Fairlawn, OH 44333, Tel: 216-668-7689, FAX: 216-668-7701

R-K ELECTRONICS, 11560 Goldcoast Dr., Cincinnati, OH 45249, Tel: 513-489-4060

RLC ELECTRONICS, INC., 83 Radio Cir., Mt. Kisco, NY 10549, Tel: 914-241-1334, TWX: 710-571-2103, FAX: 914-241-1753; FSC No.: 12598; Empl.: 75; *Sls. Mgr.:* Joseph Norelli; *Dist. Mgr.:* Joseph Norelli

RMF PRODUCTS, INC., 1275 Paramount Pkwy., P.O. Box 520, Batavia, IL 60510, Tel: 708-879-0020, FAX: 708-879-6749; Empl.: 11; *Sls. Mgr.:* R. Frieders ..... **C•1593**

RMS COMPANY, Connector Division, 980 Osborne Rd., Minneapolis, MN 55432, Tel: 612-786-1520, FAX: 612-786-1771; Empl.: 50; *Sls. Mgr.:* Jack M. Lundeen

RMS TECHN., 11833 Canon Blvd., Ste 100, Newport News, VA 23606, Tel: 804-873-0100, FAX: 804-873-1512; FSC No.: 59606; Empl.: 42

ROANWELL, 180 Varick St., New York, NY 10014, Tel: 212-989-1090, TWX: 710-581-6555, FAX: 212-989-3285; FSC No.: 82872; Empl.: 80; *Sls. Mgr.:* Ray Lefebvre; *Dist. Mgr.:* Ray Lefebvre

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RO ASSOCIATES, INC., 246 Caspian Dr., Box 61419, Sunnyvale, CA 94088, Tel: 408-744-1450; FSC No.: 24230; Empl.: 47; *Sls. Mgr.:* R. D. Okada ..... **D•2028-2033**

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AL	JSI Inc.	205-883-4163
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AZ	Phoenix, Tech. Sls. Inc.	602-246-1614

CA	Los Angeles, West Coast Reps.	213-690-9960
CA	San Diego, W. Coast Rep	619-581-2406
CA	San Jose, P & M Elctrns.	408-287-0402
CO	Denver, F.G. Mktg.	303-795-9176
CT	Woodbury, Power Factor	203-264-9812
DC	Washington, Gans & Pugh	703-709-0305
FL	Ft. Lauderdale, Panamtech	305-587-3769
FL	Orlando, Panamtech	407-679-5506
IL	Chicago, Mar-con Assocs. Inc.	708-675-6450
KS	Kansas City, Midtec	913-541-0505
MD	Baltimore, Gans & Pugh	301-442-2189
MA	Boston, Power Factor	508-234-6415
MN	Minneapolis, R J Inc.	612-866-3661
MO	St. Louis, Midtec	314-275-8666
NM	Albuquerque, Fry-Gates, Inc.	505-262-1525
NY	Buffalo, NRM Mktg.	716-634-4300
NY	Great Neck, M.O.S. Mktg.	516-487-3966
NY	Rochester, NRM Mktg.	716-352-9166
NY	Syracuse, NRM Mktg.	315-685-8991
OH	Centerville, Omega Sls., Inc.	513-434-5507
PA	Philadelphia, Gans & Pugh	215-699-6655
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255
WA	Seattle, West Coast Reps.	206-483-5300
Can	Vancouver, BC, Tracan Elctrn. Western Ltd.	604-984-4141

ROBBINS & MYERS/ELECTRO-CRAFT, 6950 Washington Ave. So., Eden Prairie, MN 55344, Tel: 612-942-3600, FAX: 612-942-3636; *Sls. Mgr.:* Terry McDonald; *Dist. Mgr.:* Brad Nelson

ROBINSON NUGENT, INC., 800 East 8th St, New Albany, IN 47150, Tel: 812-948-0564, TWX: 810-540-4082, FAX: 812-945-0804; Empl.: 567; *Sls. Mgr.:* Terry Johnson; *Dist. Mgr.:* Vic Siccone

Local Sales Offices & Reps

IN	New Albany, Robinson Nugent, Inc.	812-948-0564

ROBISON ELECTRONICS, P.O. Box 8121, San Luis Obispo, CA 93403-8121, Tel: 805-544-8000, FAX: 805-544-8091; FSC No.: 19080; Empl.: 83

ROCKLAND INSULATED WIRE & CABLE, 87 Broadway, Haverstraw, NY 10927, Tel: 914-429-3103, FAX: 914-947-1712; FSC No.: 12111

ROCKLAND SCIENTIFIC CORPORATION, P.O. Box 3135, Princeton, NJ 08543, Tel: 609-896-2255, FAX: 609-895-9726; Empl.: 60; *Sls. Mgr.:* M. Classen

ROCKWELL INTERNATIONAL, 2990 Airway Ave., Costa Mesa, CA 92626, Tel: 714-641-5311, TELEX: 685532 COLLINS CSMA, FAX: 714-641-5320; Empl.: 60; *Sls. Mgr.:* Robert A. Johnson

ROCKWELL INT'L:SEMICONDUCTOR PRODUCTS DIVISION, 4311 Jamboree Rd., Newport Beach, CA 92660, Tel: 714-833-4600, TWX: 910-591-1698; FSC No.: 34576; Empl.: 1995; *Sls. Mgr.:* Ernie Raper, Dir. of Sls.; *Dist. Mgr.:* K. Reutemann

RODALE
Technical Sales Inc.

FAX: 516-277-8375

RODALE TECHNICAL SALES INC., 577 Main Street, Islip, NY 11751, Tel: 516-277-5454, TELEX: 5106007812, ESYLNK: T8003254112; Empl.: 10; *Sls. Mgr.:* Gene Lipman ..... **B•1182, 1388; C•1662-1663, 1816-1817**

Local Sales Offices & Reps

CA	Yorba Linda, Rodale Tech. Sls., Inc.	714-283-3140
KS	Prairie Village, Crosslink Elctrl./Elctrns.	913-432-6100
NY	Islip, Rodale Tech. Sls., Inc.	516-277-5454
OH	Bedford Hgts., P.H.P.	515-472-5984

Local Distributors

AZ	Phoenix, Storm Prods.	602-269-3485
CA	Inglewood, Storm Prods.	213-776-8141
CA	Sacramento, AVAC Sunset	1-800-AVAC-DIV
CA	Santa Ana, BDS Elctrns., Inc.	714-662-1050
CO	Broomfield, Storm Prods.	303-466-1991
MN	St. Paul, AVAC Mid-America	1-800-AVAC-DIV
NJ	Edison, AVAC National	1-800-AVAC-DIV
TN	Nashville, AVAC Pioneer Tenn.	1-800-AVAC-DIV
TX	Dallas, Storm Prods.	214-330-1381
WA	Woodinville, Storm Prods.	206-488-7400

RODANN ELECTRONICS MFG. CO., 133 S. Brea Blvd, Brea, CA 92621, Tel: 714-529-1301, 800-366-7010, FAX: 714-529-9564; *Sls. Mgr.:* Alex Skarbek

RODELCO ELECTRONICS CORP., 111 Haynes Ct, Ronkonkoma, NY 11779, Tel: 516-981-0900, FAX: 516-981-1792; Empl.: 44

ROD-L
ELECTRONICS, INC.

FAX: 415-326-1993

ROD-L ELECTRONICS, INC., 923 Hamilton Ave., Menlo Park, CA 94025, Tel: 415-322-0711, 1-800-548-6305, TWX: 296210; *Sls. Mgr.:* Tom Cooke .... **D•1316-1317**

Local Sales Offices & Reps

CA	Menlo Park, ROD-L (factory)	415-322-0711
CO	Conifer, Energy Equip. Sls.	303-972-3335
IL	Elk Grove, Loren Green Assocs.	312-593-0282
IN	Indianapolis, Loren Green Assocs.	317-293-9827
KS	Lenexa, Midtec Assocs.	913-541-0505
MD	Cockeysville, Sci. Reps.	301-321-1411
MA	Reading, Scheinfein Assocs.	617-944-2304
MI	Detroit, Micro Sls	313-464-4520
MN	Minneapolis, Hei-Lite Sls	612-861-6051
MO	St. Louis, Midtec Assocs.	314-275-8666
NJ	Fairfield, Addem Sls.	201-882-0993
NJ	Pennsauken, Sci. Reps.	609-662-5222
NY	De Witt, DB Assocs.	315-446-0220
OH	Centerville, Micro Sls.	513-433-8171
OH	N. Olmsted, Micro Sls	216-734-3080
OK	Tulsa, Spectra Sls	918-663-7188
OR	Beaverton, Core II Mktg	503-641-0877
TX	El Paso, Venturesearch	915-594-4094
TX	Houston, Spectra Sls.	713-270-8212
TX	Richardson, Spectra Sls.	214-234-3600
VA	Fairfax, Sci. Reps.	703-385-0600
WA	Redmond, Core II Mktg	206-885-4344
WA	Spokane, Core II Mktg	509-922-2971
WV	Pittsburg, Micro Sls	412-471-0105
Can	Ontario, Webster Instrs. Ltd.	416-625-0600

Local Distributors

CA	Menlo Park, Rod-L (Factory)	415-322-0711
Can	Ontario, Webster Instrs. Ltd.	416-625-0600

ROEAN INDUSTRIES, INC., 12970 Branford, Ste. C, Pacoima, CA 91331, Tel: 818-767-7047, FAX: 818-768-4974; Empl.: 8

ROGAN, 3455 Woodhead Dr., Northbrook, IL 60062, Tel: 708-498-2300, FAX: 708-498-2334; FSC No.: 86797; Empl.: 100; *Sls. Mgr.:* D. Pelletier; *Dist. Mgr.:* D. Pelletier

ROGERS CORP. DIV. POWER DISTBN.DIV., 5750 East McKellips Rd., Mesa, AZ 85205, Tel: 602-830-3370, FAX: 602-830-3370

ROGERS CORPORATION, Circuit Components Div., 2400 S. Roosevelt St., Tempe, AZ 85282, Tel: 602-967-0624, FAX: 602-967-9385

ROGERS CORPORATION, Circuit Materials Div., Box 4000, Chandler, AZ 85244, Tel: 602-963-4584, FAX: 602-732-9381

ROGERS CORPORATION, Flexible Interconnections Div., Box 700, Chandler, AZ 85244, Tel: 602-963-4584, TELEX: 140-223, TWX: 910-950-1961, FAX: 602-786-8490; *Sls. Mgr.:* Darrel Brasch

ROGERS CORPORATION, Microwave & Circuit Matls. Div., 100 S. Roosevelt Ave., Chandler, AZ 85226, Tel: 602-961-1382, FAX: 602-961-4533

ROGERS CORPORATION, Molding Materials Div., P.O. Box 550, Manchester, CT 06040, Tel: 203-646-5500, FAX: 203-646-5503

ROGERS CORPORATION, Power Distribution Div., 5750 E. McKellips Rd., Mesa, AZ 85205, Tel: 602-830-3370, FAX: 602-396-6401

ROGERS CORPORATION, Soladyne Div., 7447 Convoy Ct., San Diego, CA 92111, Tel: 619-279-7872, FAX: 619-277-9105; FSC No.: 55655; *Sls. Mgr.:* Dale Reed; *Dist. Mgr.:* Rick Jansen

ROGERS CORP., One Technology Dr., Rogers, CT 06263, Tel: 203-774-9605, TWX: 710-448-0047; Empl.: 2500

ROH, Portland Instrument, 6120 San Fernando Rd., Glendale, CA 91201, Tel: 818-500-0137, FAX: 818-240-1828; Empl.: 10; *Sls. Mgr.:* Dick Herbert

Local Distributors

CA	Los Angeles, Hoffman Video Sys.	213-749-3311
FL	Miami, Midwest Communications	305-592-5355
KY	Hebron, TV One	606-689-4515

ROHDE & SCHWARZ, INC., 4425 Nicole Drive, Lanham, MD 20706, Tel: 301-459-8800, FAX: 301-459-2810; FSC No.: 82199; Empl.: 65

ROHM

FAX: 615-641-2022

ROHM CORPORATION, Rohm Electronics Division, 3034 Owen Drive, Antioch, TN 37013, Tel: 615-641-2020; Empl.: 115; *Sls. Mgr.:* Mike DelGrippo; *Dist. Mgr.:* Steve Bishop .... **A•1742, 1984-1985, 2120-2121; B•1183**

Local Sales Offices & Reps

AL	Huntsville, Strategic Mktg.	205-464-0490
AZ	Tucson, Clemick & Assocs.	602-749-4003
CA	Camarillo, Eltec Entprs.	805-484-8298
CA	Cupertino, GetSales	408-725-8384
CA	Dana Point, Eltec Entprs.	714-493-7003
CA	Diamond Bar, Eltec Entprs.	714-861-4779
CA	San Diego, C.K. Assocs.	619-279-0420
CO	Parker, A5 Company	303-841-3651
FL	Altamonte Springs, Sales Engrg. Concepts	407-682-4800
FL	Deerfield Bch., Sales Engrg. Concepts	305-426-4601
IL	Lake Bluff, Hopewell Assocs.	708-234-3310
IN	Kokomo, Schillinger Assocs., Inc.	317-455-2708
IA	Cedar Rapids, Electromec Sls., Inc.	319-393-1637
KS	Kansas City, B.C. Elctrn. Sls.	913-342-1211
MD	Westminster, Chesapeake Technlgs.	301-876-4318
MA	Harvard, Cycle Sls.	508-456-6868
MI	Grosse Pointe Pk., Greiner Assocs., Inc.	313-499-0188
MN	Burnsville, Electromec Sls., Inc.	612-894-8200
MO	Bridgeton, B.C. Elctrn. Sls., Inc.	314-739-6683
NJ	Springfield, Radix, Inc.	201-467-4970
NY	Buffalo, Quality Comps., Inc.	716-837-5430
NY	Manlius, Quality Comps., Inc.	315-682-8885
NY	Rochester, Quality Comps., Inc.	716-342-7229
NC	Cary, Rohm Corporation	919-460-5959
OR	Tigard, Comps. West, Inc.	503-684-1671
PA	Prospect Park, ELF Sls. Co.	215-534-3340
TN	Jonesboro, Strategic Mktg.	615-753-5518
TN	Nashville, Strategic Mktg.	615-883-7882
TX	Austin, Sage Mktg.	512-335-0300
TX	Bedford, Sage Mktg.	817-267-7781
TX	Denton, Rohm Corporation	817-383-3931
WA	Redmond, Comps. West, Inc.	206-885-5880
WA	Spokane, Comps. West, Inc.	509-922-2412
PR	Puerto Rico, Sales Engrg. Concepts	809-250-0140 x 5321
Can	Hamilton, Ont., Cartwright-Southall Assocs.	416-528-0294
Can	Nepean, Ont., Cartwright-Southall Assocs.	613-723-6733

ROLYN OPTICS CO., 706 Arrowgrand Circle, Covina, CA 91722-2199, Tel: 818-915-5707/5717, TELEX: 67-0380, FAX: 818-915-1379

ROSE ELECTRONICS, INC., Energy Products Group, 1991 Concourse Dr., San Jose, CA 95131, Tel: 408-943-0440, FAX: 408-943-0360; Empl.: 13; *Sls. Mgr.:* Bob Burres; *Dist. Mgr.:* Bob Burres

ROSE ENCLOSURES SYS., INC., 7330 Executive Way, Frederick, MD 21701, Tel: 301-696-9800, FAX: 301-696-9494; FSC No.: 4Y520/C0242; Empl.: 45; *Sls. Mgr.:* Warren Hudacek ..... **C•1093**

Local Sales Offices & Reps

CA	Irvine, Comp. Mktg.	714-951-5950
FL	Tampa, Florida Comp. Sls.	813-960-7044
MA	Needham, Todino Eng. Sls.	617-444-7925
IL	Chicago, Paddock Mktg.	312-452-7852
IA	Cedar Rapids, Tech. Elctrns.	319-366-5443
NY	Rochester, Tech. Comp. Sls.	716-342-2406
NC	Kernersville, Heritage Sls.	919-996-4374
OH	Dayton, J.C. Hofstetter Co.	216-241-4880
PA	Frazer, ICI	215-889-0650
TX	Dallas, D.J. Sls. & Assoc.	214-783-8876
WA	Federal Way, K. R. Jensen Sls.	206-874-2772

Local Distributors

Can	Vancouver, BC, Memco	604-590-1553

ROSEMONT-NASHVILLE, INC., See Chromalox Instrs. & Controls

ROSEMOUNT®

FAX: 201-857-9403

ROSEMOUNT ANALYTICAL INC., 89 Commerce Rd., Cedar Grove, NJ 07009, Tel: 800-367-7242 .... **D•1318**

Local Sales Offices & Reps

AL	Birmingham	205-988-5759
AL	Mobile	205-343-9403
AZ	Phoenix	602-867-9374
CA	Concord	415-674-9799
CA	Laguna Hills, Kendall Mktg.	714-581-9951
CA	LaHabra	213-694-5504
CO	Lakewood	303-935-1524
FL	Maitland	407-740-0170
GA	Marietta	404-426-1300
HI	Honolulu	808-842-4484
IL	Lombard	708-495-8383
IN	Indianapolis	317-247-4613
KS	Shawnee Mission	913-642-8560
LA	Baton Rouge	504-756-7000
LA	Lake Charles	318-436-1828
TX	Stafford	713-274-0500
MD	Hunt Valley	301-527-1030
MA	Westborough	508-898-2444
MI	Brighton	313-227-3622
MN	Bloomington	612-832-5001
MO	Bridgeton	314-739-1540
NJ	Fairfield	201-808-9168
NY	Fairport	716-223-0400
NC	Charlotte	704-523-2223
NC	Raleigh	919-783-6730
OH	Cincinnati	513-381-5343
OH	Independence	216-661-9800
OK	Tulsa	918-663-6025
PA	King of Prussia	215-768-6900
PA	Pittsburgh	412-787-7340
TN	Knoxville	615-588-0014
TN	Memphis	901-365-9906
TX	Dallas	214-869-1461,62
TX	Round Rock	713-274-0500
VA	Midlothian	804-739-0660
WA	Bellevue	206-451-1111
WI	Appleton	414-731-8757

ROSENBERGER-MICRO COAX, (Formerly Micro-Coax Components, Inc.), Box E, Collegeville, PA 19426, Tel: 215-489-3700, FAX: 215-489-1103; Empl.: 50; *Sls. Mgr.:* Lloyd Deery

ROSS ENGINEERING CORP., 540 Westchester Dr., Campbell, CA 95008, Tel: 408-377-4621, FAX: 408-377-5182; FSC No.: 23598; Empl.: 45; *Sls. Mgr.:* Jim Ross; *Dist. Mgr.:* Jim Ross ..... **B•1230, 1567-1569; D•1319**

ROTEK INSTRUMENT CORP., 390 Main St., Waltham, MA 02254, Tel: 617-899-4611, TELEX: 928034; FSC No.: 06678; *Sls. Mgr.:* Eliot Warner

ROTORK CONTROLS, INC., 19 Jetview Drive, Rochester, NY 14624, Tel: 716-328-1550, FAX: 716-328-5848; Empl.: 65; *Sls. Mgr.:* Chris Warnett; *Dist. Mgr.:* Chris Warnett

ROWE INDUSTRIES, INC., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, Tel: 419-729-9761, FAX: 419-729-1794; FSC No.: 82878; Empl.: 89 ..... **C•1513-1515, 1819**

Local Sales Offices & Reps

AL	Huntsville, South Design & Mktg.	205-880-3623
AZ	Phoenix, Blackhart Assocs.	602-893-3488
CA	Morgan Hill, Val C. Robinson	408-778-6210
FL	Maitland, EIR, Inc.	407-660-9600
IL	Lisle, Connect-Plus	708-355-6363
MD	Kensington, Koebert Assocs.	301-493-8924
MA	Burlington, Don C. Richard	617-273-3888
MN	Stillwater, Kits, Co.	612-439-8088
PA	Glenside, Koebert Assocs.	215-887-2310
TX	Roanoke, CMR	817-379-6540
WA	Bellevue, Advanced Power Comps.	206-747-9127
WV	Inwood, Koebert Assocs.	304-229-8401

Local Distributors

MN	Bloomington, Triad Wire & Cable	612-884-7390

MILTON ROY CO., Environmental, 1238 W. Grove Ave., Orange, CA 92665-4134, Tel: 714-974-5560, FAX: 714-921-2531; Empl.: 60; *Sls. Mgr.:* Harold Peper

ROYONIC INC., 25345 Ave. Stanford, Ste. 201, Valencia, CA 91355, Tel: 805-257-0303, TELEX: 315672, ESYLNK: 62840158, FAX: 805-257-0802; Empl.: 11; *Sls. Mgr.:* Rory Stoner

RTRON CORP., 8151 N. Ridgeway, Skokie, IL 60076, Tel: 708-679-7180, FAX: 708-675-3709; FSC No.: 19130; *Sls. Mgr.:* R. McLean

RTS SYSTEMS, TELEX COMMUNICATIONS, INC., 1100 W. Chestnut St., Burbank, CA 91506, Tel: 818-566-6700, TELEX: 194855, FAX: 818-843-7953; FSC No.: 60572; Empl.: 45; *Sls. Mgr.:* Shelley Brown Harrison; *Dist. Mgr.:* Shelley Brown Harrison

RUBYCON AMERICA, INC., 4293 Lee Ave., Gurnee, IL 60031, Tel: 708-249-3450, FAX: 708-578-1300; Empl.: 8; *Sls. Mgr.:* Jeffrey W. Swanson; *Dist. Mgr.:* Jeffrey W. Swanson

RUNDEL PRODUCTS, Allied Controls Incorporated, 562 Captain Neville Drive, Waterbury, CT 06705, Tel: 203-757-4200, FAX: 203-757-4204; FSC No.: 02288; *Sls. Mgr.:* J. T. Kryjak; *Dist. Mgr.:* D. Varga ..... **B•1768-1769**

Local Sales Offices & Reps

AZ	Phoenix, BLS Comms.	602-841-6613
CA	Irvine, Component Mktg. Assoc.	714-727-0688
CA	Tarzana, Comp. Mktg. Assoc.	818-708-8058
CT	Waterbury, Allied Controls, Inc.	203-757-4200
FL	Lakeland, Munday Sls. Co.	813-858-5606
IL	Skokie, Indl. Reps.	312-967-8430
IN	Indianapolis, M & L Elctrn. Sls., Inc.	317-359-4742
MD	Burtonsville, Chesapeake Technlg.	301-236-0530
MN	Bloomington, Indl. Reps. Inc.	612-854-8027
NJ	Englewood, Gray Assocs., Inc.	201-894-0894
NJ	Kenvil, Gray Assocs., Inc.	201-927-6662
OH	Beachwood, Elctrn. Salesmasters Inc.	216-831-9555
TX	Austin, Comp. Technlg.	512-250-2450
TX	Dallas, Component Technlgy.	214-783-8831
TX	Houston, Comp. Technlg.	713-961-1262
WI	Brookfield, Indl. Reps. Inc.	414-789-9393

RUSH ENTERPRISES INC.:A HEICO COMPANY, 20 Hampshire Drive, Hudson, NH 03051, Tel: 603-886-9460, FAX: 603-886-0372; Empl.: 14; *Sls. Mgr.:* William A. Walsh

RUSSTECH ENGINEERING COMPANY, INC., 23322 (D) Madero Road, Mission Viejo, CA 92691, Tel: 714-472-0880, FAX: 714-472-1081; FSC No.: 01EG24; *Sls. Mgr.:* David Zoscak

RUSTRAK INSTRUMENTS, Mark IV Company, Rte. 2 & Middle Rd., E. Greenwich, RI 02818, Tel: 401-884-6800, 800-332-3202, TWX: 710-387-1500; Empl.: 250; *Sls. Mgr.:* John Olobri; *Dist. Mgr.:* John Olobri ..... **D•1423**

Local Distributors

AZ	Tempe, CMI Metermaster	602-431-0015
CA	Fullerton, Rustrak	714-879-6384
CA	Hayward, Coast Inst.	415-786-9300
CA	San Marcos, Mitchell Inst.	619-744-2690
CO	Commerce City, WACO Elctrns.	303-289-4743
CT	Middletown, EIL Instrs.	203-346-6646
FL	Lakeland, AA Elec.	813-665-6941
GA	Forest Park, Brownell Electro	404-362-9009
IL	Des Plaines, Rustrak	312-803-5390
MD	Sparks, EIL Instrs.	301-771-4800
MA	Burlington, EIL Instrs.	617-272-9450
MI	Grand Rapids, Smith Inst.	616-245-1195
MI	Royal Oak, George Inst.	313-280-1111
MO	St. Louis, Indl. Svc. Labs	314-423-3141
NJ	Newark, Norman Bragar Prods.	201-344-1100
NC	Charlotte, Brownell Electro	704-597-1270
OH	Cincinnati, Schlemmer Assocs.	513-522-8340
OH	Cleveland, M.A. Blankenberg	216-251-7010
PA	Philadelphia, Sunshine Scientific	215-673-5600
RI	E. Greenwich, Rustrak	800-332-3202
TX	Dallas, Inotek Corp.	214-243-8370
TX	Houston, American Analog	713-941-7265
WA	Seattle, Branom Inst.	206-762-6050
WI	Waukesha, Wisconsin Control Corp.	414-796-0290
Can	Mississauga, Ont., Webster Inst.	416-625-0600

RUTHERFORD RESEARCH, Box 249, Rutherford, NJ 07070, Tel: 201-933-2091; Empl.: 4; *Sls. Mgr.:* Dr. A. Blanck; *Dist. Mgr.:* Dr. A. Blanck

R X D INC., Relm Communications, 806 Custer Ave., Norfolk, NE 68701, Tel: 402-379-0012, 800-228-8108, FAX: 402-379-3074 ..... **A•1452-1454**

RYAN INTERNATIONAL CORP., 4800 Evanswood Dr., Columbus, OH 43229-6207, Tel: 614-885-3303, FAX: 614-885-8307; Empl.: 30

RYE INDUSTRIES, INC., 3337 Air Park Rd., Fuquay-Varina, NC 27526, Tel: 919-557-0511, TELEX: 919-557-0510; Empl.: 5

S A B NIFE, INC., Div. of Sonesson, P.O. Box 7366, 251 Industrial Blvd., Greenville, NC 27834, Tel: 919-830-1600, TELEX: 92-9407; Empl.: 150; *Sls. Mgr.:* Alan Feo; *Dist. Mgr.:* Alan Feo

SABRE COMMUNICATIONS CORP., 3400 Hwy 75 N., P.O. Box 536, Sioux City, IA 51102, Tel: 712-258-6690, FAX: 712-258-8250; FSC No.: 60348; *Sls. Mgr.:* Jerry W. Audus; *Dist. Mgr.:* Larry D. Vaydich

SABRITEC, 1733 Kaiser Ave., Irvine, CA 92714, Tel: 714-660-1970, TELEX: 678401, FAX: 714-660-9136; FSC No.: 58795; Empl.: 49

SACO CONTROLS INC., 9700 Trans Canada Hwy., Montreal,Qc., Canada H4S 1V9, Tel: 514-745-0310, TELEX: 055-62171, FAX: 514-745-0315; Empl.: 36; *Sls. Mgr.:* Pat Argento

SAFE POWER, Acme Electric Corporation, 5416 Amelia Earhart Dr., Salt Lake City, UT 84116, Tel: 801-539-0227, 1-800-325-5848, FAX: 801-539-0237; *Sls. Mgr.:* Rod Pullen; *Dist. Mgr.:* Jim Heidenreich

SAFT AMERICA INC., Power Sources Div., 711 Industrial Blvd., Valdosta, GA 31601, Tel: 912-247-2331, TELEX: 547620, TWX: 810-786-5866, FAX: 912-247-6680; Empl.: 200 ..... **D•1426, 1486-1488**

SAFT AMERICA INC., Advanced Battery Systems Div., 107 Beaver Ct., Cockeysville, MD 21030, Tel: 301-771-3200, FAX: 301-771-1144 ..... **D•1426**

SAFT

FAX: 912-247-6680

SAFT AMERICA, INC., Portable Battery Division, 711 Industrial Blvd., Valdosta, GA 31601, Tel: 912-247-2331, TELEX: 547-620; Empl.: 600; *Sls. Mgr.:* Michael Marcoux ..... **D•1426, 1486-1488**

Local Sales Offices & Reps

CA	Camarillo, SAFT America, Inc.	805-482-4101
CA	Granada Hills, SAFT America, Inc.	818-360-1853
CA	Redwood City, SAFT America Inc.	415-365-4539
FL	Boca Raton, SAFT America, Inc.	407-338-7730
GA	Kennesaw, SAFT America Inc.	404-429-4938
GA	Marietta, SAFT America, Inc.	404-992-6950
IL	Naperville, SAFT America, Inc.	708-355-8990
IL	Oak Forest, SAFT America, Inc.	708-687-6690
TX	Dallas, SAFT America, Inc.	214-239-3935
MN	Inver Grove Hgts., SAFT America Inc.	612-552-0121
OH	Brownsville, SAFT America, Inc.	216-861-1877
PA	McKean, Advacom	814-476-7774

Local Distributors

AZ	Phoenix, Lynntronics	602-433-0288
CA	Carlsbad, Quantum Batteries	619-438-2202
CA	Chatsworth, Mill Comm. Distrs., Inc.	818-998-3111
CA	Costa Mesa, House of Batteries	714-548-3968
CA	Hawthorne, Kent Elctrns.	213-970-0997
CA	Mountain View, Energy Sls.	415-969-0800
CA	N. Hollywood, C.H. & M	818-982-3150
CA	San Rafael, Elctrns. Plus	415-457-0466
CO	Littleton, AVT	303-798-1958
FL	Altamonte Springs, TNR Tech.	407-682-4311
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IN	Indianapolis, Advent Elctrns.	317-872-4910
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MA	Andover, Generation Elctrns.	508-683-1177
MA	Billerica, A. W. Mayer Co., Inc.	617-229-2255
MA	Middleboro, Glynn Elctrns.	508-947-4262
MA	Sharon, Adcour	617-784-8123
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Livonia, R. S. Elctrns.	313-525-1155
MI	Livonia, Vidcom	313-462-9400
MN	St. Paul, D. C. Battery Prods. Inc,	612-646-7478
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PA McKean, Advacom 814-476-7774
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TX Austin, Kent Elctrns. 512-834-1900
TX Houston, Kent Elctrns. 713-780-7770
TX Houston, Lone Star Mktg. 713-589-0853
TX Richardson, Kent Elctrns. 214-669-2600
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WA Redmond, Energy Sls. 206-883-2343

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MA Peabody, Orion Grp. 508-532-6266
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FL Tampa, JACO/Q.C. 813-628-4665, FAX:813-626-8185
GA Norcross, JACO/Q.C. 404-449-9508, FAX:404-449-0275
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NY Hauppauge, Jaco Elctrns.,Inc. 516-273-5500, FAX:516-273-5799
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OH Dayton, Cam RPC Elctrns. 513-898-1111, FAX:513-433-6792
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SANGAMO COMPONENTS DIV., See Cornell Dubilier Electronics

SANGAMO COMPONENTS DIVISION, Box 128, Pickens, SC 29671, Tel: 803-878-6311, FAX: 803-878-7257; FSC No.: 00853

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CA San Diego, Deco Elctrns. 619-693-1595
CA Sherman Oaks, Delay Line Dists., Inc. 818-986-9455
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IL Schaumburg, QPS Elctrns. 708-884-6620
MD Columbia, D.K. Elctrns. 301-995-1950
MD Columbia, Sager Elctrns. 301-995-6580
MA Canton, Impact Sls. 617-821-1500
MA Hingham, Sager Elctrns. 617-749-6700
MA Marlboro, Now Elctrns. 508-460-0187
MI SE Grand Rapids, RM Elctrns. 616-531-9300
MN Eden Prairie, Cypress Elctrns. 612-934-2104
MN New Brighton, Chris Elctrns. 612-631-2647
MO St. Charles, Finnigan Elctrns. 314-946-6201
MO St. Charles, Heartland 314-928-6010
NV Rancho Cordova, Acacia/VWR Elctrns. 916-638-1861
NH Salem, Sager Electrns. 603-898-1348
NJ Moorestown, Marlac 609-234-4200
NY Hauppauge, Sager Elctrns. 516-348-1300
NY Rochester, Masline Elctrns. 716-546-5373
NC Raleigh, Comp. Dists. 919-859-3391
NC Raleigh, Sager Elctrns. 919-850-9550
OR Beaverton, Cypress 503-223-8900
PA Mars, Sager Elctrns. 412-772-2233
PA McKean, Advacom 814-476-7774
PA Philadelphia, Sager Elctrns. 215-464-4336
TX Dallas, Comp. Distrs. 214-644-0373
TX Dallas, Cypress 214-255-0065
TX Richardson, Comp. Tech. Corp. 214-437-2211
UT Salt Lake City, IEC 801-977-9750
WA Blaine, Memco 604-590-1553
WA Bothell, Cypress 206-483-1144
WA Redmond, Acacia/Deanco 206-881-5566
WA Seattle, Kam Elctrns. 206-382-1300
WV McKean, Advacom 814-476-7774
Can Burlington, Ont., Alternate Source Comp. 416-335-6385

SCHAFFNER EMC, INC., 825 Lehigh Avenue, Union, NJ 07083, Tel: 908-851-0644, 800-367-5566, FAX: 908-851-0116; *Sls. Mgr.:* Mark Lazar ..... **D•1321**

Local Sales Offices & Reps
AZ Phoenix, Barnhill Assoc. 602-955-2955
CA Concord, Microwave Meas. 415-846-0377
CA Pleasanton, Microwave Meas. 415-846-0377
CA San Diego, Amasco 619-292-7666
CA Torrance, Amasco 213-781-9494
CO Englewood, Barnhill Assoc. 303-792-9500
FL Clearwater, BMI 813-796-2378
FL Satellite Bch., BMI 407-777-6303
GA Atlanta, BMI 404-449-8464
GA Sylvester, BMI 912-776-4100
IL Willowbrook, PVA Corp. 708-655-3355
IN Fishers, Carter Technlg. 317-842-9277
KS Lenexa, Midtec 913-541-0505
MA Burlington, Intersell 617-273-3844
MI Farmington Hills, Carter Technlg. 313-477-7700
MN Minneapolis, Loren F. Green/Minn. 612-571-6666
MO St. Louis, Midtec 314-275-8666
NM Albuquerque, Barnhill Assocs. 505-299-7658
NY Great Neck, RTI 516-829-3770
NY Syracuse, Labtronics 315-455-7314
NC Raleigh, BMI 919-787-0330
OH Englewood, Carter Technlg. 513-836-0951
OH Pauma, Carter Technlg. 216-348-0400
OR Wilsonville, Syntek 503-682-2750
PA Huntington Valley, Sci-Rep 215-322-6500
PA Pittsburgh, Carter Technlg. 412-826-3800
TX Austin, Barnhill Assocs. 512-343-6448
TX Houston, Barnhill Assocs. 713-266-2666
TX Houston, Barnhill Assocs. 713-776-2382
TX Richardson, Barnhill Assocs. 214-231-2573
UT Orem, Barnhill Assocs. 801-226-1239
VA Fairfax, Sci-Rep, Inc. 703-385-0600
WA Bellevue, Syntek 206-462-7700
WA Bellevue, Syntek 509-466-0451
Can B.C., Jerome & Francis Co. 604-986-1286
Can Ontario, Calbrooke Mktg. 519-848-3810
Can Ontario, Webster Instr. 416-625-0600

SCHAUER MANUFACTURING, 4500 Alpine Ave., Cincinnati, OH 45242, Tel: 513-791-3030, FAX: 513-791-7192; Empl.: 195; *Sls. Mgr.:* A. A. Groenewold; *Dist. Mgr.:* Dan Shaw

SCHELL INC., P.O. Box 12689, 2600 22nd St. N., St Petersburg, FL 33733, Tel: 813-822-2600, 800-237-2600, FAX: 813-822-8800; Empl.: 50; *Sls. Mgr.:* Tom Enneking; *Dist. Mgr.:* Steve Hahn

SCHENCK PEGASUS CORP., 2890 John R, Troy, MI 48083, Tel: 313-689-9000, TWX: 810-232-1529, FAX: 313-689-8578; Empl.: 130; *Sls. Mgr.:* David Sallberg

SCHLEGEL CORP., P.O. Box 23197, Rochester, NY 14692, Tel: 716-427-7200, TELEX: 6854121, FAX: 716-427-9993; Empl.: 500; *Sls. Mgr.:* Duncan Tyrrel

SCHLEUNIGER USA INC., 150 Dow St. Tower Four, Manchester, MI 03101, Tel: 603-668-8117, FAX: 603-668-8119; Empl.: 11; *Sls. Mgr.:* Charles C. S. Burns

SCHLUMBERGER INDUSTRIES, Tranducers Div., 11321 Richmond, M-102, Houston, TX 77082, Tel: 713-558-2587, TELEX: 791209, FAX: 713-558-8954; *Sls. Mgr.:* Robinson Ord

SCHLUMBERGER INSTRUMENTS, Schlumberger Technlgs., 829 Middlesex Turnpike, Billerica, MA 01821, Tel: 508-671-9700, 1-800-225-5765, FAX: 508-671-9704; Empl.: 70

SCHLUMBERGER INSTRUMENTS, Schlumberger Technologies, 20 North Avenue, Burlington, MA 01803, Tel: 617-229-4825, FAX: 617-229-4885; FSC No.: 1T316; Empl.: 50; *Sls. Mgr.:* Michael Milona

SCHNEIDER CORP. OF AMERICA, 400 Crossways Park Drive, Woodbury, NY 11797, Tel: 516-496-8500, FAX: 516-496-8524; Empl.: 13; *Sls. Mgr.:* Dwight Lindsey; *Dist. Mgr.:* Dwight Lindsey

SCHONSTEDT INSTRUMENT CO., 1775 Wiehle Ave., Reston, VA 22090, Tel: 703-471-1050, FAX: 703-471-1795; Empl.: 45; *Sls. Mgr.:* O. K. Davis

SCHOTT CORP., 1000 Parkers Lk. Rd., Wayzata, MN 55391, Tel: 612-475-1173, FAX: 612-475-1786; FSC No.: 80023; Empl.: 325; *Sls. Mgr.:* A. Schmitt

Local Sales Offices & Reps
MA Needham, Hatch Assocs. 617-963-3306

SCHOTT ELECTRONICS, 42 Silvermine Road, Seymour, CT 06483, Tel: 203-881-0102, TWX: 710-451-8911, FAX: 203-881-0098; Empl.: 150; *Sls. Mgr.:* Ross Wieringa

SCHOTT GLASS TECHNOLOGIES, INC., 400 York Ave., Duryea, PA 18642, Tel: 717-457-7485, TWX: 510-671-4535, FAX: 717-457-6960; FSC No.: 23-169-1403; Empl.: 500; *Sls. Mgr.:* J. Nimmerfroh

SCHRACK NORTH AMERICA CORP., 1995 Pond Rd., Ronkonkoma, NY 11779-7209, Tel: 516-737-0099, FAX: 516-737-2550; Empl.: 10; *Sls. Mgr.:* John Walsh; *Dist. Mgr.:* Christopher Meza ..... **B•1570-1576**

Local Sales Offices & Reps
AL Huntsville, DHR Mktg. 205-533-5165
AZ Phoenix, CPS Assoc. 602-246-1097
CA Arcadia, Van Gott & Assocs. 818-445-9728
CO Boulder, Stratford Grp. 303-530-3194
FL Miami, Omnitron 305-448-0050
FL Tampa, SRT Mktg. 813-884-4805
IN Mishawaka, Power Comp. 219-256-6630
MO Hazelwood, Acorn Elctrns. 314-731-2002
MD Hunt Valley, Eagle 301-666-3930
MA Swansea, Poisson & Assoc. 508-677-3655
MI Ypsilanti, Tech Rep 313-572-1950
MN Roseville, TLC 612-483-2226
NJ Lawrenceville, DVS Co. 609-896-1112
NJ Matawan, Sheppard 201-566-0095
NY Liverpool, Lynn 315-457-6859
NC Raleigh, Spears 919-790-7606
OH Highland Hts., KT/Depco 216-442-6200
PA Gibsonia, Lynn 412-443-3670
TX Dallas, Pro Sls. 214-387-0344
WA Bellevue, Caruso & Co. 206-454-1261
Can Ontario, Honeywell Ltd. 416-293-8111

Local Distributors
AL Birmingham, ACK Ind. 205-322-0588
AZ Tempe, Control Des. Supp. 602-829-7981
CA City of Industry, ITAL 818-968-8515
CA San Rafael, Elctrns. Plus 415-457-0466
CO Denver, CSID 303-292-9594
CT Middlefield, Control Des. Supp. 203-349-0200
FL Ft. Lauderdale, Southeastern Elctrns. 305-563-4131
GA Stone Mountain, Control Des. Supp. 404-979-3500
ID Boise, Bolen's Control House 208-363-5280
IL Carol Stream, Lectro Comps. 708-690-0520
IN Indianapolis, Control Des. Supp. 317-788-4559
IA Marion, Control Des. Supp. 319-373-2923
KS Kansas City, Control Des. Supp. 913-362-4248
ME Gray, Longhill Electro. Tech. 207-657-2183
MD Gaithersburg, Axis Elec. 301-840-9640
MA Norwood, Emtel 617-769-9500
MI Ypsilanti, Tech Rep 313-229-2961
MN Minneapolis, Control Des. Supp. 612-721-1628
MO St. Louis, Control Des. Supp. 314-426-3150
NJ Lodi, Nidisco 201-773-1771
NJ Paramus, Electro Control Supp. 201-836-2112
NJ Pennsauken, IMS Distbn. 609-662-1770
NY Newburgh, Electro 914-561-5330
NY Ronkonkoma, All American 516-981-3935
NC Charlotte, C.P.S. 704-588-4410
NC Pineville, Control Des. Supp. 704-588-4410
OR Portland, Dunn Elctrns. 503-285-0214
OR Portland, O4 Controls, Inc. 503-231-8058
PA Malvern, Control Des. Supp. 215-296-0150
TX Dallas, Control Des. Supp. 214-358-1441
TX Houston, Wofford Elec. 713-847-3583
WA Boseman, C.E.D. 509-535-8891
WA Seattle, Stusser Elec. Co. 206-624-8770
Can Scarborough, Honeywell 514-337-1104

SCHROFF INCORPORATED, 170 Commerce Dr., Warwick, RI 02886, Tel: 401-732-3770, FAX: 401-738-7988; Empl.: 120; *Sls. Mgr.:* William Bottis

SCHUMACHER ELECT. CORP., 7474 N. Rogers Ave., Chicago, IL 60626, Tel: 312-973-1600, FAX: 312-973-7781; Empl.: 700; *Sls. Mgr.:* Norman Patinka

SCHURTER

FAX: 707-778-6401

SCHURTER, INC., 1016 Clegg Ct., Petaluma, CA 94952, Tel: 707-778-6311; FSC No.: 61935; *Sls. Mgr.:* Bruno H. Schurter ... **A•1638-1639; B•1389, 1771; C•1516-1520**

Local Sales Offices & Reps
AL Madison, Benchmark Tech. Sls. Inc. ... 205-464-0033
AZ Scottsdale, JK & Assos. 602-990-8804
AR Little Rock, Doby Assoc. 501-221-0326
CA La Habra, Cygnus Sls. Engrg. Corp. ... 213-691-2993
CA San Jose, Arnold Tech. Sls., Inc. 408-954-0400
CO Broomfield, Summit West Mktg., Inc. .. 303-460-9600
FL Pompano Bch., IMR, Inc. 305-942-2449
IN Carmel, Newton & Assocs. 317-577-5895
GA Norcross, Benchmark Tech. Sls. Inc. .. 404-446-1711
IL Arlington Hgts., MJ Petersen & Assoc., Ltd. 708-577-8200
MN Shorewood, Frank Anthony Mktg. 612-474-2850
MS Jackson, Doby Assocs. 601-981-1138
MO St. Louis, Acorn Elctrns. Inc. 314-421-1751
NH Nashua, Bell Controls 603-882-6984
NJ Ho-Ho-Kus, D. J. Fisher Co. 201-652-0090
NJ Medford, Champion Elctrn. Sls. Co. 609-983-0932
NY Fairport, TAC Sls, Inc. 716-377-2250
NC Raleigh, Benchmark Tech. Sls. Inc. 919-850-0633
OH Beachwood, Electronic Salesmasters 216-831-9555
OR Hillsboro, Doran Sls. 503-640-4500
TX Dallas, Reese & Assocs. 214-224-1000
UT Salt Lake City, Prorep Mktg. 801-268-3434
WA Redmond, Doran Sls. 206-885-1885

Local Distributors
CA Irvine, Kensington Elctrns., Inc. 714-588-0575
CA Livermore, Quail Elctrns. 415-373-6700
CT Wallingford, Sager Elctrns. 203-265-4600
FL Orlando, Sager 407-240-3114
GA Norcross, NRC-Jarco Dixie, Inc. 404-729-0411
IL Elk Grove Village, Nu-Way Elctrn. Distrbs. Inc. 708-437-7120
MD Columbia, Sager Elctrns. 301-995-6580
MD Rockville, FIC Corp. 800-638-6594
MA Hingham, Sager Elctrns. 617-749-7600
MA Sandwich, JV ELctrns. 508-833-0700
MN Plymouth, Leeds Electro Comps., Inc. 612-557-1277
NH Salem, Sager Elctrns. 603-898-1348
NY Hauppauge, Sager Elctrns. 516-348-1300
NC Raleigh, Sager Elctrns. 919-850-9550
OH Strongsville, Fuse World 216-238-1330
OR Tualatin, Moore Elctrns., Inc. 503-692-5333
PA Harrisburg, Ad-Tech Elctrns., Inc. 717-561-9905
PA Mars, Sager Elctrns. 412-772-2233
PA McKean, Advacom 814-476-7774
PA Philadelphia, Sager Elctrns. 215-464-4336
TX Dallas, Fuses, Inc. 214-341-6407
WI Oconomowoc, GW Elctrns. Ltd. 414-567-9445
Can Markham, Ont., Birde Mktg. 416-477-7722

SCHUSTER ELECTRONICS, 8 Beattie Court, Huntington, NY 11530, Tel: 516-271-0590; *Sls. Mgr.:* Max Schuster

SCIENCE ACCESSORIES CORP., 200 Watson Blvd., Stratford, CT 06497, Tel: 203-386-9978, FAX: 203-381-9270; Empl.: 40; *Sls. Mgr.:* H. A. Cleveland

SCIENCE & ENGRG. CONSULTANTS, INC., 1820 Discovery St., Ste. 300, Reston, VA 22090, Tel: 703-471-1600, FAX: 703-281-9778; Empl.: 2; *Sls. Mgr.:* Dr. Joseph T. Siewick

SCIENCE/ELECTRONICS, P. O. Box 986, Dayton, OH 45401-0986, Tel: 513-859-5555, FAX: 513-859-7930; Empl.: 25; *Sls. Mgr.:* E. E. Pohl; *Dist. Mgr.:* J. Tanksley

SCIENTECH, INC., 5649 Arapahoe Ave., Boulder, CO 80303, Tel: 303-444-1361, 800-525-0522, TWX: 910-940-0994, FAX: 303-444-9229; Empl.: 35

SCIENTIFIC-ATLANTA, INC., See Optima Enclosures

SCIENTIFIC INSTRUMENTS, 4400 W. Tiffany Dr., West Palm Beach, FL 33407, Tel: 407-881-8500, FAX: 407-881-8556; FSC No.: 591197614; Empl.: 52; *Sls. Mgr.:* Mike Capers; *Dist. Mgr.:* Mike Capers

SCIENTIFIC RESEARCH CORP., See TRAK Microwave Corp.

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FAX: 415-471-9752

SCIENTIFIC TECHNOLOGIES INC., Control Components Div., 31069 Genstar Rd., Hayward, CA 94544-7831, Tel: 415-471-9717, 800-221-7060; FSC No.: 52797; Empl.: 25; *Sls. Mgr.:* Paul N. Dreiseszun ..... **B•1578-1579**

SCIENTIFIC TECHNOLOGIES INC., Optical Sensor Div., 31069 Genstar Rd., Hayward, CA 94544, Tel: 415-471-9717, FAX: 415-471-9752; Empl.: 120

SCITEQ ELECTRONICS, INC., 8401 Aero Dr., San Diego, CA 92123, Tel: 619-292-0500, TELEX: 882008, FAX: 619-292-9120; FSC No.: 70561; Empl.: 40; *Sls. Mgr.:* Phil Feinberg

SCOPE INCORPORATED, 1860 Michael Faraday Dr., Reston, VA 22090, Tel: 703-471-5600, FAX: 703-471-1715; Empl.: 150; *Sls. Mgr.:* J. Tietge, Dir. PD

SC TECHNOLOGY, INC., 368 Earhart Way, Livermore, CA 94550, Tel: 415-373-9230, FAX: 415-373-9416; *Sls. Mgr.:* Susan L. Karl

SCREENPRINT DOW, See Dow Switch, Div. of Screenprint Dow

SEABOARD ELECTRONICS, 70 Church St., New Rochelle, NY 10805, Tel: 914-235-8073, TELEX: 646289; Empl.: 40; *Sls. Mgr.:* Bernie Klempner; *Dist. Mgr.:* Subhash Grandhi

SEACOR INC.

FAX: 201-664-8544

SEACOR, INC., 123 Woodland Ave, Westwood, NJ 07675, Tel: 201-666-5600; Empl.: 20 ..... **A•1137**

Local Sales Offices & Reps

AL	Huntsville, Summit Mktg.	205-721-1701
AZ	Tempe, FP Sls.	602-894-5303
CA	San Jose, H. W. Assocs.	408-996-9940
CO	Denver, Hi-Level Mktg.	303-660-9685
FL	Melbourne, R-Rep Co.	407-242-9800
GA	Norcross, Summit Mktg. Assoc.	404-498-4530
IL	Inverness, Heartland Tech. Mktg.	708-358-6622
MD	Bel Air, Freedman/Malta Assoc.	301-879-3148
MA	Sudbury, KSA of New England	508-443-5881
MN	St. Paul, The Johnson Co.	612-641-1878
MO	St. Louis, Acorn Elctrns.	314-421-1751
NJ	Parlin, JMR Sls. Inc.	908-525-8000
NM	Albuquerque, FP Sls.	505-345-5553
NY	Rochester, Upstate Engrg. Sls.	716-225-2383
NC	New Hill, Tom Santel Assocs.	919-362-4091
OH	Powell, Val-Skol Sls.	614-889-0174
OH	Willoughby, Val-Skol Sls.	216-942-6021
PA	King of Prussia, Freedman-Malta Assocs.	215-337-9211
TX	Richardson, Eagle Mktg.	214-238-5383
WI	Brookfield, Heartland Tech. Mktg.	414-792-0920

Local Distributors

CA	Garden Grove, Natl. Cap. Supp.	714-892-7744
CA	San Jose, Compass Comps.	408-432-7575
CT	Wallingford, Mid-State Elctrns.	203-265-9900
FL	Ft. Lauderdale, Brothers Elec.	305-561-6700
FL	Ft. Lauderdale, NRC Elctrns.	305-772-4500
IL	Bensenville, Voyager Elec.	312-860-1300
IL	Schaumburg, Q.P.S.	312-884-6620
MA	Burlington, T.L.C.	617-273-0140
MA	Framingham, Now Elctrns.	617-235-9501
MA	N. Chelmsford, Pilgrim Elec.	617-454-9889
MN	Eitzen, Capacitor Assocs.	507-495-3130
MN	Fridley, Voyager Elctrns.	612-571-7766
NJ	E. Brunswick, Brothers Elctrns.	201-238-2200
NJ	Rockaway, Tonar Inds.	201-586-9000
NY	Melville, S.A.I.	516-293-2710
NY	Ronkonkoma, Spectrum Comp.	516-737-6900
TX	Dallas, Off-the-Shelf Comps.	214-238-0808
TX	Ft. Worth, C & W Supp.	817-831-0395
WA	Seattle, Vesco Elctrns.	206-575-3607

SEAFAB, INC., 14648 N.E. 95th St., Redmond, WA 98052, Tel: 206-881-2778, FAX: 206-882-0707; Empl.: 80; *Sls. Mgr.:* Bruce Murray

SEALTRON, INC., 9705 Reading Road, Cincinnati, OH 45215, Tel: 513-733-8400, FAX: 513-733-0131; FSC No.: 3678; Empl.: 140; *Sls. Mgr.:* James Dawson

SEASTROM MANUFACTURING CO., INC., 701 Sonora Ave., Glendale, CA 91201, Tel: 213-245-9121, FAX: 818-246-6803; FSC No.: 86928; Empl.: 80; *Sls. Mgr.:* Dave Buddecke

SECMA, INC., Secme, 17752 Skypark Circle No. 200, Irvine, CA 92714, Tel: 714-261-0610, FAX: 714-261-8390; Empl.: 400

SECTOR MICROWAVE IND. INC., 999 Grand Blvd., Deer Park, NY 11729, Tel: 516-242-2300, TWX: 510-227-6075, FAX: 516-242-8158; Empl.: 45; *Sls. Mgr.:* Thomas Nelson

SECTOR SYSTEMS CO., INC., 416 Ocean Ave., Marblehead, MA 01945, Tel: 617-639-2625; Empl.: 10

SECURITY PLASTICS, INC., 14427 N.W. 60th Ave., Miami Lakes, FL 33014, Tel: 305-823-5440, FAX: 305-557-1431; Empl.: 400; *Sls. Mgr.:* Nelson Rodriguez

SEEQ TECHNOLOGY, 1849 Fortune Dr., San Jose, CA 95131, Tel: 408-432-7400, 1-800-333-7706, TELEX: 296609, TWX: 9103382313, FAX: 408-432-9549; Empl.: 370; *Sls. Mgr.:* Phil Ortiz, V.P Worldwide Sls.; *Dist. Mgr.:* Pat Bringuel

Seiko Instruments

FAX: 213-517-7792

SEIKO INSTRUMENTS U.S.A., INC. ELECTRONIC COMPONENTS, 2990 W. Lomita Blvd., Torrance, CA 90505, Tel: 213-517-7770; *Sls. Mgr.:* D. Brooks ..... **A•1461; B•1117; D•1108, 1490**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean, Inc.	205-830-1540
AZ	Scottsdale, Fred Board Assocs.	602-994-9388
AZ	Tucson, Fred Board Assocs.	602-299-1508
CA	Irvine, Groh Assoc.	714-837-9871
CA	San Diego, Groh Assocs.	619-673-4321
CA	San Jose, H-Technical Sls.	408-453-2111
CO	Aurora, Electrodyne	303-695-8903
CT	Madison, Focus Elctrn. Sls.	203-245-4314
FL	Plantation, Gallagher & Assocs.	305-473-2101
GA	Norcross, Cartwright & Bean, Inc.	404-368-0160
IL	Elk Grove Village, TriStar Grp., Inc.	708-593-0200
IN	Ft. Wayne, Electro Rep Inc.	219-489-8205
IN	Indianapolis, Electro Rep Inc.	317-842-7202
IA	Cedar Rapids, J.R. Sls. Engrg., Inc.	319-393-2232
KS	Overland Park, Electri-Rep	913-649-2168
MI	Grand Rapids, R.P. Urban & Assoc.	616-245-0511
MD	Burtonsville, Glasscock Assocs.	301-384-5213
MA	Taunton, Focus Elctrns. Sls.	508-824-3840
MI	Detroit, R.P. Urban & Assoc.	313-535-2355
MN	Eden Prairie, Stan Clothier Co.	612-944-3456
MO	St. Louis, Electri-Rep	314-993-4421
NJ	E. Brunswick, Shepard & Assoc.	908-254-5757
NY	E. Syracuse, Nycom, Inc.	315-437-8343
PA	Apollo, J.N. Bailey & Assoc.	412-568-1392
NC	Charlotte, Cartwright & Bean, Inc.	704-536-0303
NC	Raleigh, Cartwright & Bean, Inc.	919-876-4132
OH	Brunswick, J. N. Bailey & Assocs.	216-273-3798
OH	Columbus, J.N. Bailey & Assocs.	614-262-7274
OH	New Lebanon, J. N. Bailey & Assocs.	513-687-1325
OR	Tigard, Electronic Comp. Sls.	503-245-2342
PA	Frazer, Industrial Comps., Inc.	215-889-0650
TN	Knoxville, Cartwright & Bean, Inc.	615-693-7450
Can	Markham, Ont., Birde Mktg.	416-477-7722
TX	Austin, TI Mktg. Inc.	512-837-7272
TX	Dallas, TL Mktg. Inc.	214-484-6800
TX	Houston, TL Mktg. Inc.	713-587-8100
UT	Salt Lake City, Electrodyne	801-264-8050
VA	Ashland, Glasscock Assocs.	804-798-2125
WA	Mercer Island, Electronic Comp. Sls.	206-232-9301
WA	Spokane, Electronic Comp. Sls.	509-456-0100
WI	Menomonee, TriStar Grp., Inc.	800-654-4105
Can	Kanata, Ontario, Birde Mktg.	613-592-5411
Can	St. Laurent, Quebec, Birde Mktg.	514-335-4050
Can	Vancouver, B.C., Birde Mktg.	604-431-0427

Local Distributors

AL	Huntsville, Cypress Elctrns.	205-533-0783
AZ	Phoenix, Aerospace S.W.	602-582-2779
AZ	Phoenix, Sterling Elctrns.	602-437-5565
AZ	Tempe, Cypress Elctrns.	602-966-2256
CA	Buena Pk., Cypress Elctrns.	714-404-0445
CA	Chatsworth, Sterling Elctrns.	818-407-8850
MD	Columbia, Sterling Elctrns.	301-290-3800
CA	San Diego, Cypress Elctrns.	619-535-0011
CA	San Diego, Sterling Elctrns.	619-560-8097
CA	San Jose, Electro Alliance, Inc.	408-280-0221
CA	Santa Clara, Cypress Elctrns.	408-980-2500
FL	Sunrise, All American	305-572-7999
CA	Tustin, OBI	714-258-1411
CA	Tustin, Sterling Elctrns.	714-259-0900
CA	Woodland Hills, Cypress Elctrns.	818-710-7780
CO	Englewood, Cypress Elctrns.	303-792-5829
CO	Englewood, Sterling Elctrns.	303-792-3939
CT	Wallingford, Sterling Elctrns.	203-265-9535
FL	Melbourne, Greene-Shaw Co. Inc.	407-951-3636
GA	Norcross, Applied Power Inc.	404-263-0421
IL	Bensenville, Cypress Elctrns.	708-350-2005
IL	Bensenville, Goold Elctrns. Corp.	708-860-7171
IL	Northbrook, Classic Comps.	708-272-9650
IL	Rosemont, Advent Elctrns., Inc.(printers only)	708-297-6200
IN	Indianapolis, Advent Elctrns., Inc.(printers only)	317-872-4910
IN	Indianapolis, RM Elctrns.	317-843-9403
IA	Cedar Rapids, Advent Elctrns., Inc.(printers only)	319-363-0221
IA	Cedar Rapids, Dee Elctrns., Inc.	319-365-7551
KS	Lenexa, Sterling Elctrns.	913-492-5406
LA	West Wego, Sterling Elctrns.	504-436-1418
MD	Middletown, Current Comps.	301-473-5333
MA	Norwood, Emtel	617-769-9500
MI	Southfield, RM Elctrns.	313-262-1582
MA	Woburn, Sterling Elctrns.	617-938-6200
MI	Farmington Hills, Advent Elctrns., Inc.(printers only)	313-477-1650
MI	Grand Rapids, RM Elctrns.	616-531-9300
MN	Eden Prairie, Cypress Elctrns.	612-934-2104
MN	Minneapolis, Aerospace Computer Supps.	612-884-4725
MN	Minneapolis, Sterling Elctrns.	612-831-2666
NJ	Edison, Sterling Elctrns.	908-417-1000
NM	Albuquerque, Sterling Elctrns.	505-884-1900
NY	Hewlett, Metropolitan Sls.	516-599-7900
NY	Mt. Vernon, QAR Elctrns.	914-699-2224
NC	Raleigh, Century Elctrns.	919-782-2116
NY	Ronkonkoma, All American	516-981-3935
OH	Cincinnati, Schuster Elctrns.	513-489-1400
OK	Tulsa, Sterling Elctrns.	918-663-2410
OR	Portland, Cypress Elctrns.	503-223-8900
OR	Tualatin, Moore Elctrns.	503-692-5333
OR	Beaverton, Micropower (Batteries Only)	503-626-7086
PA	Norristown, Century Elctrns.	215-631-5404
TX	Austin, Sterling Elctrns.	512-836-1341
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Houston, Sterling Elctrns.	713-623-6600
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bothell, Cypress Elctrns.	206-483-1144
WA	Kent, Moore Elctrns., Inc.	206-251-8090
WI	New Berlin, Classic Comps.	414-786-5300
UT	Salt Lake City, Sterling Elctrns.	801-972-5444
Can	Burnaby, B.C., ITT/RAE Multicomps.	604-291-8866
Can	Concord, Ont., ITT Multicomps.	416-736-1144
Can	Markham, Ont., Semad Elctrns./DGW Elctrns.	416-475-8500
Can	Nepean, Ont., Carsten Elctrns. Ltd.	613-726-9250
Can	Scarborough, Ont., Carsten Elctrns. Ltd.	416-495-7705

Can St. Laurent, Que., Carsten Elctrns. Ltd. 514-334-8321

SEIKO INSTS. USA, INC., Graphic Devices & Systems Div., 1130 Ringwood Ct., San Jose, CA 95131, Tel: 408-922-5800, FAX: 408-922-5840; *Sls. Mgr.:* Steve Dodds; *Dist. Mgr.:* Ralph Kosoff

SEIKO INSTRUMENTS U.S.A., INC., Robotics/Automation Div., 2990 W. Lomita Blvd., Torrance, CA 90505, Tel: 213-517-7850, FAX: 213-517-7793; Empl.: 250; *Sls. Mgr.:* K. Curtis; *Dist. Mgr.:* P. Simpson

SEKAI ELECTRONICS OF AMERICA, INC., 14700 E. Firestone Blvd., Suite 122, La Mirada, CA 90638, Tel: 714-670-1854, FAX: 714-670-1855; FSC No.: 8V398; Empl.: 6; *Sls. Mgr.:* Larry Klementowski

selco

FAX: 714-739-1507

SELCO PRODUCTS CO., SEL Sales, Inc., 7580 Stage Rd., Buena Park, CA 90621, Tel: 714-521-8673; Empl.: 18; *Sls. Mgr.:* Bill Wilkinson; *Dist. Mgr.:* Ray Anton ..... **B•1861; C•1594; D•1370-1371**

Local Sales Offices & Reps

AR	Hot Springs, ASI	501-767-5444
CA	Arcadia, HMC, Inc.	818-447-0958
CA	Mission Viejo, Summit Sls.	800-457-6525
CA	Sunnyvale, Pass Assocs.	408-735-9040
FL	Sarasota, Rep-USA	813-923-2897
IL	Downers Grove, Golten Assocs.	708-512-0093
IN	Indianapolis, S & M Sls. & Mktgs.	317-843-5519
MA	Andover, Crawford Assocs.	617-470-2122
MS	Horn Lake, ASI	601-342-4989
NY	Hauppauge, Sticom	516-366-4221
NY	Naples, LMS Sls. Assoc.	716-374-2626
OR	Beaverton, Luscombe Engrg.	503-636-6664
PA	Hatboro, AQS	215-674-3562
TX	Dallas, Titan- Hill Co.	214-241-1398
WA	Bellevue, Luscombe Engrg.	206-223-1541

Local Distributors

CA	Arcadia, Parco	818-447-0958
FL	Largo, Elctrn. Precepts	813-544-3636
IL	Wheeling, Hawk Elctrns.	312-459-4091
MA	Sandwich, JV Elctrns.	508-833-0700
NY	New York City, Martin Audio/Video	212-541-5900

SELECO, INC., P.O. Box 68809, Indianapolis, IN 46268, Tel: 317-872-4181, FAX: 317-872-0248; Empl.: 30

SELECT CONTROLS INC., 350 I Central Ave., Bohemia, NY 11716, Tel: 516-467-8577, FAX: 516-567-9013; Empl.: 14

SEL-REX DIV., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110, Tel: 201-667-5200, TELEX: 133-320, TWX: 710-989-1423; Empl.: 250; *Sls. Mgr.:* R. Berg

SEMICOA, 333 McCormick Ave., Costa Mesa, CA 92626, Tel: 714-979-1900, TELEX: 678-315, TWX: 910-595-1961, FAX: 714-557-4541; FSC No.: 34156; Empl.: 85; *Sls. Mgr.:* Don Felder

SEMICONDUCTOR CIRCUITS, INC., Astec America, Inc., 49 Range Rd., Windham, NH 03087, Tel: 603-893-2330, FAX: 603-893-6280; Empl.: 1004; *Sls. Mgr.:* Dale Raveney, VP Mktg. & Sls.

SEMICONDUCTOR PACKAGING MATERIALS CO., 431 Fayette Ave., Mamaroneck, NY 10543, Tel: 914-698-5353, FAX: 914-698-5386; Empl.: 30; *Sls. Mgr.:* Ken Huth

SEMICONDUCTOR TECHNOLOGY, INC., 3131 S.E. Jay St., Stuart, FL 34997, Tel: 407-283-4500, FAX: 407-286-8914; FSC No.: 50891; Empl.: 45

Local Sales Offices & Reps

AZ	Scottsdale, Fred Board Assocs.	602-994-9388
AZ	Tucson, Fred Board Assocs.	602-299-1508
CA	Costa Mesa, Solid State Sls.	714-650-8414
CA	Mountain View, Leddy Assocs.	415-969-6313
CO	Englewood, Component Sls.	303-779-8060
FL	Singer Island, KDI	407-848-7313
IL	Downers Grove, Nextek	708-719-0099
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Overland Park, Lorenz Sls.	913-469-1312
MD	Towson, Arbotek	301-825-0775
MA	Burlington, Conti-Younger	617-273-1582
MN	Minneapolis, Bill Deming & Assocs.	612-888-5000
MO	St. Louis, Lorenz Sls.	314-997-4558
NE	Lincoln, Lorenz Sls.	402-474-7094
NV	Henderson, Fred Board Assoc.	702-564-5528
NJ	Hasbrouck Heights, Comp Tech Sls.	201-288-7400
NM	Albuquerque, Q.A. Elctrns.	505-888-1121
NY	New Hyde Park, Comp Tech Sls.	516-593-2628
NY	Rochester, Electra Sls.	716-427-7860
NY	Syracuse, Electra Sls.	315-463-1248
OH	Tipp City, Cleary Sls.	513-667-7703
OR	Portland, Index Inc.	503-297-3364
PA	Paoli, Stitzer Assocs.	215-644-5500
TX	Dallas, M-Rep	214-484-5711
TX	Houston, M-Rep	713-988-7613
UT	Midvale, Arrowhead Sls.	801-561-5688
WA	Bellevue, Index Inc.	206-451-9635
Can	Montreal, Que., Solid State Engrg.	514-481-3313

SEMIKRON, INC., 11E Executive Dr., P.O. Box 66, Hudson, NH 03051-0066, Tel: 603-883-8102, 1-800-258-1308, FAX: 603-883-8021; FSC No.: 58687; Empl.: 74; *Sls. Mgr.:* Frank Haase; *Dist. Mgr.:* John Flannery

SEMTECH, 652 Mitchell Rd., Newbury Park, CA 91320, Tel: 805-498-2111, TWX: 910-336-1264; FSC No.: 14099;Multiple; Empl.: 200; *Sls. Mgr.:* Bud Hultz; *Dist. Mgr.:* Bud Hultz

SEMTECH CORPUS CHRISTI, Semtech Corporation, 121 International Dr., Corpus Christi, TX 78410, Tel: 512-289-0403, FAX: 512-289-0472; Empl.: 200

SEMTRONICS CORP., 211 Prospect Pk., P.O. Box 2248, Peachtree City, GA 30269, Tel: 404-487-6681, FAX: 404-487-1128; Empl.: 30; *Sls. Mgr.:* Art Cowart

SENCORE, 3200 Sencore Dr., Sioux Falls, SD 57107, Tel: 1-800-736-2673, 605-339-0100, FAX: 605-339-0317; FSC No.: 33347; Empl.: 230; *Sls. Mgr.:* George Gonds

SENIOR INDS., INC., 610 Pond Dr., Wood Dale, IL 60191, Tel: 312-350-1600, FAX: 312-350-1654

SENSIDYNE, INC., 16333 Bay Vista Drive, Clearwater, FL 34620, Tel: 813-530-3602, 1-800-451-9444; Empl.: 70; *Sls. Mgr.:* Joe Gilberti; *Dist. Mgr.:* Bob Bottini

SENSITEK CORPORATION, See Biddle Instruments

SENSITIVE RESEARCH INSTRUMENTS, 25 Dock St., Mt. Vernon, NY 10550, Tel: 914-699-9717, FAX: 914-699-9410; FSC No.: 32590;16034A; Empl.: 35 ..... **D•1322-1324**

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-494-0790
CO	Commerce City, Williams Assocs.	303-289-5647
IL	Lincolnwood, Saffro & Assocs.	708-677-9722
LA	Metairie, Data Mktg. Assocs.	504-833-3655
MA	Lexington, Zieco	617-861-8300
MI	Southfield, Comtel Instrs. Co.	313-358-2505
MN	Minneapolis, Hei-Lite Sls.	612-550-0506
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Mount Vernon, Elctrl. Instr. Svc.	914-699-9717
OH	Cleveland, Comtel Instrs. Co.	216-442-8080
OH	Columbus, Comtel Instrs. Co.	614-876-8305
OH	Dayton, Comtel Instrs. Co.	513-426-5310
OK	Tulsa, Data Mktg. Assocs.	918-494-2711
PA	Pittsburgh, Comtel Instrs. Co.	412-922-5720
TX	Austin, Data Mktg. Assocs.	512-338-4701
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	Houston, Data Mktg. Assocs.	713-954-5020
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
WI	Lake Mills, Saffro & Assocs.	1-800-327-0312
Can	Baconsfield, Que., Mesurina Ltee /Ltd.	514-630-5990

SENSITRON SEMICONDUCTOR, RSM Electron Power Div., 221 W. Industry Ct., Deer Park, NY 11729, Tel: 516-586-7600, FAX: 516-242-9798; FSC No.: 13409; Empl.: 150; *Sls. Mgr.:* Bryan Rogers; *Dist. Mgr.:* Bryan Rogers

SENSORAY CORP., 44160 Old Warm Springs Blvd., Fremont, CA 94538, Tel: 415-657-7290; Empl.: 6; *Sls. Mgr.:* Richard Soundy

SENSOR CORP., Box 140, Scottdale, PA 15683, Tel: 412-887-4080, FAX: 412-887-0383; Empl.: 6

SENSOR DEVELOPMENTS INC., PO Box 290, Lake Orion, MI 48361, Tel: 313-391-3000, FAX: 313-391-0107; Empl.: 45; *Sls. Mgr.:* James J. Babiarz

SENSOR PRODUCTS, INC., 71 W 23rd St., Ste. 1500, New York, NY 10010, Tel: 212-675-0201, FAX: 212-645-8436; Empl.: 2

Sensor Scientific, inc.

FAX: 201-227-8063

SENSOR SCIENTIFIC, INC., 6 Kingsbridge Rd., Fairfield, NJ 07006, Tel: 201-227-7790, 800-524-1610; FSC No.: 0AES7; Empl.: 125; *Sls. Mgr.:* Donna Caputo ..... **B•1862-1863**

Local Sales Offices & Reps

CA	Irvine, Vale Elctrn. Assoc.	714-551-4004
CA	Mountain View, Shaw Tech Inc.	415-961-4775
CA	Van Nuys, Vale Elctrns.	818-705-0283
CO	Ft. Collins, Rep. Sls.	303-226-1504
FL	Boca Raton, Tech Sls. Spec.	407-391-3718
IL	Des Plaines, ESCO Assocs.	312-298-5310
KS	Overland Pk., Markline Technlgs.	913-681-8880
MA	Lexington, Jodan Technlg.	617-863-8898
NY	Syracuse, ADCON	315-432-4409
NY	Williamsville, CEF Tech. Sls.	716-633-7324
OH	Medina, J.C. Hofstetter	216-241-4880
PA	Harlysville, Thomas Jackson Assoc.	215-256-8877
TX	Dallas, Allied Comps. Inc.	214-238-0408
TX	Houston, Allied Comps. Inc.	713-988-1600

SENSOR SYSTEMS, INC., 8929 Fullbright Ave., Chatsworth, CA 91311, Tel: 818-341-5366, TELEX: 69-1583, FAX: 818-341-9059; *Sls. Mgr.:* E. Schneider

SENSOTEC, INC., 1200 Chesapeake Ave., Columbus, OH 43212, Tel: 614-486-7723, TWX: 810-482-1188, FAX: 614-486-0506; FSC No.: 29927; *Sls. Mgr.:* Jack Feil

SENSYM, INC., 1255 Reamwood Ave., Sunnyvale, CA 94089, Tel: 408-744-1500, FAX: 408-734-0407; FSC No.: 5955; Empl.: 150; *Sls. Mgr.:* Fred Jones; *Dist. Mgr.:* Fred Jones

SENTECH, INC., 518 Ryers Ave., Cheltenham, PA 19012, Tel: 215-663-0422, FAX: 215-663-0461; Empl.: 4

SENTRY MANUFACTURING COMPANY, Crystal Park, Chickasha, OK 73018, Tel: 405-224-6780, FAX: 405-224-8808; FSC No.: 5955; Empl.: 30; *Sls. Mgr.:* Barbara Maberry

SERCO PRODUCTS DIVISION:SERCO MOLD, INC., 612 Commercial Ave., Covina, CA 91723, Tel: 818-331-0517, 800-843-8172(Calif.), FAX: 818-331-8584; Empl.: 45; *Sls. Mgr.:* Neil Reckon ..... **C•1100-1101**

Local Sales Offices & Reps

CA	Covina, Serco Prods.	818-331-0517
CA	Valencia, Lessing & Assocs.	805-295-0225
GA	Norcross, Hollingsworth & Still, Inc.	404-447-1700
IL	Cary, Ellinger Sls. Corp.	708-639-1850
MA	Burlington, Gerber Sls. Corp.	617-229-1150
MO	Florissant, Delltron Co., Inc.	314-839-0033
NY	Latham, L-Tron Corp.	518-785-5032
NY	Pt. Washington, Ashtec, Inc.	516-767-0336
PA	Ft. Washington, Simon Mktg. Consultants	215-628-3394
TX	Richardson, R. F. Kimball Co., Inc.	214-231-3447
Can	Ontario, Avotronics Ltd.	416-475-2024

Local Distributors

AL	Montgomery, Handey's Elctrn. Ctr. Inc.	205-262-4885
AZ	Phoenix, Capital Elctrns.	602-252-5897
AZ	Phoenix, Elctrn. Emporium Inc.	602-437-8633
AZ	Tucson, Electronic City	602-622-1173
CA	Canoga Park, Sandy's Elctrns.	818-346-0510
CA	Costa Mesa, Mar Vac Elctrns.	714-650-2001
CA	Cucamonga, Abletronics	714-944-4952
CA	Culver City, DOW Elctrns.	213-391-6763
CA	El Monte, Marshall Ind.	800-522-0084
CA	Fremont, Fry's Elctrns.	415-770-3797
CA	Goleta, DOW Elctrns.	805-968-7272
CA	Hawiian Gardens, DOW Elctrns.	213-421-3786
CA	Hollywood, Pacific Radio Exchange	213-462-1393
CA	Inglewood, Inglewood Elctrns.	213-674-2366
CA	Oxnard, DOW Elctrns.	805-486-6353
CA	Palo Alto, Fry's Elctrns.	415-496-6100
CA	Pasadena, DOW Elctrns.	818-793-1195
CA	Pomona, DOW Elctrns.	818-966-8461
CA	Sacramento, Mar Vac California Radio	916-922-6531
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Santa Maria, Elctrn. Parts Supermart	805-925-8604
CA	Sunnyvale, Fry's Elctrns.	408-733-1770
CT	Wallingford, Midstate Elctrns.	203-265-9900
FL	Orlando, Atlantic Comps. FL	407-354-0435
FL	Tampa, Sunex Elctrn. Supp. Inc.	813-885-4074

FL West Palm Beach, Dolphin Elctrn. Supp. Inc. 305-659-7166
IL So. Holland, Union Elctrns. Dist. 312-333-4100
MA Burlington, Atlantic Comps. 617-270-0051
MA Lynn, Land Elctrns. Inc. 617-592-2220
MI Detroit, Elctrn. Parts Co. 313-891-7400
MN S. Minneapolis, Tortec Corp. 612-866-3662
NV Las Vegas, Sandy's Elctrns. 702-383-8353
NJ Lodi, Nidisco Inc. 201-773-1771
NY Woodside, Switches Unlimited 718-478-5000
NC Durham, Southeastern Elctrns. 919-638-8204
NC Greensboro, Guilford Elctrn. Supp. Inc. 919-275-1385
NC Raleigh, Southeastern Elctrns. 919-828-2311
NC Winston-Salem, Elctrn. Distrbg. Inc. ... 919-723-1097
TN Clarksville, Randolph, Hale & Matthews Inc. 615-647-2325
TX Austin, Electrotex, Inc. 512-454-0318
TX Dallas, Electrotex, Inc. 214-234-0433
TX Ft. Worth, Allied Elctrns. 800-433-5700
TX Houston, Electrotex, Inc. 713-526-3456
WI Fond du Lac, Fedco Elctrns. Inc. 414-922-6490
WI Milwaukee, Marsh Elctrns. Inc. 414-475-6000
Can Kingston, Ont., Electronic Packaging Sys. Ltd. 613-384-1142
Can Markham, Ont., Arma Elctrns. 416-475-1858
Can Montreal, Future Elctrns. 800-388-8731

SERIAL LAB PRODS., INC., 162 Cook Lane, P.O. Box 766, Marlboro, MA 01752, Tel: 617-481-1684, TELEX: 955318 Attn: SERIAL LAB; Empl.: 12; *Sls. Mgr.:* R. L. Wiedeman; *Dist. Mgr.:* D. Kreck

SERVOBYTE INC., P.O. Box 112, Millbury, MA 01527, Tel: 508-865-0225, FAX: 508-865-0295; Empl.: 5; *Sls. Mgr.:* C. Harris

servo
SERVO CORPORATION OF AMERICA

FAX: 516-938-9644

SERVO CORPORATION OF AMERICA, 111 New South Rd., Hicksville, NY 11802-9907, Tel: 516-938-9700; FSC No.: 92110 & 05627; Empl.: 220; *Sls. Mgr.:* G. Immerso ..... **A•1827; D•1077**

Local Sales Offices & Reps
CA Dana Point, EBA Microwave 714-240-8181
CA Del Mar, Servo Western Reg. Off. 619-792-8672
CA Los Angeles, EBA Microwave 213-822-7510

Local Distributors
VA Fairfax, Servo Eastern Reg. Off. 703-591-4331

SERVOMEX COMPANY, 90 Kerry Pl, Norwood, MA 02062, Tel: 617-769-7710, TELEX: 4430161, FAX: 617-769-2834

SERVO-TEK®

FAX: 201-427-4249

SERVO-TEK PRODUCTS CO., 1086 Goffle Rd., Hawthorne, NJ 07506, Tel: 201-427-3100; Empl.: 60; *Sls. Mgr.:* T. J. Daly ..... **B•1310**

SESCOM, INC., 2100 Ward Dr., Henderson, NV 89015-4249, Tel: 702-565-3400, FAX: 702-565-4828; FSC No.: 7Z174; Empl.: 12; *Sls. Mgr.:* Franklin J. Miller ... **C•1102**

SETRA SYSTEMS, INC., 45 Nagog Park, Acton, MA 01720, Tel: 508-263-1400, 1-800-25-SETRA, TELEX: 4430243, FAX: 508-264-0292; FSC No.: 53367; Empl.: 110; *Sls. Mgr.:* Ed Cope ..... **B•1948-1949**

Local Sales Offices & Reps
AL Huntsville, Burnette Techno Metrics .. 205-830-2832
AK Anchorage, Unit Process 907-522-1010
CA Concord, QCon, Inc. 415-682-2020
CA Downey, Dynasales Co. 213-806-1400
CO Westminster, RMS Sls. 303-429-1111
FL Tampa, Quantum Measurements Corp. 813-933-8078
GA Atlanta, Craft Assocs. 404-256-0420
HI Honolulu, Unit Process 808-834-7195
IL Carpentersville, Precision Meas. Prods. 708-426-4446
IN Ft. Wayne, Domino, Inc. 219-456-5512
IN Indianapolis, Domino, Inc. 317-841-6159
KY Louisville, Domino, Inc. 502-425-2848
MD Columbia, Stein Instrs. 301-596-3748
MA Ashland, NEDT, Inc. 508-881-3265
MI Hazel Park, Tiby Co. 313-547-3550
MN Minneapolis, The Mark Co. 612-933-3026
MO St. Louis, Adelphi, Inc. 314-821-1232
MT Billings, Unit Process 406-252-0455
NJ Little Falls, KLS Assocs. 201-785-4450
NM Albuquerque, TMA, Inc. 505-345-8921
NY Rochester, Ritec Entprs., Inc. 716-271-3170
OH Cleveland, Tiby Co. 216-371-5335
OH Dayton, Tiby Co. 513-277-3822
OK Tulsa, Inotek Corp. 918-627-1500
PA Cheltenham, Stein Instrm. 215-379-1990
TX Richardson, ADI Instrs. 214-680-2222
WA Kirkland, Unit Process 206-827-0433
WI Waukesha, Ray Knitter Assocs. 414-544-1976
Can Ontario, Alpha Controls & Instr. 416-477-2133

SEVEN MOUNTAINS SCI. INC., P.O. Box 650, Boalsburg, PA 16827, Tel: 814-466-6559, FAX: 814-466-6559; Empl.: 4; *Sls. Mgr.:* Josephine Chesworth

SFE TECHNOLOGIES, 1501 1st St., San Fernando, CA 91340, Tel: 818-365-9411, TWX: 910-496-1535, FAX: 818-365-5117; FSC No.: 96733; Empl.: 800; *Sls. Mgr.:* Michael Rosenberg

S. F. PRODUCTS CORPORATION, 1021 Parker Road, Chester, NJ 07930, Tel: 201-271-4009; Empl.: 8; *Sls. Mgr.:* Norman W. Johanson; *Dist. Mgr.:* R. S. Johanson

SGS-THOMSON MICROELECTRONICS, INC., 1310 Electronics, Carrollton, TX 75006, Tel: 214-466-6000, FAX: 214-466-7602; FSC No.: 7X328; Empl.: 1700; *Sls. Mgr.:* Garth Nash; *Dist. Mgr.:* Jack Dauber

Shallco

FAX: 919-934-3298

SHALLCO, INC., Box 1089, Smithfield, NC 27577, Tel: 919-934-3135, 1-800-876-3135; Empl.: 35; *Sls. Mgr.:* M. D. Sutton ..... **B•1772-1777**

Local Sales Offices & Reps
MN St. Paul, Kencotronics, Inc. 612-645-7717

SHALLTRONIX

FAX: 919-965-6620

SHALLTRONIX CORP., Preston St., P.O. Box 235, Selma, NC 27576, Tel: 919-965-6346; FSC No.: 58258; *Sls. Mgr.:* Joe Deans ..... **D•1325**

Local Sales Offices & Reps
TX Arlington, Electronic Prod. Reps. 817-467-0377

SHAMROCK PLASTICS & RUBBER, INC., 5330 E. 25th St., Indianapolis, IN 46218, Tel: 317-543-3540, 800-382-4635, FAX: 317-543-3553; Empl.: 25; *Sls. Mgr.:* Bill Crispen

SHAPE ELECTRONICS, INC., 901 DuPage Ave., Lombard, IL 60148, Tel: 708-620-8394, FAX: 708-620-0784; Empl.: 110; *Sls. Mgr.:* Judy M. Ardolino; *Dist. Mgr.:* Judy M. Ardolino

SHAPIRO SCIENTIFIC INST., 3500 E. Coast Hwy., Corona del Mar, CA 92625, Tel: 714-675-1024, FAX: 714-675-9063; Empl.: 7

SHARP

FAX: 206-834-8903

SHARP ELECTRONICS CORP., Microelectronics Grp., 5700 NW Pacific Rim Blvd., Ste.20, Camas, WA 98706, Tel: 206-834-2500; *Sls. Mgr.:* Terry Manton; *Dist. Mgr.:* Dave Mathews ..... **A•1743-1745; B•1119-1121, 1184, 1339-1341, 1581**

Local Sales Offices & Reps
AL Daphne, Interep Assocs. 205-621-1036
AL Huntsville, Interep Assocs. 205-881-1096
AZ Tempe, Electronic Tech. Sls. 602-921-7122
CA Newport Bch., Plustronics 714-476-8009
CA San Diego, Mesa Comps. 619-278-8021
CA San Jose, Sharp Elctrns. Corp. 408-436-4900, FAX:408-436-0924
CA Sherman Oaks, Plustronics 818-995-8908
CO Denver, Seale & Assocs., Inc. 303-695-1980
FL Orlando, Component Design Mktg. Co. 407-240-3903
GA Norcross, Interep Assocs. 404-449-8680
IL Glendale Hgts., Synergistic Sls. 708-858-8686
IN Leo, Mohrfield Mktg. 219-627-5355
KS Wichita, Baka Corp. 316-682-8411
MD Towson, Advanced Technlg. Sls., Inc. 301-296-9360
MA Burlington, Sharp Elctrns. Corp. 617-270-7979, FAX:617-229-9117
MI Madison Hgts., DEM Sls., Inc. 313-583-1500
MN Minneapolis, Reptek 612-331-1212
NJ Allendale, Eastec Assocs. 201-934-7135
NY N. Syracuse, Micro-Tech Mktg. Inc. ... 315-458-5254
NY Rochester, Micro-Tech Mktg. Inc. 716-426-0808
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OH Solon, Five Star Elctrns., Inc. 216-349-1611
OR Beaverton, Blair Hirsh 503-641-1875
PA Erdenheim, Omni Sls. 215-233-4600
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TX Dallas, Sharp Elctrns. Corp. 214-991-5185
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Can Mississauga, Ont., Indigo Elctrns. Ltd. 416-670-0284
Can Richmond, BC, Enerlec Sls. 604-273-0882

Local Distributors
CA El Monte, Marshall Inds. 818-459-5574
CA Saratoga, Western Micro Technlgy. ... 408-725-1660
CA Tustin, Added Value Elctrns. 714-259-8259
NY Farmingdale, Milgray 516-420-9800
Can Montreal, Que., Space Elctrns. 514-694-7710

SHATTUCK INDUSTRIES, 238 Eleana Dr., Ben Lomond, CA 95005, Tel: 408-336-5145, FAX: 408-336-3376; *Sls. Mgr.:* Bruce Shattuck

SHELDAHL, INC., 1150 Sheldahl Rd., Northfield, MN 55057, Tel: 507-663-8000, TWX: 910-565-2180, FAX: 507-663-8545; Empl.: 1,257; *Sls. Mgr.:* Ed Lundstrom

SHELLY

FAX: 714-669-1081

SHELLY ASSOCIATES, INC., 14811 Myford Rd., Tustin, CA 92680, Tel: 714-669-9850, TELEX: 85-2263; FSC No.: 00303; Empl.: 30 ..... **B•1122-1124, 1185**

Local Sales Offices & Reps
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CA Mountain View, Leddy Assocs. 415-969-6313
CA San Diego, O'Donnell Assocs., Inc. 619-578-1645
CA Torrance, O'Donnell Assocs., Inc. 213-539-9664
CO Englewood, Romulus Elec., Inc. 303-770-4888
FL Charlotte, Q Rep, Inc. 813-379-8431
GA Norcross, Intronics 404-973-6605
IL Skokie, Electro Tech Mktg. 312-676-3151
IN Ft. Wayne, Scott Elctrns. 219-484-7865
IN Indianapolis, Scott Elctrns. Inc. 317-841-0010
MA Sudbury, KSA of New England 508-443-5881
MI Ypsilanti, Techrep, Inc. 313-572-1950
MN Hopkins, Steve Forsythe & Assocs. ... 612-933-8267
MO Grandview, R. R. Burton & Assocs. 816-763-5385
MO Kirkwood, R. R. Burton & Assocs. 314-965-0451
NJ Boonton, TMA 201-263-2946
NJ Cherry Hill, Metz Benham Assocs., Inc. 609-424-0404
NY N. Syracuse, R. F. Roux Co. 315-458-9169
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NC Kernersville, Hollingsworth & Still, Inc. 800-241-5712
OH Cincinnati, Scott Elctrns. 513-791-2513
OH Cleveland, Scott Elctrns. Inc. 216-473-5050
OH Kettering, Scott Elctrns., Inc. 513-294-0539
OH Reynoldsburg, Scott Elctrns. 614-863-1281

OR Beaverton, Luscombe Engrg. Co. 503-636-6664
OR Portland, Temper Tech. Mktg. 503-292-8201
PA Pittsburgh, Scott Elctrns. 412-963-6116
TX Dallas, de Forest Sls. Co. 214-349-3290
WA Bellevue, Luscombe Engrg. Co. 206-223-1541
WI Brookfield, Electro-Tech Mktg. Assocs. 414-785-9554
Can Scarborough, Ont., Banke Elctrns. 416-292-5152

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CA San Jose, Bisco Inds. Inc. 408-435-8980
CT Wallingford, Midstate Elctrns. Co. 203-265-9900
IL Franklin Park, Bisco Inds. Inc. 312-451-1230
IA Cedar Rapids, Iowa Radio Supp. Co. .. 319-393-4510
IA Cedar Rapids, Iowa Radio Supp. Co. .. 313-393-4510
MA Woburn, Bisco Inds. 617-938-8590
NJ Cranford, Garden State Indl. Elctrns. .. 201-272-6400
NJ Fair Lawn, Relay Specialties 201-797-3313
NJ Oakland, Relay Specialties 201-337-1000
NY Elmsford, White Plains Elctrl. 914-592-9555
NY Huntington, Energy Elctrl. Supp. 516-549-2722
NC Raleigh, Svc. Plus Elctrns. 919-850-9550
OH Strongsville, Roberts Elctrns. Co., Inc. 216-238-1711
OH Twinsburg, Advacom, Inc. 216-425-8477
OK Tulsa, Radio, Inc. 918-587-9123
PA McKean, Advacom 814-476-7774
TX Arlington, Bisco Inds. 817-640-7046
TX Austin, Wofford Elctrns. 512-339-1131
TX Houston, Wofford Elctrns. 713-847-3583
TX Midland, ESI Supp. 915-694-9657
WI Mequon, Lakeview Elctrns. 414-377-8250
Can Calgary, Alberta, Memco 403-258-3399
Can Surrey, B.C., Memco 604-590-1553

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CA Cupertino, PEI Sls. Assoc. 408-253-1960
CA North Hollywood, Shinano Kenshi Corp. 818-764-4266
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CT Bloomfield, SIR Assocs. 203-243-9343
FL Melbourne, Phoenix Comps. 407-723-4414
GA Norcross, Benchmark 404-446-1711
MA Westford, SIR Assocs. 508-692-2500
MI Brighton, A.P. Assoc. 313-229-6550
NY Albertson, DOL Engrg. 516-747-3944
NY Pittsford, KLM Garner 716-381-8350
NC Raleigh, Benchmark 919-850-0633
OH Columbus, A.P. Assocs. 614-882-1110
OR Portland, Intertech Sls. 503-775-7885
TX Dallas, Theodore Borek Assoc. 214-985-7702
UT Salt Lake City, Sierra Tech Sls. 801-566-9719

Local Distributors

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Shindengen America, Inc.

FAX: 805-373-3710

SHINDENGEN AMERICA INC., 2649 Townsgate Road, Ste. 200, Westlake Vl., CA 91361, Tel: 800-634-3654; Empl.: 10; *Sls. Mgr.:* Peter Gajewski; *Dist. Mgr.:* Peter Gajewski ..... **D•2034-2035**

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CA Murrieta, Mil-Com Sls., Inc. 714-677-2097
CA San Diego, Power Assocs. 619-275-0641
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CO Arvada, Arrowhead/CSI 303-423-5597
FL Land O' Lakes, A.J.'s Power Source, Inc. 813-996-2583
GA Duluth, AJ's Power Source 404-441-7927
IL Rolling Meadows, Eagle Tech. Sls., Inc. 312-991-0700
AZ Scottsdale, Bill Earl Assocs. 602-994-3813
KS Lenexa, Midtec Assocs. 913-541-0505
MD Baltimore, Chesapeake Indl. Mktg. 301-653-0476
MI Lathrup Vl., R. C. Nordstrom & Co. 313-559-7373
MO St. Louis, Midtec Assocs. 314-275-8666
NH Nashua, Bell Controls, Inc. 603-882-6984
NY Hauppauge, Aurora-Schmitt 516-434-1313
NY Pittsford, Franklin Sls. Corp. 716-248-8251
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PA Blue Bell, Delatronics Inc. 215-641-9930
MN Mancata, E. I. Sls. 507-345-5786
TX Richardson, Jim Gray & Assocs. 214-699-9976
TX Richmond, Jim Gray & Assocs. 713-342-1710
UT Midvale, Arrowhead/CSI 801-561-5688
WA Bellevue, Olsen Tech. Sls. Corp. 206-883-7792
WI Waukesha, Eagle Tech. Sls. 414-549-3622
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Can Nepean, Ont., Techrep 613-225-9186
Can St. Laubert, Que., Techrep 514-337-6046

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AZ Phoenix, Dalis Elctrn. Supply 602-275-2626
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CT Danbury, Aved Elctrn. Dist., Inc. 203-744-7838
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MD Gaithersburg, Axis Elctrns. 301-840-9640
MA Andover, Aved Elctrn. Dist., Inc. 508-688-3800
MI St. Clair Shores, Spemco 313-771-2700
NJ Pennsauken, Alta Elctrns. 609-488-1442
NM Albuquerque, Summit Elec. Supp. Co. 505-884-4400
NM Albuquerque, Walker Elctrn. Supply ... 505-883-2992
OH Cleveland, Major Elctrns. 216-442-6200
TX Austin, Wofford Elctrns. 512-339-1131
TX Dallas, Wofford Elctrns. 214-320-0294
TX El Paso, Midland Wintronic Co. 915-779-8391
TX Houston, Wofford Elctrns. 713-847-3583

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SHIN-ETSU POLYMER AMERICA, INC., 34135 7th St., Union City, CA 94587, Tel: 415-475-9000, TWX: 910-338-2229; *Sls. Mgr.:* Doug Hall ..... **C•1521**

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FL Clearwater, Tech-Rep Assocs. 813-572-9900
IL Crystal Lake, Mid America Reps. 815-455-5310
IN Carmel, Technology Mktg. Corp. 317-844-8462
MA Lexington, Jodan Technig. 617-863-8898
MO St. Louis, G.M. Brown & Assocs. 314-741-4424
NJ Matawan, SP America, Inc. 201-583-7070
NJ Princeton, Siemens Comps., Inc. 609-987-0083
NM Albuquerque, F-P Sls. 505-345-5553
NY Liverpool, Gen-Tech 315-451-3480
NC Smithfield, ADI, Inc. 919-934-8136
OH Columbus, Siemens Comps., Inc. 614-433-7500
OH Strongfield, Dolfuss-Root & Co., Inc. ... 216-238-0300
PA Bridgeville, Dolfuss Root & Co. 412-221-4420
PA Broomall, TCA Assoc. 215-353-2022
PA Westchester, TCA Assocs. 215-692-6853
TN Greenville, Interep 615-639-3491
TN Greenville, Lamons Sls. Co. 615-639-8711
TX Arlington, CompTech Sls., Inc. 817-265-6007
TX Austin, CompTech Sls., Inc. 512-331-8922
TX Dallas, THT Sls. 214-783-1501
CA Irvine, Interconn Tech. Mktg. 714-733-1879
UT Salt Lake City, Lange Sls. 801-487-0843
UT Salt Lake City, Lange Sls., Inc. 801-487-0843
WA Bellevue, Micro Sls. 206-451-0568
PR Rio Piedras, Klamco Elec. 809-752-6169

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MI Farmington Hills, J.L. Montgomery Assoc., Inc. 313-489-0099

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SHOGYO INTERNATIONAL CORP., 287 Northern Blvd., Great Neck, NY 11021, Tel: 516-466-0911, TELEX: 4758024, TWX: 12218 ..... **A•2391; B•1186, 1778; C•1523-1525, 1820-1821; D•1058-1059, 1491, 2037**

SHOKAI

FAX: 914-736-3656

SHOKAI FAR EAST LTD., 9 Elena Court, Peekskill, NY 10566, Tel: 914-736-3500, TELEX: 224219; Empl.: 362; *Sls. Mgr.:* Shirlee Serber; *Dist. Mgr.:* Robert Craig ..... **A•2069; B•1187; D•1060**

SHURE BROTHERS INC., 222 Hartrey Ave., Evanston, IL 60202-3696, Tel: 708-866-2200, TELEX: 4330191, FAX: 708-886-2279; *Sls. Mgr.:* L.Z. Morgan, VP Sls.

SHURITE METERS, A Prime Technology Co., P.O. Box 185, Twin Lakes Rd., North Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092, FAX: 203-481-8937; FSC No.: 82239; Empl.: 15; *Sls. Mgr.:* James L. Jamieson ..... **D•1373**

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AK Please Consult Factory, Please Consult Factory 203-481-5721
CA Burbank, Modco Co. 818-848-2215
CA San Diego, Qualtronics 619-873-0118
CA So. San Francisco, Carelli-EMA 415-873-3365
CO Denver, Nelson Co. Inc. 303-295-1017
CT Gilman, Adams McGregor Inc. 203-537-3033
FL Lakeland, Munday Sls. Co. 813-858-5606
IL Cary, Bob Burns Assocs. 708-516-3322
IN Indianapolis, John Sukup Inc. 317-253-5501
IA Des Moines, The Beams Co. 515-255-1148
KS Shawnee Mission, The Beams Co. 913-631-0300
MI E. Detroit, Jack M. Thorpe Co. 313-779-6363
MO St. Louis, The Beams Co. 314-434-8448
NJ Franklin, D. F. Tobias & Co. 201-751-8680
NJ Lawrenceville, DVS Co. 609-896-1112
NY Rochester, D. F. Tobias 201-751-8680
NC Raleigh, B.T. Funderburk Inc. 919-846-2373
OH Cleveland, John Olsen Co. 216-838-0510
PA Glenshaw, DVS Co. 609-896-1112
SC Landrum, B.T. Funderburk Inc. 919-846-2373
TX Dallas, The Crockett Sls. Co. 214-350-3377
Can Thornhill, Ont., R. C. Kahnert Sls. Ltd. 416-764-2596
Can Winnipeg, Manitoba, Smith-Patterson & Assocs. 204-885-1376

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CA San Francisco, Zack Elctrns. 415-624-1444
CA San Jose, Quements Elctrns. 408-998-5900
CA San Rafael, Electronics Plus 415-457-0466
CO Denver, Fistells Elec. Supp. 303-629-1312
CT New Haven, Hatry Elctrns. 203-787-5921
IN East Chicago, Acro Elctrns. 219-397-8681
IA Des Moines, Radio Trade Supp. 515-288-7237
KY Louisville, Peerless Elctrn.Eqpt. 502-637-7677
LA Baton Rouge, Ralph's Elctrn. Supp. ... 504-344-3761
MO Kansas City, Elctrn. Supp. Co. 816-931-0250
MO Kansas City, Walters Indl. Elect. Inc. 1-800-821-5248
NM Los Cruces, Elctrn. Parts Co. 505-523-4578
OH Akron, Akron Elctrn. Supp. 216-762-8818
OH Lima, Hutch & Sons 419-229-8751
OK Tulsa, Radio Inc. 918-587-9123
PA Reading, Barbey Elctrns. Corp. 215-376-7451
RI Pawtucket, Jabbour Elctrns. 401-728-4600
TX Fort Worth, Allied Elctrns. 1-800-433-5700
TX Houston, City Elctrns. Supp. 713-621-1060
TX Houston, Elctrn. Prts. Outlet 713-784-0140
WI Milwaukee, E.M. Instrs. Inc. 414-272-7799
Can Willowdale, Ontario, Electro Sonic Inc. 416-494-1666

SIEMENS-B C L MAGNETICS, Siemens Automotive Ltd., 5045 North Service Rd., Burlington, Ont., Canada L7L 5H6, Tel: 416-335-2530, FAX: 416-335-8474; Empl.: 160; *Sls. Mgr.:* Dave Dore

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SIERRACIN/MAGNEDYNE, 2258 Rutherford Rd, Carlsbad, CA 92008, Tel: 619-438-3321, FAX: 619-438-4987; Empl.: 150

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SIERRA MONITOR CORP., 1991 Tarob Ct, Milpitas, CA 95035, Tel: 408-262-6611, TELEX: 17-1618; FSC No.: MSGSNDR; Empl.: 23; *Sls. Mgr.:* Robert Dunkle; *Dist. Mgr.:* Gordon Arnold

SIERRA POWER SYSTEMS, See Valor Power Sys. Div., Valor Elctrns.

SIERRA SEMICONDUCTOR CORP., 2075 N. Capitol Ave., San Jose, CA 95132, Tel: 408-263-9300, FAX: 408-263-3337

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AL	Huntsville, Montgomery Mktg., Inc.	205-830-0498
AZ	Scottsdale, Summit Sls.	602-998-4850
CA	Irvine, Strong & Assocs.	714-261-7233
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CA	San Diego, Pathfinder Elctrns. Reps.	619-578-2555
CO	Wheat Ridge, Wescom Mktg.	303-422-8957
CT	Woodbury, Lindco Assocs., Inc.	203-266-0728
FL	Altamonte Springs, Sls. Engrg. Concepts	407-830-8444
FL	Deerfield Bch., Sls. Engrg. Concepts	305-426-4601
GA	Norcross, Montgomery Mktg., Inc.	404-447-6124
ID	Boise, Wescom Mktg., Inc.	208-226-6654
IL	Rolling Meadows, Eagle Tech. Sls.	708-991-0700
IN	Indianapolis, Elctrn. Sls. & Engineering	317-849-4260
MD	Columbia, Chesapeake Technlg.	301-236-0530
MA	Burlington, New Tech Solutions	617-229-8888
MI	Farmington, Tri-Tech Sls., Inc.	313-442-1200
MN	Minneapolis, P.S.I.	612-944-8545
NJ	E. Hanover, Emtec Sls., Inc.	201-428-0600
NJ	Medford, The McCoy Grp., Inc.	609-953-0770
NM	Albuquerque, Summit Sls.	505-345-5003
NY	Syracuse, PITronics (Upstate)	315-455-7346
NC	Raleigh, Montgomery Mktg.	919-851-0010
OH	Cleveland, Arthur Baier Co.	216-461-6161
OR	Beaverton, L-Squared	503-629-8555
PA	Exton (East), The McCoy Grp.	215-363-0350
PA	Pittsburgh (West), Arthur Baier Co.	412-367-7799
TX	Houston, Logic 1 Sls.	713-444-7594
TX	Richardson, Logic 1 Sls.	214-234-0765
UT	Salt Lake City, Wescom Mktg., Inc.	801-269-0419
WA	Kirkland, L-Squared, Ltd.	206-827-8555
WI	Waukesha, Eagle Tech. Sls.	414-896-0633
Can	Ottawa, Ont., Cantec Reps.	613-725-3704

Local Distributors

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CA	San Jose, ITT Multicomponents	408-453-1404
CO	Westminster, ITT Multicomponents	303-451-8740
CT	Milford, Milgray	203-878-5538
FL	Winter Pk., Milgray	305-647-5747
GA	Norcross, Milgray	404-446-9777
IL	Arlington Hgts., Milgray	312-253-1212
KS	Overland Pk., Milgray	913-236-8800
MD	Columbia, Milgray	301-621-8169
MA	Wilmington, Milgray	508-657-5900
NJ	Marlton, Milgray	609-983-5010
NY	Farmingdale, Milgray	516-391-3000
NY	N. Lindenhurst, Phase 1 Technlg.	516-957-4900
NY	Pittsford (Upstate), Milgray	716-381-9700
OH	Cleveland, Milgray	216-447-1520
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CA	San Carlos, Electronic Engrg. Assoc.	415-593-2189
CA	San Carlos, Electronic Engrg. Assocs.	415-593-2189
IL	Elgin, R.K. Elctrns., Inc.	312-695-8552
IL	So. Elgin, RK Elctrns., Inc.	312-695-8552
MN	Edina, Dytec Instrs., Inc.	612-831-7169
NJ	Parsippany, Creative Tech. Sls.	201-335-7881
Intl	Palaiseau, France, Salies S.A.	920-40-10

SIGNAL PROCESSING TECHNOLOGIES, 1510 Quail Lake Loop, Colorado Springs, CO 80906, Tel: 719-540-3900, FAX: 719-540-3970; Empl.: 68; *Sls. Mgr.:* Rick Mintle

SIGNAL RESEARCH INC., River Road, P.O. Box 357, Titusville, NJ 08560, Tel: 609-737-1917 ..... **D•1109**

SIGNAL SYSTEMS INTERNATIONAL, P.O. Box 470, Lavalette, NJ 08735, Tel: 201-793-4668, FAX: 201-793-4679; Empl.: 7; *Sls. Mgr.:* W. Kinney ..... **B•1779**

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SIGNATRON, A Subsidiary of Meteor Communications Corp., 110 Hartwell Ave., Lexington, MA 02173, Tel: 617-861-1500, TELEX: 299551 (RCA GLOBCOM), FAX: 617-863-8039; FSC No.: 59371; Empl.: 25; *Sls. Mgr.:* Joseph T. McNamara

SIGNETICS COMPANY, Sub. of North American Philips, 811 E. Arques Ave., P.O. Box 3409, Sunnyvale, CA 94088-3409, Tel: 408-991-2000, FAX: 408-991-2311; FSC No.: 1CH66; Empl.: 7,000; *Sls. Mgr.:* Steve Pletcher; *Dist. Mgr.:* Vinnie Bonanno

SIGNUM, INC., 600 W. Cummings Park, Woburn, MA 01801, Tel: 617-933-4780, TELEX: 948263, FAX: 617-938-1757; *Sls. Mgr.:* Thomas DiGennaro

SIGNUM SYSTEMS CORP., 171 E. Thousand Oaks Blvd. No. 202, Thousand Oaks, CA 91360, Tel: 805-371-4608, TELEX: 36-24-39, FAX: 805-371-4610; Empl.: 12; *Sls. Mgr.:* Don Mull; *Dist. Mgr.:* K. Kristensen ... **D•1326**

Local Sales Offices & Reps

CA	San Jose, C.M.S.	415-487-2118

SIKAMA INTERNATIONAL, INC., 301 B Donaldson Place, Santa Barbara, CA 93117, Tel: 805-683-6379, FAX: 805-683-6740; Empl.: 25; *Sls. Mgr.:* Theresa Roberts; *Dist. Mgr.:* Theresa Roberts

SDC
SILICON DETECTOR CORP.

FAX: 805-484-9935

SILICON DETECTOR CORP., 1240 Avenida Acaso, Camarillo, CA 93012, Tel: 805-484-2884; Empl.: 60; *Sls. Mgr.:* David Tingley, William Bandel ..... **B•1342-1344**

Local Sales Offices & Reps

AL	Huntsville, Reynolds & Assocs., Inc.	407-259-7000, FAX:205-534-1015
CA	Santa Clara, Electec	408-496-0706, FAX:408-727-9617
CA	Tarzana, Royal Shillah	818-342-1848, FAX:818-342-2601
CO	Littleton, Simpson Assocs.	303-794-8381, FAX:303-794-2409
CT	Madison, Conti-Younger	203-245-1136
FL	New Port Richey, Reynolds & Assocs., Inc.	407-259-7000,FAX:813-372-7204
GA	Lilburn, Reynolds & Assocs., Inc.	407-259-7000, FAX:404-905-4116
IN	Fishers, Carter, McCormic & Pierce, Inc.	317-842-9277,FAX:317-577-2741
KS	Lenexa, Midtec Assocs., Inc.	913-541-0505, FAX:913-541-1729
MD	Randallstown, Beacon North	703-478-2480
MA	Burlington, Conti-Younger	617-273-1582, FAX:617-270-0310
MI	Farmington Hills, Carter, McCormic & Pierce, Inc.	313-477-7700,FAX:313-477-4149
MN	Eden Prarie, Electronic Innovators, Inc.	612-922-2745,FAX:612-922-3914
MO	St. Louis, Midtec Assocs., Inc.	314-275-8666, FAX:314-275-8859
NJ	Huwitt, Aurora Schmitt Assocs.	201-853-5253
NY	Albany, L-Tron Corp.	518-489-7810, FAX:518-489-7810
NY	Hauppauge, Aurora Schmitt Assocs.	516-434-1313,FAX:516-434-1572
NY	Pittsford, L-Tron Corp.	716-383-0050, FAX:716-383-0701
NC	Raleigh, Reynolds & Assocs., Inc.	407-259-7000
OH	Englewood, Carter, McCormic & Pierce, Inc.	513-836-0951,FAX:513-836-2358
OH	Parma, Carter, McCormic & Pierce, Inc.	216-398-0400,FAX:216-398-0766
OK	Tulsa, Advanced Tech. Sls.	918-664-0482, FAX:918-664-5467
OR	Portland, Venture Elctrns.	503-624-0617, FAX:503-620-4632
PA	Collegeville, Beacon North	703-478-2480
PA	Langhorne, Beacon North	215-752-4429
PA	Pittsburgh, Carter, McCormic & Pierce, Inc.	412-826-3800,FAX:412-826-3803
SC	Greenville, Reynolds & Assocs., Inc.	407-259-7000
TX	Austin, Advanced Tech. Sls.	512-467-9209, FAX:512-467-9405
TX	Dallas, Advanced Tech. Sls.	713-440-3888, FAX:713-440-4439
TX	Dallas, Advanced Tech. Sls.	214-340-1300, FAX:214-340-5598
TX	El Paso, Advanced Tech. Sls.	915-591-3142, FAX:915-591-3169
VA	Sterling, Beacon North	703-478-2480, FAX:703-435-7115
WA	Bellevue, Venture Elctrns.	206-454-4594, FAX:206-454-9003

SILICON GENERAL, 11861 Western Ave., Garden Grove, CA 92641, Tel: 714-898-8121, TELEX: 692-411, TWX: 910-596-1804, FAX: 714-893-2570; FSC No.: 34333; Empl.: 250; *Sls. Mgr.:* Roger Holliday; *Dist. Mgr.:* Louise Toussaint

SILICONIX, INC., 2201 Laurelwood Rd., Santa Clara, CA 95054, Tel: 408-988-8000, TWX: 910-338-0227; Empl.: 2300; *Sls. Mgr.:* Walter Senges, VP of Sls.; *Dist. Mgr.:* Richard O Tuska, Dist. Sls. Dir.

FAX: 213-630-5338

SILICON POWER CUBE CORP., 6015 Obispo Ave., Long Beach, CA 90805, Tel: 213-634-9390, TELEX: 297340; Empl.: 350 ..... **B•1582-1583**

Local Distributors

AL	Huntsville, Hamilton/Avnet	205-837-7210
AZ	Chandler, Hamilton/Avnet	602-961-1211
CA	Costa Mesa, Hamilton/Avnet	714-641-4100
CA	Gardena, Hamilton/Avnet	213-516-8600
CA	Long Beach, Amps Abundant	213-634-0187
CA	Sacramento, Hamilton/Avnet	916-925-2216
CA	San Diego, Hamilton/Avnet	619-571-1900
CA	Sunnyvale, Hamilton/Avnet	408-743-3300
CA	Woodland Hills, Hamilton/Avnet	818-594-0404
CO	Englewood, Hamilton Avnet	303-799-7800
CT	Danbury, Hamilton/Avnet	203-748-6077
FL	Ft. Lauderdale, Hamilton/Avnet	305-767-6377
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Winter Pk., Hamilton/Avnet	407-657-3300
IL	Bensenville, Hamilton/Avnet	708-860-7700
IN	Carmel, Hamilton/Avnet	317-844-9333
IA	Cedar Rapids, Hamilton/Avnet	319-362-4757
KS	Overland Pk., Hamilton/Avnet	913-888-8900
MD	Columbia, Hamilton/Avnet	301-995-3500
MA	Peabody, Hamilton/Avnet	508-531-7430
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Livonia, Hamilton/Avnet	313-347-4270
MN	Minnetonka, Hamilton/Avnet	612-932-0600
MO	Earth City, Hamilton/Avnet	314-537-1600
NJ	Cherry Hill, Hamilton/Avnet	609-424-0100
NJ	Fairfield, Hamilton/Avnet	201-575-3390
NM	Albuquerque, Hamilton/Avnet	505-345-0001
NY	Hauppauge, Hamilton/Avnet	516-231-9800
NY	Rochester, Hamilton/Avnet	716-292-0810
NY	Syracuse, Hamilton/Avnet	315-437-2641
NC	Raleigh, Hamilton/Avnet	919-878-0810
OH	Dayton, Hamilton/Avnet	513-439-6700
OH	Solon, Hamilton/Avnet	216-242-6610
OH	Westerville, Hamilton/Avnet	614-882-7004
OK	Tulsa, Hamilton/Avnet	918-664-0444
OR	Lake Oswego, Hamilton/Avnet	503-627-0201
PA	Pittsburgh, Hamilton/Avnet	412-281-4150
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Irving, Hamilton/Avnet	214-308-8111
TX	Stafford, Hamilton/Avnet	713-240-7733
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
WA	Bellevue, Hamilton/Avnet	206-241-8555
WI	New Berlin, Hamilton/Avnet	414-784-4510
Can	Burnaby, BC, Hamilton/Avnet	604-420-4101
Can	Mississauga, Ont., Hamilton/Avnet	416-677-7432
Can	Mississauga,Ont., R-Theta	416-890-0221
Can	Nepean, Ont., Hamilton/Avnet	613-226-1700
Can	St. Laurent, Que., Hamilton/Avnet	514-335-1000

SILICON SENSORS, Old Hwy. 18 East, Dodgeville, WI 53533, Tel: 608-935-2707, TWX: 910-997-0072, FAX: 608-935-2775; FSC No.: 54822; Empl.: 30

SILICON TRANSISTOR CORP., Katrina Rd., Chelmsford, MA 01824, Tel: 508-256-3321, FAX: 508-250-1046; FSC No.: 07256; Empl.: 200; *Sls. Mgr.:* John J. Flynn; *Dist. Mgr.:* Fred Wheaton

SILONEX INC., 331 Cornelia St., Plattsburgh, NY 12901, Tel: 518-561-3160, FAX: 514-747-3906; Empl.: 110; *Sls. Mgr.:* Carol Larsen ..... **B•1345**

Local Sales Offices & Reps

CT	Branford, LJM Assocs.	203-488-4244
IL	Crystal Lake, Komac Entprs. Inc.	815-459-7456
MA	Topsfield, RFC Assocs.	508-887-8545
MI	Livonia, Amtech Reps.	313-474-8300
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NJ	Denville, T. J. Sls., Inc.	201-361-5352
WA	Seattle, Harry Levinson Co.	206-382-1300

SILTRONICS LTD., P.O. Box 456, Dover, MA 02030, Tel: 617-329-4068, FAX: 508-785-2265; Empl.: 110; *Sls. Mgr.:* G. Urban

SIMCO, 21401 SW 127 Ave., Miami, FL 33177, Tel: 305-233-9900, 800-780-9090, FAX: 305-233-1990; Empl.: 15 ..... **C•1103-1105**

Local Sales Offices & Reps

CA	San Diego, Qualtronics, Inc.	619-695-0118
CT	Bethel, Instr. Dynamics	203-743-5045
GA	Atlanta, Electro Sls. Inc.	404-394-1122
IL	Cary, Bob Burns & Assocs.	708-516-3322
MA	Wakefield, Instr. Dynamics Inc.	617-245-5100
NY	F & F Metro Inc.	516-482-4080
TX	Dallas, Southwest Elctrn. Ind. Inc.	214-690-9881
WI	Wauwatosa, Larsen Assocs. Inc.	414-258-0529
Can	Markham, Ont., Avotronics Ltd.	416-475-2024

SIMCO CO., 2257 North Penn Rd., Hatfield, PA 19440, Tel: 215-822-2171, FAX: 215-822-3795; Empl.: 150; *Sls. Mgr.:* Bob Heacock

SIMMONDS PRECISION ENGINE SYSTEMS, BF Goodrich Aerospace, P.O. Box 310, Norwich, NY 13815, Tel: 607-335-5000, TWX: 510-261-7776; Empl.: 650; *Sls. Mgr.:* G. D. Cummings

SIMPSON ELECTRIC CO., 853 Dundee Ave., Elgin, IL 60120, Tel: 708-697-2260, TELEX: 72-2416, FAX: 708-697-2272; Empl.: 550; *Dist. Mgr.:* George Oskandy, Sls. Admin. Mgr.

SIMTEK CORP., 1465 Kelly Johnson Blvd., Colorado Springs, CO 80920, Tel: 719-531-9444, FAX: 719-531-9481; Empl.: 40; *Sls. Mgr.:* David Bowers; *Dist. Mgr.:* David Bowers

SIMULASER CORP., 15251 E. Don Julian Rd., City of Industry, CA 91746, Tel: 818-369-1355, FAX: 818-336-8694; FSC No.: 8T239; Empl.: 26

SIMULEX CORPORATION, 2832-C Walnut Avenue, Tustin, CA 92680, Tel: 714-730-1500, FAX: 714-730-7176; *Sls. Mgr.:* Dave Guss

SINCLAIR RADIO LABORATORIES LTD., 85 Mary St., Aurora, Ont., Canada L4G 3G9, Tel: 416-727-0165, FAX: 416-727-0861; Empl.: 100; *Sls. Mgr.:* R.F. Jonkman

FAX: 708-860-3672

SINGER DATA PRODUCTS, INC., 790 Maple Lane, Bensenville, IL 60106, Tel: 708-860-6500, TELEX: 210-230; Empl.: 40; *Sls. Mgr.:* Ken Krohmer ..... **D•1111**

Local Sales Offices & Reps

NJ	Haddonfield, Singer Data	609-429-6927

SINOTECH, Technology Communications Group, Inc., 23590 Stafford Hill Drive, West Linn, OR 97068, Tel: 503-638-1000, FAX: 503-638-1002; Empl.: 45; *Sls. Mgr.:* John Vezmar

SIPEX CORP., Custom Monolithic Prods. Div., Six Fortune Dr., Billerica, MA 01821, Tel: 508-667-8700, FAX: 508-670-9001; Empl.: 90; *Sls. Mgr.:* Bill Dennehy

SITCO ANTENNAS DIV.OF SIMPLICITY TOOL CORP., 10330 N.E. Marx St., Portland, OR 97220, Tel: 503-253-2000, TELEX: 200 479, FAX: 503-253-2009; Empl.: 18; *Sls. Mgr.:* M. Bureker

Local Distributors

CO	Englewood, Mega Hertz	303-779-1717
MN	Shakopee, Comms. Supp. Grp.	612-445-8424
IL	Elk Grove, Anxiter	800-554-5368
MN	St. Paul, D.F. Coutryman	800-328-6820
NY	Wharton, Anxiter	516-293-7788
OK	Tulsa, Tulsat Corp./DRK Entrps.	918-836-8348
TX	Bedford, Spectrum	817-267-2288
WA	Redmond, Glade Comms.	206-869-4116

S.I. TECH, 901 N. Batavia Ave., Batavia, IL 60510, Tel: 708-232-8640, FAX: 708-232-8677; Empl.: 17; *Sls. Mgr.:* Ramesh Sheth; *Dist. Mgr.:* Kay Brabec ..... **B•1231**

Local Sales Offices & Reps

MA	Holliston, Olson Mktg.	508-429-8066
MN	Hibbing, Minntech Ec.	218-262-5228
NJ	E. Brunswick, EAC Assocs.	908-254-6624
NM	Albuquerque, Fry-Gates Co.	505-262-1525
TN	Memphis, Professional Technlg.	901-458-1228
TX	Ingram, Davis-Hallmark Prods.	512-367-4919
WA	Bellevue, Interconnect Tech.	206-462-9508

Local Distributors

AL	Birmingham, Newark Ec.	205-942-4044
AK	Anchorage, Potelcom Supp.	907-274-8525
AR	Little Rock, Carlton Bates	817-293-5558
CA	Los Angeles, Anixter	213-625-7828
CA	San Francisco, Anixter	415-543-6070
CO	Denver, Newark Ec.	303-373-4540
FL	Miami, Newark Ec.	800-631-4608
IL	Chicago, Newark	312-792-8233
IL	Skokie, Anixter	800-243-8344
LA	Baton Rouge, Anixter	504-922-7755
MA	Boston, Anixter	508-682-8870
MI	Detroit, Anixter	313-478-3900
MO	St. Louis, Newark Ec.	314-821-7466
NY	Hauppauge, Manchester Equip. Co.	516-294-5351
OH	Columbus, Hughes-Peters	614-294-6215
PA	Pittsburgh, South-Mills Ec.	800-245-6215
TN	Chattanooga, Horizon Ec.	615-899-8585
TN	Clarksville, Randolph, Hale, Matthews	615-647-2325
TX	Houston, Anixter	713-460-9473
VA	Chantilly, Newark Ec.	703-471-7447
WA	Bellevue, Newark Ec.	206-641-9800
WI	Milwaukee, Anixter	414-355-0222
Can	London, Newark Ec.	519-685-4280
Can	Toronto, Anixter	416-568-8999

SIVERS IMA AB, 11520 Jefferson Blvd., Culver City, CA 90230, Tel: 213-306-4248, FAX: 213-390-4350; Empl.: 300; *Sls. Mgr.:* Marshall Cleland

SJOBERG, C., & SON, INC., 415 Station St., P.O. Box 3583, Cranston, RI 02910, Tel: 401-461-8220, FAX: 401-467-5446; Empl.: 20

SKB COPORATION, 434 W. Levers Place, Orange, CA 92667, Tel: 714-637-1252, FAX: 714-637-0491; FSC No.: 61302; Empl.: 170; *Sls. Mgr.:* Allan Evavold

SKF CONDITION MONITORING, 4141 Ruffin Rd., San Diego, CA 92123-1841, Tel: 619-496-3400, FAX: 619-496-3546; Empl.: 150; *Sls. Mgr.:* Rich Gabel

SKO-DIE, INC., 8050 Austin Ave., Morton Grove, IL 60053, Tel: 708-965-1130, FAX: 708-966-0322; FSC No.: 7P145; Empl.: 50; *Sls. Mgr.:* Ralph H. Hoffmann

SKY COMPUTER, INC., 27 Industrial Ave., Chelmsford, MA 01824, Tel: 508-250-1920, TELEX: 499-1331, FAX: 508-250-0036

SKYDYNE DIV., AAR MFG., 21 River Rd., Port Jervis, NY 12771, Tel: 914-856-6655, 800-428-CASE, FAX: 914-856-8378; Empl.: 110; *Sls. Mgr.:* M. Timney ..... **C•1106-1107**

SKYNET ELECTRONICS, 1474 Gladding Ct., Milpitas, CA 95035, Tel: 408-945-6355, FAX: 408-945-6357; Empl.: 20

SKYWAY MAGNETICS, 35372 Hwy 79, Warner Springs, CA 92086, Tel: 619-782-3342; FSC No.: 3612; Empl.: 12; *Sls. Mgr.:* John Grudziadz

SLAUGHTER CO., 801 Hailey St., P.O. Box 1805, Ardmore, OK 73402, Tel: 405-223-4773, TELEX: 697-5577, FAX: 405-226-5757; FSC No.: 05611; *Sls. Mgr.:* T. Medrick ..... **D•1327**

SL CORPORATION, 240 Tamal Vista Blvd. No. 110, Corte Madera, CA 94925, Tel: 415-927-1724, FAX: 415-927-2931; Empl.: 26; *Sls. Mgr.:* Christopher Wilson; *Dist. Mgr.:* Christopher Wilson

The Sloan Company
"THE TOUCH OF BRILLIANCE IN PANEL DESIGN"

FAX: 818-768-8326

SLOAN CO., 7704 San Fernando Rd., Sun Valley, CA 91353-0367, Tel: 213-875-1123, TWX: 910-498-2250; FSC No.: 08717; Empl.: 25 ..... **B•1188-1195**

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
CA	Montrose, Signal Entprs. Inc.	818-957-0640
CA	Mtn. View, Francisco & Assocs.	415-962-1717
RI	Warwick, Schumacher & Yarrington	401-884-5671
IL	Wheaton, CS Tech Sls.	708-653-8126
MD	Glen Burnie, Macrotech Assoc.	301-766-1111
MN	Minneapolis, Loren Green Assoc. of Minn.	612-571-6666
MO	Shawnee Mission, Microtronics	913-262-1444
NJ	Cherry Hill, Quality Comps.	609-428-6226
NJ	Englewood Cliffs, E. Glass Assocs.	201-592-0200
NY	Rochester, Tech. Comps.	716-342-2406
OH	Cleveland, Allan Scraga	216-232-4946
TX	Dallas, IBL Engrg. & Sls.	214-363-2921
WA	Bellevue, Olson Tech Sls.	206-883-7792

Local Distributors

AL	Huntsville, Powell Elctrns.	205-529-2731
CA	Anaheim, Deco Elctrns.	714-630-8252

CA Canoga Park, AMC Radio Hardware .. 818-998-2584
CA Costa Mesa, Powell Elctrns. 714-754-1717
CA San Diego, Deco Elctrns. 619-693-1595
CA San Jose, Powell Elctrns. 408-943-9020
CA Torrance, Kent Elctrns. 213-320-2700
CT W. Hartford, Signal Ctr. Inc. 203-236-6005
FL Ft. Lauderdale, Peerless Radio Corp. 305-973-4141
FL Ft. Lauderdale, Powell Elctrns. 305-979-5000
CA Los Angeles, Trebor Elctrns. 213-641-8304
FL Pompano Beach, Peerless Radio 305-973-4141
KS Wichita, Lee Prods. 316-264-2172
MD Annapolis, Powell Elctrns. 301-880-3355
IL Arlington, Mar'Lyn Elctrns. 312-364-7880
MA Westborough, Powell Elctrns. 617-366-6100
NY Lynbrook, Peerless Radio Corp. 516-593-2121
NJ Englewood, Powell Elctrns. 201-568-5600
OH Cleveland, Acorn Inds. 216-289-2531
OH Dayton, D & D Packaging Co., Inc. 513-233-8585
OH Solon, Repco 216-248-8900
OK Tulsa, Altair Co. 918-252-5781
PA Philadelphia, Powell Elctrns. 215-365-1900
TN Memphis, GFI Sls. 901-683-6252
TX Austin, The Altair Co. 512-837-4490
NC Cary, Powell Elctrns. 919-467-1212
TX Houston, Altair Co. 713-462-3029
TX Irving, Powell Elctrns. 214-258-6841
TX Richardson, Altair Co. 214-231-5166

SLOAN TECHNOLOGY CORPORATION, Veeco Instruments Inc., 602 E. Montecito St., Santa Barbara, CA 93103, Tel: 805-963-4431, TWX: 910-334-4901, FAX: 805-965-0522; Empl.: 75; *Sls. Mgr.:* Mel Lipton

SL WABER, INC., 520 Fellowship Rd. Ste. 306, Mt. Laurel, NJ 08054, Tel: 609-866-8888, 800-257-8384, FAX: 609-866-1945; Empl.: 125; *Sls. Mgr.:* Scott Hammill

SMERT COMPTER AIDED DESIGN & PROTOTYPE, DIV. OF SME (MONACO), P.O. Box 13280, Kanata, Ont., Canada K2K 1X4, Tel: 613-839-5588, FAX: 613-839-5582; Empl.: 14; *Sls. Mgr.:* Raymond Fourastier

H H SMITH, NT-T Inc., 632 Arch St., Meadville, PA 16335, Tel: 814-724-6440, FAX: 814-333-1912; Empl.: 300; *Sls. Mgr.:* Larry Zeiser; *Dist. Mgr.:* Larry Zeiser

SMK ELECTRONICS CORPORATION, U.S.A., 1901 Nancita Cir., Placentia, CA 92670, Tel: 714-996-0960, TELEX: 18-3081, FAX: 714-779-2790; FSC No.: 637-7400; Empl.: 219; *Sls. Mgr.:* Gary Redman/ T. Klymenko

SMT EAST CORPORATION, 378 Page St., Deerfield Corp. Ctr., Stoughton, MA 02072-1141, Tel: 800-888-SMT1, FAX: 617-344-0480; Empl.: 50

SNAPTITE/ALLIED, 6424 W. Ridge Rd., P.O. Box 8550, Erie, PA 16505, Tel: 814-833-6131, FAX: 814-838-7503; Empl.: 75

SOFREL, INC., 7685 Commerce Way No. 105, Eden Prairie, MN 55344, Tel: 612-937-8835, 1-800-8-SOFREL, FAX: 612-937-9086; Empl.: 8; *Sls. Mgr.:* Scott Henstein; *Dist. Mgr.:* Scott Henstein

SOFTAID, INC., 8930 Route 108, Columbia, MD 21045, Tel: 301-964-8455, FAX: 301-596-1852; Empl.: 9; *Sls. Mgr.:* Tammie Adams

SOFTWARE COMPONENTS GROUP, 1731 Technology Dr., San Jose, CA 95110, Tel: 408-437-0700, FAX: 408-437-0711; Empl.: 35; *Sls. Mgr.:* Dennis O Donel

THE SOFTWARE LINK, INC., 3577 Parkway Lane, Norcross, GA 30092, Tel: 404-448-5465, TELEX: 4996147SWLINK, FAX: 404-263-6474; Empl.: 55

SOHIO ENGINEERED MATERIALS CO., See Standard Engineered Materials Co.

SOKOL CRYSTAL PRODUCTS, INC., 121 Water St., Mineral Point, WI 53565, Tel: 608-987-3363, FAX: 608-987-3882; FSC No.: 56187; Empl.: 150; *Sls. Mgr.:* Steven M. Sokol

SOLA, A Unit of General Sign., 1717 Busse Rd., Elk Grove Village, IL 60007-5666, Tel: 708-439-2800, TELEX: 6871106 SOLAE, FAX: 800-626-6269; *Sls. Mgr.:* James Kimball; *Dist. Mgr.:* Brian Crowe

SOLARCOM TECHNOLOGY, INC., P.O. Box 4715, Hayward, CA 94544, Tel: 415-489-3141; Empl.: 9; *Sls. Mgr.:* Rose Ferguson

SOLAR ELECTRONICS CO., A. T. Parker, Inc., 901 N. Highland, Hollywood, CA 90038, Tel: 213-462-0806, TWX: 910-997-1921, FAX: 213-462-3721; FSC No.: 13222; Empl.: 17; *Sls. Mgr.:* Roy Talley

SOLATRON ENTERPRISES, 421 E. Beach Ave., Inglewood, CA 90302, Tel: 213-678-4981; Empl.: 20

SOLDER ABSORBING TECHNOLOGY (SAT), A Spirig Co., 144 Oakland St., Springfield, MA 01108, Tel: 800-628-8862, FAX: 413-788-0490; Empl.: 8; *Sls. Mgr.:* Joyce White

SOLDER REMOVAL, P.O. Box 1678, Covina, CA 91722, Tel: 818-967-3681, TWX: 910-584-1820; FSC No.: 34605; Empl.: 57

SOLID STATE, INC., 46 Farrand St., Bloomfield, NJ 07003, Tel: 201-429-8700, FAX: 201-429-8683; Empl.: 110; *Sls. Mgr.:* T. King

SOLID STATE DEVICES, 14830 Valley View Ave., La Mirada, CA 90638, Tel: 213-921-9660, FAX: 213-921-2396; FSC No.: 30043; Empl.: 200

SOLID STATE ELECTRONICS CORP., 18646 Parthenia St., Northridge, CA 91324, Tel: 818-993-8257, FAX: 818-993-8259; FSC No.: 11911; Empl.: 15

SOLID STATE RELAYS, 71 Regent, Oak Brook, IL 60521, Tel: 708-932-1660, FAX: 708-887-9522

SOLID STATE SYSTEMS, 1300 Shiloh Rd., N.W., Kennesaw, GA 30144, Tel: 404-423-2200, FAX: 404-423-2228; Empl.: 150; *Sls. Mgr.:* Max Biller; *Dist. Mgr.:* Max Biller

SOLID STATE TESTING, INC., 56 Middlesex Tpke., Burlington, MA 01803, Tel: 617-272-0972, FAX: 617-273-4896; Empl.: 150; *Sls. Mgr.:* James Roberts; *Dist. Mgr.:* James DiGiacomo

SOLITRON DEVICES, INC., Semiconductor Group, 1177 Blue Heron Blvd., Bldg. No.1, Riviera Beach, FL 33404-9978, Tel: 407-848-4311, 800-888-8763, FAX: 407-863-5946; FSC No.: 21845; Empl.: 800; *Sls. Mgr.:* Margaret McNutt; *Dist. Mgr.:* Abe Lincoln

SOLITRON/MICROWAVE, Solitron Devices, Inc., 1177 Blue Heron Blvd., Solitron Pk.,Bldg. No. 2, Riviera Bch., FL 33404-9978, Tel: 407-848-4311, 800-888-8763, FAX: 407-848-4311, Ext.116; FSC No.: 95077; Empl.: 200; *Sls. Mgr.:* Ray Sulzer; *Dist. Mgr.:* Deloris Martinez

SOLTEC CORP., 12977 Arroyo Street, San Fernando, CA 91340-1597, Tel: 818-365-0800, 800-423-2344, TELEX: 365-7089, FAX: 818-365-7839; Empl.: 80; *Sls. Mgr.:* Byron G. McIntire

SONICALL, INC., 3288 E. Willow Street, Signal Hill, CA 90806, Tel: 213-490-2143, FAX: 213-490-2145; *Sls. Mgr.:* Frank Handler ..... **D•1061**

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CA Arcadia, Van Gott & Assocs. 818-445-9728
CA Park Ridge, Synmark Sls., Inc. 708-390-9696
FL Margate, EPM, Inc. 305-977-0331
MD Severna, Jenco Sls. 301-544-8652
MI Lathrup Vlg., R.C. Nordstrom 313-559-7373
MN St. Louis Park, Elctrn. Innovators 612-922-2945
NY E. Syracuse, Nycom, Inc. 315-437-8343
NY Great Neck, F&F Metro Inc. 516-482-4080
NC Raleigh, Micro Sls. Inc. 919-881-0007
OH Centerville, EMA, Inc. 513-433-3147
OR Hillsboro, TAC Assocs. 503-648-6110
PA West Chester, TCA Inc. 215-692-6853
RI Warwick, Ertronics, Inc. 401-732-3567
TX Dallas, REM Comps. Corp. 214-234-1069

Local Distributors
MA Sharon, ADCOUR 800-232-3557

SONICOR INSTRUMENT CORP., 100 Wartburg Ave., Copiague, NY 11726, Tel: 516-842-3344, TELEX: 649494, FAX: 516-842-3389; FSC No.: 31605; *Sls. Mgr.:* Arthur Liers; *Dist. Mgr.:* Arthur Liers

SONNENSCHEIN BATTERIES INC., See East Penn Manufacturing

SONOBOND ULTRASONICS INC., Inductotherm Industries, 887 S. Matlack St., West Chester, PA 19382, Tel: 215-696-4710, 800-323-1269, FAX: 215-692-0674; FSC No.: 15882; Empl.: 35; *Sls. Mgr.:* P. C. Krause

SONY COMPONENT PRODUCTS CO, Semiconductor Division, 108333 Valley View St., Cypress, CA 90630, Tel: 714-229-4197, FAX: 714-229-4271; Empl.: 120; *Sls. Mgr.:* Chuck Schouw, V.P.; *Dist. Mgr.:* Mark Marrietta

SOPHIA SYSTEMS & TECHNOLOGY, 777 California Avenue, Palo Alto, CA 94304, Tel: 415-493-6700, 800-824-9294, FAX: 415-493-4648

Sorensen

FAX: 312-792-2129

SORENSEN COMPANY, 5555 N. Elston Ave., Chicago, IL 60630, Tel: 312-775-0843, 1-800-525-2024; Empl.: 200; *Sls. Mgr.:* Ed Larrabee ..... **D•2038-2046**

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AZ Tempe, Trembly Assocs. 602-967-2058, FAX:602-967-2878
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CA LaCanada Flintridge, Trimarco Synertek 818-952-7106,FAX:818-952-8859
CA Los Altos, Jay Stone & Assocs. 415-948-4563, FAX:415-948-2714
CA San Jose, Jay Stone & Assocs. 408-435-1010
CO Wheat Ridge, Trembly Assocs. 303-421-8900, FAX:303-421-1020
FL Melbourne, Currie, Peak & Frazier, Inc. 407-724-6795,FAX:407-951-9717
FL Orlando, Currie, Peak & Frazier, Inc. 407-855-0843, FAX:407-851-1464
FL Pensacola, Currie, Peak & Frazier, Inc. 904-994-0599
FL Tampa, Currie, Peak & Frazier, Inc. 813-963-1076, FAX:813-968-2480
GA Duluth, Currie, Peak & Frazier, Inc. 404-497-9404, FAX:404-497-9412
IL Arlington Heights, Dytec/Midwest, Inc. 708-255-3200,FAX:708-394-0270

IL Palatine, Vine Sls., Inc. 708-934-5476, FAX:708-934-1290
IN Indianapolis, Dytec/Midwest, Inc. 317-297-5988, FAX:317-297-0355
KS Lenexa, Dytec/South, Inc. 913-888-0215, FAX:913-894-1039
KS Wichita, Dytec/South, Inc. 316-263-7090, FAX:316-262-3189
LA Lafayette, Kemp Instruments, Inc. 318-269-9452, FAX:318-269-1073
MD Baltimore, Sci-Rep, Inc. 410-321-1411
MA Westford, ICS Assocs. 508-692-3545, FAX:508-692-0227
MI Southfield, Comtel Instruments Co. 313-358-2505, FAX:313-352-2324
MN Edina, Dytec Instruments, Inc. 612-831-7169, FAX:612-831-5114
MO Maryland Heights, Dytec/South, Inc. 314-739-0665,FAX:314-739-1405
NV Las Vegas, Trembly Assocs. 702-739-9770, FAX:702-739-0331
NH Salem, Advanced Elctrn. Sls. 603-894-6414, FAX:603-894-7111
NJ Cherry Hill, Sci-Rep, Inc. 609-662-5222
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NY Elmont, Crane & Egert Corp. 516-872-0800, FAX:516-872-9074
NY Rochester, TAE-REP, Inc. 716-586-8710, FAX:716-586-8719
NY Whitney Point, TAE-REP, Inc. 607-692-3705, FAX:607-692-3709
NC Charlotte, Currie, Peak & Frazier, Inc. 704-846-1702
NC Greensboro, Currie, Peak & Frazier, Inc. 919-373-0380,FAX:919-273-6308
OH Cleveland, Comtel Instrument Co. 216-442-8080, FAX:216-442-6009
OH Columbus, Comtel Instruments Co. 614-876-8305, FAX:614-876-1445
OH Dayton, Comtel Instruments Co. 513-426-5310, FAX:513-426-1048
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OR Beaverton, Northwest Test & Measurement, Inc. 503-645-9000,FAX:503-645-5186
PA Huntingdon Valley, Sci-Rep, Inc. 215-322-6500, FAX:215-322-9907
PA Pittsburgh, Comtel Instruments Co. 412-922-5720, FAX:412-922-8454
TN Smyrna, Currie, Peak & Frazier, Inc. 615-459-0743
TX Austin, Kemp Instruments, Inc. 512-263-3322, FAX:512-263-9700
TX Dallas, Kemp Instruments, Inc. 214-931-7100, FAX:214-250-2493
TX Houston, Kemp Instruments, Inc. 713-466-1465, FAX:713-466-7821
UT No. Salt Lake, Trembly Assocs. 801-295-4703, FAX:801-295-8676
VA Fairfax, Sci-Rep, Inc. 703-385-0660, FAX:703-359-7341
VA Newport News, Sci-Rep, Inc. 301-321-0200
VA Richmond, Sci-Rep, Inc. 804-282-0220
WA Redmond, Northwest Test & Measurement, Inc. 206-881-8857,206-867-0742
WI Brookfield, Dytec/Midwest, Inc. 414-792-0320, FAX:414-792-0311
Can Mississauga, Ont., Allan Crawford Assocs., Ltd. 416-890-2010,FAX:416-890-1959
Can No. Vancouver, BC, Allan Crawford Assocs., Ltd. 604-988-2195,FAX:604-980-5892
Can Ottawa, Ont., Allan Crawford Assocs., Ltd. 613-596-9300,FAX:613-596-3081
Can St. Laurent, Quebec, Allan Crawford Assocs., Ltd. 514-747-7878,FAX:514-747-5673

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CA San Rafael, Wright Assocs. 415-457-9940
CO Boulder, The Stratford Grp. 303-530-3194
FL Deerfield Bch., Jack Krutek & Assoc. .. 305-427-4202
IL Schiller Park, W.R.B. Inc. 708-678-7888
IN Fort Wayne, Menze Sls. 219-747-5616
KS Shawnee Mission, The Mertens Co. ... 913-432-9323
MD Gaithersburg, Naudian Assoc. Southern, Inc. 301-258-5040
MA Hopkinton, Berkshire Elctrns. 508-435-9356
MI Dearborn, Pitcher-Poulin, Inc. 313-582-5450
MN Minneapolis, Tech. Comps. Grp. 612-536-9512
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NJ Burlington, VDE Elctrns. 609-387-9331
NJ Eatontown, Pacent Engrg. 201-389-1409
NY Great Neck, Pacent Eng. Co. 516-482-4678
NC Siler City, Crossroads Elctrns. 919-742-2372
WA Bothell, Evergreen Mktg. Grp. 206-485-8063
WI Mequon, WM Bolles Assoc., Inc. 414-241-3320

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CA Anaheim, Electro Comps. Dist. 213-628-2844
CA Covina, Selecta Switch 818-967-4123
CA Freemont, KEA Elctrns. 415-651-2600
CA Gardena, California Switch & Signal .. 213-538-9830
CA Glendale, Minarik Elec. Co. 818-507-6445
CA Irvin, J & J Elctrns. 714-455-0104
CA Los Angeles, Electric Switches 213-660-1310
CA San Diego, Minarik Elec. Co. 619-560-6632
CA Santa Clara, Minarik Elec. Co. 408-727-0575
CA Tustin, Western Switches 714-259-8144
CA Van Nuys, Wes-Garde Comps. Grp. ... 818-786-3724
CO Commerce City, Minarik Elec. Co. 303-289-5800
CT Hartford, Wes-Garde Comp. Grp. 203-527-7705
FL Lakeland, Wes-Garde Comp. Grp. 813-644-7564
GA Tucker, CID, Inc. 404-491-3143
IL Carol Stream, Wes-Garde Comp. Grp. 708-653-1460
KS Overland Pk, Wes-Garde Comps. 913-262-2718
MA Canton, Xenell 617-828-2948
MI St. Clair Shores, Specialities Mfg. 313-771-2700
MN Minneapolis, Carl Bergquist 612-835-2322
MO St. Louis, Wes-Garde Comp. Grp. 314-567-7776
NH Nashua, Wes-Garde Comp. Grp. 603-880-1971
NJ Mt. Laurel, Wes-Garde Comp. Grp. 609-778-8190
NY Woodside, Switches Unltd. 718-478-5000
OH Westerville, Wes-Garde Comps. Grp. 614-885-0319
OR Portland, Minarik Elec. 503-253-3402
SC Columbia, Dixie Elctrns. 803-779-5332
TX Dallas, Wes-Garde Comp. Grp. 214-357-1768
TX San Antonio, Minarik Elec. 512-822-7097
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WI Milwaukee, Progressive Image 414-321-4722
Can Edmonton, Deskin Sls. 403-466-2106
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Can Ottawa, Deskin Sls. 613-228-1201
Can Richmond, Vancouver, Deskin Sls. 604-324-8343
Can Toronto, Deskin Sls. 416-475-1412
Can Winnipeg, Deskin Sls. 403-466-2106

SOR, INC., 14685 W. 105th St, Lenexa, KS 66215, Tel: 913-888-2630, TELEX: 4992783, FAX: 913-888-0767; Empl.: 200; *Sls. Mgr.:* Steve Spelman

SOSHIN ELECTRIC CO., LTD., No. 18-18, 1-Chome Nakamagome, Ota-Ku, Tokyo, Japan, Tel: (03) 3775-9111, TELEX: 246-6377, FAX: (03) 3775-7092; Empl.: 1150; *Sls. Mgr.:* Z. Uehara, Overseas Dept. ..... **A•1655-1657**

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CA Chatsworth, Arco Elctrns. 818-882-8707

SOUNDCOAT CO., INC., 1 Burt Dr., Deer Park, NY 11729-5701, Tel: 516-242-2200, TELEX: 12-5514, FAX: 516-242-2246; Empl.: 100; *Sls. Mgr.:* Mr. Carl Wolaver

SOURIAU, INC., 28309 N. Avenue Crocker, Valencia, CA 91355, Tel: 805-257-4830, TELEX: 4720328, TWX: 910-336-1553, FAX: 805-257-2383; Empl.: 79; *Sls. Mgr.:* Keith L. Olsen

SOUTH AMERICAN DEVELOPMENT CORP., 29 Noxon Rd., Poughkeepsie, NY 12590, Tel: 914-452-1305, FAX: 914-452-2526; Empl.: 80; *Sls. Mgr.:* C. Healy

SOUTHCO, INC., 210 N. Brinton Lake Rd., Concordville, PA 19331, Tel: 215-459-4000, FAX: 215-459-4012; *Sls. Mgr.:* R. W. Dougherty

SOUTHERN COMPUTER CORP., 141 W. Wieuca Rd., Ste. 300-B, Atlanta, GA 30342, Tel: 404-252-3340, FAX: 404-252-8929; *Sls. Mgr.:* Ray Manley

SOUTHERN ELECTRONICS, F-Dyne, 726 So. Flower St., Burbank, CA 91502, Tel: 818-845-2458, FAX: 818-845-6348; Empl.: 100; *Sls. Mgr.:* Wayne Melvin

SOUTHTRONICS, INC., 1265 Kennestone Circle, Marietta, GA 30066-6029, Tel: 404-429-1000, FAX: 404-424-2000

SOUTHWESTERN NAMEPLATE & MFG. CO., INC., P.O. Box 35, Fourth St., Anna, TX 75003, Tel: 214-231-6663, 214-924-3289, 1-800-331-6600, FAX: 214-924-3090; Empl.: 14

SPACE ELECTRONICS, INC., 81 Fuller Way, Berlin, CT 06037, Tel: 203-829-0001, FAX: 203-829-0005; Empl.: 26; *Sls. Mgr.:* Richard Boynton

SPECIAL ELECTRIC CO., INC., 3628 W. Pierce St., Milwaukee, WI 53215, Tel: 414-383-6370, TELEX: 910-262-3106, FAX: 414-383-6725; Empl.: 40; *Sls. Mgr.:* F. James Heider

SPECIALIZED PRODUCTS COMPANY, 3131 Premier Dr., Irving, TX 75063, Tel: 214-550-1923, TELEX: 732764, FAX: 214-550-1386; Empl.: 39; *Sls. Mgr.:* Paul Jones

SPECIALTY CABLE CORPORATION, P.O. Box 50, Wallingford, CT 06492, Tel: 800-456-SPEC, FAX: 203-269-5293; Empl.: 72

SPECIALTY CONNECTOR CO., 2100 Earlywood Dr., Franklin, IN 46131, Tel: 317-738-2800, TELEX: 217084, FAX: 317-738-2858; *Sls. Mgr.:* Thomas L. Lynn; *Dist. Mgr.:* 234

SPECIALITY ELECTRONICS, INC., 19200 Asheville Hwy., Landrum, SC 29356, Tel: 803-457-3824, FAX: 803-457-2535; Empl.: 30; *Sls. Mgr.:* John Galli ..... **C•1526-1532**

SPECO DIV., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757, Tel: 516-957-8700, 800-645-5516, TELEX: 96-7754, FAX: 516-957-9142; FSC No.: 516-957-9142; Empl.: 29; *Sls. Mgr.:* Eric Forman; *Dist. Mgr.:* Mel Hulkower

SPECTRACOM CORPORATION, 101 Despatch Drive, East Rochester, NY 14445-1484, Tel: 716-381-4827, TELEX: 9103509587, FAX: 716-381-4998; *Sls. Mgr.:* Edward F. O'Connor

SPECTRAGRAPHICS CORP., 9125 Rehco Rd., San Diego, CA 92121, Tel: 619-450-0611, TELEX: 295439; Empl.: 250; *Sls. Mgr.:* Ray Barger, VP Sls.; *Dist. Mgr.:* Elliot Shev

SPECTRAL INNOVATIONS, 4633 Old Ironsides Dr., Ste. 401, Santa Clara, CA 95054-1807, Tel: 408-727-1314, FAX: 408-727-1423

Local Sales Offices & Reps

OH Columbus, ACQsys Solutions 614-486-6401

SPECTRA LUX CORP., 11825 120th Ave. NE, Kirkland, WA 98034, Tel: 206-747-0560, FAX: 206-821-3193; FSC No.: 51896; Empl.: 120; *Sls. Mgr.:* Woody Hertzog

SPECTRAN CORP., 50 Hall Road, Sturbridge, MA 01566, Tel: 508-347-2261, FAX: 508-347-2747; FSC No.: 6V569; Empl.: 80

SPECTRA-PHYSICS LASERS INC., 1330 Terra Bella Ave.,P.O. Box 7013, Mountain View, CA 94039-7013, Tel: 415-961-2550, 800-227-8054, TELEX: 348-488, FAX: 415-969-4084; *Sls. Mgr.:* Bob Turcotte

SPECTRASCAN, INC., 1110A Elkton Drive, Colorado Springs, CO 80907, Tel: 719-599-9254, FAX: 719-599-0815; Empl.: 15; *Sls. Mgr.:* Jim Stathis

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GA	Duluth, DHR Mktg.	404-564-0529
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Farmington Hills, Luebbe Sls.	313-489-8828
MN	Bloomington, Murnco	612-854-4161
MO	St. Louis, Lowell-Kangas	314-821-4050
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
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NY	Commack, E.R.A.	516-543-0510
NY	Victor, Net Sls.	716-924-1844
NC	Raleigh, DHR Mktg.	919-829-2510
OH	Cincinnati, Luebbe Sls.	513-530-0600
OH	Cleveland, Luebbe Sls.	216-333-0425
OH	Columbus, Luebbe Sls.	614-431-0474
OH	Dayton, Luebbe Sls.	513-294-0426
OR	Beaverton, Westmark Elctrn., Inc.	503-641-8780
PA	Pittsburgh, Luebbe Sls.	412-364-0490
TX	Richardson, Pro Comp. Sls. Co.	214-669-1500
WA	Bellevue, Westmark Elctrns.	206-454-1944
WI	Lancastle, Lancastle	414-796-2723

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AZ	Tempe, Shelley-Ragon	602-894-2058
CA	Buena Park, Cypress Elctrns.	714-521-5230
CA	Fountain Valley, Component Center	714-979-0433
CA	Orange, Newark Elctrs.	714-634-8224
CA	San Diego, Shelley/Ragon	619-453-7133
CA	San Jose, Shelley/Ragon	408-432-0600
CA	Santa Clara, Cypress Elctrns.	408-980-2500
CA	Sunnyvale, Abacus Elctrns.	408-732-2000
CO	Denver, Newark Elctrns.	303-757-3351
CO	Englewood, Shelley/Ragon	303-762-0670
CO	Englewood, Sterling Elctrns.	303-792-3939
CT	Wallingford, Cronin Elctrns.	203-265-3134
GA	Norcross, Newark Elctrns.	404-448-1300
IL	Bensenville, Voyager	312-860-1300
IL	Chicago, Newark Elctrns.	312-784-5100
IN	Ft. Wayne, Newark Elctrns.	219-484-0766
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
KS	Lenexa, Sterling Elctrns.	913-492-5406
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MA	Needham, Cronin Elctrns.	617-449-5000
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Waltham, Newark Elctrns.	617-894-8050
MA	Woburn, Sterling Elctrns.	617-938-6200
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MN	StPaul, Gopher Elctrns.	612-483-3322
MO	Independence, Newark Elctrns.	816-478-0561
MO	Maryland Heights, Chelsea Inds.	314-997-7709
NJ	South Plainfield, Sterling Elctrns.	201-769-7000
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NY	Buffalo, Summit Distrs.	716-887-2800
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OH	Columbus, Electronics Mktg.	614-299-4161
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OR	Tualatin, Moore Elctrns.	503-692-5333
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SC	Columbia, Dixie Elctrns.	803-779-5332
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WA	Seattle, Radar Electrns.	206-282-2511
WV	Charleston, Newark Elctrns.	304-744-9022
WI	Milwaukee, Newark Elctrns.	414-453-9100

SPECTRON GLASS & ELECTRONICS, INC., 595 Old Willets Path, P.O. Box 13368, Hauppauge, NY 11788, Tel: 516-582-5600, TELEX: 968296; FSC No.: 57349; Empl.: 70; *Sls. Mgr.:* Bob Marshall

SPECTRONICS CORP., 956 Brush Hollow Rd., Westbury, NY 11590, Tel: 516-333-4840/1-800-274-8888, TWX: 510-222-5877, FAX: 516-333-4859; Empl.: 125; *Sls. Mgr.:* Gary Naftaly

SPECTRUM CONTROL, INC., 2185 W. 8th St., Erie, PA 16505, Tel: 814-455-0966, FAX: 814-455-2550; FSC No.: 33095;5733; Empl.: 450; *Sls. Mgr.:* D. Reynolds; *Dist. Mgr.:* D. Zaday

SPECTRUM CORP., 10048 Easthaven, Houston, TX 77075, Tel: 713-944-6200, 1-800-392-5050(Sls), FAX: 713-944-1290; Empl.: 35; *Sls. Mgr.:* Gary W. Liddell; *Dist. Mgr.:* Jim B. Bishop

SPECTRUM DEVICES, 13706 Larkway Dr., Sugar Land, TX 77478-2420, Tel: 713-242-6417, FAX: 713-242-6415; Empl.: 7; *Sls. Mgr.:* Sajid Rafique

SPECTRUM SIGNAL PROC., 250 H st., P.O. Box 8110-25, Blaine, WA 98230, Tel: 1-800-663-8986 (US), 604-438-7266 (Can.), FAX: 604-438-3046; Empl.: 25; *Sls. Mgr.:* Rod Jensen; *Dist. Mgr.:* Al Rana

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CA	Mountainview, Thorson West	415-964-9300
CA	Riverside, Innovation Prods.	714-682-8570

SPECTRUM TECHNOLOGY, INC., DATUM, Incorporated, 749 Ward Drive, Santa Barbara, CA 93111, Tel: 805-964-7791, TWX: 910-334-1163, FAX: 805-683-3481; FSC No.: 32464; Empl.: 90; *Sls. Mgr.:* Manny Fernandez, Jr. ..... **A•1462-1467**

Local Sales Offices & Reps

AZ	Phoenix, Sedco Sls.	602-461-9069
CA	Los Angeles, The Thorson Co.	213-595-0361
CA	San Diego, Thorson Co.	619-292-8525
CA	San Francisco, Frequency Control	408-252-5250
HI	Santa Barbara, Spectrum Technlg.	805-964-7791
CA	Santa Barbara, Thorson Co.	805-964-8751
CO	Englewood, Advanced Technology Mktg.	303-789-2606
FL	Ocala, Felcomp	904-288-2365
FL	Orlando, Felcomp	407-282-3554
IL	Elgin, R.K. Elctrns.	312-695-8552
MA	Needham Hgts., Todino Engrg. Sls.	617-444-7925
PA	Glenside, Kobert Assocs.	215-887-2310
TX	Dallas, Caton Sls.	214-243-4716
TX	Dallas, Caton Sls.	214-350-1612

Local Distributors

MD	Kensington, Koebert Assocs.	301-493-8924

SPEEDY CIRCUITS, PJC Technologies, Inc., 5332 Commerical Dr., Huntington Bch., CA 92649, Tel: 714-898-4901, FAX: 714-891-0607; Empl.: 36; *Sls. Mgr.:* Jon P. Herkins

Spellman
High Voltage Electronics Corp

FAX: 516-349-8699

SPELLMAN HIGH VOLTAGE ELCTRNS. CORP., 7 Fairchild Ave., Plainview, NY 11803, Tel: 516-349-8686, TWX: 510-221-2155; Empl.: 150; *Sls. Mgr.:* Eric Marko; *Dist. Mgr.:* Eric Marko ..... **D•2047-2055**

Local Sales Offices & Reps

WA	Kirkland, Syntek	206-488-0394
Can	British Columbia, Broman Engrg.	604-254-6311

SPEMCO SWITCHES, 23425 Harper, Box 386, St. Clair Shores, MI 48080, Tel: 800-482-2828, FAX: 313-771-3491; Empl.: 12; *Sls. Mgr.:* Andrew Richardson

SPERRY, A. W. INSTRUMENTS, P.O. Box 9300, Smithtown, NY 11787, Tel: 516-231-7050, 800-645-5398, TELEX: 645104, FAX: 516-434-3128; Empl.: 50; *Sls. Mgr.:* Dennis W. Carroll

SPIRA MANUFACTURING CORP., 12721 Saticoy Street South, North Hollywood, CA 91605, Tel: 818-764-8222, FAX: 818-764-9880; FSC No.: 60050; Empl.: 18; *Sls. Mgr.:* Lisa A Panzich

SPIRICON, INC., 2600 North Main, Logan, UT 84321, Tel: 801-753-3729, TELEX: 296-465 SPIR UR, FAX: 801-735-5231; Empl.: 15; *Sls. Mgr.:* Ed Danahy

SPRAGUE ELECTRIC COMPANY, Sprague Technologies, Inc., 4 Stamford Forum P.O. Box 120007, Stamford, CT 06901-0007, Tel: 203-964-8600, FAX: 203-964-8668; Empl.: 5,500

SPRAGUE ELECTRIC COMPANY, Distribution Division, 41 Hampden Rd. P.O. Box 9102, Mansfield, MA 02048-9102, Tel: 508-339-8900, FAX: 508-339-5063 ..... **A•1138**

SPRAGUE ELECTRIC COMPANY, Solid Tantalum Capacitors, Lower Main St., P.O. Box 231, Sanford, ME 04073-0231, Tel: 207-324-4140, FAX: 207-324-7223

SPRAGUE ELECTRIC COMPANY, Aluminum Capacitors, 9800 Kincey Ave., Suite 100, Huntersville, NC 28078, Tel: 704-875-8070, FAX: 704-875-8541

SPRAGUE ELECTRIC COMPANY, Wet & Foil Tantalum Capacitors, MIL Filters, 1600 Curran Hwy., North Adams, MA 01247-3987, Tel: 413-664-4431, FAX: 413-663-5079

SPRAGUE ELECTRIC COMPANY, Film Capacitors, 1221 W. Hwy 17/92, Longwood, FL 32750, Tel: 407-695-6562, FAX: 407-695-6889

SPRAGUE ELECTRIC COMPANY, Thick Film Networks and Hybrids Div., 267 Lowell Rd., Hudson, NH 03051, Tel: 603-881-7200, 603-883-9774 (Mktg), FAX: 603-880-1910

SPRAGUE FIL-MAG, 4787 Cardin Street, San Diego, CA 92111-1416, Tel: 619-569-6577, FAX: 619-569-6073; Empl.: 500; *Sls. Mgr.:* Linda Sorrentino

SPRAGUE GOODMAN

FAX: 516-746-1396

SPRAGUE-GOODMAN ELCTRNS., INC., 134 Fulton Ave., Garden City Pk., NY 11040, Tel: 516-746-1385, TELEX: 14-4533; FSC No.: 52769; Empl.: 80; *Sls. Mgr.:* Martin D. Markson ..... **A•1140-1141**

Local Sales Offices & Reps

AL	Huntsville, Electramark Inc.	205-830-4400
AZ	Mesa, System Sls. of Arizona	602-464-9989
CA	Cupertino, Dura Elctrn. Sls.	408-255-2084
CA	Garden Grove, ELSCO Elctrns.	714-891-4621
CO	Denver, West Inc.	303-477-8180
CT	Milford, KSA Connecticut	203-524-5849
FL	Orlando, TMA	407-857-3760
GA	Norcross, Electramark Inc.	404-446-7915
ID	Meridian, WEST Inc.	208-888-6227
IL	Chicago, B.N.I. Elctrns.	312-775-1717
IN	Ft. Wayne, Denton Mktg., Inc.	219-486-0665
IA	Marion, M.S.B. Assocs.	319-377-6261
KS	Shawnee Mission, M.S.B. Assocs.	913-432-2131
MD	Monkton, Imagitron Sls.	301-374-5600
MA	Sudbury, KSA of New England	508-443-5881
MI	Brighton, A.P. Assocs.	313-229-6550
MN	Eden Prairie, Electro Mark Inc.	612-944-5850
MO	St. Charles, M.S.B. Assocs.	314-946-5577
NJ	Monkton, Imagitron Sls. Co., Inc.	800-638-3592
NM	Albuquerque, SSA of New Mexico	505-889-2901
NY	Melville, R F Elctrns. Sls. Co. Inc.	516-420-8890
NY	Utica, Upstate Engrg. Sls.	315-797-6721
NC	Raleigh, Micro Sls. Inc.	919-881-0007
OH	Cincinnati, Stegman Blaine Mktg.	513-729-1969
OR	Portland, Harry Levinson Co.	503-690-1312
PA	Maple Glen, Imagitron/Pennsylvania	800-638-3592
TX	Seagoville, Delta Comps.	214-287-6333
UT	Centerville, West/Utah	801-292-8787
WA	Seattle, Harry Levinson Co.	206-382-1300
PR	Rio Piedras, Elctrn. Sls. Assocs.	809-762-6459
Can	Toronto, Ont., Norgay Entprs.	416-259-9663

Local Distributors

AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Tempe, TTI, Inc.	602-431-1191
CA	Garden Grove, Natl. Elctrns.	714-892-7749
CA	Milpitas, Projections Unltd.	408-942-1717
CA	Milpitas, TTI, Inc.	408-946-5577
CA	Mission Hills, TTI, Inc.	818-892-4669
CA	Mission Hills, TTI, Inc.	818-891-8850
CA	San Diego, Neumann Elctrns.	619-695-3005
CA	San Diego, Projections Unltd.	619-453-7900

CA	San Diego, TTI, Inc.	619-748-2025
CA	Santa Ana, TTI, Inc.	714-641-9393
CA	Tustin, Projections Unltd.	714-544-2700
CO	Denver, TTI, Inc.	303-429-6806
CT	Wallingford, TTI, Inc.	203-284-7474
FL	Ft. Lauderdale, Bros. Elctrns. of FL	305-561-6700
FL	Melbourne, New Yorker Elctrns.	407-727-0955
FL	Orlando, TTI, Inc.	407-859-1000
GA	Norcross, TTI, Inc.	404-662-0911
MD	Columbia, TTI, Inc.	301-995-1331
MD	Savage, Pyttronic Inds.	301-953-9650
MA	Wilmington, TTI, Inc.	508-658-4700
MN	Eden Prairie, TTI, Inc.	612-944-5080
NJ	Fairfield, Tri Start Elctrns.	201-227-3500
NJ	Mt. Laurel, TTI, Inc.	609-234-6400
NY	Mamaroneck, New Yorker Elctrns.	914-698-7600
NY	Ronkonkoma, Tri-Start Elctrns.	516-737-2200
NY	Ronkonkoma, TTI, Inc.	516-737-2000
NC	Charlotte, TTI, Inc.	704-522-0277
OH	Columbus, TTI, Inc.	614-848-5770
PA	Harrisburg, Adtech	717-561-9905
PA	Montgomeryville, Pyttronic Inds.	215-855-0925
TX	Ft. Worth, TTI, Inc.	817-595-3100
TX	Garland, J & S Elctrns. Inc.	214-487-8808
WA	Redmond, TTI, Inc.	206-882-0291
WA	Seattle, Kam Elctrns.	206-382-1300
Can	Toronto, Ont., Norgay Entprs. Ltd.	416-234-8966

S-PRODUCTS INC., 35 Kings Highway East, Fairfield, CT 06430, Tel: 203-331-9546, FAX: 203-335-2723; Empl.: 4

SPS SOFTWARE PRODUCTS & SERVICES, INC., 14 E. 38th Street, 14th Fl., New York, NY 10016, Tel: 212-686-3790, TELEX: 852616, FAX: 212-481-7464; *Sls. Mgr.:* Peter Voletsky

SQUARE D CO., Executive Plaza, Palatine, IL 60067, Tel: 708-397-2600, FAX: 708-397-8814; Empl.: 19,000; *Sls. Mgr.:* J. Glore, VP Sls.; *Dist. Mgr.:* E.P. Mazzetta

SQUARE D. COMPANY, Control Products, Hwy 64 East, Knightdale, NC 27545, Tel: 919-266-3671, FAX: 919-266-8393; Empl.: 900

SQUARE D CO. POWER PROTECTION SYSTEMS, 9192 Topaz Way, San Diego, CA 92123-1165, Tel: 619-279-0831, TWX: 910-335-1556, FAX: 619-569-8427; FSC No.: 06049; Empl.: 200; *Sls. Mgr.:* Dan Mathews, Dir. of Sls.; *Dist. Mgr.:* Dan Mathews, Dir. of Sls.

Please refer to Topaz' sales representatives for distributor information.

SQUARE D. DATA ENTRY PRODUCTS FORMERLY K.B. DENVER, See MGR Industries

SR ENGINEERING, BW/IP International, Inc., 13961 Nautilus Dr., Dept. E, Garden Grove, CA 92643, Tel: 714-554-4200, TELEX: 364412INTR-871, FAX: 714-265-0856; FSC No.: 21441; *Sls. Mgr.:* Mel Hitchcock

SSAC INCORPORATED, P.O. Box 1000, Baldwinsville, NY 13027, Tel: 315-638-1300, FAX: 315-638-0333; FSC No.: 16-0985719; Empl.: 250; *Sls. Mgr.:* D. Carroll

S SQUARED ELECTRONICS, formerly ComTech Systems, Inc., 10 Halyard Rd., Valley Stream, NY 11581-2813, Tel: 516-791-1175; Empl.: 10

STACKBIN CORP., Albion Road, P.O. Box 397, Lincoln, RI 02865, Tel: 401-333-1600, 800-333-1603, FAX: 401-333-1952; Empl.: 50; *Sls. Mgr.:* Valerie Baxter; *Dist. Mgr.:* Timothy J. O'Leary

STACKPOLE CARBON COMPANY, 201 Stackpole St, St. Marys, PA 15857, Tel: 814-781-1234, FAX: 814-781-8570; *Sls. Mgr.:* R.A. Williams

STACKPOLE COMPONENTS CO., See Ark-les Special Products Grp., Div. of Stackpole Switches

STACKPOLE, MAGNET DIV., 700 Elk Ave., Kane, PA 16735, Tel: 814-837-0272, FAX: 814-837-0277; *Sls. Mgr.:* G.A. Olson, Mgr. Sls. & Mktg.

STACO, INC., See Staco Transpower

STACO ENERGY PRODUCTS CO.

FAX: 513-253-1723

STACO ENERGY PRODUCTS CO., 301 Gaddis Blvd., Dayton, OH 45403, Tel: 513-253-1191, TELEX: 288-032; FSC No.: 83008; Empl.: 146; *Sls. Mgr.:* Robert Simpson ..... **A•2412-2413**

Local Sales Offices & Reps

CA	Laguna Hills, South Rep	714-951-1084
CO	Wheat Ridge, Cluff	303-425-6604
FL	Maitland, H & H	305-831-2474
GA	Atlanta, Millar	404-634-3350
IL	Chicago, Saffro	312-677-9720
IN	Indianapolis, EMCI	317-921-3452
MA	Lexington, Hathaway	617-861-1010
MI	Detroit, Shalco	313-547-4771
MN	St. Paul, Kencotronics	612-645-7717
MO	St. Louis, Dowell	314-849-4234
NM	Albuquerque, Carlberg	505-836-1448
NY	Northport, LSC	516-266-5020
NC	Raleigh, Millar	919-828-8840
OH	Cleveland, Rockford	216-725-3705
OR	Hillsboro, Turn-A-Round	503-640-4661
PA	Philadelphia, ECSC	215-825-8610
TX	Dallas, B & R	214-985-0028
Can	Scarborough, Decade	416-439-9921

Local Distributors

AL	Birmingham, JLS	205-322-2486
CO	Arvada, Denver Beta Wintronics	303-431-7161
CO	San Francisco, Stevens Engrg.	415-588-9200
CT	Wallingford, Sager Elctrns.	203-265-4600
FL	Miami, Elctrn. Equip.	305-871-3500
GA	Atlanta, Cleveland Elec.	404-696-4550
HI	Honolulu, Victor Kim	808-841-6266
IL	Chicago, Newark Elctrns.	312-784-5100
IN	Indianapolis, Bell Elctrns.	317-875-8200
KY	Louisville, Peerless	502-637-7674
LA	Lafayette, Ralph's	318-234-4507
MA	Somerville, Electro Sls.	617-666-0500
MI	Madison Hgts., Galco	313-542-9090
MN	Minneapolis, Elctrn. Center	612-378-2442
MS	Jackson, Ellington Elctrns.	601-355-0561
MO	St. Louis, Chelsea Elctrns.	314-997-7709
NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Hauppauge, Broadline Elctrns.	516-231-4100
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Dayton, Stotts Friedman Elctrns.	513-298-5555
PA	Drexel Hill, Kass Elctrns.	215-449-2300
SC	Charleston, Wholesale Elctrns.	803-722-2634
TN	Knoxville, Indl. Elctrns.	615-573-7135
TX	Ft. Worth, Allied Elctrns.	817-336-5401
VA	Charlottesville, VA Elctrns.	804-296-4184
WA	Seattle, Radar Elec.	206-282-2511
WI	Milwaukee, Marsh Elctrns.	414-475-6000
Can	Scarborough, Decade Elctrns.	416-439-9921

STACOSWITCH, 1139 Baker St., Costa Mesa, CA 92626, Tel: 714-549-3041, TWX: 910-595-1507, FAX: 714-549-0930; FSC No.: 12522;Multiple; Empl.: 115; *Sls. Mgr.:* D. Sugg

STACO TRANSPOWER, Components Corp. of America, 610 W. 6th St, Mt. Carmel, IL 62863, Tel: 618-262-5555, FAX: 618-263-3150; FSC No.: 83008; Empl.: 75; *Sls. Mgr.:* Bill Chidester

STAFFALL INC., 1468 Elmwood Ave., Cranston, RI 02910, Tel: 401-461-5554, TWX: 710-381-6964; Empl.: 25

STAG MICROSYSTEMS INC., 1600 Wyatt Drive, Santa Clara, CA 95054, Tel: 408-988-1118, 1-800-227-8836, FAX: 408-988-1232; Empl.: 150; *Sls. Mgr.:* Phil Holden; *Dist. Mgr.:* Phil Holden

STAINLESS, INC., 210 S. 3rd St., N. Wales, PA 19454, Tel: 215-699-4871, TWX: 510-661-8097, FAX: 215-699-9597; Empl.: 80; *Sls. Mgr.:* Owen F. Ulmer

STANCOR

FAX: 219-722-5189

STANCOR, White-Rodgers, 131 Godfrey St, Logansport, IN 46947, Tel: 219-722-2244; FSC No.: 80089; Empl.: 400; *Sls. Mgr.:* Steve Fisher; *Dist. Mgr.:* Stephanie Starbuck, Prod. Mgr. ..... **A•2414-2419; B•1584-1587**

Local Sales Offices & Reps

AL	Athens, E.M.F.	205-233-2947
AZ	Contact Factory	219-722-2244
CA	Campbell, Shur Sls.	408-374-5577
CA	Irvine, Groh Assocs.	714-837-9871
CO	Denver, West, Inc.	303-477-8180
CT	Waterbury, Cannon Assocs.	203-597-0240
FL	Tampa, Uni-Rep	813-831-6083
GA	Atlanta, E.M.F.	404-944-9216
IL	Chicago, Joel Wasserman Assocs.	708-256-3566
IN	Ft. Wayne, K & D Sls.	219-436-2221
KS	Shawnee, Lowell Kangas	913-631-3515
MD	Sykesville, D.J.C.	301-795-7020
MA	Chelmsford, Cannon Assocs., Inc.	508-649-3809
MN	Bloomington, Murnco	612-854-4161
MO	St. Louis, Lowell Kangas	314-821-4050
NM	Contact Factory	219-722-2244
NY	Rochester, A.J. Electromarketing	716-426-3598
NC	Raleigh, E.M.F.	919-867-6221
OH	Beachwood, Elctrn. SalesMasters	216-831-9555
OR	Portland, Temper Tech.	503-292-8201
PA	Philadelphia, D.J.C.	215-334-4533
RI	Warwick, Cannon Assocs.	401-732-1570
TX	Richardson, Pro-Comp Sls.	214-669-1500
VT	Isle La Motte, Cannon Assocs.	802-928-3041

STANDARD CONDENSER CORP., 8151 N. Ridgeway, Skokie, IL 60076, Tel: 708-675-3133, FAX: 708-675-3709; FSC No.: 97419; *Sls. Mgr.:* B. P. McLean

STANDARD CRYSTAL CORPORATION, 9940 E. Baldwin Pl., El Monte, CA 91731, Tel: 818-443-2121, TELEX: 4998755, FAX: 818-443-9049; FSC No.: 30149; *Sls. Mgr.:* Tom Valasek/Gus Jimenez; *Dist. Mgr.:* Betty Longwell ..... **A•1469**

Local Sales Offices & Reps

AZ	Phoenix, CPS Assocs., Inc.	602-246-1097
AZ	Scottsdale, Az Tech-CPS Inc.	602-991-6300
CA	Milpitas, Ward Elctrn. Packaging Sls.	408-945-0420
GA	Norcross, Spar Tech Assocs.	404-446-7300
IL	Berkeley, ESA Tech. Mktg.	312-544-0120
IL	Northbrook, Allied Comp. Reps., Inc.	312-498-6658
MI	Grand Rapids, R.P. Urban & Assocs.	616-245-0511
MA	Sherborn, Barlow Engrg. Assoc., Inc.	508-655-6751
TX	Dallas, Allied Comps., Inc.	214-238-0408
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Bellevue, Caruso and Company	206-455-8811

STANDARD ENVIRONMENTAL SYSTEMS, INC., 383 Minnisink Rd., Totowa, NJ 07512, Tel: 201-256-2200, FAX: 201-256-2820; Empl.: 42

STANDARD GRIGSBY, INC., FLINT INDUSTRIES, See OakGrigsby, Inc.

STANDARD GRIGSBY INC., W. Gunther GMBH, Virnsberger Strasse 51, D 8500 Nurnberg 82, West Germany, Tel: 0911-65521, TELEX: 622351, FAX: 0911/6552-239

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STANDARD MAGNETIC CORP., 3000 E. Coronado St., Anaheim, CA 92806, Tel: 714-630-9751, FAX: 714-630-1601; Empl.: 15; *Sls. Mgr.:* Satish Jain

STANDARD MICROSYSTEMS, 35 Marcus Blvd., Hauppauge, NY 11788, Tel: 516-273-3100, FAX: 516-273-3123; FSC No.: 53848; Empl.: 500

STANDARD REFERENCE LABS, INC., See Koep Precision Standards, Inc.

STANDARD WIRE & CABLE CO., 1959 E. Cashdan St., Rancho Dominguez, CA 90220, Tel: 213-609-1811, 800-326-0006, TELEX: 65-3423, ESYLNK: 62931655, FAX: 213-609-1862; Empl.: 50; *Sls. Mgr.:* Dan Varvais; *Dist. Mgr.:* Jerry Gaither

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STANDEX ELECTRONICS, Standex International, 4538 Camberwell Rd., Cincinnati, OH 45209, Tel: 513-871-3777; FSC No.: 56402; Empl.: 450; *Sls. Mgr.:* Charles C. Johnson, VP Sls. .... **A•1262-1267; B•1782-1783**

Local Sales Offices & Reps

AL	Huntsville, R. W. Mitscher Co.	205-464-0792
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Cupertino, Codella Mktg. Grp., Inc.	408-257-2561
CA	Granada Hills, C & W Comp. Sls.	818-368-4032
CO	Longmont, Butler Tech. Sls.	303-651-7703
FL	Boca Raton, R. W. Mitscher Co.	305-368-3841
FL	Tequesta, R.W. Mitscher Co.	407-575-4485
GA	Lawrenceville, R. W. Mitscher Co.	404-923-3239
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
IN	Granger, Gregory Sls. Co.	219-272-9626
MD	Edina, Jay Borman Sls. Co.	612-922-5525
MD	Laurel, R. W. Mitscher Co., Inc.	301-498-6090
MA	Sudbury, KSA of New England	617-443-5881
MI	Detroit, R.P. Urban & Assoc.	313-535-2355
MI	Grand Rapids, R.P. Urban & Assoc.	616-245-0511
MO	Kansas City, EPI Inc.	816-523-8911
MO	St. Louis, EPI Inc.	314-962-1411
NJ	Woodbridge, Jade Mktg.	201-750-2998
NY	Clarence, R. W. Mitscher Co., Inc.	716-759-2350
NY	Red Hook, R. W. Mitscher Co., Inc.	914-758-8375
NY	Rochester, R. W. Mitscher Co., Inc.	716-227-0839
NC	Raleigh, R. W. Mitscher Co., Inc.	919-848-0941
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Portland, Components Technlg.	503-292-1518
PA	Wynnewood, Metz-Benham Assocs., Inc.	215-896-7300
TN	Johnson City, R. W. Mitscher Co., Inc.	615-929-7258
TX	Houston, B & R Elctrn. Sls. Corp.	713-682-5448
TX	Plano, B & R Elctrn. Sls. Corp.	214-985-0028
VA	Richmond, R. W. Mitscher Co., Inc.	804-320-7350
WI	Waukesha, Brainard-Wilson Mktg.	414-797-7940

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Local Sales Offices & Reps

AZ	Chandler, Lindberg Co.	602-786-9115
CA	Anaheim, Gabriel & Assocs.	714-666-0660
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Boulder, R-G Entprs.	303-447-9211
CT	Branford, Coakley, Boyd & Abbett, Inc.	800-225-8402,203-481-2218
FL	Palm Harbor, Bob Dean, Inc.	813-789-1233
GA	Atlanta, Wallace Elctrn. Sls.	404-634-3159
IL	Skokie, Indl. Rep.	708-967-8430
IN	Carmel, TMC	317-844-8462
IN	Ft. Wayne, TMC	219-432-5553
KY	Louisville, TMC	502-893-1377
MD	Gaithersburg, Naudain Assocs. Southern, Inc.	301-258-5040
MA	Framingham, Coakley, Boyd & Abbett, Inc.	508-820-0800
MI	Farmington Hills, J.L. Montgomery Assocs.	313-489-0099
MN	Minneapolis, R-J, Inc.	612-866-3661
MO	Blue Springs, Palatine Sls.	816-229-4007
MO	Florissant, Palatine Sls.	314-839-0800
NJ	Hackensack, Coakley, Boyd, Abbett, Metro	201-440-4114
NJ	Marlton, Naudain Assoc.	609-983-5300
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NC	Kernersville, Wallace Elctrn. Sls.	919-996-2742
OH	Centerville, Bear Mktg.	513-436-2061
OH	Richfield, Bear Mktg.	216-659-3131
TX	Austin, Allied Comps.	512-331-4494
TX	Dallas, Allied Comps.	214-238-0408
TX	Hurst, Allied Comps.	817-589-0456
WI	Brookfield, Indl. Rep.	414-789-9393
Can	Mississauga, Ont., Indigo Elctrs. Ltd.	416-670-0284

Local Distributors

AZ	Phoenix, Force Elctrns.	602-437-1060
AZ	Tempe, Cypress Elctrns.	602-966-2256
CA	Buena Park, Cypress Elctrns.	213-744-0355
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	San Diego, Cypress Elctrns.	619-535-0011
CA	Santa Clara, Cypress Elctrns.	408-945-8400
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CO	Englewood, Indelco	303-694-9444
CT	Danbury, Heilind Elctrns.	203-797-8600
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Orlando, Hammond Elctrn.	407-849-6060
IL	Palatine, Ohm Elctrns.	708-359-5500
IN	Ft. Wayne, Bell Inds.	219-423-3422
IN	Indianapolis, Bell Inds.	317-875-8200
MD	Gaithersburg, Pioneer/Wash.	301-921-0660
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Wilmington, Heilind Elctrns.	508-657-4870
MI	Grand Rapids, Calder Elctrns.	616-698-7400
MN	Fridley, Voyager Elctrns.	612-571-7766
NJ	W. Berlin, General Comps., Inc.	609-768-6767
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Buffalo, Summit Distr.	716-887-2800
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Rome, Rome Elctrns.	315-337-5400
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Dayton, Bell Inds.	513-435-8660
OH	Solon, Repco	216-248-8900
OH	Stow, Advacom	216-688-5311
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Radar Elec.	503-233-3404
PA	McKean, Advacom	814-476-7774
TX	Dallas, Harrison Equip. Co.	214-239-2750
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Stafford, Harrison Equip.	713-879-2727
TX	Stafford, Southwest Elctrns.	713-240-4000
WA	Seattle, Radar Elec. Co.	206-282-2511
WA	Spokane, Radar Elec. Co.	509-747-3053
WI	Mequon, Taylor Elec.	414-241-4321
Can	Burnaby, B.C., Semad Elctrns.	604-420-9889
Can	Calgary, Alberta, ITT Multicomponents	403-273-2780
Can	Concord, Ont., ITT Multicomponents	416-736-1144
Can	Edmonton, Alberta, ITT Multicomponents	403-436-9555
Can	Markham, Ont., Semad Elctrns.	416-475-8500
Can	Ottawa, Ont., Semad Elctrns.	613-727-8325
Can	Surrey, B.C., Memco Elctrn. Mkts.	604-590-1553
Can	Ville St. Laurent, Quebec, ITT Multicomponents	514-335-7697
Can	Winnipeg, Manitoba, ITT MultiComponents	204-697-2300
WA	Bellevue, Testco, Inc.	206-454-7422

STANFORD RESCH. SYS., INC., 1290 D. Reamwood Ave., Sunnyvale, CA 94089, Tel: 408-744-9040, TELEX: 706891 SRS UD, FAX: 408-744-9049; *Sls. Mgr.:* Daniel R. Melick

STANFORD TELECOMMUNICATIONS, INC., 2421 Mission College Blvd., Santa Clara, CA 95056, Tel: 408-748-1010, TWX: 910-339-9531, FAX: 408-980-1066; FSC No.: 61362; Empl.: 900; *Sls. Mgr.:* Chuck Frank

STANGENES INDUSTRIES, INC., 1052 East Meadow Circle, Palo Alto, CA 94303, Tel: 415-493-0814, FAX: 415-855-9926; FSC No.: 62709; Empl.: 61; *Sls. Mgr.:* Magne Stangenes

STANLEY ELECTRONICS DIV., 250 E. Sandford Blvd., Mt. Vernon, NY 10550, Tel: 914-699-2000; FSC No.: 61544; Empl.: 12

STANLEY

FAX: 714-222-0777

I I STANLEY CO. INC., Stanley Electric Co. LTD., 2661 Gates Avenue, Suite 2000, Irvine, CA 92714, Tel: 1-800-LED-LCD1; Empl.: 390; *Sls. Mgr.:* Bill Roth; *Dist. Mgr.:* Al Kile .... **B•1134, 1196-1201**

Local Sales Offices & Reps

AZ	Scottsdale, B.S.E.	602-483-0373
CA	Laguna Hills, Bart Budge Assoc.	714-582-8720
CO	Boulder, Stratford Grp.	303-530-3194
FL	Lighthouse Pt., Jack Krutek Assoc.	305-783-2501
IL	Berkeley, ESA Tech. Mktg.	708-544-0120
IN	Indianapolis, EMCI	317-921-3450
KS	Overland Park, Mink Assoc.	913-341-8309
MA	N. Reading, Alpha-Omega Sls.	508-664-1118
MN	Minneapolis, Holmgren Assoc.	612-574-9883
MO	Bridgeton, Mink Assoc.	314-291-5454
NY	Port Washington, ASHTEC	516-767-0336
OH	Dayton, K W Elctrns.	513-899-2150
PA	Horsham, Jacobsen Assoc.	215-674-2937
TX	Dallas, TESCO	214-553-1200
WA	Kirkland, Northwest Comp. Sls.	206-828-2104
WY	Jackson, TETONICS	307-733-1077
Can	Markham, Ontario, Deskin Sls.	416-475-1412

Local Distributors

AL	Huntsville, Future Elctrns.	205-830-2322
AZ	Phoenix, Arizona Comps.	602-269-5655
CA	Santa Clara, Cypress Elctrns.	408-980-2500
CO	Littleton, Indelco, Inc.	303-796-3461
CT	Hartford, Wesgarde Comps. Grp.	203-527-7705
FL	Lakeland, Wesgarde Comps. Grp.	813-644-7564
IL	Woodale, NEP Elctrns.	708-595-8500
IA	Cedar Rapids, DEE Elctrns. Inc.	319-365-7551
MD	Columbia, Future Elctrns.	301-290-0600
MA	Westborough, Future Elctrns.	508-366-2400
MI	Livonia, Future Elctrns.	313-261-5290
MN	New Brighton, CHRIS Elctrns.	612-631-2647
MO	St. Louis, Wesgarde Comps. Grp.	314-567-7776
NH	Nashua, Wesgarde Comps. Grp.	603-880-1971
NJ	Mt. Laurel, Wesgarde Comps. Grp.	609-778-8190
NY	Rochester, Future Elctrns.	716-272-1120
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Meafield Heights, Future Elctrns.	216-449-6996
PA	N. Versailles, CMD Elctrns.	412-678-6020
TX	Houston, Kent Elctrns.	713-780-7770
WA	Redmond, Priebe Elctrns.	206-881-2363
WI	New Berlin, NEP Elctrns.	414-785-9100

STANLEY-VIDMAR, Stanley Works, 11 Grammes Rd., Allentown, PA 18103, Tel: 215-797-6600, TELEX: 847-345; Empl.: 500ò; *Sls. Mgr.:* Ernie Gitlin, Vic Joliat; *Dist. Mgr.:* Frank Casey

STANPAT PRODS., 100 Goldstein Drive, Woonsocket, RI 02895, Tel: 401-766-8400, FAX: 401-767-0244; Empl.: 35; *Sls. Mgr.:* Mark Barbone

STANTON MAGNETICS, INC., Terminal Dr., Plainview, NY 11803-1511, Tel: 516-349-0235, TWX: 510-221-1845, FAX: 516-349-0230; Empl.: 300; *Dist. Mgr.:* Jack O'Donnell, Natl. Sls. Mgr.

STANTRON, Unit of Zero Corporation, 6900-6918 Beck Ave., P. O. Box 9156, N. Hollywood, CA 91605, Tel: 818-841-1825, FAX: 818-841-8892; FSC No.: 06514; Empl.: 125; *Sls. Mgr.:* G. A. Tessier

STAR CASE MANUFACTURING CO., INC., 648 Superior Avenue, Munster, IN 46321, Tel: 219-922-4440, 800-822-STAR (outside IN), 800-782-CASE (inside IN), FAX: 219-922-4442; Empl.: 75; *Sls. Mgr.:* Veronica Stadden .... **C•1097**

FAX: 908-572-5095

STAR MICRONICS, INC., OEM Division, 70-D Ethel Rd. W., Piscataway, NJ 08854, Tel: 908-572-9512; Empl.: 120; *Sls. Mgr.:* Georgia Lombardi; *Dist. Mgr.:* Chris Duffy ..... **D•1062-1065, 1112-1115**

Local Sales Offices & Reps

CA	Irvine, Star Micronics	714-768-7203
IL	Itasca, Star Micronics	312-773-3717

Local Distributors

CA	Los Angeles, Elec. Switches, Inc.	213-660-1310
CA	San Diego, Tauber Elctrns.	619-274-7242
CA	Stanton, MS Cash Drawer	818-792-2111
CA	Sunnyvale, Penstock / Waltronics	408-730-0300
CO	Englewood, NEP Elctrns.	303-799-9898
FL	Davie, Arco Dist., Inc.	305-473-2550
GA	Norcross, Applied Power	404-263-0421
IL	Wood Dale, NEP Elctrns.	708-595-8500
IL	Wheeling, Hawk Elctrns.	708-459-4030
MD	Middletown, Current Comps.	301-473-5333
MA	Sharon, Adcour	617-784-8123
MI	Brighton, Applied Power	313-227-3604
MI	Grand Rapids, S. F. Elec. Supp., Inc.	616-459-0216
NJ	Sparta, Instrument & Equip.	201-729-4293
NY	Hewlett, Metropolitan Sls.	516-599-7900
OH	Cincinnati, U.R.I. Elctrns.	513-761-4030
TX	Channelview, R. T. Henry Elctrns.	713-452-4451
TX	Dallas, Foxfire	214-353-9543
CA	Tustin, OBI Dists.	714-250-9003
WI	New Berlin, NEP Elctrns.	414-785-9100
EXP	Markham, Ont., Birde Mktg.	416-477-7722

STAR PORCELAIN, 71 Muirhead Ave., Trenton, NJ 08638, Tel: 609-392-3154; Empl.: 70; *Sls. Mgr.:* Art Weigold

STAR-TRON CORPORATION, 58 Curtis St., Providence, RI 02909, Tel: 401-274-5090, FAX: 401-274-3936; Empl.: 50; *Sls. Mgr.:* Debra Chandronet-Christy

FAX: 714-997-1256

STATEK CORP., 512 N. Main St., Orange, CA 92668, Tel: 714-639-7810, TELEX: 67-8394; FSC No.: 51791; Empl.: 200; *Sls. Mgr.:* Bob Goodwin; *Dist. Mgr.:* S. Schaefer ..... **A•1470-1471**

Local Sales Offices & Reps

AL	Huntsville, L & D	205-837-1469
AZ	Phoenix, Eltron	602-266-2164
CA	Fallbrook, Chilcote Assoc.	619-728-7678
CA	Mission Viejo, Jay Mktg.	714-768-7519
CO	Englewood, Comp. Sls.	303-779-8060
FL	Palm Habor, Sigma Tech	813-789-5522
GA	Atlanta, L & D	404-395-7079
IL	Rolling Meadows, Eagle Tech. Sls.	312-991-0700
IN	Fort Wayne, M/S Sls. & Assocs.	219-436-3023
IN	Greenwood, M/S Sls. & Assocs.	317-881-0110
IA	Des Moines, SPS Assocs.	515-225-0607
KS	Olathe, SPS Assocs.	913-764-4460
MA	Woburn, Radian Assocs.	617-933-7386
MI	Brighton, AP Assoc.	313-229-6550
MN	Bloomington, Murnco Inc.	612-854-4161
MO	Earth City, SPS Assocs.	314-291-0520
NJ	Bellmawr, TAI Corp.	609-778-5353
NY	New Rochelle, Robert Diamond Inc.	914-632-2828
NC	Charlotte, Prime Comps.	704-522-1150
NC	Raleigh, Prime Comps.	919-850-9866
OH	Centerville, Omega Sls. Inc.	513-434-5507
OH	Cleveland, Omega Sls. Inc.	216-360-9400
OR	Oregon City, Halbar Assoc.	503-656-3714
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom	713-778-0392
UT	Midvale, Comp. Sls.	801-561-5688
WA	Redmond, Halbar Assocs.	206-882-0990

Local Distributors

CA	Orange, Western Micro	714-637-0200
CA	San Diego, Western Micro	619-453-8430
CA	Sunnyvale, Target Elctrns.	408-733-0384
CA	Yorba Linda, Target Elctrns.	714-692-1630
CO	Littleton, Indelco	303-795-3431
FL	Ft. Lauderdale, Reptron Elctrns.	305-735-1112
FL	Tampa, Reptron Elctrns.	813-855-4656
GA	Norcross, Reptron Elctrns.	404-446-1300
IL	Palatine, OHM Elctrns.	708-359-5500
IL	Schaumberg, Reptron Elctrns.	708-882-1700
IN	Indianapolis, Mar Elctrns., Inc.	317-633-6699
MA	Woburn, First Frequency	617-935-3885
MI	Livonia, Reptron Elctrns.	313-525-2700
MN	Minnetonka, Reptron Elctrns.	612-938-0000
MO	Maryland Hgts., RS Elctrns.	314-997-7709
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Mt. Vernon, All American	914-699-2224
OH	Solon, Reptron Elctrns.	216-349-1415
OH	Worthington, Reptron Elctrns.	614-436-6675
TX	Richardson, Ewing Elctrns., Inc.	214-231-6725
WA	Redmond, Kent Elect	206-883-7200

STATE OF THE ART, INC., 2470 Fox Hill Rd., State College, PA 16803-1797, Tel: 814-355-8004, TELEX: 866633, FAX: 814-355-2714; Empl.: 100; *Sls. Mgr.:* Joseph J. Curcio ..... **A•1986-1991**

Local Sales Offices & Reps

AZ	Phoenix, Eltron, Inc.	602-266-2164
CA	La Miranda, Select Elctrns.	714-739-8891
CA	Saratoga, EMS	408-446-3833
CT	New Haven, Masten-Wright, Inc.	203-288-1638
FL	Melbourne, Graham Assoc., Inc.	407-773-6631
FL	Palm Bch. Gdns., Graham Assoc., Inc.	407-662-4049
IL	Glenview, Crimson Engrg. Sls., Inc.	312-470-0024
IN	Indianapolis, Hi-Tech Sls.	317-887-2564
MA	Newton, NormellAssocs.,Inc.	617-969-5478
MN	Edina, Peterson Sls. & Assocs.	612-944-0030
NY	Huntington, Compar NY, Inc.	516-423-5660
NY	Lewistown, Watmet, Inc.	716-285-3595
PA	Colmar, E.L. Assocs.	215-822-2510
TX	Dallas, Merino Sls. Co.	214-233-6002
WA	Bellevue, Mars	206-747-3292
Can	Niagara Falls, Waters Metal Prods., Ltd.	416-356-4925

Local Distributors

CA	Los Alamitos, Semi Dice, Inc.	213-594-4631
FL	Tampa, Impala Elctrns.	813-885-4747
NJ	Fairfield, CHPS, Inc.	201-882-0997
NJ	Fairfield. Micross Comps.	201-227-8007
NY	Melville, Semi Dice	516-753-0050
NY	Port Chester, Zeus Comps.	914-937-7400

FAX: 516-666-8039

STAVER CO., INC., P.O. Box 220M 41 Saxon Ave., Bay Shore, NY 11706, Tel: 516-666-8000, TELEX: 6711657 STAVER; Empl.: 80; *Sls. Mgr.:* Arnold Lazarus ..... **B•1127-1131**

Local Sales Offices & Reps

CA	Ventura, R D Sls. Corp.	805-650-0111
IL	Wheaton, RMP McBride Corp.	708-462-2500
IN	Sugar Grove, The Manx Co.	708-466-4200
MI	Jackson, Jordan-Elliott Sls.	517-788-8353
MN	St. Paul, Proud Inds.	612-646-9428
NH	Hancock, Eisenbeis Sls.	603-525-4417
NY	East Northport, Levison Sls. Co.	516-266-5020
NC	New Hill, Tom G. Santel	919-362-4091
OK	Tulsa, Jerry Robison & Assocs.	918-665-3562
OR	Beaverton, Quest Mkgt.	503-641-7377
PA	Montgomeryville, Eastern Scientific Mktg.	215-368-4570
SC	Mauldin, Carl Hart Assocs.	803-288-2323
TX	Dallas, Innovative Tech. Sls.	214-669-3485
TX	Houston, Innovative Tech. Sls.	713-468-3882
WA	Bellevue, Quest Mkgt.	206-747-9424
WI	Colgate, RMP McBride Sls. Corp.	414-628-4016

STEMCO INSTRUMENTS, Colt Industries, P.O. Box 8047, Longview, TX 75607, Tel: 214-643-3236, TWX: 710-730-5236, FAX: 214-643-3339; FSC No.: 07446; Empl.: 100; *Sls. Mgr.:* Bob Halpin

STENNING INSTRMENTS, INC., 671 Enchanted Way, Pacific Palisades, CA 90272, Tel: 213-459-2930, FAX: 213-459-4983; *Sls. Mgr.:* Charles Stenning

STEP ENGINEERING, P.O. Box 3166, Sunnyvale, CA 94088, Tel: 408-733-7837, TWX: 910-339-9506, FAX: 408-773-1073; Empl.: 50; *Sls. Mgr.:* Robert C. Davi

STEPHENS ANALYTICAL, INC., 2750 Brabant-Marineau, Montreal, Que., CA H4S 1L1, Tel: 514-332-1230, FAX: 514-331-2084; Empl.: 8; *Sls. Mgr.:* Mr. Alan Lee

STERLING INSTRUMENTS, 2101 Jericho Turnpike, New Hyde Pk., NY 11040, Tel: 516-328-3300, TWX: 510-223-0642, FAX: 516-326-8827; Empl.: 150

STETCO, INC., 3344 Schierhorn Ct., Franklin Pk., IL 60131, Tel: 708-671-4208, FAX: 708-671-5270; FSC No.: 52763; Empl.: 41; *Sls. Mgr.:* Saul A. Gusaras

STETRON INTERNATIONAL, INC., 90 Broadway, Buffalo, NY 14203, Tel: 716-854-3443, FAX: 716-854-3448; Empl.: 70

STEVENS-ARNOLD DIV., Computer Prods./Stevens-Arnold, 7 Elkins St., So. Boston, MA 02127, Tel: 617-268-1170, TELEX: 95-1456 STEARCO, TWX: 710-339-0855, FAX: 617-268-0300; FSC No.: 80640; Empl.: 260; *Sls. Mgr.:* John T. Parent

Refer to Computer Products, Inc., Fremont, CA for sls. offices and reps. and for distrs. listings. Refer to Computer Products, Inc., Pompano Beach, FL for sls. offices and reps. and for distrs. listings.

STEVENS PRODUCTS, INC., 128 N. Park St., E. Orange, NJ 07019, Tel: 201-672-2140, FAX: 201-672-2837; Empl.: 50; *Sls. Mgr.:* Robert Cantilina

STEWARD, D. M., MFG. CO., E 36th st., P.O. Box 510, Chattanooga, TN 37401, Tel: 615-867-4100, FAX: 615-867-4102; Empl.: 250; *Sls. Mgr.:* Don Lepard

STEWART CONNECTOR SYS., INC., Insilco, R.D. No. 2 Box 2020, Glen Rock, PA 17327, Tel: 717-235-7512, TELEX: 4977105, FAX: 717-235-7954; Empl.: 187; *Sls. Mgr.:* Ed Cavanaugh; *Dist. Mgr.:* Ed Cavanaugh ..... **C•1533**

Local Sales Offices & Reps

AL	Huntsville, Hughes Assoc., Inc.	205-533-9108
CA	Dana-Point, PCA	714-493-9822
CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Boulder, Component Prod. Sls. Co., Inc.	303-530-2800
CT	Madison, Focus	203-245-4314
FL	Tamarac, Hughes Assoc., Inc.	305-720-1674
GA	Norcross, Hughes Assoc., Inc.	404-662-1561
IL	St. Charles, XYZ Mktg.	708-584-3001
IN	Columbus, Connect 21, Inc.	812-378-4361
KS	Parker, S.W. Assocs., Inc.	913-898-6552
KY	Louisville, Connect 21, Inc.	502-426-8955
MA	Tauton, Focus	508-824-3840
MI	Southfield, Carl H. Schmidt	313-353-6000
MN	Brooklin Center, Combined Sls.	612-566-2724
MS	Corinth, Hughes Assoc.	601-287-2915
NJ	Paramus, Atlantic Tech. Comps., Inc.	201-261-0542
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
NC	Charlotte, Quantum	704-523-8822
OH	Dayton, J.C. Hofstetter Co.	513-296-1010
OH	Medina, J.C. Hofstetter	216-725-6422
OK	Tulsa, Blair Engrg., Inc.	918-622-3100
OR	Beaverton, Elctrns. Northwest,Inc.	503-629-9241
PA	Glen Rock, SCS	717-235-7512
TX	Dallas, Blaire Engrg., Inc.	214-241-5655
UT	Salt Lake City, Component Prod. Sls., Inc.	801-531-7672
WA	Redmond, Elctrns. Northwest, Inc.	206-883-1959
Can	Bellevue, Ont., Quest	206-747-9424
Can	Campden, Ont., Magden	416-563-5408

Local Distributors

CA	Irvine, Kensington Elctrns.	714-588-0575

STIMPSON COMPANY, INC., 900 Sylvan Ave., Bayport, NY 11705-1097, Tel: 516-472-2000, TELEX: ITT 4972370, FAX: 516-472-2425; Empl.: 900; *Sls. Mgr.:* Edward J. Dewalters

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ST MICROWAVE CORP., Sub. of Signal Technlg. Corp., 955 Benecia Ave., Sunnyvale, CA 94086, Tel: 408-730-6300, FAX: 408-245-3396,408-733-0254; FSC No.: 27338; Empl.: 237; *Sls. Mgr.:* Phillip B. Cox-VP

STOCK DRIVE PRODUCTS, Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040, Tel: 516-328-0200, 328-3300, TWX: 510-223-0642, FAX: 516-326-8827; Empl.: 228; *Sls. Mgr.:* Murray Ores ..... **B•1312**

Local Sales Offices & Reps

AL	Huntsville, Par Marketing, Inc.	205-859-5702
CA	Chatsworth, Western Comp. Sls.	818-882-6226
CA	San Carlos, SDP West	415-594-0700
CA	San Carlos, Western Comp. Sls. N.	415-594-1222
CO	Denver, Manufacturer's Mktg.	303-985-2008
CO	Wheatridge, Manufacturers Mktg.	303-425-9569
CT	Wethersfield, Underwood Sls.	203-563-3046
FL	Clearwater, Tech-Rep Assoc., Inc.	813-576-9900
IL	Downers Grove, Rockford Controls Co.	312-960-2046
IN	Indianapolis, Rockford Controls Ohio	317-251-2866
MD	Upperco, Imagitron Sls. Co.	301-374-5600
MA	Lowell, Underwood Sls.	617-256-8191
MA	Topsfield, Liberty Electro	508-887-6655
MI	Southfield, R.C. Nordstrom & Co.	313-559-7373
MN	St. Paul, Northstar Motion & Control	612-770-5311
NJ	Paramus, Design Elctrns.	201-845-6224
NY	Clark Mills, KLM-Garner, Inc.	315-853-6126
NY	New Hyde Park, SDP	516-328-3300
NY	Pittsford, KLM-Garner	716-381-8350
OH	Euclid, Rockford Controls Ohio, Inc.	216-731-5250
OH	Medina, Rockford Controls Ohio	216-725-3705
TX	Houston, Zonk & Assoc.	713-579-7777
TX	Richardson, Zonk & Associates	214-238-7651
WA	Seattle, Northmar Inc.	206-524-5170
WI	Madison, Rockford Controls	608-233-8750

Local Distributors

CA	San Carlos, SDP West	415-594-1222

STOCK MODEL PARTS, Designatronics Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040, Tel: 516-328-3300, FAX: 516-326-8827

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MO	St. Louis, Advanced Tech. Sls.	314-878-2921
NJ	West Caldwell, Grimm, Siegel Assocs.	201-575-9300
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NY	Buffalo, Tri-Tech	716-877-3677
OH	Cincinnati, Elctrn Comps.	513-729-1969
PA	Broomall, Imagitron Sls.	215-356-5300
PA	Pittsburgh, Elctrn. Comps.	412-242-9500
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TX	Dallas, Associated Aircraft	214-331-4381

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FL Pompano Beach, Hutto, Hawkins Assocs. 305-979-0330
FL Tampa, Hutto, Hawkins, Assocs., Inc. .. 813-251-2970
GA Atlanta, Millar Elctrns. 404-634-3350
IL Skokie, I.R.I 312-967-8430
IN Ft. Wayne, R.O. Whitesell & Assocs. .. 219-432-5591
IN Indianapolis, R.O. Whitesell & Assocs. 317-359-9283
IN Kokomo, R. O. Whitesell 317-457-9127
IA Cedar Rapids, R. W. Kunz 319-396-5386
KS Prairie Village, R.W. Kunz 913-648-3535
KY Peewee Valley, R.O. Whitesell & Assocs. 502-241-1441
LA Covington, Cartwright & Bean 504-892-1780
MA Needham, Coakley, Boyd & Abbett 617-444-5470
MI Grand Rapids, R.O. Whitesell & Assocs. 616-942-5420
MI Southfield, R. O. Whitesell 313-559-5454
MI St. Joseph, R.O. Whitesell & Assocs. .. 616-983-7337
MN Minneapolis, Stoss & Assocs. 612-925-2757
MS Jackson, Cartwright & Bean 601-981-1170
MO St. Louis, R.W. Kunz 314-966-4977
NJ Long Valley, Paul A. Sweeney 201-852-1434
NY Rochester, Electra Sls. 716-427-7860
NY Syracuse, Electra Sls. 315-463-1248
NC Raleigh, Millar Elctrns. 919-828-8840
OH Cincinnati, R.O. Whitesell & Assocs. ... 513-521-2290
OH Cleveland, R.O. Whitesell & Assocs. .. 216-447-9020
OH Columbus, R.O. Whitesell & Assocs. .. 614-888-9396
OH Dayton, R.O. Whitesell & Assocs. 513-298-9546
OR Beaverton, Electronic Sources Inc. 503-684-0838
PA Pittsburgh, R.O. Whitesell & Assocs. .. 412-963-6161
PA Trevose, P.S.A. Inc. 215-245-0513
TN Memphis, Cartwright & Bean 901-362-8345
TX Dallas, Erickson Sales 214-739-5833
TX Houston, Erickson Sales 713-266-1604
TX Round Rock, Erickson Sls. 512-244-3068
CO Wheatridge, Cluff & Assocs. 303-423-9354
WA Bellevue, Electronic Sources Inc. 206-451-3500
WI Milwaukee, F.C. DuBois & Assocs. 414-774-3100

SYMBICON ASSOC. INC., P.O. Box 896, Amherst, NH 03031, Tel: 603-673-8898, FAX: 603-673-1372; *Sls. Mgr.:* S. Harrington; *Dist. Mgr.:* S. Buzzell

SYM-TEK SYS., INC., 3912 Calle Fortunada, San Diego, CA 92123, Tel: 619-569-6800, TELEX: 249036, FAX: 619-569-8296; Empl.: 350; *Sls. Mgr.:* Roger Hopkins

SYMTRON CORP. DIV. DICEON ELCTRNS., 2415 E. Charleston Rd., Mountain View, CA 94043, Tel: 415-965-4500, TWX: 910-379-5002; Empl.: 350; *Sls. Mgr.:* Don Atkins

SYNEKTRON
THE MOTION CONTROL COMPANY

FAX: 503-639-5453

SYNEKTRON CORPORATION, 12000 S. W. Garden Place, Portland, OR 97223, Tel: 503-684-3090; Empl.: 73 ..... **B•1316-1317**

SYNOPTICS, LTD., Paragon Towers, 233 Needham St., Newton, MA 02164, Tel: 617-527-4461, FAX: 617-527-4084; Empl.: 25; *Sls. Mgr.:* Barbara Finer; *Dist. Mgr.:* Barbara Finer

FAX: 508-481-5769

SYNTEST CORP., 40 Locke Dr., Marlboro, MA 01752-9973, Tel: 508-481-7827; Empl.: 26; *Sls. Mgr.:* Mitchell Corrigan ..... **D•1116**

Local Sales Offices & Reps
CA Huntington Beach, Mil-Com Sales, Inc. 714-677-2097
CA Los Gatos, Mil-Com Sales, Inc. 408-356-2968
CA San Diego, Mil-Com Sales, Inc. 619-275-0641
CO Franktown, M R C, Inc. 303-794-4684
CT Orange, Isdale Assocs. 203-389-8583
FL Altamonte Springs, Carter Assocs. 407-260-5566
IL Arlington Hgts., Coombs Assocs., Inc. 708-439-9810
MN St Louis Park, Elctrn. Innovators, Inc. .. 612-922-2945
NJ Butler, General Technlgs. 201-492-1292
NY Saugerties, Beckrep 914-246-3031
OH Aurora, EMA, Inc. 216-562-6104
OH Aurora, Meta Tech. Sls., Inc. 216-562-8772
OH Centerville, EMA Inc. 513-433-2800
OH Centerville, EMA, Inc. 513-433-2800
OR Beavertown, Seltech 503-629-9254
TX Austin, C & L Assocs. 512-263-3334
PA Montgomeryville, Eastern Sci. Mktg. 215-368-4570
TX Missouri City, C & L Assocs. 713-499-5541
WA Beaverton, Seltech Elctrns. 503-629-9254
WA Bellevue, Seltech 206-746-7970
WA Richland, Seltech 509-943-5288
WI Milwaukee, Coombs Assocs. 414-351-6123

Local Distributors
WV Ravenswood, Valtronics, Inc. 304-273-5356

SYSCON INTL., INC., 1108 So. High St., So. Bend, IN 46601-3796, Tel: 219-232-3900, FAX: 219-287-5916; Empl.: 80; *Sls. Mgr.:* Phil Barney

SYSTEM GENERAL CORPORATION, 244 South Hillview Drive, Milpitas, CA 95035, Tel: 408-263-6667, FAX: 408-262-9220; Empl.: 52; *Sls. Mgr.:* Gary Delucchi; *Dist. Mgr.:* Gary Delucchi

SYSTEMS DATA, INC., 2830 Copley Road, P.O. Box 4297, Akron, OH 44321, Tel: 216-666-0085, FAX: 216-666-7183; Empl.: 12; *Sls. Mgr.:* John C. Hall

SYSTEMS RESEARCH LABOROTORIES, Arvin/Calspan, 2800 Indian Ripple Rd., Dayton, OH 45440, Tel: 513-426-6000, FAX: 513-426-1984; FSC No.: 14590; Empl.: 1000; *Sls. Mgr.:* Frank Balogh Sr.

SYSTEMS TESTING, INC., PO Box 242, Santa Clara, CA 95052, Tel: 408-727-0100, TWX: 910-338-0260; Empl.: 4; *Sls. Mgr.:* Frank J. Ardezzone

SYSTRON-DONNER INERTIAL DIV., 2700 Systron Dr., Concord, CA 94518, Tel: 415-671-6400, TWX: 910-481-9478, FAX: 415-671-6590; Empl.: 370; *Sls. Mgr.:* G. W. Felsing

SYSTRON-DONNER INSTRUMENT DIV., 2727 Systron Dr., Concord, CA 94518, Tel: 415-676-5000, TELEX: 171996, TWX: 910-481-9479; FSC No.: 52542; Empl.: 100; *Sls. Mgr.:* N. J. Susner, Gen. Mgr.

SYSTRON-DONNER MICROWAVE DIV., 13100 Telfair Ave., Sylmar, CA 91342, Tel: 818-362-9900, FAX: 818-362-1035; Empl.: 160; *Sls. Mgr.:* Ashvin K. Sheth

SYSTRONIX INC., 754 E. Roosevelt Ave., P.O Box 526398, Salt Lake City, UT 84152-6398, Tel: 801-487-7412, FAX: 801-487-3130; Empl.: 2; *Sls. Mgr.:* Bruce Boyes

3-D VISIONS, 412 S. Pacific Coast Hwy., Redondo Beach, CA 90277, Tel: 213-540-8818, 800-SAY-GRAF, FAX: 213-540-3492; Empl.: 8

TAB/MCGRAW-HILL, McGraw-Hill Inc., Blue Ridge Summit, PA 17294-0850, Tel: 717-794-2191, TELEX: 820562, FAX: 717-794-2080; Empl.: 400; *Sls. Mgr.:* Tim Higgins

TACC INTERNATIONAL CORP. FORMULATED RESINS GRP., Air Station Inds. Pk., Rockland, RI 02370, Tel: 617-878-7015, TELEX: 952123, ESYLNK: 5106015650(TACC INTL CORP), FAX: 617-871-6727; Empl.: 70; *Sls. Mgr.:* Norman G. Harrington

FAX: 516-621-4517

TADIRAN ELECTRONIC INDUSTRIES, INC., 40 Seaview Blvd., Port Washington, NY 11050, Tel: 516-621-4980; Empl.: 6300; *Dist. Mgr.:* Avi Timor, Sls. Mgr. ..... **D•1493**

Local Sales Offices & Reps
AL Huntsville, Montgomery Mktg. 205-830-0498
AZ Tempe, Reptronix Ltd. 602-345-4580
CA Cameron Pk., Parsons Tech. Mktg. 916-676-2025
CA San Jose, Tritech Sls. 408-925-9409

CA Santa Ana, Technlg. Solutions 714-558-9562
CT Bloomfield, Friedman Sls. Inc. 203-243-3122
FL Melbourne, Photon Sls. Inc. 407-259-8999
GA Norcross, Montgomery Mktg. 404-447-6124
IL Palatine, Technology Sls. 708-991-6600
MI Grand Rapids, R.P. Urban & Assocs. .. 616-245-0511
MN St. Louis Pk, Elctrn. Innovators 612-922-2945
MO Florissant, G.M. Brown & Assoc. 314-839-3600
NM Albuquerque, Reptronix Ltd. 505-292-1718
NC Raleigh, Montgomery Mktg. Inc. 919-851-0010
OH Cleveland, Arthur H. Baier Co. 216-461-6161
OK Broken Arrow, G.M. Brown & Assoc. .. 918-251-2084
OR Portland, Elctrn. Engrg. Sls. 503-639-3978
TX Austin, Mil-Rep Assocs. 512-346-6331
TX Houston, Mil-Rep Assocs. 713-444-2557
TX Richardson, Mil-Rep Assocs. 214-644-6731
VA Sterling, Beacon North 800-336-3747
WA Redmond, Elctrn. Engrg. Sls. 206-883-3374
WI Milwaukee, Technlg. Sls. 414-964-5015
Can Markham, Ont., Designtronics 416-513-8760
Can Richmond, B.C., Blakewood Elctrns. ... 604-273-9910

Local Distributors

CA Canoga Pk., Powerline 818-887-3337
CA Costa Mesa, Battery Specialties 714-755-0888
CA Costa Mesa, House of Batteries 714-548-3968
CA Los Angeles, Bell Inds.(Corporate Ofc.) 213-826-1534
CA Palo Alto, Power Source 415-856-0700
CA San Diego, Tauber Elctrns. 619-274-7242
CA San Jose, JDR MicroDevices 408-559-1200
CA Tarzana, Battery Biz 818-774-1678
FL Altamonte Springs, TNR Tech. 800-346-0601
FL Jacksonville, Sunn Battery 904-353-6452
GA Decatur, ELS 800-334-5066
IL Chicago, Newark Elctrns.(Corporate Ofc.) 312-784-5100
LA Lafayette, Mark Avant Sls. 301-232-6609
MD Gaithersburg, Pioneer Technlgs.(Corporate Ofc.) 301-921-0660
MA Andover, Generation Elctrns. 508-683-1177
MI Livonia, LWC Distrs. 313-464-7700
MN St. Paul, Shelly Ragon(Corporate Ofc.) 612-642-2820
NY Plainview, Micro Connections 516-993-1400
NY Staten Island, Yakar Sys. 718-447-6791
NC Winston Salem, Progressive Technlgs. 919-761-1375
OH Cleveland, Pioneer Standard(Corporate Ofc.) 216-587-3600
OH Columbus, Promark Elctrns. 614-876-8885
OR Beaverton, Micro Power 503-626-7086
PA Richboro, Power Comps. 800-628-7029
TX Ft. Worth, Tandy Consumer 817-390-8245
TX Houston, Bar-Tec 713-957-4717
TX Richardson, Elect-A-Van 214-231-5351
Can Alberta, Cardinal 403-483-6266
Can Markham, Ont., Semad 416-475-8500

TA ENGINEERING CO., INC., 1605 School St., Morago, CA 94556, Tel: 415-376-8500, FAX: 415-376-4977; Empl.: 12

TAIYO YUDEN (USA) INC., 714 W. Algonquin Rd., Arlington Heights, IL 60005-4493, Tel: 708-364-6104, FAX: 708-870-7828; Empl.: 63; *Sls. Mgr.:* Ken Keim

FAX: 314-265-3350

TALEMA ELECTRONIC, INC., P.O. Box 306, Saint James, MO 65559, Tel: 314-265-5500; Empl.: 44; *Sls. Mgr.:* Jeff Goff ..... **A•2422-2426**

Local Sales Offices & Reps

Can Markham, Ont., Avotronics, Ltd. 416-475-2024
CA Encino, King-Way Assocs., Inc. 818-788-4124
CA American Canyon, Jacobson & Assocs. 707-552-4412
CO Grand Junction, Krebill Comp. Sls. 303-293-8220
IL Wheaton, EMTronics, Inc. 312-665-6222
MO Kansas City, Buckman & Assocs. 816-356-5515
MN Minneapolis, RK Sls. Assocs., Inc. 612-571-1001
MO St. Charles, Buckman & Assocs. 314-946-6201
NY Commack, R.C. Engrg. Sls. 516-543-3325
OR Beaverton, Luscombe Engrg. 503-636-6664
TX Lewisville, Elctrn. Prod. Reps. 214-436-4772
WA Bellevue, Luscombe Engrg. 206-643-1463
Can Markham, Ont., Avotronics Ltd. 416-475-2024

TALIQ CORP., 1277 Reamwood Ave., Sunnyvale, CA 94089, Tel: 408-745-0750, FAX: 408-745-1820; Empl.: 100; *Sls. Mgr.:* Bob Simpson

TAMA ELECTRIC CO., LTD., See Raltron Electronics Corp.

FAX: 213-638-9956

TAMURA CORPORATION OF AMERICA, 1150 Dominguez St., Carson, CA 90746-3518, Tel: 213-638-1790; Empl.: 5000 ..... **A•1269-1272, 1641-1643, 2427, 2429-2436; D•1494-1495, 2058-2068**

Local Sales Offices & Reps

AL Huntsville, Electronic Mktg. Assoc. 205-880-8050
AZ Tempe, F P Sls. 602-894-5303
CA San Diego, Varigon, San Diego 619-576-0100
CA Santa Clara, Technlg. Sls. 408-727-7200
CT W. Hartford, Anchor Engrg. Corp. 203-521-0701
CO Golden, J. F. Hurlbut Co. 303-279-7796
FL Winter Springs, Micro-Elctrn. Comps. .. 407-366-1379
GA Atlanta, Electronic Mktg. Assoc. 404-448-1215
IL Park Ridge, Metcom Assoc., Corp. 708-696-1490
IN Huntington, Elctrn. Rep. 219-356-3513
IN Indianapolis, Elctrn. Rep. 317-894-1414
IA Davenport, Rush & West Assocs, Inc. 319-388-9494
KS Olathe, Rush & West Assocs., Inc. 913-764-2700
MA Westborough, Anchor Engrg. Corp. ... 508-898-2724
KY Lexington, Elctrn. Rep. 606-273-8425
MD Columbia, Robert Elctrn. Sls. 301-995-1900
MD Livonia, Lowell-Wendt Mktg. Co. 313-464-2722
MI Wyoming, Lowell-Wendt Mktg. Co. 616-791-7370
MN Edina, Grayden & Flemmer, Inc. 612-941-1120
SC Greenville, Electronic Mktg. Assoc. 803-233-4637
MO St. Louis, Rush & West Assocs., Inc. .. 314-965-3322
FL Deerfield Bch., Micro-Elect. Comps. Corp. 305-426-8944
NJ Lodi, TRC Elctrns., Inc. 201-779-8282
NM Albuquerque, F P Sls. 505-345-5553
NY Mendon, Tech-Mark 716-624-3840
NY Utica, Tech-Mark 315-733-0575
NC Raleigh, Elctrn. Mktg. Assoc. 919-847-8800
NC Raleigh, Robert Elctrn. Sls. 919-878-4465
NC Sapphire, Robert Elctrn. Sls. 704-877-3280
OH Centerville, Dolfuss-Root & Co. 513-433-6776
OH Dayton, Dolfuss-Root & Co. 513-433-6776
OH Westlake, Dolfuss-Root & Co. 216-899-9370
OH Worthington, Dolfuss-Root & Co. 614-855-4844
PA Allentown, TRC Elctrns., Inc. 215-391-8977
TX Austin, B-P Sls. 512-346-9186
TX Houston, B-P Sls. 713-782-4144
TX Richardson, B-P Sls. 214-234-8438
VA Lynchburg, Parogem 804-528-0681
WA Redmond, S.E.A. (Sls. & Engrg. Assoc.) 206-883-4999
WA Vancouver, S.E.A. (Sls. & Engrg. Assoc.) 206-573-5161
FL Largo, Micro-Elect. Comps. Corp. 813-393-5011
WI West Allis, Metcom Assoc., Corp. 414-476-1300
Can Pointe Claire, Que., A.R. Gray & Assoc. 514-694-6378

Local Distributors

AL Birmingham, American Elctrn. Supply 205-942-4656
AL Huntsville, Comp. Distrs. Inc. 205-851-7800
AZ Tempe, On-Shore Technlg. 602-921-3000
CA Manhattan Beach, Prime Electro Prods. Co. 213-379-3642
CA Sacramento, Power & Data Technlg. .. 415-792-5087
CA San Jose, Foresight Elctrns. 408-453-0490
CA San Jose, Power & Data Technlg. 408-629-3550
CA Van Nuys, Nesco/Natl. Electro-Sls. ... 818-781-0505
CO Englewood, Comp. Distrs., Inc. 303-799-4916
CO Littleton, Deltex 303-779-1611
CO Littleton, Displays Plus, Inc. 303-730-7333
CT Marlborough, Pik Power 203-295-0580
CT Wallingford, Sager Elec. Supply 203-265-4600
FL Altamonte Springs, Vantage Comps. .. 407-882-1199
FL Deerfield Bch., Vantage Comps. 305-429-1001
FL Oldsmar, Applied Power Inc. 813-854-4004
FL Orlando, Sager Elec. Supp. 407-240-3114
FL Palm Bay, Comp. Distrs., Inc. 407-724-9910
GA Gastonia, JMT Automation & Controls 704-867-4401
GA Norcross, American Elctrn. Supp. 404-449-5339
GA Norcross, Applied Power Inc. 404-263-0421
GA Norcross, Comp. Distrs., Inc. 404-441-3320
IL Mt. Carmel, Thordarson Meissner 618-262-5121
IN Carmel, Altex Elctrns. 317-848-1323
MD Columbia, Sager Elec. Supp. 301-995-6580
MD Columbia, Vantage Comps. 301-720-5100
MA Andover, Vantage Comps. 508-887-3900
MA Hingham, Sager Elec. Supp. 617-749-6700
MA Sharon, Adcour, Inc. 617-784-8123
MI Brighton, Applied Power Inc. 313-227-3604
MI Livonia, LWC Distrs. 313-464-7700
MN Minneapolis, Bergquist Co. 612-835-2322
MN Minneapolis, Tortec Corp. 612-866-3662
NH Salem, Sager Elec. Supp. 603-898-1348
NJ Lodi, TRC Elec. Inc. 201-779-8282
NM Albuquerque, H.E.R. Elctrns. 505-265-8609
NY Hauppauge, Sager Elec. Supp. 516-348-1300
NY Syracuse, ADR Technlgs. Inc. 315-437-7087
NC Raleigh, Sager Elec. Supp. 919-850-9550
OH Aurora, Indl. Prods. Distbg., Inc. 216-562-8113
OH Centerville, Indl. Prods. Distbg., Inc. ... 513-435-2086
OH Cincinnati, Schuster Elctrns., Inc. 513-489-1400
OH Twinsburg, Schuster Elctrns., Inc. 216-425-8134
OK Tulsa, The Altair Co. 918-252-5781
OR Beaverton, Micro Power Elctrns. 503-626-7086
OR West Linn, Power Factor & Assocs. ... 503-657-6969
PA Allentown, TRC Elec. Inc. 215-391-8977
PA Mars, Sager Elec. Supp. 412-772-2233
PA Philadelphia, Sager Elec. Supp. 215-464-4336
TX Austin, The Altair Co. 512-837-4970
TX Carrollton, LCD Elctrns. 214-245-0600
TX Dallas, Comp. Distrs., Inc. 214-644-0373
TX El Paso, Power & Data Technlg. 505-589-0052
TX Houston, The Altair Co. 713-462-3029
TX Richardson, The Altair Co. 214-231-5166
TX Round Rock, LCD Elctrns. 512-388-1339
TX Stafford, Southwest Elctrns. 713-240-4000
WA Edmonds, Prime Source 206-743-6641
WA Redmond, Priebe Elctrns. 206-881-2363
WI Mequon, Taylor Elec. Co. 414-241-4321
WI Milwaukee, Progressive Image, Inc. ... 414-321-4722
WI Sullivan, Bergquist Co. 414-593-2020

T&W SYSTEMS, INC., See Versacad Corp.

TANE ALARM PRODUCTS, 247-40 Jericho Tpke., Floral Park, NY 11001, Tel: 516-328-3351, FAX: 516-326-9125; Empl.: 10; *Sls. Mgr.:* Tab Hauser; *Dist. Mgr.:* Sam Lurie

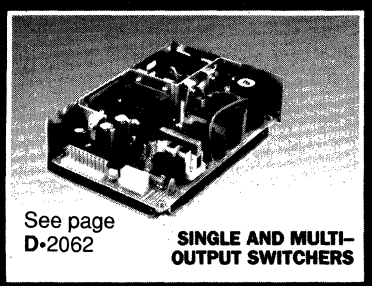
TANSITOR ELECTRONICS, West Rd., P.O. Box 230, Bennington, VT 05201, Tel: 802-442-5473, TELEX: 954007, FAX: 802-447-1297; FSC No.: 030266626; Empl.: 183; *Sls. Mgr.:* David Latchum; *Dist. Mgr.:* 225 ..... **A•1143**

Local Sales Offices & Reps

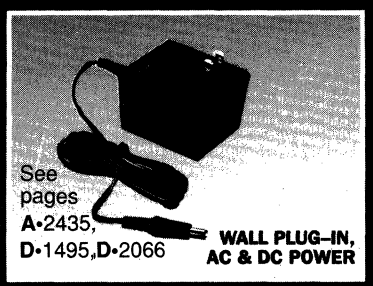
AL Huntsville, Elctrn. Mktg. Assocs. Inc. 205-880-8050, FAX:205-880-8054
AZ Tempe, Piper Sls. 602-949-0048, FAX:602-894-1032
CA Chatsworth, Wes-K Assocs. 818-770-0933, FAX:818-709-9832
CA San Diego, Wes-K Assocs. 619-695-2040, FAX:619-695-8602
CO Grand Junction, Krebill Comp. Sls. 303-243-8220, FAX:303-243-7939
CT Farmington, Ray Perron & Co., Inc. 203-673-4825, FAX:203-675-7345
FL Boca Raton, So. Atlantic Comp. Sls. ... 407-391-1034
FL Orlando, So. Atlantic Comp. Sls. 407-857-3650, FAX:407-857-3298
FL St. Petersburg, So. Atlantic Comp. Sls. 813-324-0953
GA Atlanta, Elctrns. Mktg. Assocs. Inc. 404-448-1215, FAX:404-446-9363
IL Itasca, Circuit Sls. 708-773-0200, FAX:708-773-2721
IN Ft. Wayne, Electro Reps, Inc. 219-489-8205, FAX:219-489-8408
IN Indianapolis, Electro Reps. 317-842-7202, FAX:317-841-0230
IA Cedar Rapids, R. F. Welch Co. 319-362-6824, FAX:319-362-7734
KS Olathe, Rush & West Assocs. Inc. 913-764-2700, FAX:913-764-0096
ME Yarmouth, Memar, Inc. 207-846-3791, FAX:207-846-6488
MD Annapolis, Elctrn. Engrg. 301-269-6573, FAX:301-269-6476
MA Needham, Ray Perron & Co., Inc. 617-449-6162, FAX:617-444-1074
MI Livonia, Amtech Reps. 313-474-8300, FAX:313-474-8301
MN Minneapolis, Tecteam Sls. Inc. 612-854-6616, FAX:612-854-8031
MO St. Louis, Rush & West Assocs. Inc ... 314-965-3322
NH Merrimack, Ray Perron & Co., Inc. 603-424-4423
NJ Haddonfield, Sunday O'Brien 609-429-4013, FAX:609-429-9249
NM Albuquerque, Piper Sls. 505-828-1300, FAX:505-828-1380
NY Cazenovia, S/T Woolard Co. 315-655-8145
NY Great Neck, M.O.S. Assocs. 516-487-3966, FAX:516-487-3989

TAMURA

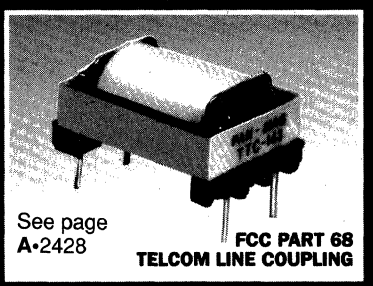
DELIVERS FROM STOCK



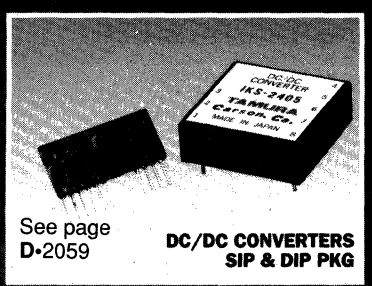
See page D•2062 **SINGLE AND MULTI-OUTPUT SWITCHERS**



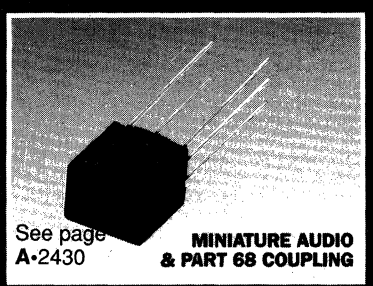
See pages A•2435, D•1495, D•2066 **WALL PLUG-IN, AC & DC POWER**



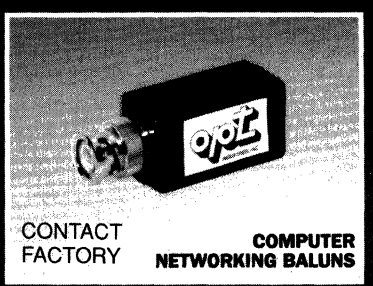
See page A•2428 **FCC PART 68 TELCOM LINE COUPLING**



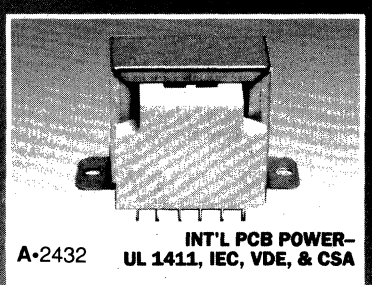
See page D•2059 **DC/DC CONVERTERS SIP & DIP PKG**



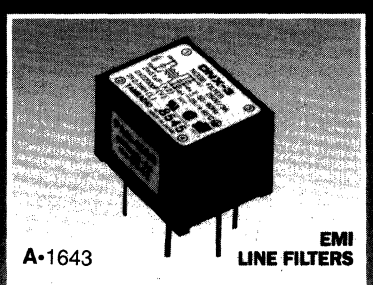
See page A•2430 **MINIATURE AUDIO & PART 68 COUPLING**



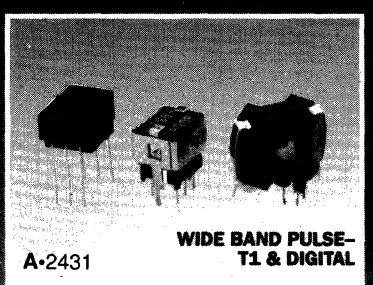
CONTACT FACTORY **COMPUTER NETWORKING BALUNS**



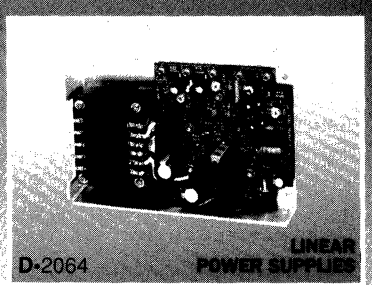
A•2432 **INT'L PCB POWER-UL 1411, IEC, VDE, & CSA**



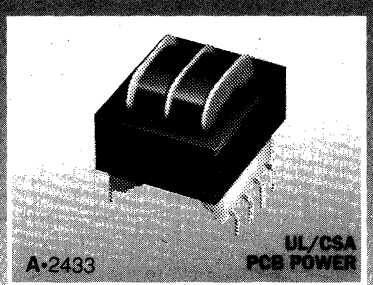
A•1643 **EMI LINE FILTERS**



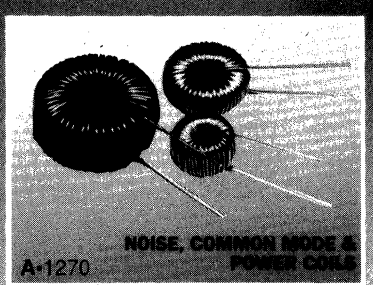
A•2431 **WIDE BAND PULSE-T1 & DIGITAL**



D•2064 **LINEAR POWER SUPPLIES**



A•2433 **UL/CSA PCB POWER**



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Can St. Laurent, Que., Gidden Morton Assoc., Inc. 514-335-9572,FAX:514-335-9573

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CO Denver, IEC Elec. 303-292-5537, FAX:303-292-0114
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MD Columbia, Jaco Elctrns. Inc. 301-995-6620, FAX:301-995-6032
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OR Beaverton, Shelley-Ragon Elctrns. 503-641-1691, FAX:503-646-4927
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UT Valley City, Aved 801-975-9500, FAX:801-977-0245
WA Redmond, Jaco Elctrns., Inc. 206-881-9700, FAX:206-881-9777

TAPECON, INC., 10 Latta Rd., Rochester, NY 14612, Tel: 716-621-8400; Empl.: 120; *Sls. Mgr.:* Joseph C. Pallone

TAPESWITCH CORP. OF AMERICA, 100 Schmitt Blvd., Farmingdale, NY 11735, Tel: 516-694-6312, FAX: 516-694-6304; Empl.: 100; *Sls. Mgr.:* Ed Duhon

TAPPAN WIRE & CABLE, 256 Oak Tree Rd., Tappan, NY 10983, Tel: 914-359-9300, FAX: 914-359-9369; FSC No.: 2G330; Empl.: 27; *Sls. Mgr.:* Mike Ressa

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AZ Scottsville, Mactronix 602-998-1848
CA Fullerton, Tauber Elctrns. 1-800-829-4747
CA Los Angeles, Berman Sls. 213-556-3358
CA Santa Ana, Berman Sls. 1-800-829-4747
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GA Norcross, Marco Mktg. 404-662-5580
IL Wheeling, Ed Joyner 312-520-1200
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IA Des Moines, Beams Co. 515-255-1148
KS Shawnee Mission, Beams Co. 913-631-0300

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TAURUS CORPORATION, See Signal Research Inc.

TAYLOR ELECTRONICS, INC., 401 West Orion, Tempe, AZ 85283, Tel: 602-838-4523, FAX: 602-838-7456; Empl.: 25; *Sls. Mgr.:* Sharon F. Hansen

TAYLOR INDUSTRIAL SOFTWARE, , Edmonton, Alberta, Canada T5K 2M5, Tel: 403-482-7547, FAX: 403-488-8032; Empl.: 65; *Sls. Mgr.:* Glenn Saunders

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MO St. Louis, MIDTEC Assocs. 314-275-8666
TX Richardson, McCoy Assocs. Co. 214-864-1838

Local Distributors

IL Chicago, Newark Elctrns. 312-784-5100
CT Wallingford, Sager Elctrl. Supp. Co. 203-265-4600

TCA, 7733 Telegraph Rd., Montebello, CA 90640, Tel: 213-726-0303, FAX: 213-727-7621; Empl.: 200; *Sls. Mgr.:* Jay Giles

T.D.I. BATTERIES, 2852 Hitchcock Ave., Downers Grove, IL 60515, Tel: 708-971-3460, FAX: 708-971-3903; Empl.: 160; *Sls. Mgr.:* Kurt Padera; *Dist. Mgr.:* Theresa Kanaga

TDJ CO., INC., 1154 Morena Blvd., San Diego, CA 92110, Tel: 619-276-5920, FAX: 619-276-5960; FSC No.: 60382; Empl.: 7; *Sls. Mgr.:* R. Scherr ..... **C•1110-1111**

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FAX: 708-803-6296

TDK CORPORATION OF AMERICA, Electronic Components & Material, 1600 Feehanville Drive, Mount Prospect, IL 60056, Tel: 708-803-6100; Empl.: 7,800; *Sls. Mgr.:* Tadashi Enami; *Dist. Mgr.:* Tadashi Enami (TDK Corp. of America) .... **A•1144-1147, 1273, 1294-1299, 1597, 1644-1645; D•1066, 2069**

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NY Port Washington, TDK Corp. of America 516-625-0151
NC Greensboro, TDK Corp. of America ... 919-292-0012
TX Irving, TDK Corp. of America 214-506-9800
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TEAL ELECTRONICS CORPORATION, 9190 Camino Santa Fe, San Diego, CA 92121, Tel: 619-693-6000, 800-888-8325, FAX: 619-693-8325; Empl.: 50; *Sls. Mgr.:* Stephanie Kaupp

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TEAPO ELECTRONIC CORP. OF AMERICA, 5550 Peachtree Inds. Blvd., Norcross, GA 30071, Tel: 404-449-6220, FAX: 404-447-1109,404-448-8584; Empl.: 1000; *Sls. Mgr.:* Michael Lin

TECA, THERMOELECTRIC COOLING AMERICA CORP., 448 N. Halsted St., Chicago, IL 60622, Tel: 312-666-1600, FAX: 312-666-3964; Empl.: 50 ..... **C•1664-1665**

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Can Sudbury, Ont., Avad Indl. Sls. 705-897-2584

TECCOR ELECTRONICS INC
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TECCOR ELECTRONICS, INC., 1801 Hurd Dr., Irving, TX 75038, Tel: 214-580-1515, TELEX: 79-1600; Empl.: 1250; *Sls. Mgr.:* Gerry Wiley ..... **A•2122-2125**

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AZ Mesa, System Sls. of Az.(SSA) 602-464-9989
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CA San Jose, O'Donnell North 408-456-2950
CA Torrance, O'Donnell Assocs. 213-539-9664
CO Littleton, Harthun Assocs. 303-795-5545
CT Bridgeport, Advanced Comp. Sls. (ACS) 203-332-1124
FL Boca Raton, Perrott Assocs. 407-362-0191
FL Casselberry, Perrott Assocs. 407-830-0094
FL Clearwater, Perrott Assocs. 813-530-5779
FL Melbourne, Perrott Assocs. Inc. 407-676-0305
GA Norcross, Interep Assocs. 404-449-8680
IL Itasca, Micro Sls.(MSI) 708-285-1000
IN Huntington, Elctrn. Rep, Inc. 219-356-3513
IN Indianapolis, Elctrn. Rep, Inc. 317-894-1414
IA West Des Moines, SPS Assocs. Ltd. .. 515-225-0607
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KS Wichita, SPS Assocs. Ltd. 316-733-4415
KY Lexington, Elctrn. REP, Inc. 606-273-8425
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MA Walpole, JEF Components 508-668-6695
MI Farmington Hills, Rathsburg Assocs. .. 313-489-1500
MN Minneapolis, Electric Comp. Sls. 612-933-2594
MO Earth City, SPS Assocs. Ltd. 314-291-0520
NJ Mt. Laurel, S-J South Assocs. 609-866-1234
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OH Dayton, Del Steffen & Assocs. 513-293-3145
OH Lexington, Del Steffen & Assocs. 419-884-2313
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TN Greenville, Interep Assocs. Inc. 615-639-3491
TX Irving, Mike Farrar 214-580-1515
NE Panama, SPS Assocs. Ltd. 402-477-7227
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TECHDYNE, INC., Lance Wire & Cable Div., 380 Treadwell St, Hamden, CT 06514, Tel: 203-288-5571, TWX: 510-601-0470, FAX: 203-248-0256; Empl.: 50; *Sls. Mgr.:* Bill Kahler

TECH-ETCH, INC., 45 Aldrin Rd., Plymouth, MA 02360, Tel: 508-747-0300, TELEX: 989997, FAX: 508-746-9639; Empl.: 280; *Sls. Mgr.:* P. A. Thomas

TECH LABORATORIES INC., 500 10th St, Palisades Pk, NJ 07650, Tel: 201-944-2221, FAX: 201-944-1653; FSC No.: 83332; Empl.: 25; *Sls. Mgr.:* Nino M. Vlacich ..... **B•1789**

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MO	St. Louis, Midtec Assocs.	314-275-8666
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FAX: 213-827-2572

TECHMAR CORP., 5420 McConnell Ave., Los Angeles, CA 90066, Tel: 213-827-8897, 1-800-TECHMAR; FSC No.: 32597; Empl.: 12; *Sls. Mgr.:* Jeff Wilson ... **C•1113-1115**

TECHMATION, INC., 2730 South Hardy, Ste. 5, Tempe, AZ 85282, Tel: 602-968-9946, FAX: 602-968-1849

TECHNAR, INC., See TRW Technar, Inc.

TECHNIC, INC., Box 9650, Providence, RI 02940-9650, Tel: 401-781-6100, TELEX: 927514, FAX: 401-781-2890; Empl.: 125; *Sls. Mgr.:* Andrew T. Ferris

TECHNICAL DEVICES, 560 Alaska Ave., Torrance, CA 90503, Tel: 213-618-8437, FAX: 213-618-1543; FSC No.: 04772; Empl.: 45; *Sls. Mgr.:* D. Murrin; *Dist. Mgr.:* D. Murrin

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OH	Chagrin, Crest Comp. Sls.	216-543-9808

TECHNICAL RESEARCH & MFG., INC., See TRM, Inc.

TECHNICAL SERVICES LABORATORY INC., 95 Ready Ave., Ft. Walton Beach, FL 32548, Tel: 904-243-3722, FAX: 904-244-6653; FSC No.: 51283; Empl.: 24; *Sls. Mgr.:* Andrew J. Corbin

TECHNIPOWER, A PENRIL CO., P.O. Box 222, Commerce Pk., Danbury, CT 06813, Tel: 203-748-7001, TELEX: 710-456-9280, FAX: 203-797-9285; FSC No.: 13850; Empl.: 135; *Sls. Mgr.:* L. Carbone; *Dist. Mgr.:* Larry Carbone

TECHNIQUES, INC., 235 Jackson St, Englewood, NJ 07631, Tel: 201-569-5900, FAX: 201-569-5615; Empl.: 60

TECHNI-TOOL, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462, Tel: 215-825-4990, TELEX: 834-763, FAX: 215-828-5623; FSC No.: 30239; Empl.: 80; *Sls. Mgr.:* W. Bezar

TECHNITROL, 1952 E. Allegheny Ave., Philadelphia, PA 19134, Tel: 215-426-9105, FAX: 215-426-2836; FSC No.: 90095; Empl.: 900; *Sls. Mgr.:* G. Shilling ..... **A•1598-1605; B•1028-1029**

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CA	San Diego, Detomasi & Grupp	619-277-0178
CA	Torrance, Detomasi & Grupp, Inc.	213-618-8898
AL	Huntsville, Advanced Comps. Mktg.	205-881-5493
GA	Norcross, Advanced Comps.Mktg.	404-448-7025
IL	Wauconda, Cudahy Sls.	708-526-2484
MD	Baltimore, Callas Elctrns.	301-744-7711
NY	Fairport, TAC Sls.	716-377-2250
NY	Jericho, J. Square Mktg.	516-935-3200
OH	Akron, Augnat Assocs.	216-239-2499
FL	Seminole, Q-Rep	813-397-8431
PA	Easton, The Kendon Co.	215-253-3100
TX	Dallas, M-Rep	214-484-5711
TX	Houston, M-Rep	713-988-7613
Can	Quebec, Elcom GbM, Inc.	514-668-3361

TECHNO DIVISION, DALE ELECTRONICS, INC., 7803 Lemona Avenue, Van Nuys, CA 91405-1139, Tel: 818-781-1642, FAX: 818-781-8647; FSC No.: 69274; Empl.: 140; *Sls. Mgr.:* Danny Jagirdar; *Dist. Mgr.:* Jon Trabert ..... **A•2037**

Refer to Dale Electronics, Inc., Columbus, NE for sale offices and distributor information.

TECHNO-ISEL USA DIVISION, Designatronics, 2101 Jericho Tunpike, New Hyde Park, NY 11040, Tel: 516-328-3970, TWX: 510-223-0642, FAX: 516-326-8827; Empl.: 85; *Sls. Mgr.:* Sam Singer

TECHNOLOGY DESIGN INC., 10838 Main St, Bellevue, WA 98006, Tel: 206-455-9822, FAX: 206-455-3449; Empl.: 16; *Sls. Mgr.:* Robert Hamilton

TECHNOLOGY DYNAMICS inc.

FAX: 201-385-0702

TECHNOLOGY DYNAMICS INC., 100 School St, Bergenfield, NJ 07621, Tel: 201-385-0500; Empl.: 70; *Sls. Mgr.:* Mark S.Jacobus

TECHNOLOGY 80, INC., 658 Mendelssohn Ave. N, Minneapolis, MN 55427, Tel: 612-542-9545, FAX: 612-542-9785; Empl.: 25; *Sls. Mgr.:* James Burkett

TECHRAND CORP. OF AMERICA, 6520 Schamber Dr., Muskegon, MI 49444, Tel: 616-798-2930, FAX: 616-798-2934; Empl.: 40; *Sls. Mgr.:* James Arter

TECHRON

FAX: 1-219-294-8329

TECHRON DIV., Crown Intl., Inc., 1718 W. Mishawaka Rd., Elkhart, IN 46517, Tel: 219-294-8300, TWX: 810-294-2160; FSC No.: 06306; Empl.: 490 ..... **D•1017-1019**

Local Sales Offices & Reps

IL	Arlington Hgts., Berndt Assocs., Inc.	312-632-0900
CA	Milpitas, IFM Inc.	408-945-5920
CO	Commerce City, Williams Assocs.	303-289-5647
CT	Woodbridge, Electronic Marketing Assoc.	203-397-1461
FL	Melbourne, Reynolds & Assocs., Inc.	305-259-7000
IL	Chicago, Berndt Assocs.	312-283-0713
MI	Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
NY	Syracuse, Labtronics Inc.	315-455-7314
OH	Brecksville, Audio Mktg. Assoc.	216-526-2426
PA	Montgomeryville, Eastern Sci-Mktg.	215-368-4570

TECH SPRAY, INC., Box 949, Amarillo, TX 79105, Tel: 806-372-8523, TELEX: 738450, FAX: 806-372-8750; Empl.: 58; *Sls. Mgr.:* Richard C. Johnson; *Dist. Mgr.:* Rich Johnson

TECHTROL CYCLONETICS, INC., 815 Market St., New Cumberland, PA 17070, Tel: 717-774-2746, FAX: 717-774-6799; FSC No.: 58792; Empl.: 15; *Sls. Mgr.:* James M. Griffith

TECKNIT (EASTERN FACILITY), 129 Dermody St, Cranford, NJ 07016, Tel: 908-272-5500, TELEX: 6853079 TCKNT, FAX: 908-272-2741; FSC No.: 07700; Empl.: 300; *Sls. Mgr.:* Thomas McCreery

TECLAB, Kalamazoo Technical Furniture, P.O. Box 1165, Kalamazoo, MI 49005, Tel: 616-372-6000, 800-832-5227, FAX: 616-372-6116; Empl.: 42; *Sls. Mgr.:* B. Smith ..... **C•1117-1119**

TECNETICS, See Computer Products, Inc.

TECNETICS INC., Computer Products, 6287 Arapahoe Ave., Boulder, CO 80303, Tel: 303-442-3837, FAX: 303-444-9437; Empl.: 135; *Sls. Mgr.:* Cliff Payne

Refer to Tecnetics Inc. 6287 Arapaho Ave. Boulder, CO 80303

TECO CORP., Bay Rd., P. O. Box A, Winnisquam, NH 03289, Tel: 603-524-1998, FAX: 603-524-1899; Empl.: 30; *Sls. Mgr.:* Sandra Murphy

TECOM INDUSTRIES, INC., 9324 Topanga Canyon Blvd., Chatsworth, CA 91311, Tel: 818-341-4010, TELEX: 69 8476, FAX: 818-718-1402; FSC No.: 59850001; Empl.: 134

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TECTROL, INC., 39 Kodiak Cres., Downsview, Ontario, Canada M3J 3E5, Tel: 416-630-8108; Empl.: 450; *Sls. Mgr.:* Paul Carroll ..... **D•2071-2074**

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MA	Natick, Zaslow Sls.	508-393-8150
MN	S.St. Paul, Northport Engrg., Inc.	612-457-8000
NJ	Ho-Ho-Kus, Alto Assocs.	201-447-1770
NY	Buffalo, Lynn Assocs.	716-631-0054
OH	Dayton	513-890-6811
OR	Tigard, Rep-West	503-639-0325
PA	Pittsburgh, Lynn Assocs.	412-443-3670
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TEGAL SCIENTIFIC, INC., Box 5905, Concord, CA 94524, Tel: 415-827-1054, TELEX: 380053, FAX: 415-827-1189; *Sls. Mgr.:* L. Rigali

TEGAM, INC., 7230 North Ridge Rd., Madison, OH 44057, Tel: 800-666-1010, TELEX: 205188, FAX: 216-428-7505; Empl.: 30; *Sls. Mgr.:* Gerry Hubbard

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CO	Boulder, R.G. Entprs., Inc.	303-447-9211
IL	Arlington Hgts., Russell Elctrns.	708-394-5560
MA	Danvers, C.H. Burnham Assoc.	508-774-0111
MN	Wayzata, Cardinal Sls.	612-475-0041
NY	Hauppauge, Sticom Sls. & Mktg.	516-366-4221
NC	Matthews, R.G. Sls.	704-847-0049
OR	Aloha, Norwest Interconnect Sys.	503-649-7714
PA	Mt. Laurel, Wyck Mkt. Inc.	215-677-7790
TX	Houston, Mil-Rep Assocs.	713-444-2557
EXP	Huntington Beach, Intercation Inc.	714-636-3722
Can	St. Laurent, Que., HHR	514-739-7054

Local Distributors

CA	Hayward, KEA Elctrns.	415-887-2900
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MI	Roseville, Madsion Elctrns.	313-778-7640
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RI	Warwick, AL Greg Comp. Inc.	401-738-6170
TX	Allen, Prime Distbn.	214-231-0170
TX	Dallas, Cypress Elctrns.	214-869-1435
WA	Seattle, Shelley Ragon, Inc.	206-241-1980
Can	Burlington, Ont., Alternate Source Comp.	416-335-6385

TEK-COM /PRENTICE CORP., 2343 Bering Dr., San Jose, CA 95131, Tel: 408-435-9515, TELEX: 277216, FAX: 408-435-9514; FSC No.: 72242; Empl.: 23; *Sls. Mgr.:* Garry Stoddard

TEKNATIONAL INDS., INC., 430 S. Clinton Ave., Rochester, NY 14620-1103, Tel: 716-232-1291, FAX: 716-232-1295; FSC No.: 24227; Empl.: 15; *Sls. Mgr.:* J. D. Hochheimer

TEKTONE SOUND & SIGNAL, 1331 S. Killian Dr., Lake Park, FL 33403, Tel: 407-844-2383, FAX: 407-845-1587; FSC No.: 59-1500771; Empl.: 70; *Sls. Mgr.:* Carlos Mira; *Dist. Mgr.:* Carlos Mira

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TELCO INTERCONTINENTAL, 9812 Whithorn Dr., Houston, TX 77095, Tel: 713-855-2218, FAX: 713-859-8825; Empl.: 12; *Sls. Mgr.:* Ruth Haber

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TELECOMMUNICATIONS TECHNIQUES CORP., 20410 Observation Drive, Germantown, MD 20876, Tel: 301-353-1550, FAX: 301-353-0734

TELECTRO SYSTEMS CORP., 96-18 43rd Ave., Corona, NY 11368, Tel: 718-651-8900, TWX: 510-601-8607 TELECTRO, FAX: 718-651-4103; FSC No.: 30040; Empl.: 50; *Sls. Mgr.:* Harry Sussman

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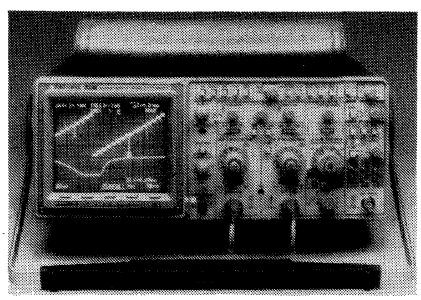

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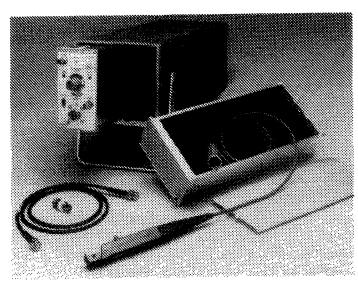

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TELEDYNE KINETICS, Div. of Teledyne, Inc., 410 S. Cedros Ave., Solana Beach, CA 92075, Tel: 619-755-1181, TELEX: 62877770; FSC No.: 06928; Empl.: 100; *Sls. Mgr.:* John Schuler

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TELEDYNE RELAYS, Teledyne, Inc., 12525 Daphne Ave., Hawthorne, CA 90250, Tel: 213-777-0077, TWX: 910-321-4610; FSC No.: 11532; *Sls. Mgr.:* Tom Garland ..... **B•1604-1612**

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AL	Huntsville, Advanced Comps. Mktg.	205-881-5493
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CA	San Jose, Teledyne Relays	408-978-8899
CT	Stratford, VISTAssociates, Inc.	203-375-5456
IN	Indianapolis, Leslie M. Devoe Co.	317-842-3245
FL	Longwood, Teledyne Relays	407-682-9044
FL	Winter Pk., HHP Assocs., Inc.	407-740-0320
GA	Norcross, Advanced Comps. Mktg.	404-448-7025
IL	Bloomingdale, Teledyne Relays	708-529-1060
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KS	Olathe, Stan Clothier Co.	913-829-0073
MD	Towson, Arbotek Assocs.	301-825-0775
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Can	Truro, Nova Scotia, Deskin Sls.	902-893-9228
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Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Nepean, Deskin Sls.	613-228-1201
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Can	Transcona, Man., Deskin Sls.	403-466-2106
Can	Vancouver, Deskin Sls.	604-324-8343

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CA	Chatsworth, Time Elctrns.	818-998-7200
FL	Clearwater, Pioneer/Clearwater	813-536-0445
FL	Deerfield Bch., Pioneer/Deerfield Bch.	305-428-8877
CA	Irvine, Milgray/Orange County	714-753-1282
CA	San Diego, Time Elctrns.	619-586-0129
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CA	Sunnyvale, Time Elctrns.	408-734-9888
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FL	Winter Pk., HHP Assocs., Inc.	407-740-0320
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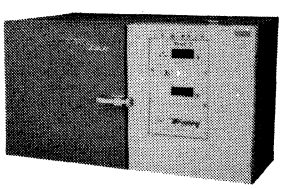

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THERMIK CORP., Thermik Sensor Technics, GmbH, 100 Industrial Drive, New Bern, NC 28562, Tel: 919-636-5720, FAX: 919-636-5757; Empl.: 13

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WI	Racine, K M G Sls., Inc.	414-634-8858

THERM-O-DISC, INC., Sub. Emerson Elec. Co., 1320 South Main St., P. O. Box 3538, Mansfield, OH 44907-0538, Tel: 419-525-8500, TELEX: 987455, FAX: 419-525-8344; *Sls. Mgr.:* L.R. Clark ..... **B•1391, 1865**

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CO	Wheat Ridge, Trembly Assocs.	303-421-8900
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FL	Ft. Lauderdale, Glen White Assoc.	305-977-5885
GA	Norcross, Glen White Assoc.	404-441-1447
IL	Chicago, Dolin Sales Co.	312-498-6770
IN	Indianapolis, Wilson Tech. Sls.	317-872-2513
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MA	Waltham, Gerber Sls.	617-890-3334
MI	Grand Rapids, William Moses	616-795-9958
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NY	Pittsford, James E. Zimmerman Sls.	716-381-3186
NC	Charlotte, Glen White Assocs.	704-522-7707
OH	Dayton, Jay Engrg.	513-253-2151
TN	Gray, Glen White Assocs.	615-477-8850
TX	Dallas, Norcom	214-386-4888
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VA	Lynchburg, Glen White Assoc.	804-385-6110
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Can	Mississauga, Ont., Gidden-Morton Assoc.	416-671-8111

THERMODYNAMIC ENGINEERING INC., 4880 Adohr Lane, Camarillo, CA 93012, Tel: 805-484-0472, FAX: 805-482-0693; Empl.: 30; *Sls. Mgr.:* Daniel Gantka

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THERMO ELECTRIC, 109 Fifth St., Saddle Brook, NJ 07662, Tel: 201-843-5800, TELEX: 178127 THERMO2SARC , FAX: 201-843-7144; Empl.: 375

THERMOELECTRICS, See TECA

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THERMONICS, INC., 3350 Scott Blvd., Bldg. 32, Santa Clara, CA 95054, Tel: 408-496-6838, FAX: 408-496-6918

THERMOSEN, INC., Allied Controls, Inc., 562 Captain Neville Drive, Waterbury, CT 06705, Tel: 203-757-4200, FAX: 203-757-4202; FSC No.: 00428; Empl.: 10

THERMOSET PLASTICS INC., 5101 E. 65th St, Indianapolis, IN 46220, Tel: 317-259-4161, TWX: 910-250-5447, ESYLNK: 62045624, FAX: 317-252-8402

THERMOSET PLASTICS INC., 5101 East 65th St, Indianapolis, IN 46220, Tel: 317-259-4161, TELEX: 910-250-5447, ESYLNK: 62045624, FAX: 317-252-8402; Empl.: 65; *Sls. Mgr.:* Bob Meyer

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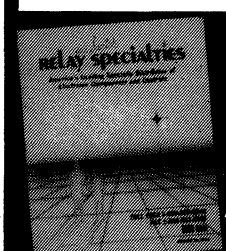

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TOROID CORP. OF MARYLAND, 608 Naylor Mill Rd., Salisbury, MD 21801, Tel: 301-860-0300; Empl.: 50; *Sls. Mgr.:* Lennart Elmlund ..... **A•2442-2446**

Local Sales Offices & Reps

AZ	Phoenix, Saguaro Sls.	602-861-1856
CA	Anaheim, Texel	714-998-2941
CA	San Diego, Texel	619-560-1050
CA	San Jose, Marketing Co.	408-272-6836
CA	Seal Beach, Texel	213-596-9411
CA	Simi Valley, Texel	805-582-1223
IL	Wheeling, Ed Joyner & Co.	708-520-1200
MA	Southboro, Sullivan Tech. Sls.	508-485-2215
NJ	Newton, T & K Sls.	201-579-7654
NY	Clark Mills, KLM Garner	315-853-6126
NY	Pittsfrod, KLM Garner	716-381-8350
NY	Smithtown, T & K Sales.	516-724-3456
PA	Huntingdon Valley, Ed Leiby & Assoc.	215-659-8938
PA	Huntingdon Valley, Ed Leiby & Assocs.	215-659-8938
VT	Ludlow, Verro & Assoc.	802-228-5240
VA	Alexandria, Ed Leiby & Assocs.	703-360-9039
Can	Nepean, Ont., Ellam & Assoc. Ltd.	613-727-3892

TOROTEL PRODUCTS INC.

FAX: 816-763-2278

TOROTEL PRODS. INC., 13402 S. 71 Hwy., Grandview, MO 64030-3199, Tel: 816-761-6314; Empl.: 250; *Sls. Mgr.:* H. Foland ..... **A•1274-1277, 2448-2451**

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CA	Redwood City, Hickey Ind. Sls.	415-594-9978
CA	Santa Ana, California Elctrn. Mktg.	714-835-2702
CO	Monument, Sunbird Ind.	719-481-2900
FL	Orlando, Perrott Assocs.	407-830-0094
IN	Greenwood, Valentine & Assocs.	317-888-2260
KS	Overland Pk., QDC Inds.	913-642-2214
MD	Baltimore, Dickison Sls. Co.	301-823-0923
MA	Lowell, Underwood Sls.	508-256-8191
GA	Atlanta, L&D, Inc.	404-395-7079
NY	Northport, R. P. Luce & Co., Inc.	516-754-5064
NY	Syracuse, Rep Tech. Inc.	315-437-2845
NC	Raleigh, L & D, Inc.	919-292-3201
OH	New Lebanon, J. N. Bailey & Assocs.	513-687-1325
PA	Langhorne, R.P. Luce & Co.	215-757-3518

TOROTRON CORP., 519 South Fifth Ave., Mt. Vernon, NY 10550, Tel: 914-664-2050; Empl.: 14; *Sls. Mgr.:* Miriam Zanger ..... **D•1330**

TORQ CORP., 32 W. Monroe St., Bedford, OH 44146, Tel: 216-232-4100, FAX: 216-232-4104; Empl.: 50; *Sls. Mgr.:* Lee Seabeck

TORTRAN INC., 915 Pembroke St., Bridgeport, CT 06608, Tel: 203-367-5188, FAX: 203-384-8120 ..... **A•2447**

TORWICO ELCTRNS. INC., 410 Oberlin Ave. South, Lakewood, NJ 08701, Tel: 908-364-1800, FAX: 908-363-6234; Empl.: 200

TOSHIBA INSTRUMENTATION DIV., Toshiba Intl. Corp., 5354 S. 129th E. Ave., Tulsa, OK 74134, Tel: 918-252-3548, FAX: 918-250-9023; Empl.: 20; *Sls. Mgr.:* Lewis E. Smith

TOTAL POWER INTERNATIONAL, INC., 418 Bridge St., Lowell, MA 01850, Tel: 508-453-7272, FAX: 508-453-7395; Empl.: 15; *Sls. Mgr.:* Patrick Letendre .... **D•2107**

All states not listed call T.P.I. direct 508-453-7272

Local Sales Offices & Reps

AZ	Tempe, Thor Engrg.	602-438-8494
CA	La Jolla, K & S Assocs.	619-453-5720
CA	San Jose, Bytec Sls., Inc.	408-435-8004
CA	Torrance, Amasco	213-781-9494
CT	Weston, Paquette Elctrns.	203-544-8424
CO	Denver, WEST Inc.	303-477-8180
FL	Ft. Myers, Rainbow Sls.	813-482-0019
GA	Lilburn, The Phillip-Matthew Corp.	404-381-1662
IL	Brookfield, Synmark	414-781-4775
IL	Palatine, Vine Sls., Inc.	708-934-5476
IN	Indianapolis, Mohrfield Mktg.	317-546-6969
IA	Cedar Rapids, Complete Sls.	315-393-7610
MD	Ellicott City, Technology Sls.	301-461-7802
MA	Marlboro, JDS Reps.	508-460-0187
MI	Brighton, A.P. Assocs.	313-229-6550
MN	Oakdale, Complete Sls.	612-731-2923
NJ	Kenvil, Compoments for Elctrns.	201-927-6662
NY	Albany, Lynn Assocs.	518-459-1239
NY	Buffalo, Lynn Assocs.	716-631-0054
NC	King, The Phillip- Matthew Corp.	919-983-9790
OR	Portland, Index, Inc.	503-297-3364
PA	Gibsonia, Lynn Assocs.	412-443-3670
TX	Dallas, Rem Components	214-234-1069
UT	Salt Lake City, WEST Inc.	801-292-8787
WA	Bellevue, Inex, Inc.	206-451-9635
WA	Lynnwood, Blair Hirsh Co.	206-774-8151
WI	Appleton, Vine Sls.	414-731-9873
Can	Mississauga, RFM Electro Sls. Inc.	416-677-0027

Local Distributors

FL	Orlando, Rainbow Sls.	305-658-1082
GA	Norcross, GMT Dist.	404-263-0421
MA	Framingham, JDS Reps.	508-872-5876
MA	Marlboro, Now/JDS Reps.	508-460-0187
MI	Brighton, Applied Power Inc.	312-227-3604
PA	Reading, Barbey Elctrns.	215-376-7451
TX	Houston, Wofford	713-847-3583
TX	Richardson, Off the Shelf	214-238-0808

TOTAL TEMPERATURE INSTRUMENTATION, INC., PO Box 1073, 30 Krupp Dr., Williston, VT 05495, Tel: 802-863-0085, FAX: 802-863-1193; Empl.: 5; *Sls. Mgr.:* Bob Berman; *Dist. Mgr.:* Bob Berman

TOWER ELECTRONICS, INC., 281 S. Commerce Circle, Fridley, MN 55432, Tel: 612-571-3737, FAX: 612-571-5605

TOYOCOM USA INC., 617 E. Golf Rd., Ste. 112, Arlington Heights, IL 60005, Tel: 708-593-8780/1-800-TOYOCOM, FAX: 708-593-5678; Empl.: 10; *Sls. Mgr.:* Seiichi Omoto ..... **A•1472-1482**

Local Sales Offices & Reps

AZ	Tempe, Cantec Sls.	602-345-1276
CA	Irvine, English/Damco	714-753-1950
MI	Livonia, Giesting & Assoc.	313-478-8106
CA	Santa Clara, Pinnacle Sls.	408-249-7400
CO	Denver, West	303-477-8180
FL	Maitland, EIR	407-660-9600
GA	Norcross, Electramark	404-446-7915
IL	Arlington Hgts., MB Sls.	312-392-9499
IN	Carmel, Giesting & Assoc.	317-844-5222
IA	Cedar Rapids, ATS	319-393-8280
MD	Rockville, CEtech	301-590-0111
MD	Timonium, CEtech	301-666-0315
MA	Randolph, Hatch	617-963-3306
MI	Coloma, Giesting & Assoc.	616-468-4200
MI	Livonia, Giesting & Assoc.	313-478-8106
MN	Minneapolis, Scott Elctrn.	612-929-2985
NJ	Mountainside, Henry G. Richter	201-233-4615
NM	Alburquerque, Cantec Sls.	505-889-9165
NY	Fayetteville, Henry G. Richter	315-637-6713
NC	Raleigh, L & D Inc.	919-876-5301
OH	Cincinnati, Giesting & Assoc.	513-385-1105
OH	Cleveland, Giesting & Assoc.	216-261-9705
OK	Tulsa, Hugh J. Daley	918-494-7711
OR	Beaverton, Quest Mktg.	503-641-7377
PA	Phoenixville, Henry G. Richter	215-495-6176
PA	Pittsburg, Giesting & Assoc.	412-828-3553
TX	Austin (xtal), Rice Entpr.	512-355-2296
TX	Austin (SIMM), Gardin-Moore	512-244-2859
TX	Ft. Worth (xtal), Rice Entpr.	817-497-5284
TX	Plano (SIMM), Gardin-Moore	214-985-1193
UT	Salt Lake City, West	801-292-8787
WA	Bellevue, Quest Mktg.	206-747-9424
Intl	San German, Digit-Tech Sls.	809-892-4317
Can	Mississauga,Ont., Canadian Mktg. Technlgs., Inc.	416-612-0900

TOYO SPECTRUM CORP., 2934 Corvin Drive, Santa Clara, CA 95051, Tel: 408-720-8877, 800-338-1981, TELEX: 297584 TEAM UR, FAX: 408-720-9643; *Sls. Mgr.:* Bill Nicklin

TRACEWELL ENCLOSURES, INC., 567 Enterprise Dr., Westerville, OH 43081, Tel: 614-846-6175, 800-848-4525, FAX: 614-846-4450; Empl.: 50; *Sls. Mgr.:* Walter G. Waldron ..... **C•1120-1125**

TRA-CON, INC., 55 North St., Medford, MA 02155, Tel: 617-391-5550; Empl.: 55; *Sls. Mgr.:* Dan Romanow

TRACOR FLIGHT SYSTEMS, INC., Tracor, Inc., A Westmark Co., 1241 E. Dyer Rd., Santa Ana, CA 92705, Tel: 714-662-0333, TWX: 510-601-1467 FSI HDQT; FSC No.: 6B468; Empl.: 550; *Sls. Mgr.:* A. Mallamo

FAX: 813-886-2794

TRAK MICROWAVE CORP., 4726 Eisenhower Blvd., Dept. E-1, Tampa, FL 33634, Tel: 813-884-1411, TELEX: 52-827, TWX: 810-876-9140; FSC No.: 12855; *Sls. Mgr.:* Thomas L. Roberts; *Dist. Mgr.:* Sharon Altimari ..... **A•1829-1833; D•1078, 1194**

Local Sales Offices & Reps

AZ	Scottsdale, Thorson Desert States, Inc.	602-998-2444
CA	Granada Hills, S & S Technlg., Inc.	818-366-2866
CA	Mountain View, Disman Bakner	415-969-3010
CA	Redondo Bch., S & S Techlg, Inc.	213-379-9335
CA	San Diego, S & S Technlg. Inc.	619-484-2996
CO	Parker, Howard Assocs.	303-841-5755
FL	Melbourne, Jerry Williams, Inc.	407-259-7700
FL	Tampa, M. Lader Co.	813-264-1444
WA	Bellevue, Arva Hudson	206-455-0773
GA	Lawrenceville, M. Lader Co.	404-985-8057
IL	Mt. Prospect, Cain-Forlaw	708-253-3578
IN	Ft. Wayne, TX Sls. Indiana	219-489-4447
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MD	Columbia, M. Lader Co.	301-381-1550
MD	Conowingo, M. Lader Co.	301-378-3449
MA	Andover, Bee Assoc.	508-475-2124
MO	Florissant, Blair Engrg.	314-831-4069
NM	Albuquerque, Thorson Desert States, Inc.	505-293-8555
NY	Liverpool, R&D Assocs.	315-457-0100
NY	New Rochelle, Ascor Elctrns.	914-235-8838
NC	Greensboro, M. Lader Co.	919-674-8970
PA	Conshohocken, M. Lader Co.	215-825-3177
TX	Austin, Thorson Co.	512-345-1985
TX	Dallas, Thorson Co.	214-233-5744
TX	Houston, Thorson Co.	713-558-8205
Can	Ottawa, Giga Tron Assocs. Ltd.	613-225-4090

Local Distributors

AZ	Scottsdale, Spirit Elctrns.	602-998-1533
CA	Mtn. View, Comstock Distrs., Inc.	415-969-3010
NY	Ronkonkoma, Compucon Distr., Inc.	516-981-8810
PA	Conshohocken, MLC Distrs., Ltd.	215-825-3177
TX	Dallas, Thorson Co.	214-233-5744

TRAK MICROWAVE LTD., TRAK Microwave Corp., 3/4 Lindsay Court, Dundee Technlg. Pk., Dundee, Scotland DD2 1TY, Tel: 44-382-561509, FAX: 44-382-562643; Empl.: 30

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FAX: 813-886-2794

TRAK SYSTEMS, Div. TRAK Microwave Corp., 4722 Eisenhower Blvd., Dept. E-1, Tampa, FL 33634-6391, Tel: 813-884-1411, TELEX: 52-827, TWX: 810-876-9140; FSC No.: 11165; *Sls. Mgr.:* Thomas L. Roberts ..... **D•1078, 1194-1195**

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
AZ	Phoenix, J. Smith Assocs.	602-267-0981
CA	Huntington Beach, Scientific Dvcs. West	714-840-3501
CA	San Diego, Scientific Dvcs. West	619-268-9635
CA	San Jose, Scientific Dvcs. West	408-554-0455
CO	Parker, Howard Assocs.	303-841-5755
FL	Sarasota, Bass Assocs.	813-378-1405
GA	Atlanta, Magaro & Assocs.	404-451-8862
IN	Ft. Wayne, TX Sls. Indiana	219-489-4447
MD	Andover, Saret Assocs.	508-475-9332
MD	Annapolis, Blackwood Assocs.	301-268-3669
NM	Albuquerque, J. Smith Assocs.	505-345-6501
NC	Greensboro, Magaro & Assocs.	919-282-4424
OR	Portland, Scientific Dvcs. West	503-248-6340
PA	Philadelphia, Rabal Assocs.	215-922-6914
TX	Arlington, J. T. Houston Assocs.	817-265-2931
WA	Bellevue, Scientific Dvcs. West	206-637-0945
Can	Ottawa, Giga Tron Assocs., Ltd.	613-225-4090

TRANSAMERICA DELAVAL, INC., See IMO Delaval, Inc., CEC Instruments Div.

TRANSAMERICA DELAVAL, See IMO Delaval, Inc., Gems Sensors Div.

Trans American Transformer, Inc.

FAX: 516-928-0852

TRANS AMERICAN TRANSFORMER, 26 Hulse Rd., E. Setauket, NY 11733, Tel: 516-928-0762; FSC No.: 61619; Empl.: 30 ..... **A•2452**

TRANSCO PRODUCTS, INC., Subsidiary of Datron Systems Inc., Vard Newport, Camarillo, CA 93012, Tel: 805-987-8007, TELEX: 857579, FAX: 805-484-0830; FSC No.: 82152; Empl.: 300; *Sls. Mgr.:* A. Kwon, V.P. of Mktg.

TRANSDUCERS & SYSTEMS, A Prime Technology Company, Twin Lakes Rd., P.O. Box 185, N. Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092, FAX: 203-481-8937; Empl.: 60; *Sls. Mgr.:* J. L. Jamieson ..... **B•1947**

All states not listed consult factory, N. Branford, CT

Local Sales Offices & Reps

CT	Suffield, Digital & Analog Sls.	203-668-1664
IN	Indianapolis, Rixan Assoc.	513-278-4216
OH	Dayton, RIXAN Assocs.	513-278-4216
PA	Bensalem, Rixan Assoc.	513-278-4216
SC	Greer, Trask Instrumentation	803-292-8900
TX	Humble, Talon Tech. Sls.	713-852-3962

TRANSDUKTOR, INC., See Ulveco, Inc.

TRANSENE, Rte. 1, Rowley, MA 01969, Tel: 508-948-2501, FAX: 508-948-2206; Empl.: 21; *Sls. Mgr.:* H. Femino

TRANSFORMER DESIGN , MTE Corporation, W147 N9525 Held Drive, Menomonee Falls, WI 53051, Tel: 414-253-8200, FAX: 414-253-8222; Empl.: 120; *Sls. Mgr.:* John A. Houdek

TRANSFORMER TECHNOLOGIES, INC., 52 Putnam St., Mt. Vernon, NY 10550, Tel: 914-668-1600, FAX: 914-668-4794; Empl.: 15; *Sls. Mgr.:* Thomas Quaglieri ..... **A•2453**

Local Sales Offices & Reps

IL Highland Pk., Mid-Tek Mktg. 708-831-1130
NJ Brunswick, Synergy Sls. 201-828-5090
VA Ashland, Glasscock Assocs. 804-798-2125

TRANSICOIL, INC., Eagle-Picher, P.O. Box 9011, Valley Forge, PA 19485, Tel: 215-539-4400, FAX: 215-539-3400; FSC No.: 82686; Empl.: 290

TRANSICOIL INC., Penn Airborne Products, 950 Industrial Hwy., Southampton, PA 18966, Tel: 215-355-3400, TELEX: 834-759, FAX: 215-322-2194; FSC No.: 25805; Empl.: 41; *Sls. Mgr.:* Claude Mercier

TRANSICOIL INC., Robinson-Halpern Products, 2560 General Armistead Blvd., Trooper, PA 19403, Tel: 215-539-4400, FAX: 215-539-3400; Empl.: 300; *Sls. Mgr.:* Francis Mashintonio

TRANSISTOR DEVICES, INC., 274 S. Salem St., Randolph, NJ 07869, Tel: 201-361-6622, FAX: 201-361-7665; FSC No.: 09004; Empl.: 650; *Sls. Mgr.:* Don Fedderly ..... **D•1331, 2108-2109**

Local Sales Offices & Reps

AL Huntsville, Reynolds & Assocs., Inc. ... 205-539-1485
AZ Scottsdale, Dave Menegay & Assocs. 602-994-9519
AR El Dorado, Kemp Instrs. 501-862-5869
CA Bakersfield, FLW, Inc. 805-398-0720
CA Campbell, SMA 408-370-6900
CA Canoga Pk., FLW, Inc. 818-719-0037
CA Carlsbad, FLW, Inc. 619-434-5251
CA Costa Mesa, FLW Inc. 714-751-7512
CO Denver, Elcom, Inc. 303-337-2300
CT Watertown, May Technlg., Inc. 203-274-3777
FL Coral Spring, Reynolds Assocs., Inc. .. 305-344-4536
FL Melbourne, Reynolds Assocs., Inc. 407-259-7000
FL Newport Richey, Reynolds Assocs., Inc. 813-372-8369
GA Duluth, Reynolds Assocs., Inc. 404-476-4992
IL Wheeling, Ed Joyner & Co. 312-520-1200
KS Overland Pk., WEB Assocs./Elctrns. .. 913-381-7986
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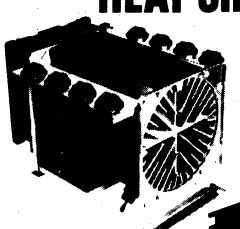

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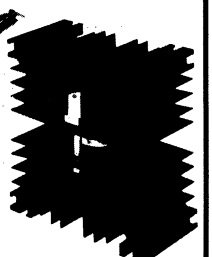

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NY E. Syracuse, Advance Components ... 315-437-6700
NY Endicott, Advanced Comps. Corp. 607-785-3191
NY Hicksville, Comp-Tech Sls. 516-593-2628
NY Kingston, Advanced Comp. Corp. 914-339-1730
NY New York, Roburn Agencies, Inc. 914-968-1016
NY Rochester, Advanced Comps. Corp. ... 716-544-7017
NY Scottsville, Advanced Comps. Corp. ... 716-889-1429
NC Raleigh, Reynolds & Assocs., Inc. 919-876-0282
OH Arcanum, Ashby Assocs., Inc. 513-692-8713
OH Cleveland, Ashby Assocs., Inc. 216-461-0826
OR Portland, Topp Engrg. Sls. Corp. 503-244-7265
PA Pittsburgh, Ashby Assocs. 412-343-5105
PA Southampton, Campbell Assoc. 215-322-6630
TX Lewisville, Jim Hughes Co. 214-221-1536, 214-221-1538
UT Murray, Elcom 801-262-2400, 801-262-2472
VA Alexandria, Dyna-Rep Co. 703-354-1222
WA Bellevue, Topp Engrg. Sls. Corp. 206-747-5400
Can Weston Ont., Duncan Instrs. Canada Ltd. 416-742-4448

TRANSKINETIC SYS., 110 Shawmut Rd., Canton, MA 02021, Tel: 617-828-3000; Empl.: 17; *Sls. Mgr.:* D. Pettijohn

TRANSMAGNETICS, 210 Adams Blvd., Farmingdale, NY 11735, Tel: 516-293-3100, TWX: 510-224-6420, FAX: 516-293-3793; FSC No.: 17755; Empl.: 44; *Sls. Mgr.:* Fred Haber ..... **D•1196-1199**

TRANS METRICS, INC., 5325 Naiman Pkwy Ste.E , Solon, OH 44139, Tel: 216-248-2229, FAX: 216-248-7780; FSC No.: 6685; Empl.: 20; *Sls. Mgr.:* James N. Dietrich

TRANSONIC SYSTEMS INC., 34 Dutch Mill Road, Ithaca, NY 14850, Tel: 607-257-5300, TELEX: 413523, ESYLNK: 62050974; Empl.: 40

TRANSTECHNOLOGY ELECTRONICS, Transtechnology Corporation, 8800 Allen Rd., Peoria, IL 61615-1584, Tel: 309-693-3300, TWX: 510-390-3691, FAX: 309-693-3308; FSC No.: 30463; Empl.: 280; *Sls. Mgr.:* Arthur J. Mallamo, Jr.; *Dist. Mgr.:* Arthur J. Mallamo, Jr.

Local Sales Offices & Reps

CA San Jose, B.J. White 415-837-7201
CA Woodland Hills, Cal Ward Sls. 818-883-2202
FL Altamonte Springs, Krebs Myton Assoc. 407-788-9333
GA Atlanta, Krebs Myton Assoc. 404-399-7895
IL Hillside, Cadre Tech. Rep., Inc. 708-449-3900
IA Blue Grass, Rothkopf & Assocs. 319-381-4396
KS Olathe, Rothkopf & Assocs. 913-829-8898
MD Baltimore, Hagy Assocs. 301-931-2022
MA St. Louis, Rothkopf & Assocs., Inc. 508-851-4010
NM Albuqerque, H & H Elctrns. 505-889-3300
NY Setauket, Smith Engrg. Sls. 516-689-6514
OH TippCity, Cleary Sls. Co. 513-667-7703
PA Newtown Square, Hagy Assocs. 215-459-0504
TX Centerville, MC2 801-298-3388
TX Colleyville, DeArmond Entprs. 817-267-2048
TX Dallas, M-Rep 214-484-5711
VA Charlottesville, Pdg Sls. 804-979-7085
WA Bellevue, Lehr Assocs. 206-453-9993

Local Distributors

CA Brea, Aeroflite 714-773-4251
CA Van Nuys, Air Electro 818-988-4400
WA Auburn, West Air Intl. 206-631-1000

TRANSTECTOR SYSTEMS, INC., P.O. Box 300, Hayden Lake, ID 83835, Tel: 800-829-2901, TELEX: 150-077TRANSTECPFLS, FAX: 208-772-9016; FSC No.: 30992; Empl.: 150; *Sls. Mgr.:* Mary Munger; *Dist. Mgr.:* Mike Sweeney

TRANS-TEK, P.O. Box 338, Rte. 83, Ellington, CT 06029, Tel: 203-872-8351, TELEX: 99207, FAX: 203-872-4211; FSC No.: 27109; Empl.: 40; *Sls. Mgr.:* William R. Padin

TRAN-TEC CORP., Box 1044, Columbus, NE 68601, Tel: 402-564-2748, FAX: 402-564-4946; Empl.: 46; *Sls. Mgr.:* Cliff Schroeder

Local Sales Offices & Reps

CA Redwood City, Woodworth Co. 415-365-0252
CA Tustin, Sierra-Pacific Engrg. Co. 714-731-3411
CO Lafayette, Pierce-Robbins Assocs. 303-665-3296
FL Palm Bch. Gardens, Russell Assocs. .. 305-627-1503
GA Atlanta, Russell Assocs. 404-255-8422
IN Ft. Wayne, Scott Elctrns, Inc. 219-489-5690
IA Hiawatha, Ard Sls. Co. 319-393-6392
MD Bel Air, Russell Assocs. 301-879-9180
MA Wakefield, H.C. Jappe Co. 617-245-9359
PA Westchester, Russell Assocs. 215-696-0700
NY Bay Shore, Russell Assocs. 516-666-6500
NY Morrisville, Naylor Elec. Co. 315-684-9620
OH Cleveland, D. Steffen & Assocs. 216-461-8333
TX Dallas, Russell Assocs. 214-699-0383
WA Bellevue, Russell Assocs. 206-455-3694

TRATEC OF CALIFORNIA, INC., 3802 Main St. Ste. 3, Chula Vista, CA 91911, Tel: 619-476-1155, ESYLNK: 619-476-1176; Empl.: 250; *Sls. Mgr.:* Dale Fox

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TREK, INCORPORATED, 3932 Salt Works Road, Medina, NY 14103-0231, Tel: 716-798-3140, FAX: 716-798-3106; Empl.: 141; *Sls. Mgr.:* Peter R. Bossard, Ph.D.; *Dist. Mgr.:* Mark J. Delucia

TREMETRICS INC., Baker Hughes Incorporated, 6500 Tracor La., Bldg. 27, Austin, TX 78725-2100, Tel: 512-929-2051, TWX: 910-874-1366, FAX: 512-929-2747; FSC No.: 63409; Empl.: 160; *Sls. Mgr.:* William R. Murphy; *Dist. Mgr.:* Will Hoover

TREND CIRCUITS, 44358 Old Warm Springs Blvd., Fremont, CA 94538-6148, Tel: 415-651-1150, FAX: 415-651-5763; Empl.: 142; *Sls. Mgr.:* Colleen Frisz

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TN	Knoxville, Hughes Assocs.	615-558-0283

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CT	Wethersfield, Underwood Sls.	203-563-3046
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NY	Whitney Point, T.A.E. Reps.	607-692-3705
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OH	Richfield, Geotronix	216-659-6100
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UCE, INC., 35 Rockland Rd., Norwalk, CT 06854, Tel: 203-838-7509, FAX: 203-838-2566; Empl.: 20; *Sls. Mgr.:* Greg Borstelmann

U. E. SYSTEMS, INC., 12 West Main St., Elmsford, NY 10523, Tel: 914-592-1220, 800-223-1325, TELEX: 229676, FAX: 914-347-2181; Empl.: 20

ULTRAN LABORATORIES, 139R North Gill St., State College, PA 16801, Tel: 814-238-9083, TELEX: 82-0978, FAX: 814-234-3367; FSC No.: 6625, 6635; Empl.: 20

ULTRA VOLT, CS9002, Ronkonkoma, NY 11779, Tel: 800-876-POWER, FAX: 516-363-2423; Empl.: 11; *Sls. Mgr.:* Jim Morrison ..... **D•2115**

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CO	Loveland, V.E.C. Rockey Mtns.	303-667-7500
FL	Altamonte Springs, Semtronic Assocs.	407-831-8233
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IL	Skokie, I.R.I. of IL	312-967-8430
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Can	Concord, Ont., Kaytronics	416-669-2262
Can	Kanata, Ont., Kaytronics	613-564-0080
Can	Ville St. Laurent, Ont., Kaytronics	514-745-5800

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CA	Santa Clara, Gagner-Toomey Assocs., Inc.	408-244-2200
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FL	Maitland, E I R, Inc.	407-660-9600
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MA	N. Reading, Yankee Tech	508-664-0865
MI	Farmington Hills, Rathsburg Assoc.	313-489-1500
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OH	Franklin, Wiethe & Young Assoc.	513-422-5959
OR	Tualitin, Weaver & Assocs. Inc.	503-691-0665
PA	Spring City, Classen & Doolittle Assocs.	215-948-5958
TX	Dallas, Rich Sls.	214-257-0761
TX	Round Rock, Rich Sls.	512-244-0205
EXP	Inglewood, Eldon Industries, Inc.	213-642-7716

UNHOLTZ-DICKIE CORP., 6 Brookside Dr., Wallingford, CT 06492, Tel: 203-265-3929, FAX: 203-265-2690; Empl.: 45

UNIBOX, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, Tel: 714-686-1400; *Sls. Mgr.:* Kim Dabe

UNICO, 3725 Nicholson Rd., Franksville, WI 53126-0505, Tel: 414-886-5678, TWX: 910-271-2385, FAX: 414-886-8396; Empl.: 250; *Sls. Mgr.:* Joseph Glover

UNICORP

FAX: 201-674-3803

UNICORP, 291 Cleveland St., Orange, NJ 07050, Tel: 201-674-1700, 800-526-1389; FSC No.: 04729; Empl.: 82; *Sls. Mgr.:* B. Levine ..... **C•1598-1599**

Local Sales Offices & Reps

CA	Irvine, The Hapco Group	714-474-8474
CO	Wheatridge, Skip Jutze Assoc.	303-231-0900
CT	Lyme, Gerard M. Blaney Assoc.	203-434-9497
IL	Addison, Houlihan Sls. Co.	708-543-7200
NJ	Ramsey, R.W. Rundle Assocs.	201-327-4151
PA	Doylestown, George Recentio Assocs.	215-348-7577

UNIMAX SWITCH CORP., See C & K/Unimax, Inc.

UNIMEASURE, INC., 7055 N.W. Grandview Dr., Corvallis, OR 97330, Tel: 503-757-3158, FAX: 503-757-0858

UNION CARBIDE CHEMICALS & PLASTICS COMPANY INC., Industrial Chemicals Div., Crystal, 9320 Chesapeake Dr., Ste. 216, San Diego, CA 92123, Tel: 619-279-4500, FAX: 619-565-8926; Empl.: 125; *Sls. Mgr.:* L. R Rothrock

UNIPLEX CORP., 221 E. Little Canada Rd, St. Paul, MN 55117, Tel: 612-490-1936, FAX: 612-490-0495; Empl.: 8; *Sls. Mgr.:* M. Bryan

UNIPOWER CORPORATION

FAX: 305-971-1837

UNIPOWER CORPORATION, 2981 Gateway Dr., Pompano Bch., FL 33069-4803, Tel: 305-974-2442; FSC No.: 62125; Empl.: 65; *Sls. Mgr.:* Warren Peters, Mgr. Tech. Sls. ..... **D•2116-2130**

Local Sales Offices & Reps

AL	Huntsville, Marco Mktg.	205-883-9630
AZ	Phoenix, Shefler-Kahn	602-257-0884
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-453-9018
CA	Santa Clara, Gagner-Toomey	408-244-2200
CO	Denver, AKI Enterprises	303-388-4488
FL	Margate, EPM Corp.	305-977-0331
FL	Orlando, EPM Corp.	407-425-6149
IL	Itasca, Beta Technlg. Sls.	708-250-9586
IA	Cedar Rapids, Stan Clothier	319-393-1576
KS	Olathe, Stan Clothier	913-829-0073
MD	Gaithersburg, Deltatronics	301-253-0615
MA	Arlington, Interstate Sls.	617-646-3914

MA Chelmsford, Interstate Sls. 508-256-2287
MI Livonia, Lowell-Wendt Mktg. 313-464-2722
MI Wyoming, Lowell-Wendt Mktg. 616-457-0900
MN Minneapolis, Scott Elctrn. Sls. 612-929-2985
MO St. Charles, Stan Clothier 314-928-8078
NY Great Neck, F & F Metro 516-482-4080
NY Rochester, Elcom Sls. Inc. 716-385-1400
NY Syracuse, Elcom Sls. Inc. 315-685-8967
NC Charlotte, RG Sls. 704-531-0096
OH Columbus, McFadden Sls. 614-761-3177
PA Blue Bell, Deltatronics 215-641-9930
TX Houston, Jim D. Gray Assocs. 713-342-1710
TX Richardson, Jim D. Gray Assocs. 214-699-9976
VA Pohaton, Deltatronics 804-492-9027
Can Mississauga, Andy Bauman Assocs. .. 416-828-2600
Can W. Vancouver, Leister Blake Entprs. ... 604-926-6127

Local Distributors

CA N. Hollywood, B.J. Wolfe 213-877-5518
CA San Jose, ForeSight Elctrns. 408-453-0219

UNI-POWER HYBRIDS INTERNATIONAL, See Hybrids Intl. Ltd., Thick Film Div., and Hi-Q Crystals, Hybrids Intl. Ltd.

UNIT DESIGN, 1811 N. Case St, Orange, CA 92665, Tel: 714-282-8100, TWX: 910-250-0136, FAX: 714-526-0119; Empl.: 15; *Sls. Mgr.:* Bill Potter

UNITED CHEMI-CON

FAX: 708-640-6341

UNITED CHEMI-CON INC., 9801 W. Higgins Rd, Rosemont, IL 60018, Tel: 708-696-2000; Empl.: 65; *Sls. Mgr.:* R. Donham ..... **A•1148-1149**

Local Sales Offices & Reps

PA Spring House, Hartmaier, Assoc. 215-643-6691
AL Huntsville, R. O. Whitesell 205-883-5110
CA Irvine, English/Damco Sls. 714-753-1950
CT Plainville, Northeast Reps 203-866-6030
GA Norcross, R. O. Whitesell 404-449-9190
IL Chicago, M. Gottlieb Assocs. 312-775-1151
IN Indianapolis, R. O. Whitesell 317-876-9000
KS Overland Pk., Spectrum Sls. 913-648-6811
KY Versailles, R. O. Whitesell 606-873-1182
MA Hingham, Northeast Reps. 617-749-8700
MI Grand Rapids, R. O. Whitesell 616-942-5420
MI Southfield, R. O. Whitesell 313-559-5454
MI St. Joseph, R. O. Whitesell 616-983-7337
MN Plymouth, Twist Co. 612-550-0922
NH Mt. Vernon, Northeast Reps 603-880-8199
NJ Englewood Cliffs, Caravan Sls., Corp. 201-567-7600
NY Hauppauge, Aurora Mktg. 516-434-1313
NY Pittsford, Franklin Sls. Corp. 716-248-8251
NC Greensboro, Caravan Sls. 919-271-2668
NC Raleigh, Tingen Tech Sls., Inc. 919-870-7123
OH Cincinnati, R. O. Whitesell 513-521-2290
OH Cleveland, R. O. Whitesell 216-447-9020
OH Columbus, R. O. Whitesell 614-888-9396
OH Dayton, R. O. Whitesell 513-298-9546
OR Beaverton, Earl & Brown 503-639-2100
PA Ambler, W.R. Hartmaier 215-643-6691
PA Pittsburgh, R. O. Whitesell 412-963-6161
TN Knoxville, R. O. Whitesell 615-694-9476
TX Austin, Mil-Rep 512-346-6331
TX Houston, Mil-Rep 713-444-2557
TX Richardson, Mil-Rep 214-644-6731
WA Redmond, Earl & Brown 206-885-5064
Can Richmond Hill, Renmark Elctrns. 416-881-8844

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AL Huntsville, Hammond Elctrns 205-830-4764
AL Huntsville, Resistacap 205-883-4270
AZ Phoenix, Arizona Comps. 602-269-5655
AZ Tempe, Bell Inds. 602-269-5655
AZ Tempe, Future Elctrn. 602-968-7140
AZ Tempe, Time Elctrns. 602-967-2000
CA Agoura Hills, Bell Inds. 818-706-2608
CA Agoura Hills, Time Elctrns. 818-707-2890
CA Anaheim, Time Elctrns. 714-937-0911
CA Camarillo, Milgray Elctrns. 800-635-7812, 805-484-4055
CA Chatsworth, Future Elctrns. 818-700-0914
CA Chatsworth, Passive Comps. 818-700-8838
CA Fountain Valley, Components Ctr. 714-979-0433
CA Irvine, Kelex Elctrns. 714-863-1230
CA Irvine, Milgray Elctrns. 714-753-1282
CA Irvine, S.A.I. 213-376-0861
CA Riverside, Elctrn. Supp. 714-683-7300
CA San Diego, Elctrn. Supp. 619-693-8222
CA Santa Clara, Components Ctr. 408-988-6931
CA Sunnyvale, Capsco Sls., Inc. 408-734-3020
CA Tustin, Capstone Elctrns. 713-730-0349
CA Tustin, Projections Unltd. 714-544-2700
CO Denver, Capstone Elctrns. 303-375-1300
CO Englewood, Nep Elctrns. 303-799-9898
CO Englewood, Time Elctrns. 303-799-8851
CO Westminster, Future Elctrns. 303-650-0123
CO Wheatridge, Bell Inds. 303-424-1985
CT Bethel, Future Elctrns. 203-743-9594
CT Cheshire, Time Elctrns. 203-271-3200
CT East Haven, JV Elctrns. 203-469-2321
CT Milford, Milgray 800-922-6911
CT Wallingford, Midstate Elctrns. 203-265-9900
FL Altamonte Springs, Bell Inds. 407-339-0078
FL Altamonte Springs, Future Elctrns. 407-767-8414
FL Altamonte SPrings, S.A.I. 407-831-6201
FL Clearwater, Future Elctrns. 813-578-2770
FL Ft. Lauderdale, Hammond Elctrns. 305-973-7103
FL Ft. Lauderdale, Reptron Elctrns. 305-735-1112
FL Ft. Lauderdale, Time Elctrns. 305-974-4800
FL Longwood, RM Elctrns. 407-862-9191
FL Tampa, Reptron Elctrns. 813-855-4656
FL Winter Pk., Milgray Elctrns. 800-241-5523
GA Atlanta, Time Elctrns. 404-984-0923
GA Norcross, Bell Inds. 404-662-0923
GA Norcross, Future Elctrns. 404-441-7676
GA Norcross, Hammond Elctrns. 404-449-1996
GA Norcross, Milgray Elctrns. 800-241-5523
GA Norcross, Reptron Elctrns. 404-446-1300
IL Arlington Hgts., Milgray Elctrns. 800-322-6271
IL Elk Grove Vlg., Bell Inds. 708-640-1910
IL Itasca, Capstone Elctrns. 708-250-0300
IL Northbrook, Classic Comps. 708-272-9650
IL Rolling Meadows, RM Elctrns. 708-358-0300
IL Schaumburg, Future Elctrns. 708-882-1255
IL Schaumburg, Reptron Elctrns. 708-882-1700
IL Schaumburg, Time Elctrns. 708-303-3000
IL Wood Dale, Nep Elctrns. 708-595-8500
IN Ft. Wayne, Bell Inds. 219-423-3422
IN Indianapolis, Classic Comps. 317-872-4777
IN Indianapolis, RM Elctrns. 317-291-7110
KS Overland Pk., Milgray Elctrns. 800-255-6576, 913-236-8800
MD Columbia, Future Elctrns. 301-290-0600
MD Columbia, Milgray Elctrns. 800-638-6656
MD Columbia, Time Elctrns. 301-964-3090
MA Andover, Bell Inds. 508-474-8880
MA Chelmsford, TLC/Shelly-Ragon 508-250-9666
MA Hopkinton, Interface Elctrns. 508-435-6858
MA Peabody, Time Elctrns. 508-532-9756
MA Sandwich, JV Elctrns. 508-833-0700
MA Sutton, EAC 508-865-0722
MA Westborough, Future Elctrns. 508-366-2400
MA Wilmington, Capstone Elctrns. 508-657-5874
MA Wilmington, Milgray Elctrns. 800-334-6941
MA Wilmington, North Star Elctrns. 508-657-5155
MA Wilmington, S.A.I. 617-938-5460
MI Ann Arbor, Bell Inds. 313-971-9093
MI Grand Rapids, RM Elctrns. 616-531-9300
MI Livonia, Reptron Elctrns. 313-525-2700
MN Chanhassen, G&F Distbn. 612-934-8225
MN Eden Prairie, Future Elctrns. 612-944-2200
MN Eitzen, Capacitor Assocs. 507-495-3306
MN Minnetonka, Reptron Elctrns. 612-938-0000
MN New Brighton, Parts One 612-633-8079
MO St. Louis, Time Elctrns. 314-391-6444
NH Nashua, Brevan Elctrns. 603-889-7230
NJ Marlton, Milgray Elctrns. 800-257-7111
NJ Mt. Laurel, Capstone Elctrns. 609-727-7800
NJ Mt. Laurel, Future Elctrns. 609-778-7600
NJ Parsippany, Milgray Elctrns. 800-622-0291
NJ Rockaway, Tonar Inds. 201-586-9000
NJ Teterboro, EAC 201-288-4477
NM Albuquerque, Bell Inds. 505-292-2700
NY Brooklyn, Chip Technlg. 718-251-8300
NY Canandiaga, Advacom, Inc. 716-396-9050
NY E. Syracuse, ADR Technlgs. 315-437-7087
NY Farmingdale, Milgray Elctrns. 800-645-4729
NY Hauppauge, Time Elctrns. 516-273-0100
NY Liverpool, Future Elctrns. 315-451-2371
NY Melville, S.A.I. 516-293-2710
NY Penn Yan, Advacom 315-536-2221
NY Rochester, Masline Elctrns. 716-546-5373
NC Charlotte, Time Elctrns. 704-522-7600
NC Charolette, Elctrn. Mktg. Corp. 704-394-6195
NC Greensboro, Hammond Elctrns. 919-275-6391
NC Raleigh, Capstone Elctrns. 919-954-0600
NC Raleigh, Century Elctrn. Comps. 919-782-2116
NC Raleigh, EAC 919-970-9700
NC Raleigh, Milgray Elctrns. 800-562-3118
NC Raleigh, Sager Elctrns. 919-850-9550
OH Cleveland, Milgray Elctrns. 800-321-0006
OH Columbus, Elctrn. Mktg. Corp. 614-299-4161
OH Dayton, Bell Inds. (Indl.) 513-435-8660
OH Dayton, Elctrn. Mktg. Corp. 513-439-4711
OH Dublin, Time Elctrns. 614-761-1100
OH Highlands Hills, Elctrn. Mktg. Corp. 216-442-3441
OH Solon, Reptron Elctrns. 216-349-1415
OR Beaverton, Future Elctrns. 503-645-9454
OR Lake Oswego, Bell Inds. 503-635-6500
PA Exton, VSH 215-363-2250
PA King of Prussia, Time Elctrns. 215-337-0900
PA Malvern, Interface Elctrns. 215-889-2060
PA McKean, Advacom 814-476-7774
PA McKean, Advacom, Inc. 814-476-7774
PA Norristown, Century Elctrn. Comps. ... 215-631-5400
PA Philadelphia, Future Elctrns. 609-778-7600
PA York, E.C.I. 717-846-5334
SC Greensville, Hammond Elctrns. 803-233-4121
TX Austin, Kent Elctrns. 512-834-1900
TX Carrollton, Capstone Elctrns. 214-380-9049
TX Dallas, Milgray Elctrns. 800-637-7227
TX Houston, Time Elctrns. 713-530-0800
TX Irving, HArper, S.I.D. 214-621-0500
TX Richardson, Bell Inds. 214-690-0466
TX Richardson, S.A.I. 214-231-6330
UT Midvale, Bell Inds. 801-255-9611
UT Salt Lake City, Future Elctrns. 801-972-8489
UT Salt Lake City, Milgray Elctrns. 800-537-9739
UT Salt Lake City, Standard Supp. Co. 801-486-3371
UT W. Valley, Time Elctrns. 801-973-8181
VT Rutland, S.A.I. 802-775-7126
WA Bothell, Projections Unltd. 206 485-2147
WA Redmond, Capsco Sls., Inc. 206-869-7400
WA Redmond, Future Elctrns. 206-881-8199
WA Redmond, Time Elctrns. 206-882-1600
WI New Berlin, Classic Comps. 414-786-5300
WI New Berlin, Nep Elctrns. 414-785-9100
WI Waukesha, Bell Inds. 414-547-8879
Can Calgary, Zentronics 403-295-8838
Can Mississauga, Time Elctrns. 416-672-5300
Can Mississauga, Zentronics 416-564-9600
Can Nepean, Carsten Elctrns. 613-726-9250
Can Ottawa, Future Elctrns. 613-820-8313
Can Richmond, Electrosonics, Inc. 604-273-2911
Can Richmond, Zentronics 604-273-5575
Can Scarborough, Carsten Elctrns. 416-495-7705
Can Willowdale, Milgray Elctrns. 800-268-3315, 416-756-4481

UNITED ELECTRIC CONTROLS, P. O. Box 9143, Watertown, MA 02272-9143, Tel: 617-926-1000, TELEX: 92 2445, FAX: 617-926-2568; Empl.: 420; *Sls. Mgr.:* Dave Williams; *Dist. Mgr.:* George Miller

UNITED FOAM PLASTICS, 172-Q E. Main St, Georgetown, MA 01833, Tel: 508-352-2200, TWX: 710-347-0315, FAX: 508-352-7169; FSC No.: 55900; Empl.: 200; *Sls. Mgr.:* R.L. Bailly

Local Sales Offices & Reps

AL Decatur, United Foam Plastics Corp. .. 205-351-0800
CT Pawcatuck, United Foam Plastics 203-599-1242
FL Kissimee, United Foam Plastics Corp. 407-933-4880
GA Fairburn, United Foam Plastics 404-964-5888
NJ Somerset, United Foam Plastics 201-560-9550
PA Bridgeport, United Foam Plastics 215-272-5430

UNITED PRICING REPORTS, 645 Stewart Ave., Garden City, NY 11530, Tel: 516-227-1300, FAX: 516-227-1901

UNITED SOLDER WRAP INC., See Vector Elctrn. Co., Solderwrap of CA, Inc.

UNITED STATES CRYSTAL CORP., 3605 McCart St, Fort Worth, TX 76110, Tel: 817-921-3014, TWX: 910-893-4084, FAX: 817-923-0424; FSC No.: 52847; Empl.: 75; *Sls. Mgr.:* Jan Henderson

UNITED STATES ELECTRONICS, 60 Brown Ave., Springfield, NJ 07081, Tel: 201-912-0111, FAX: 201-912-0015; Empl.: 20

UNITED SUPERTEK, INC., 118 Charcot Ave., San Jose, CA 95131-1101, Tel: 408-922-0730, FAX: 408-922-0534; Empl.: 55; *Sls. Mgr.:* Roger Meade

UNITED TECHNOLOGIES CONTROL SYSTEMS, 131 Godfrey St, Logansport, IN 47401, Tel: 219-747-6142, TWX: 810-295-0699; Empl.: 3,700; *Sls. Mgr.:* Terry Smith

UNITED TECHNOLOGIES MICROELECTRONICS CENTER, United Technologies Corp., 1575 Garden of The Gods Rd., Colorado Springs, CO 80907, Tel: 719-594-8000, 1-800-MIL-UTMC, FAX: 719-594-8032; Empl.: 485; *Sls. Mgr.:* Dwight Deem

UNITED WIRE & CABLE CORP., 425 Shrewsbury St, Worcester, MA 01604, Tel: 508-757-3872, FAX: 508-753-2173; FSC No.: 51348; Empl.: 10; *Sls. Mgr.:* T. P. Andrews

UNIT INDUSTRIES, 1140 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-4161, FAX: 714-871-4164; FSC No.: 0AMM9; Empl.: 40; *Sls. Mgr.:* D. Molby

UNITRACK INDUSTRIES, INC., 1372 Enterprise Dr., Goshen Corp. Pk., P.O. Box 1927, West Chester, PA 19380, Tel: 215-692-0800; *Sls. Mgr.:* Anna Orcutt

UNITREK CORPORATION, 3000 Lewis & Clark Hwy., Ste.2, Vancouver, WA 98661, Tel: 206-699-7277, FAX: 206-694-6930; Empl.: 40; *Sls. Mgr.:* John Sailer

UNITRODE CORP., 580 Pleasant St., Watertown, MA 02172, Tel: 617-926-0404, FAX: 617-924-1235; Empl.: 2,000; *Sls. Mgr.:* Leslie Wallace; *Dist. Mgr.:* Ron Myers

UNITRON INC., 10925 Miller Rd., Dept. EE, Dallas, TX 75238, Tel: 214-340-8600, TELEX: 882511, FAX: 214-341-2099; FSC No.: 6130; Empl.: 75; *Sls. Mgr.:* James Baker

UNIVERSAL AD-YU/D-F INC., 2517 E. Norwich St., Milwaukee, WI 53207, Tel: 414-482-4100; FSC No.: 90101; Empl.: 10; *Sls. Mgr.:* Ronald Tessmer

UNIVERSAL DATA SYSTEMS, INC., Motorola Information Systems Group, 5000 Bradford Dr., Huntsville, AL 35805-1993, Tel: 205-430-8000, TELEX: 752602 UDS HTV, FAX: 205-830-5657; Empl.: 950; *Sls. Mgr.:* Tony Zalenski

UNIVERSAL INSTRS. CORP., MECHANIZED ELCTRN. ASSEMBLY (MEA) DIV., See Mechanized Elctrn. Assembly Div., Universa

UNIVERSAL MFG., CO. INC., 1168 Grove St., Irvington, NJ 07111, Tel: 201-374-9800, TELEX: 710-995-4647, FAX: 201-374-2265; Empl.: 60; *Sls. Mgr.:* Martin Mayer; *Dist. Mgr.:* Martin Mayer

FAX: 914-241-3129

UNIVERSAL VOLTRONICS CORP, Thermedics Inc./ThermoElctron Corp., 27 Radio Circle Dr., Mt. Kisco, NY 10549, Tel: 914-241-1300, TWX: 710-571-2142; FSC No.: 14225; Empl.: 85 ..... **D•2131-2133**

Local Sales Offices & Reps

FL	Satellite Beach, BWS Microwave Marktg.	407-773-6170
MA	Whitinsville, Power Factor & Assocs.	617-234-6415
NV	Las Vegas, Trembly Assoc., Inc.	702-739-9770
NM	Albuquerque, Trembly Assoc., Inc.	505-266-8616
PA	Audubon, Holmes Assocs.	215-666-0636
PA	Audubon, Holmes Assocs., Inc.	215-666-0636
TX	El Paso, Trembly Assocs., Inc.	915-533-9380
UT	No. Salt Lake City, Trembly Assocs., Inc.	801-295-4703
Can	Nepean, Ont., Datacomp Elctrns.	613-723-8825
Can	Toronto, Ont., Datacomp Elctrns.	416-533-4076

Local Distributors

AZ	Phoenix, Trembly Assoc. Inc.	602-967-2058
CO	Wheat Ridge, Trembly Assoc. Inc.	303-421-8900
NV	Las Vegas, Trembly Assoc. Inc.	702-739-9770
NM	Albuquerque, Trembly Assoc. Inc.	505-266-8616
TX	El Paso, Trembly Assoc. Inc.	915-533-9380
UT	North Salt Lake, Trembly Assoc. Inc.	801-295-4703
EXP	London, England, Stansberry Assoc. Int'l, Inc.	01-467-0535
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UPSYSTEMS, INC., Subsidiary of Chloride Power Elec., One Technology Place, Caledonia, NY 14423, Tel: 716-538-4421, FAX: 716-538-6345; FSC No.: 3698; *Sls. Mgr.:* Steve Olson

URBAN ELECTRONICS, P. O. Box 456, Dover, MA 02030, Tel: 617-329-4068, FAX: 508-785-2265; Empl.: 50; *Sls. Mgr.:* G. Urban

USAR SYSTEMS, INC., 568 Broadway Ste. 405, New York, NY 10012, Tel: 212-226-2042, FAX: 212-226-3215; Empl.: 3; *Sls. Mgr.:* Yannis Milios

US DIGITAL

FAX: 206-576-0515

U. S. DIGITAL CORP., 8409 N.W. 15th Court, Vancouver, WA 98665, Tel: 206-576-0514, 800-736-0194 (Sales); *Sls. Mgr.:* David Madore ..... **B•1952-1955**

Local Sales Offices & Reps

VA	Roanoke, Engrg. & Mktg. Corp. of VA	703-562-0726

Local Distributors

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USD PRODUCTS , Div. of Bussmann, 7300 W. Wilson Ave., Chicago, IL 60656, Tel: 708-867-4600, FAX: 708-867-2211; Empl.: 200; *Sls. Mgr.:* Mr. Chris Osmun

USECO DIV., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409, Tel: 818-786-6381, FAX: 818-902-4516; FSC No.: 88245; Empl.: 100; *Sls. Mgr.:* Peggy Slattery

U.S. ELCO,INC., 2930 Scott Blvd., Santa Clara, CA 95054, Tel: 1-800-888-ELCO, FAX: 408-980-9754; *Sls. Mgr.:* Douglas Hemingway

U.S. INSTRUMENT RENTALS, INC., AT&T Capital Corp., 1830 West Airfield Drive, D/FW Airport, TX 75261, Tel: 800-874-7123; Empl.: 500; *Sls. Mgr.:* Greg Lapham

U. S. LASER CORP., 825 Windham Court North, Wyckoff, NJ 07481, Tel: 201-848-9200, FAX: 201-848-9006; Empl.: 25; *Sls. Mgr.:* James F. Golden

U.S. POWER/RELCO MIDWEST, U.S. Power Converting Co., 8830 West 61st North, Wichita, KS 67205, Tel: 316-722-6440; Empl.: 12; *Dist. Mgr.:* Jonathan P. Snow ..... **C•1092; D•2027**

U.S. POWER CONVERTING COMPANY/RELCO, Leonard V. Snow & Assocs., 21517 Ocean, Torrance, CA 90503, Tel: 213-316-9984, FAX: 213-316-9050; Empl.: 8; *Sls. Mgr.:* Van Snow; *Dist. Mgr.:* Tom Clark ..... **C•1092; D•2027**

Local Sales Offices & Reps

KS	Wichita, U.S. Power Converting/Relco	316-722-6440
Can	New Dundee, Ont., Ritz Elctrns.	519-696-2616
Can	Torrance, U.S. Power Conv. Co.	213-316-9984

Local Distributors

CA	Torrance, U.S. Power Converting/L. Snow & Assocs.	213-316-9984
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AZ	Tucson, Compass Mktg. & Sls. Inc.	602-577-5146
CA	Los Angeles, Landa & Assocs.	213-879-0770
CA	San Jose, Arnold Tech. Sls.	408-954-0400
CA	Santa Ana, Landa & Assocs.	714-543-7805
CO	Englewood, Compass Mktg. & Sls., Inc.	303-721-9663
FL	Orlando, Richmar Elctrns. Corp.	407-352-3755
IL	Downers Grove, Richmar Elctrns. Corp.	708-968-0118
IN	Indianapolis, Richmar Elctrns. Corp.	317-577-9950
IA	Iowa City, Richmar Elctrns. Corp.	319-354-8894
MA	Canton, John Ferrari Co.	617-821-4599
MI	Farmington, J.P.Bergin Assocs.	313-471-7940
NM	Albuquerque, Compass Mktg. & Sls., Inc.	505-344-9990
TX	Plano, Richmar Elctrns. Corp.	214-424-8388
WI	Butler, Richmar Elctrns. Corp.	414-781-1730

U.S. TERMINALS INC., 7502 Camargo Rd., Cincinnati, OH 45243, Tel: 513-561-8145, FAX: 513-561-8755; FSC No.: 12615; Empl.: 45; *Sls. Mgr.:* George L.Stepp ..... **C•1563**

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IL	Itasca, LTD Technologies	708-773-2900
IA	Cedar Rapids, J.R. Sls. Engrg., Inc.	319-393-2232
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FAX: 818-287-7350

U.S. TOYO FAN CORP., 4915 Walnut Grove Ave., San Gabriel, CA 91776, Tel: 818-287-5297; Empl.: 20; *Sls. Mgr.:* Peter Jeanseau; *Dist. Mgr.:* Peter Jeanseau ..... **C•1668-1669**

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CA	Oceanside, Noo Rep Tech Sls.	619-941-0558
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CA	Santa Clara, U.S. Toyo Fan Corp.	408-988-1260
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IL	Downers Grove, Golten Assoc.	708-512-0093
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MD	Cockeyesville, Dalbrook Corp.	301-666-2212
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NY	Plainview, Neptune Elec.	516-349-1600
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OH	Richfield, Geotronix	216-659-6100
OH	Trotwood, Geotronix	513-252-6700
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WA	Snohomish, Unicomp, Inc.	206-568-0511
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NY	Endwell, Pryme-Line Distr.	607-748-5200
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Can	Mississauga, Ont., Rush Elex. Ltd.	416-677-7280

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FL Seminole, So. Atlantic Comp. 813-595-6397, FAX:407-857-3298
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CA Rocklin, Hall-Mark 916-624-9781
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Can Mississauga, Ont., Nica Power Battery Corp. 416-828-7100

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MA Hingham, Northeast Reps. Inc. 617-749-8700
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NY Mendon, Tech-Mark, Inc. 716-624-3840
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VELONEX, 560 Robert Ave., Santa Clara, CA 95050, Tel: 408-727-7370, FAX: 408-727-0389; Empl.: 25; *Sls. Mgr.:* Kevin M. Coffey

VELONEX, 6551 Loisdale Ct., Ste. 322, Springfield, VA 22150, Tel: 703-922-8005, FAX: 703-922-8007

VENABLE INDUSTRIES, INC., 3555 Lomita Blvd., Torrance, CA 90505, Tel: 213-539-2522, FAX: 213-539-4139; Empl.: 20; *Sls. Mgr.:* Shelley Ely

VENT RAK, See General Devices

VERDURE INDUSTRIES INC., PO Box 24886, Omaha, NE 68124, Tel: 402-691-8300, FAX: 402-691-8400; Empl.: 7; *Sls. Mgr.:* Ronald F. Bailey

VERMONT PRECISION RESISTOR, Codeco Corp. of Vermont, P.O. Box 1207, Stowe, VT 05672-1207, Tel: 802-253-8567, FAX: 802-253-8019; Empl.: 8

VERMONT RESEARCH CORP., Precision Pk., N. Springfield, VT 05150, Tel: 802-886-2256, TWX: 710-363-6533, FAX: 802-886-2682; Empl.: 50; *Sls. Mgr.:* John Dimitruk

VERMONT SEMICONDUCTOR, INC., 7 Ave.D, PO Box 526, Williston, VT 05495, Tel: 802-865-3000, FAX: 802-865-3800; Empl.: 70

FAX: 516-242-7940

VERNITECH:VERNITRON CORP., 300 Marcus Blvd., Deer Pk., NY 11729, Tel: 516-586-5100, TWX: 510-227-6079; FSC No.: 30223; Empl.: 170 .... **A•2072; B•1031, 1318, 1956**

Local Sales Offices & Reps

AL Huntsville, Hughes Assoc., Inc. 205-533-9108
AZ Fountain Hills, Halbar Assocs. 602-837-2464
CA Van Nuys, Halbar Assocs. 818-906-3941
CO Wheatridge, Waugaman Assocs. 303-423-1020
CT North Haven, Kitchen & Kutchen, Inc. 203-239-0212
FL Largo, Labrant Tech. Sls. 813-536-8480
IL Northbrook, Howard Benjamin Assoc. 708-272-2900
MD Monkton, Imagitron Sls. Co., Inc. 301-374-5600
MA Burlington, Kitchen & Kutchen Inc. 617-229-2660
MI Royal Oak, Elctrl. Sys. Co. 313-542-1747
MN Minneapolis, PSI 612-944-8545
NJ Cherry Hill, Lanson Assoc. 609-424-4670
NY Jericho, Metro Tech. Sls. 516-935-3330
NY Syracuse, T-Squared Elctrn. Sls. 315-463-8592
NY Victor, T-Squared 716-924-9101
NC Raleigh, DHR Mktg. Inc. 919-829-1970
OH Beachwood, Electronic Salesmasters, Inc. 216-831-9565
OH Dayton, Elctrl. Sys. Co. 513-434-9822
OH Orrville, Elctrl. Sys. Co. 216-682-5530
SC Greenville, DHR Mktg. Inc. 803-235-3594
TX Dallas, Innovative Tech. Sls. 214-699-3485
TX Ronoake, CMR 817-379-6540
UT Salt Lake City, Waugaman Assocs. ... 801-261-0802
WA Bellevue, Schultz Co. 206-454-0300

VERNITRON CONTROLS, Vernitron Corp., See Magtech Controls, Vernitron Controls

VERNITRON CORPORATION
VRN INTERNATIONAL DIVISION

FAX: 813-347-7520

VERNITRON CORP., Passive Comps. Group, 2801 72nd St. N., Box 44000, St. Petersburg, FL 33743, Tel: 813-347-2181; FSC No.: 84048; Empl.: 350; *Sls. Mgr.:* Tom Gavula/Dick Thomas; *Dist. Mgr.:* K. Hansen ..... **A•1279, 1751, 2073-2075, 2458**

Local Sales Offices & Reps

AL Huntsville, R. O. Whitesell & Assoc. ... 205-883-5110
AZ Phoenix, Shefler-Kahn 602-257-9015
CA Santa Clara, West Rep 408-988-3188
CA Woodland Hills, West Rep 714-527-2822
CO Denver, Delltron 303-741-2122
NH Amherst, D.A. Crowley & Assoc. 603-673-7050
FL St. Petersburg, Factory Direct 813-347-2181
IL Itasca, Beta 708-250-9580
IN Fort Wayne, Ro Whitesell & Assocs. .. 219-432-5591
IN Indianpolis, Ro Whitesell & Assocs. ... 317-876-9000
IN Kokomo, Ro Whitesell & Assocs. 317-457-9127
KS Merriam, MTS 913-236-8557
KY Louisville, Ro Whitesell & Assocs. 502-426-7696
MI Grand Rapids, Ro Whitesell & Assocs. 616-942-5420
MI Southfield, Ro Whitesell & Assocs. 313-559-5454
MI St. Joseph, Ro Whitesell & Assocs. ... 616-983-7337
MN Minneapolis, PSI 612-944-8545
NM Albuquerque, Shefler-Kahn 505-345-3591
NY Great Neck, Mos Assocs. 516-487-3966
NY Syracuse, Pi'tronics 315-435-7346
OH Cincinnati, Ro Whitesell & Assocs. 513-521-2290
OH Cleveland, Ro Whitesell & Assocs. 216-447-9020
OH Columbus, Ro Whitesell & Assocs. ... 614-888-9396
OH Dayton, Ro Whitesell & Assocs. 513-298-9546
OK Tulsa, Comptech 918-622-7744
PA Lawrenceville, DVS 609-896-1112
PA Pittsburg, Ro Whitesell & Assocs. 412-963-6161
TX Arlington, Comptech 817-265-6007
Can Rexdale, Ont., Source Elec., Ltd. 613-592-5392

Local Distributors

AZ Tempe, TTI 602-431-1191
CA Agoura Hills, Zeus 818-889-3838
CA San Diego, Shelley-Ragon 619-453-7133
CA San Jose, Future 408-945-9100
CA San Jose, Shelley-Ragon 408-942-9111
CA Thousand Oaks, Bell Inds. 818-340-1940
CO Denver, TTI 303-429-6806
CT Bethel, Future 203-847-6442
CA Los Angeles, TTI 818-891-8885
CT Wallingford, TTI 203-284-7474
FL Clearwater, Future 813-441-4771
FL Orlando, TTI Inc. 305-849-1000
CA San Diego, TTI 619-748-2025
CA San Jose, TTI 408-946-5577
GA Norcross, TTI 404-662-0911
IL Lombard, Shelley Ragon 312-595-6633
CA San Jose, Zeus 408-629-4789
MA Lexington, Zeus 617-863-8800

MA Wilmington, TTI Inc. 508-658-4700
MD Columbia, TTI 301-995-1331
FL Oviedo, Zeus 407-365-3000
MD Columbia, Zeus 301-997-1118
MA Westboro, Future 617-366-2400
MA Tewksbury, JACO 508-640-0755
MN Eden Prarie, TTI 612-944-5080
MN St. Pauls, Shelley Ragon 612-642-2823
MO St. Louis, Chelsea 314-426-4500
MD Columbia, Jaco 301-995-6620
NJ Mt. Carmel, TTI 609-234-6400
NJ Mt. Laurel, Future 609-778-7600
FL Tampa, JACO 813-628-8185
FL Totowa, JACO 201-942-4000
NM Albuquerque, Sterling 505-884-1900
NY Hauppauge, Fairmont Elec. Sls. 516-231-3313
NY Hauppauge, Jaco Elctrns. 516-273-5500
NY Liverpool, Future 315-451-2371
NY Port Chester, Zeus 914-937-7400
NY Ronkonkoma, TTI Inc. 516-737-2000
NY Ronkonkoma, Zeus 516-737-4500
NY Valley Stream, L & S Elctrns. 516-561-2474
NC Charlotte, TTI 704-522-0277
OH Dayton, Zeus 513-293-6182
OH Columbus, TTI 614-848-5757
OH Dayton, Bell Micro-Mil 513-434-8231
TX Richardson, JACO 214-235-9575
TX Ft. Worth, TTI Inc. 817-595-3100
TX Houston, Sterling 713-627-9800
TX Richardson, Zeus 214-783-7010
UT Salt Lake City, Future 801-972-8489
EXP TX Ft. Worth, TTI 817-847-6666
WA Bellevue, Future 206-881-8199
WA Redmond, TTI 206-883-3776
WI Milwaukee, Marsh Elctrns. 414-475-6000
Can Pointe Claire, Que., Future Elctrns. 514-694-7710

VERNITRON CONTROLS, Vernitron Corporation, See Magtech Controls, Vernitron Corporation

VERNITRON ELEC. COMPS., See Beau Prods. Div.

VERN KIEBLER ELECTRONICS, INC., 201 N. Gables, Wheaton, IL 60187, Tel: 708-668-5407, FAX: 708-462-7590; Empl.: 200; *Sls. Mgr.:* Wm. Archbold

VERSACAD COMPUTERVISION PERSONAL CAD/CAM, 2124 Main St., Huntington Bch., CA 92648, Tel: 714-960-7720, TWX: 510-101-1759 TWINC UD; Empl.: 50; *Sls. Mgr.:* John Towart; *Dist. Mgr.:* Giwes Guignat

VERSADATA INC., 790 Maple Lane, Bensenville, IL 60106, Tel: 708-766-6755, FAX: 708-860-3672; Empl.: 5; *Sls. Mgr.:* Ken Krohmer

VERSALOGIC CORP., 3888 Stewart Rd., Eugene, OR 97402, Tel: 800-824-3163, FAX: 503-485-5712

VERTEK INTL. INC., 9465 Customhouse Plaza, Ste. D, San Diego, CA 92173, Tel: 619-661-6868, FAX: 706-686-3444(Mexico); Empl.: 225

VERTEX INDUSTRIES, INC., P. O. Box 996, 23 Carol St., Clifton, NJ 07014, Tel: 201-472-1331, FAX: 201-472-0814; Empl.: 85; *Sls. Mgr.:* Carlo Pastore

VERTOX CO., 10022 Imperial Ave. E , Garden Grove, CA 92643, Tel: 714-530-4541, FAX: 714-530-0143; FSC No.: 53688; Empl.: 12; *Sls. Mgr.:* Steve Hacker; *Dist. Mgr.:* Steve Hacker

VESTA TECHNOLOGY, INC., 7100 W. 44th Ave. Ste 101, Wheat Ridge, CO 80033, Tel: 303-422-8088, FAX: 303-422-9800; Empl.: 9

VETRA SYSTEMS CORP., 27 Newtown Rd., Plainview, NY 11803, Tel: 516-454-6469, FAX: 516-454-1648; Empl.: 10; *Sls. Mgr.:* Jim Del Rossi

VG CONTROLS, INC., 34 Jenkins Road, Hewitt, NJ 07421, Tel: 201-853-4600, TELEX: 201-853-7913; Empl.: 3

VGI, INC., Vikay Industrial Pte. Ltd., 1800 Vernon St., Roseville, CA 95661, Tel: 916-783-7878, FAX: 916-783-7845; Empl.: 14; *Sls. Mgr.:* Gary Johnson

VIABLE SYSTEMS INC., Box 369, Sherborn, MA 01770, Tel: 508-653-7665, TELEX: 922 495 VIABLEUS, FAX: 508-653-6645; Empl.: 30

VIATRAN CORPORATION, 300 Industrial Drive, Grand Isl. 14072, Tel: 716-773-1700, TELEX: 710-260-1353, ESYLNK: 716-773-2488; Empl.: 110

VIA WEST INTERFACE, INC., 534 N. Stone Ave., Tucson, AZ 85705, Tel: 602-623-5716, 1-800-266-5716, FAX: 1-602-623-5718; Empl.: 4; *Sls. Mgr.:* Robert S. Bos

VIBRAC, 16 Columbia Dr., Amherst, NH 03031, Tel: 603-882-6777, TELEX: 312698 VIBRAC, FAX: 603-886-3857; Empl.: 50; *Sls. Mgr.:* R. Searle

Vibra-Metrics INC.

FAX: 203-288-4937

VIBRA-METRICS, INC., 1014 Sherman Ave., Hamden, CT 06514, Tel: 203-288-6158, 1-800-8-SENS-IT; Empl.: 25; *Sls. Mgr.:* William McClain ..... **B•1957**

Local Sales Offices & Reps

AK Anchorage, Amerom Assoc. 907-338-0894
CA Laguna Hills, Elotek Sys. 714-830-4856
CO Longmont, Weaver & Assocs. 303-772-1999
CA Pleasanton, Secco Sls. Inc. 415-484-1030
IL Palos Hills, James L. Griffin Co., Inc. .. 708-974-1770
GA Tunnel Hill, Pump & Vibration Consits. 404-935-5851
MI Troy, Satullo Assoc., Inc. 313-585-4811
IL Carpentersville, Precision Meas. Prods. 708-426-4446
LA Baton Rouge, Data Signal Sys., Inc. ... 504-927-4953
MD Columbia, Stein Instrumn. Corp. 301-596-3748
RI Narragansett, Pat Assoc. 401-783-9565
MO St. Louis, Precision Meas. Prods. 314-394-4403
NM Albuquerque, Mesa Tech. Corp. 505-883-8833
NY Baldwinsville, Oshex Assoc. 315-635-6027
OH Cleveland, Abitec 216-531-9122
OK Data Signal Sys., Inc. 918-866-2450
PA Philadelphia, Metrasystems 215-247-7347
TN Chattanooga, Pump & Vibation Consits. 404-935-5851
TX Friendswood, Data Signal 713-482-9653
UT West Amercan Fork, Highland Tech. Mktg. 801-756-2634
WI Mequon, James L. Griffin Co. Inc. 414-241-4451
EXP Hamden, CT, Vibra-Metrics, Inc. 203-288-6158
Can Mississauga, Ont., SRP Control Sys. Ltd. 416-238-2880

VIBRO-METER CORP., P.O. Box 5058, Billerica, MA 01822-5058, Tel: 508-663-7322, TELEX: 948145, TWX: 710-320-1872, FAX: 508-667-1944; Empl.: 50; *Sls. Mgr.:* Joe Micali

VICOM SYSTEMS, INC., 46360 Fremont Blvd., Fremont, CA 94538, Tel: 415-498-3200, FAX: 415-498-3325; Empl.: 77; *Sls. Mgr.:* Ernie Pope

VICOR CORP., 23 Frontage Rd., Andover, MA 01810, Tel: 508-470-2900, TELEX: 910-380-5144, ESYLNK: 508-475-6715; Empl.: 400; *Sls. Mgr.:* D. Nesbitt; *Dist. Mgr.:* L Cavanaugh

V.I. CORPORATION, 47 Pleasant St., Northampton, MA 01060, Tel: 413-586-4144, FAX: 413-586-3805; Empl.: 75; *Sls. Mgr.:* Paul Maguire, VP Nat. Sls.

VICTOREEN

FAX: 216-248-9301

VICTOREEN, INC., 6000 Cochran Rd., Solon, OH 44139-3395, Tel: 216-248-9300, 216-248-9043, TWX: 810-421-8287; Empl.: 350; *Sls. Mgr.:* Glenn Whiteley ..... **A•1996-1999**

VICTOR ELEC. WIRE & CABLE, 618 Main St., W. Warwick, RI 02893, Tel: 401-821-1700, SALES 401-821-7800, TELEX: 952122, TWX: 710-382-1534, FAX: 401-828-0441; Empl.: 500; *Sls. Mgr.:* E. M. Colasanto

VICTOR WIRE & CABLE CORP., 3601 Holdrege Ave., Los Angeles, CA 90016, Tel: 213-870-9933, FAX: 213-559-4167; Empl.: 30

VICTORY ENGINEERING CORP., Victory Rd., Springfield, NJ 07081, Tel: 201-379-5900, TELEX: 710-983-4430, FAX: 201-379-5982; Empl.: 150; *Sls. Mgr.:* P. Foley

VIDCO, INC., 8039 S.W. Cirrus Dr., Beaverton, OR 97005, Tel: 503-641-1804, FAX: 503-641-1806; Empl.: 10; *Sls. Mgr.:* Bradley Cohen

VIDEO AUTOMATION SYSTEMS, Upper Shad Rd., Pound Ridge, NY 10576, Tel: 914-764-4613, FAX: 914-764-4613; Empl.: 5

VIDEO DISPLAY CORP., 1868 Tucker Industrial Dr., Tucker, GA 30084, Tel: 404-938-2080,800241-5005, FAX: 404-493-3903; Empl.: 300; *Sls. Mgr.:* Robert (Bob) Liss; *Dist. Mgr.:* Randy Russell

VIDEO MONITORS, INC., Dotronix, Inc., 3833 N. White Ave., Eau Claire, WI 54703, Tel: 715-834-7785, TELEX: 510-100-1880, FAX: 715-834-5672; Empl.: 190; *Sls. Mgr.:* L Stewart

VIEWLOGIC SYSTEMS, INC., 293 Boston Post Rd. West, Marlboro, MA 01752, Tel: 508-480-0881, FAX: 508-480-0882; Empl.: 200; *Sls. Mgr.:* Harvey Ford

VIKING CASES, 10480 Oak St. N.E., St. Petersburg, FL 33716, Tel: 813-577-1216, FAX: 813-577-2082; *Sls. Mgr.:* Bill Strickland

VIKING ELECTRONICS, 1531 Ind. St. PO Box 448, Hudson, WI 54016, Tel: 715-386-8861; Empl.: 26; *Sls. Mgr.:* Roy Crist

VIKING ELECTRONICS, INC., 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, Tel: 818-341-4330, FAX: 818-882-5713; FSC No.: 05574; Empl.: 150; *Sls. Mgr.:* William Vockerath; *Dist. Mgr.:* Karen Claybaugh

VIKING INDUSTRIAL PRODUCTS, 729 Farm Rd., Marlboro, MA 01752, Tel: 508-481-4600; Empl.: 25; *Sls. Mgr.:* Aubrey Elms

VIRGINIA PANEL CORPORATION, 1400 New Hope Rd., Waynesboro, VA 22980, Tel: 703-949-8376, FAX: 703-942-2856; FSC No.: 18117; Empl.: 130; *Sls. Mgr.:* Norman D. Wood

FAX: 703-375-0135

VIRGINIA PLASTICS CO., P.O. Box 4577, Roanoke, VA 24015-0577, Tel: 703-375-0100; FSC No.: 59608; Empl.: 130; *Sls. Mgr.:* Barry D. Lee ..... **C•1564-1567, 1822-1824**

Local Sales Offices & Reps

AZ Phoenix, Howe & Howe Sls. 602-264-7971
CA Arcadia, H M C Inc. 818-447-0958
CA San Diego, HMC, Inc. 619-484-8921
CA Santa Clara, Penmark Sls. Co. 408-980-1303
CO Denver, Lindberg Co. 303-758-9033
CT Middletown, Gerber Sls. 203-347-3000
IL Wheaton, CS Tech. Sls., Inc. 708-653-8126
IN Kokomo, John McKenzie 317-452-7390
MD Gaithersburg, Carwithen Assocs. 301-921-9545
MA Burlington, Gerber Sls. 617-229-1150
MI Livonia, Engrg. & Mktg. Svcs. Co. 313-522-9465
MN Minneapolis, Elec. Comp. Sls. 612-933-2594

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NM Albuquerque, Lindberg Co. 505-881-1006
NY Buffalo, NRM Mktg. Grp. 716-634-4300
NY Skaneateles, NRM Mktg. Grp. 315-685-8991
NC Raleigh, Spears & Assocs. 919-790-7606
OK Bixby, MGR Elctrns. 918-369-5186
OH Cincinnati, Makin & Assocs. 513-871-2424
OH Cleveland, Makin & Assocs. 216-248-7370
OH Dublin, Makin & Assocs. 614-793-9545
OR Lake Oswego, SPS Elctrns. 503-697-7768
PA Harrisburg, All-Tech. Mktg. 717-540-1204
PA West Chester, All-Tech Mktg., Inc. 215-344-0134
KS Overlook Pk., Markline Technlgs. 913-681-8880
TX Dallas, MGR Elctrns., Inc. 214-238-5246
UT Salt Lake City, Lindberg Co. 801-484-8689
WA Snohomish, SPS Elctrns. 206-794-0154
Can Downsview, Ont., Tienkay, Inc. 416-736-1221

Local Distributors

CA Canoga Park, Acort Inds. 818-700-2991
NH Manchester, Yankee Elctrn. Supp. Co. 800-365-9720
Can Downsview, Ont., P.S. Comps. 416-665-9546

VIRTIS CO., Rte. 208, Gardiner, NY 12525, Tel: 914-255-5000, 800-431-8232, TELEX: 926474, FAX: 914-255-5338; Empl.: 92; *Sls. Mgr.:* J. D. Schmidt

VISHAY-MANN SYSTEM, See Vishay Resistive Systems Group

VISHAY RESISTIVE SYSTEMS, 63 Lincoln Hwy., Malvern, PA 19355, Tel: 215-644-1300, TWX: 510-668-5812; Empl.: 500
..... **A•1844-1845, 1914-1915, 1965-1967, 1992-1995, 2001-2009, 2015, 2076; D•1335**

Local Sales Offices & Reps

AL Huntsville, JWL Assocs. 205-883-1712
AZ Phoenix, Howe & Howe 602-264-7971
CA Loveland, VEC 303-667-7500
CA Redwood City, James S. Heaton Co. .. 415-367-9000
CA San Diego, VEC 619-690-5112
CA Tustin, VEC 714-544-7024
CT Yalesville, Comp Rep Assocs. 407-269-1145
FL Altamonte Springs, Semtronic Assocs. 305-831-8233
FL Clearwater, Semtronic Assocs. 813-461-4675
FL Ft. Lauderdale, Semtronic Assocs. 305-731-2484
GA Atlanta, JWL Assocs. 404-993-0100
IN Ft. Wayne, Scott Elctrns. 219-489-5690
IL Skokie, IRI-Illinois 312-967-8430
IN Indianapolis, Scott Elctrns. 317-841-0010
KS Olathe, Technical Sls. Assocs. 913-829-2800
MD Lutherville, J. A. Dougherty Sls. Co. ... 301-321-7890
MA Westwood, Comp Rep Assocs. 617-329-3454
MI Plymouth, Jay Mktg. Assocs. 313-459-1200
MN Bloomington, IRI of Minnesota 612-854-8027
MO St. Louis, Technical Sls. Assocs. 314-521-2044
NJ Flanders, K & R Engrg. Sls. Co. 201-584-5235
NM Albuquerque, Nelco Electronix 505-293-1399
NY Rochester, L-Mar Assocs. 716-381-9100
NC Charlotte, JWL Assocs. 704-541-5750
NC Raleigh, JWL Assocs. 919-787-4826
OH Aurora, EMA, Inc. 216-562-6104
OH Centerville, EMA, Inc. 513-433-2800
OR Beaverton, N. R. Schultz Co. 503-643-1644
PA Horsham, TMI 215-441-4300
PA Malvern, Vishay Resistive Sys. Grp. ... 215-644-1300
TX Dallas, Edward F. Aymond Co. 214-826-7620
TX Houston, Edward F. Aymond Co. 713-943-3149
WI Milwaukee, IRI-Wisconsin 414-789-9393
WA Bellevue, N. R. Schultz Co. 206-746-1890
PR Caguas, Comp Rep Assocs. 809-746-6550
Can Burnaby, B.C., Kaytronics, Inc. 604-294-2000
Can Concord, Ont., Kaytronics, Inc. 416-669-2262
Can Kanata, Ont., Kaytronics, Inc. 613-564-0080
Can Ville St. Laurent, Que., Kaytronics, Inc. 514-745-5800

Local Distributors

AZ Tempe, Shelley-Ragon, Inc. 602-894-2058
AZ Tempe, TTI, Inc. 602-431-1191
CA Chatsworth, Passive Comps. Inc. 818-700-8838
CA Chatsworth, Shelley-Ragon, Inc. 818-998-3333
CA Milipitas, TTI, Inc. 408-946-5577
CA Mission Hill, TTI, Inc. 818-891-8885
CA San Diego, Shelley-Ragon, Inc. 619-453-7133
CA San Diego, TTI, Inc. 619-748-2025
CA San Jose, Passive Comps. 408-441-1441
CA San Jose, Shelley-Ragon, Inc. 408-432-0600
CA Santa Ana, TTI, Inc. 714-641-9393
CO Denver, TTI, Inc. 303-429-6806
FL Orlando, TTI, Inc. 407-859-1000
FL Pinellas Pk, MMG Elec./L&S 813-545-1700
FL Tampa, Shelley-Ragon, Inc. 813-623-6560
CT Wallingford, TTI, Inc. 203-284-7474
GA Norcross, TTI, Inc. 404-662-0911
MA Chelmsford, Shelley-Ragon, Inc. 508-250-9666
IL Glendale Hgts., Shelley-Ragon, Inc. ... 708-529-9977
IA Cedar Rapids, Shelley-Ragon, Inc. 319-373-0525
MD Baltimore, RESCO/Baltimore 301-931-8200
MD Beltsville, RESCO/Washington 301-937-9100
MA Wilmington, TTI, Inc. 508-658-4700
MN Minnetonka, TTI, Inc. 612-933-8555
MN St. Paul, Shelley-Ragon, Inc. 612-642-2828
MO Hazlewood, Shelley-Ragon, Inc. 314-895-1515
MO Independence, Shelley-Ragon, Inc. 816-254-3410
NJ Mt. Laurel, TTI Inc. 609-234-6400
NY Farmingdale, Command Elctrns. Corp. 516-293-1212
NY Medford, Shelley-Ragon, Inc. 516-447-2000
NY Ronkonkoma, Mast Distrs., Inc. 516-471-4422
NY Ronkonkoma, TTI, Inc. 516-737-2000
NY Valley Stream, L & S Elctrns. 516-561-2474
SC Charleston, L & S 803-720-4242
OH Dayton, Micro Mil Div. 513-434-8231
OH Worthington, TTI, Inc. 614-848-5770
PA Malvern, Vishay Resistive Sys. Grp. ... 215-644-1300
TX Fort Worth, TTI, Inc. 817-595-3100
TX Ft. Worth, TTI, Inc. 817-831-8300
TX Houston, Texas Comp. Corp. 713-468-3882
WA Redmond, Shelley-Ragon 206-883-2220
WA Redmond, TTI, Inc. 206-882-0291
Can Burnaby, B.C., Kaytronics 604-294-2000
Can Concord, Ont., Kaytronics 416-669-2262
Can Kanata, Ont., Kaytronics 613-564-0080
Can Que., Kaytronics, Inc. 514-745-5800

VISIONARY ELECTRONICS, 141 Parker Avenue, San Francisco, CA 94118, Tel: 415-751-8811

VISION ENGINEERING, INC., 570 Danbury Rd., New Milford, CT 06776, Tel: 203-355-3776, TELEX: 643769, FAX: 203-355-0712; Empl.: 15; *Sls. Mgr.:* Bill Johnson

VISIONICS CORPORATION, 3032 Bunker Hill Ln.-Ste. 201, Santa Clara, CA 95054, Tel: 408-492-1440, FAX: 408-492-1380; *Sls. Mgr.:* Mary Leasure

VISTA SYSTEMS, INC., 2 Centennial Drive, Peabody, MA 01960, Tel: 508-532-1971, FAX: 508-532-2068; Empl.: 4; *Sls. Mgr.:* Jim Atwood

VISUAL COMMUNICATIONS CO., INC., 7920 Arjons Dr., Ste. G, San Diego, CA 92126, Tel: 619-549-6900, FAX: 619-549-3520; Empl.: 9; *Sls. Mgr.:* P. Loudon
..... **B•1208-1209**

Local Sales Offices & Reps

EXP CT, Litchfield, Intrade 203-567-5901

Local Distributors

AL Huntsville, Component Dist. Inc. 205-881-7800
AZ Phoenix, Keystone Electro 602-995-3005
CA Costa Mesa, Orange County Comp. ... 714-979-3597
CA Los Angeles, Electric Switch Inc. 213-660-1310
CA San Diego, Orange County Comps. ... 619-549-2511
CA San Jose, Spectra Elctrns. 408-452-1590
CA Sunnyvale, PSC Elctrns. 408-737-1333
CO Englewood, Component Dist. Inc. 303-770-6214
FL Clearwater, Component Distrs. 813-796-0466
FL Ft. Lauderdale, Component Distrs. 305-973-6650
FL Melbourne, Component Dist. Inc. 407-724-9910
GA Norcross, Component Dist. Inc. 404-441-3320
IL Palatine, OHM Elctrns. 708-359-5500
MA Lynn, Land Elctrns. 617-592-2220
MI Grand Rapids, S F Elctrn. Supp. 616-459-0216
MN New Brighton, Chris Elctrns. 612-631-2647
NJ Bellmawr, Mid Atlantic 609-931-5303
OH Aurora, Industrial Prods. 216-562-8113
OH Centerville, Industrial Prod. Dist. 513-435-2086
TX Dallas, Component Dist. Inc. 214-644-0373
WA Kent, Shannon Indl. 206-575-8600

VISUAL INFORMATION INSTITUTE, Box 33, Xenia, OH 45385-0033, Tel: 513-376-4361, TELEX: 501031 VIS INFO INST, FAX: 513-376-2802; FSC No.: 27432; Empl.: 45

VISUAL INFORMATION TECHNOLOGIES, INC.(UITEC), 3460 Lotus Dr., Plano, TX 75075, Tel: 214-596-5600, 800-325-6467, FAX: 214-867-4489; Empl.: 90; *Sls. Mgr.:* Ken Hilton, VP Sls., Mktg.; *Dist. Mgr.:* Ken Hilton, VP Sls., Mktg.

VITEC

FAX: 209-651-1538

VITEC ELECTRONICS CORP., 8530 W. Roosevelt Ave., Visalia, CA 93291, Tel: 209-651-1535; *Sls. Mgr.:* Ed Green ..... **A•2459-2463**

Local Sales Offices & Reps

AZ Phoenix, O'Donnell Assoc.,S.W. 602-944-9542
AR Little Rock, Doby-Morse Assocs. 501-221-0326
CA Northern, Comtech Mktg. 408-249-3330
CA San Diego, VanGott & Assocs., Inc. ... 714-698-7774
CA Southern, Van Gott & Assocs. Inc. 818-445-9728
CO Englewood, Harthun Assocs., Inc. 303-795-5545
DC McLean, Jin Sung Hsia 703-734-1739
FL Longwood, SAM Reps. Inc. 407-869-9565
CT Plainville, Northeast Reps., Inc. 203-866-6030
IL WoodDALE, BNI Elctrns., Inc. 708-595-9210
IN Kokomo, Schillinger Assocs., Inc. 317-455-2708
MA Hingham, Northeast Reps., Inc. 617-749-8700
MI Bloomington, RK Elctrn. Sls. & Assocs. 612-888-2757
MS Jackson, EPI Inc. 601-362-5045
MO Kansas City, EPI Inc.-West 816-523-8911
MO St. Louis, EPI Inc. 314-962-1411
NH Mt. Vernon, Northeast Reps., Inc. 603-880-8199
NY Penfield, Upstate Comps 716-381-6070
NY Huntington, Andrews & Andrews 516-692-8686
OH Beachwood, Elctrn. Sls. Master Inc. ... 216-831-9555
OR Beaverton, Evergreen Mktg. Inc. 502-643-8020
PA Willow Grove, Edwin Leiby & Assocs. 215-659-8938
TX Plano, Meg-Tech Mktg., Inc. 214-423-6342
TX Austin, Mega-Tech Mktg. Inc. 512-440-0258
TX Houston, Mega-Tech Mktg. Inc. 713-894-2335
WA Bothell, Evergreen Mktg. Grp., Inc. 206-485-8063
WI Brookfield, BNI Elctrns. 414-781-4775
Can Nepean, Electromate Indl. Sls.,Ltd. 613-829-6561

Local Distributors

CA Costa Mesa, E.E.P. Corp. 714-549-2275
CA Fremont, Kea Elctrns. 415-651-2600
CA Irvine, Schweber Elctrns. 714-863-0261
IA Cedar Rapids, Advent Elctrns. 319-363-0221
FL Melbourne, New Yorker Elctrns. 407-727-0955
GA Augusta, Dixie Elctrns. 404-722-2055
IL Northbrook, Classic Comps. Supp., Inc. 708-272-9650
IL Palatine, OHM Elctrns. 708-359-5500
IL Rosemont, Advent Elctrns. 708-297-6200
IL Schaumberg, Marsh Elctrns. 708-240-9290
IN Indianapolis, AdventElctrns. 317-872-4910
IN Indianapolis, Bell Inds. 317-875-8200
IA Cedar Rapids, Dee Elctrns., Inc. 319-365-7551
MD Columbia, Aztech Elctrns. 301-995-6800
MA N. Adams, ICO-Rally Corp. 413-664-4951
MI Farmington Hills, Advent Elctrns. 313-477-1650
MA Hingham, Sager Electl. Supply, Inc. 617-749-6700
MA N. Adams, Elctrn. Supp. Ctr. 413-664-1086
NJ Kenilworth, Federated Purchaser, Inc. 201-272-0505
NY Binghamton, Pioneer-Standard Elctrns., Inc. 607-722-9300
NY Buffalo, Summit Dists., Inc. 716-887-2800
NY Elmsford, Ancar Elctrns. 914-592-7100
IN Indianapolis, Bell Inds.-JIT 317-299-5487
NY Mamaroneck, New Yorker Elctrns. 914-698-7600
NY Penn Yan, Advacom 315-536-2221
NY Rome, Rome Elctrns. 315-337-5400
NC Charlotte, Dixie Elctrns. 704-377-5413
NC Winston-Salem, Dixie Elctrns. 919-724-5961
OH Cleveland, Pioneer-Standard Elctrns., Inc. 216-587-3600
TX Dallas, Wallace Elctrns. 214-340-0400
OK Tulsa, Radio, Inc. 918-587-9123
PA Bristol, Aim Elctrns. 215-785-3500
PA McKean, Advacom, Inc. 814-476-7774
SC Columbia, Dixie Elctrns. 803-779-5332
WI Milwaukee, Marsh Elctrns. 414-475-6000
WI New Berlin, Classic Comps. Supp. Inc. 414-786-5300
PA Export, Advacom, Inc. 412-325-7551

VITEQ CORP., 1000 Aerospace Rd., Lanham, MD 20706, Tel: 301-731-0400, FAX: 301-731-5995; Empl.: 120; *Sls. Mgr.:* Edward Bone

VIZ METEOROLOGICAL INSTRUMENTS, 335 E. Price St., Philadelphia, PA 19144-5782, Tel: 215-844-2626, TWX: 710-670-2626; FSC No.: 41226; Empl.: 325; *Sls. Mgr.:* Tom Curran; *Dist. Mgr.:* Tom Curran

VL

FAX: 213-738-5340

VL ELECTRONICS, INC., 3250 Wilshire Blvd., Ste. 1301, Los Angeles, CA 90010-1603, Tel: 213-738-8700; FSC No.: 95-3896380; Empl.: 10; *Sls. Mgr.:* C. Kreslake; *Dist. Mgr.:* C. Kreslake ..... **B•1132**

Local Sales Offices & Reps

CO	Denver, MRC	303-660-8750
DC	D.C./Baltimore, Eastern Elctrns.	919-876-7591
IN	Indianapolis, J-C Hofstetter	317-897-7914
IA	Marion, A.E.M. Assocs.	319-377-1129
KS	Olathe, A.E.M. Assocs.	913-888-0022
MA	Canton, New England Elctrn. Sls.	617-828-4835
MO	St. Louis, A.E.M. Assocs.	314-298-9900
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, Hoftstetter	216-241-4880
PA	Philadelphia, HB Sys.	215-489-3256
PA	Pittsburgh, J. C. Hoffsetter	412-356-2305
NY	E. Chester, WDS Sls.	914-779-8738
MN	St. Paul, Proud Inds.	612-646-9428
WI	Colgate, Rep One	414-628-4016
WI	Madison, Rep 1 & Assocs.	608-246-8889
Can	Toronto, Ont., Norgay Entprs., Ltd.	416-234-8966
Can	Vancouver, Norgay Ltd.	604-275-1121

Local Distributors

CA	Los Angeles, VL Elctrns Inc.	213-661-8883
NC	Raleigh, Eastern Elctrns.	919-876-7591

VLSI TECHNOLOGY, INC., 1109 McKay Dr., San Jose, CA 95131, Tel: 408-434-7673, FAX: 408-434-7931; Empl.: 2000; *Dist. Mgr.:* Frank Reynolds

VME MICROSYSTEMS INTL. CORP., 12090 South Memorial Pkwy., Huntsville, AL 35803-3308, Tel: 205-880-0444, FAX: 205-882-0859; FSC No.: OBPH5; Empl.: 90; *Sls. Mgr.:* Al Casteleyn

VMETRO, INC., VMETRO as, 2500 Wilcrest Ave., Ste. 550, Houston, TX 77042, Tel: 713-266-6430, FAX: 713-266-6919; Empl.: 15; *Sls. Mgr.:* Gunnar Ostgaard; *Dist. Mgr.:* Jim Williams

VOICE CONNEXION, 17835 Skypark Circle, Ste. C, Irvine, CA 92714, Tel: 714-261-2366, FAX: 714-261-8563; *Sls. Mgr.:* Shirlee Runge

VOICE IDENTIFICATION, Box 714, Somerville, NJ 08876, Tel: 908-526-3408, FAX: 908-526-5714; Empl.: 7

VOICE PROCESSING CORP., 1 Main St., Cambridge, MA 02142, Tel: 617-494-0100, FAX: 617-494-4970; Empl.: 19

VOLGEN AMERICA, INC., Volgen Electric Co., Ltd., Tokyo, 39650 Liberty St., Suite 325, Fremont, CA 94538, Tel: 415-498-5950, FAX: 415-498-5940; Empl.: 7; *Sls. Mgr.:* Ron Wild; *Dist. Mgr.:* Brian Hagino

VOLPI-MFG-USA, 26 Aurelius Ave., Auburn, NY 13021-1289, Tel: 315-255-1737, FAX: 315-255-1202; Empl.: 25; *Dist. Mgr.:* Stephanie Dunner

VOLTAGE MULTIPLIERS, INC.

FAX: 209-651-0740

VOLTAGE MULTIPLIERS, INC., 8711 W. Roosevelt Ave., Visalia, CA 93291, Tel: 209-651-1402, TELEX: 530484; FSC No.: 60211; Empl.: 85; *Sls. Mgr.:* Karen Spano ..... **A•2127**

VOLTAMPERE CORP., 146 Horton Ave., Lynbrook, NY 11563, Tel: 516-887-9443, FAX: 516-887-9869; FSC No.: 64196; Empl.: 30; *Sls. Mgr.:* Robert Pampin

VOLTARC TECHNOLOGIES, INC., 186 Linwood Ave., P.O. Box 688, Fairfield, CT 06430, Tel: 203-255-2633, TELEX: 96-4337, FAX: 203-259-1194; Empl.: 180; *Sls. Mgr.:* Albert H. Katz

Voltech

FAX: 508-879-8669

VOLTECH, INC., 200 Butterfield Dr., Ashland, MA 01721, Tel: 508-881-7329; Empl.: 10; *Sls. Mgr.:* Louise Hall ..... **D•1336**

Local Sales Offices & Reps

AL	Huntsville, Teqspec	205-830-1797
CA	Laguna Hills, Electro Venture-South	714-581-9244
CA	Santa Clara, Electro Venture-North	408-727-1553
FL	Cape Canaveral, Teqspec	407-783-3444
GA	Snellville, Teqspec	404-972-7955
IL	Arlington Hgts., Berndt Assoc., Inc.	708-632-0900
IN	Carmel, Berndt Assoc., Inc.	317-844-0114
MA	Burlington, Intersell	617-273-3844
MI	Plymouth, E Q S Sys.	313-455-7920
NJ	Cherry Hill, SCI Rep, Inc.	609-662-2068
NY	East Burne, Northeast Tech. Sls.	518-872-2062
NY	Wantagh, Bytec	516-781-7400
NC	Winston Salem, Teqspec	919-765-5553
OH	Chesterland, E Q S Sys.	216-729-2222
OH	Dayton, E Q S Sys.	513-236-7676
MN	Minneapolis, Berndt Assoc., Inc.	612-546-2021
OR	Portland, Power Factor & Assoc.	503-233-6969
PA	Huntington Valley, Sci Rep, Inc.	215-322-6500
PA	Wexford, E Q S Sys.	412-935-0678
UT	Ogden, Taylor Mktg.	801-546-9570
VA	Fairfax, SCI Rep, Inc.	703-385-0600
WI	Milwaukee, Berndt Assoc., Inc.	414-545-8400

VOLTEX

FAX: 516-842-2991

VOLTEX, 3460 Great Neck Rd., Amityville, NY 11701, Tel: 516-842-2772; Empl.: 55; *Sls. Mgr.:* S. Vogel ... **D•2135**

Local Sales Offices & Reps

CA	San Clemente, 3-J Prods.	714-361-7727
CA	Santa Clara, W-J Elctrns. Sls.	408-982-9222
CT	Washington, Tri-Com Assocs.	203-868-7027
FL	Boca Raton, Tech Sls. Specialties	407-391-3718
GA	Atlanta, Electro Sls.	404-394-1122
MD	Churchtown, Dawn Assocs.	301-261-5001
MA	Burlington, Tri-Com Assocs.	617-272-8163
NJ	Fairfield, Astrorep, Inc.	201-808-0025
NY	Babylon, Astrorep, Inc.	516-422-2504
PA	Norristown, Rivco January Inc.(RJI)	215-631-1414

VOLTRONICS CORPORATION, West St., P.O. Box 476, E. Hanover, NJ 07936, Tel: 201-887-1517, FAX: 201-887-3349; FSC No.: 18736;Multiple; Empl.: 70; *Sls. Mgr.:* Nicholas J. Perrella

VORNE INDUSTRIES, INC., 5831 Northwest Highway, Chicago, IL 60631, Tel: 312-775-9440, FAX: 312-775-3854; *Sls. Mgr.:* Bob Benedict

VTC, INCORPORATED, Control Data Corp., 2401 E. 86th St., Bloomington, MN 55425, Tel: 612-851-5200, 800-882-2667, TELEX: 857113, FAX: 612-851-5199; Empl.: 400; *Sls. Mgr.:* Dan Griffith, VP Sls.; *Dist. Mgr.:* Sue Mansk

V-TRON ELECTRONICS CORP., 10 Venus Way, P.O. Box 3297, S. Attleboro, MA 02703, Tel: 508-761-9100, FAX: 508-761-4727; Empl.: 150; *Sls. Mgr.:* Richard E. French

Local Sales Offices & Reps

MA	Needham, Com-Sale	617-444-8071
NJ	Englewood, Sprung Nussbaum, Inc.	201-569-5666
TX	Ft. Worth, Diversified Comps.	817-244-7704
VA	Manassas, F.B.D. Sls. Corp.	703-369-7212

VU-DATA CORPORATION, 9180 Brown Deer Rd., San Diego, CA 92121, Tel: 619-452-7670, FAX: 619-452-2543; FSC No.: 34160; Empl.: 20; *Sls. Mgr.:* M. Knapp

VYNCKIER, INC., 4 Skyline Dr., Hawthorne, NY 10532, Tel: 714-896-0772, FAX: 714-891-0749; Empl.: 50

WABASH MAGNETICS, Kearney-National Inc., 1375 Swan Street, Huntington, IN 46750, Tel: 219-356-8300, TWX: 510-100-2867, FAX: 219-356-3846; Empl.: 1000; *Sls. Mgr.:* Stanley P. Bickhart

WABASH MAGNETICS, First & Webster Streets, P.O. Box 708, Wabash, IN 46992, Tel: 219-563-2191, TWX: 810-290-2722, FAX: 219-563-1652; Empl.: 250; *Sls. Mgr.:* Bob Lunn

WAFERSCALE INTEGRATION, INC., 47280 Kato Rd., Fremont, CA 94538, Tel: 415-656-5400, 800-451-5970 (USA), TELEX: 289255, FAX: 415-657-5916; Empl.: 125; *Sls. Mgr.:* Bob Hoard; *Dist. Mgr.:* Mike Speckman

WAGO CORP., 9085 N. Deerbrook Trail, Brown Deer, WI 53223, Tel: 414-354-5511, FAX: 414-354-1268; FSC No.: 65996; *Sls. Mgr.:* Thomas J. Artmann

WALDMANN LIGHTING CO., 9 W. Century Dr., Wheeling, IL 60090, Tel: 708-520-1060, FAX: 708-520-1730; *Sls. Mgr.:* Gary Cardoza

WALKER POWER, INC., 18 Mill St., Warner, NH 03278, Tel: 603-456-3111, FAX: 603-456-2498; Empl.: 115; *Sls. Mgr.:* Paul D. Iverson

WALKER SCIENTIFIC, Rockdale St., Worcester, MA 01606, Tel: 508-852-3674, 508-853-3232, 800-962-4638, FAX: 508-856-9931; Empl.: 83; *Sls. Mgr.:* B. Langley ..... **D•1337**

Local Sales Offices & Reps

AL	Birmingham, Levand Sci. Co.	800-222-2595
CA	San Marcos, Mitchell Instrs.	619-744-2690
CA	Santa Barbara, Abbeon Cal, Inc.	805-966-0810
CT	Westport, A.J. Abrams Co.	203-226-3010
IL	Chicago, McMaster Carr Supp. Co.	312-834-9600
MA	Gardner, MR Resources	508-632-7000
MD	Baltimore, Davis Instrs.	301-243-4301
NY	Rochester, Transcat	716-458-4801
TX	Garland, Tucker Elctrns.	214-348-8800

Local Distributors

AL	Birmingham, Levand Sci. Co.	800-222-2595
CA	San Marcos, Mitchell Instrs.	619-744-2690
CA	Santa Barbara, Abbeon Cal, Inc.	805-966-0810
CT	Westport, A.J. Abrams	203-226-3010
IL	Chicago, McMaster Carr Supp. Co.	312-834-9600
MA	Gardner, MR Resources	508-632-7000
MD	Baltimore, Davis Instrs.	301-243-4301
TX	Garland, Tucker Elctrns.	214-348-8800
NY	Rochester, Transcat	716-458-4801

WALL, A. T., CO., 55 Service Ave., Warwick, RI 02886, Tel: 401-739-0740, TWX: 710-382-1535, FAX: 401-732-5784; Empl.: 75; *Sls. Mgr.:* Jim Matzen; *Dist. Mgr.:* R. Huntsman

WALL INDUSTRIES, 5 Watson Brook Rd., Exeter, NH 03833, Tel: 603-778-2300, 800-321-WALL, FAX: 603-778-9797; Empl.: 50; *Sls. Mgr.:* Bill Elswick

WALL LENK CORPORATION, Box 3349, Kinston, NC 28502-3349, Tel: 919-527-4186, FAX: 919-527-4189; FSC No.: 79165; Empl.: 60; *Sls. Mgr.:* Richard B. Davis

WAMCO, INC., 11555-A Coley River Cir., Fountain Valley, CA 92708, Tel: 714-545-5560, TELEX: 678-459, FAX: 714-545-6093; FSC No.: 58774; Empl.: 20; *Sls. Mgr.:* Gordon R. Calvert; *Dist. Mgr.:* Sheila A. Sherman .... **B•1180-1181**

Local Sales Offices & Reps

AZ	Scottsdale, Advent Comp. Corp.	602-481-0044
FL	Melbourne, Jerry Williams Inc.	407-259-7700
IL	Elmhurst, Utronix Sls., Inc.	312-834-1100
IN	Kokomo, (SAI)Schillinger Assoc. Inc.	317-455-2708
KS	Parker, S. W. Wollard Co.	913-898-6552
NY	Bayshore, Richard McGrath Inc.	516-968-8448
NY	Jericho, Metro Tech. Sls., Inc.	516-935-3330
TN	Nashville, INSUL-REPS Inc.	615-383-0524
WA	Seattle, Repwest	206-283-8351

WARREN COMMUNICATIONS, See Fiskars Electronics Corporation

WARREN G-V, GENERAL SIGNAL CORP., 1 APOLLO DRIVE, WHIPPANY, NJ 07981, Tel: 201-386-1200, FAX: 201-386-9311; FSC No.: 93929; Empl.: 140; *Sls. Mgr.:* William J. Vandertulip; *Dist. Mgr.:* William J. Vandertulip ..... **B•1870**

Local Sales Offices & Reps

AZ	Phoenix, Dorton Entprs. Inc.	602-944-2957
CA	Brea, Masco Inc.	714-529-0866
CA	Foster City, Polach and Bensinger Inc.	415-578-8200
CO	Golden, James Hurlburt Co.	303-279-7796
IL	S. Elgin, R.K. Elctrns.	708-695-8552
KS	Lenexa, Midtech Inc.	913-541-0505
MA	Norwood, Comp. Mktg. Svcs.	617-762-4339
MN	Eden Praire, PWC Inc.	612-934-1409
NY	Hauppauge, Sticom	516-366-4221
NY	Rochester, Lamb Comps. Inc.	716-328-6350
PA	Hatboro, AQS Inc.	215-674-3562
TX	Carrollton, Seaton Corp.	214-980-9860

WARREN-KNIGHT INSTRUMENT CO., Warren Industries, Inc., 2045 Bennett Rd., Philadelphia, PA 19116, Tel: 215-464-9300; Empl.: 50; *Sls. Mgr.:* Richard M. Marron

WASATCH HIGH VOLTAGE, P.O. Box 15457, Salt Lake City, UT 84115, Tel: 801-265-9561; Empl.: 75; *Sls. Mgr.:* Gary I. Tobian

WATERS MANUFACTURING, INC. | Talley Industries

FAX: 508-358-5649

WATERS MANUFACTURING, INC., Talley Industries, Longfellow Ctr., Wayland, MA 01778, Tel: 508-358-2777; FSC No.: ;Multiple; Empl.: 125; *Sls. Mgr.:* James Dyne ..... **A•2078-2079**

Local Sales Offices & Reps

AZ Paradise Valley, Techrep-Don Epand 602-443-8288
CA Alameda, Liaison, Inc. 415-769-1991
CA Lomita, Techrep 213-539-9070
CT Bloomfield, Sir Assocs. 203-243-9343
FL Melbourne, R-Rep Co. 407-242-9800
IL Chicago, Bierhaus Sls. 312-751-8088
KS Overland Park, Acorn Elctrns. 913-649-6402
MA Westford, Sir Assocs. 508-692-2500
MO St. Louis, Acorn Electronics 314-421-1751
NJ Union, SSAI 201-687-6363
NY Le Roy, SSAI 716-768-7213
OH Dayton, INH Comp. Sls. 513-434-8808
TX Dallas, Allied Comps. 214-238-0408
WI Milwaukee, Bierhaus Sls. 414-963-0318

WATKINS-JOHNSON CO., 3333 Hillview Ave., Palo Alto, CA 94304, Tel: 415-493-4141, TELEX: 34-8415, TWX: 910-373-1253; FSC No.: 14482; Empl.: 3000

WAVETEK, (Western Area Sales Office), 9045 Balboa Avenue, San Diego, CA 92123, Tel: 619-565-9234

WAVETEK, (Central Area Sales Office), 5808 Churchman Bypass, Indianapolis, IN 46203, Tel: 317-782-4619

WAVETEK, Southeast Area Sales Office, 2085 U.S. 19 North, Ste. 102, Clearwater, FL 34623, Tel: 813-797-1792

WAVETEK DATRON, See Datron Instruments (or call area sales offices)

WAVETEK MICROWAVE, INC., (Formerly Pacific Measurement, Inc.), 488 Tasman Dr., Sunnyvale, CA 94089, Tel: 408-734-5780, FAX: 408-747-1265

For sales offices and representatives, see Wavetek San Diego, Inc.

WAVETEK RF PRODUCTS, INC., (Formerly Wavetek Indiana, Inc.), 5808 Churchman By-Pass, Indianapolis, IN 46203-6109, Tel: 317-788-9351, FAX: 317-788-5999; FSC No.: 34280; Empl.: 303; *Sls. Mgr.:* Sara Mussmann; *Dist. Mgr.:* Ben Constantini

For Sls. Ofcs. & Reps. 9145 Balboa Ave, San Diego, CA 92123

WAVETEK SAN DIEGO, INC., Wavetek Corp., 9045 Balboa Avenue, San Diego, CA 92123, Tel: 619-279-2200, FAX: 619-565-9558; *Sls. Mgr.:* Bob Hynes

WEBER, Inmark Corporation-Importer, 4 Byington Place, Norwalk, CT 06850, Tel: 203-866-8474, FAX: 1-203-866-0918

WEBER U.S., INC., Weber AG, 291 Great Valley Parkway, Malvern, PA 19355, Tel: 215-651-0770, FAX: 215-651-0775; Empl.: 7; *Sls. Mgr.:* Theo Notaras

WECO®

FAX: 518-298-5938

WECO ELECTRICAL CONNECTORS, INC., Trimex Bldg., Rte. 11, Mooers, NY 12958, Tel: 518-298-4810; FSC No.: 5935, 5963, 5940; Empl.: 52; *Sls. Mgr.:* John T. Meikle; *Dist. Mgr.:* John T. Meikle ..... **C•1568-1577**

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AZ Phoenix, Hartland Sls. 602-492-0012
CA Newport Bch., SPA Inc. 714-863-1193
CA San Diego, SPA Inc. 619-530-0209
CA San Jose, Silicon Valley Sls. 408-432-1967
CO Littleton, Chinook Tech Sls. 303-933-9007
FL Apopka, Cartwright & Bean Inc. 407-889-9100
GA Norcross, Cartwright & Bean Inc. 404-368-0160
IL Palatine, Key Entprs. Inc. 708-991-2144
IN Indianapolis, MEI (Mktg. Engrs.) 317-872-5665
IA Davenport, Rush & West Assocs. Inc. 319-388-9494
KS Overland Park, Rush & West Assocs.,Inc. 913-764-2700
KY Louisville, M E I 502-267-7093
MD Rising Sun, LHR Assocs. Inc. 301-658-4058
MA Scituate, Olsen Tech Sls. Inc. 617-545-5101
MN Edina, Engrg. Prods. Assocs. 612-835-9022
MS Jackson, Cartwright & Bean Inc. 601-981-1170
MO St. Louis, Rush & West Assocs.,Inc. 314-965-3322
NH Nashua, Olsen Tech. Sls. Inc. 603-888-3619
NJ Woodbridge, Riser Sls.Inc. 201-634-0954
NY Buffalo, NRM Mktg. Inc. 916-634-4300
NY Skaneateles, NRM Mktg. Inc. 315-685-8991
NY Spencerport, NRM Mktg. Inc. 716-352-9166
NC Charlotte, Cartwright & Bean Inc. 704-536-0303
NY Mooers, WECO Elctrl. Connectors Inc. 518-298-4810
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OH Dayton, Marlow Assocs., Inc. 513-274-9666
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PA Harrisburg, Beil & Whitaker 717-564-6900
PA Pittsburg, Marlow Assocs., Inc. 412-343-5050
SC Raleigh, Cartwright & Bean Inc. 919-876-4130
TN Memphis, Cartwright & Bean Inc. 901-362-8345
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WI Milwaukee, Key Entprs. Inc. 414-762-2323

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CA Orange, Wes-Garde Comps. Grp. 714-953-1254, 800-624-1516
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KS Wichita, RSC Elctrns. Inc. 316-267-5213, 800-362-2077
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MD Gaithersburg, Axis Elctrns. Inc. 301-840-9640, 800-492-3190
MA Middleboro, Glynn Elctrns. Inc. 508-947-4262, 800-427-4262
MA Woburn, Control Design Supp. Inc. 617-932-9404
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MO St. Louis, Franklin Elctrns. 314-429-3111, 800-821-6344
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TX Austin, Wofford Elctrns., Inc. 512-339-1131
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TX Ft. Worth, Allied Elctrns. Inc. 817-595-3500
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Can Kirkland, Que., WECO Elctrl. Connectors Inc. 514-694-9136
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Can Drummondville, Que., Marnel Intl., Inc. 819-478-3128
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Can Montreal, Que., D.T. Shaw Co. Ltd. 514-332-1163
Can Montreal, Que., Versatech Elctrns. Inc. 514-481-0196
Can Nepean, Carsten Elctrns. Ltd. 613-726-9250
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Can Quebec, Que., Crobel Ltee Electronique 418-687-1171
Can Quebec, Que., Pro Technique Que. Inc. 418-529-5774
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Can Ville Laval, Que., Montcalm Electronique 514-663-3102
Can Winnipeg, Man., WES Elctrns. Ltd. 204-632-1260

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Can Kanata, Ont., Prelco Ltd. 613-592-3636
Can Longueuil, Que., Lumen Inc. 514-679-3460
Can Mississauga, Ont., Prelco Ltd. 416-678-0401, 1-800-387-38
Can Mississauga, Ont., Sayal Elctrns. 416-238-8440
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Can Montreal, Que., D. T. Shaw Ltd. 514-332-1163
Can Montreal, Que., Prelco Ltd. 514-389-8051
Can Nepean, Ont., Carsten Electrns. Ltd. ... 613-726-9250
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Can Scarborough, Ont., Carsten Elctrns. Ltd. 416-495-9999,1-800-268-34
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Can Surrey, B. C., Carsten Elctrns. Ltd. 604-590-6877
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WEED FIBER OPTICS INC., Weed Instrument Co., 1702-D Ponderosa, College Station, TX 77845, Tel: 409-693-5397, FAX: 409-693-1205; Empl.: 15; *Sls. Mgr.:* Chuck Landis; *Dist. Mgr.:* Chuck Landis

WEED INSTRUMENT CO., INC., 707 Jeffrey Way, P.O. Box 300, Round Rock, TX 78680-0300, Tel: 512-255-7043, FAX: 512-388-4362; Empl.: 123; *Sls. Mgr.:* Jim Robertson

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CO Littleton, Con-Tek Mktg. 303-973-8490
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FL Tampa, Flordia Comp. Sls., Inc. 813-873-3622
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IL Machesney Park, David Brownley 815-654-2815
LA Harvey, Power Sys. Spec. 504-340-7340
IN Indianapolis, Elctrnc. Rep. 317-894-1414
MN Hopkins, S. J. Collins 612-933-7661
MO St. Louis, Thomas Dowell & Assocs. .. 314-849-4234
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SC Greer, Jim Hall 803-322-6016
TN Memphis, Byron Carson Co. 901-276-0614
TX Missouri City, Jack Guinn 713-437-2011

WEIR ELECTRONICS, INC., Weir Elctrns., Ltd., 418 3rd St., Annapolis, MD 21403, Tel: 301-268-0122, FAX: 301-268-7909; Empl.: 2; *Sls. Mgr.:* Barbara Bunting

WEIR ELCTRNS. LTD., Durban Rd., Bognor Regis, West Sussex, ENG PO 22 9RW, Tel: 0243-865991, TELEX: 86543, FAX: 0243-868613; Empl.: 500; *Sls. Mgr.:* Peter Cole (Exp.)

WEITEK CORP., 1060 E. Arques, Sunnyvale, CA 94086, Tel: 408-738-8400; Empl.: 220

WEITZ ELECTRONICS/MARVWA USA, Tel: 718-523-3688, FAX: 718-657-6938; Empl.: 49; *Sls. Mgr.:* Greg Weitz

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IL Lemont, Trend Tronics 708-972-1166
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NY Bohemia, Edge Elctrns. 516-567-6300

WELCH ALLYN, INC., Data Collection Div., 4619 Jordan Rd., Skaneateles Falls, NY 13153-0187, Tel: 315-685-8945, FAX: 315-685-3172; *Sls. Mgr.:* Richard Kraetz; *Dist. Mgr.:* Andy Adams

WELLEX CORPORATION, 44141 S. Grimmer Blvd., Fremont, CA 94538, Tel: 415-490-3263, TELEX: 3717647, FAX: 415-490-5531; Empl.: 356; *Sls. Mgr.:* John E. Soares

WELLS ELECTRONICS, INC., 1701 S. Main St., South Bend, IN 46613, Tel: 219-287-5941, TELEX: 4937960, FAX: 219-287-0356; FSC No.: 219-287-0356; Empl.: 200; *Sls. Mgr.:* Mike Myers

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MA Action, Boston Elctrns. 508-264-4456
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WESCO ELECTRICAL CO., 201 Munson St., Greenfield, MA 01301, Tel: 413-774-4358, FAX: 413-774-4562; FSC No.: 12673; Empl.: 150; *Sls. Mgr.:* James R. DeSanty ..... **A•1150-1151**

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WES-GARDE COMPONENTS GROUP, INC., 190 Elliott St., Hartford, CT 06114, Tel: 203-525-6907

WESTAMP, 1542 15th St., Santa Monica, CA 90404, Tel: 213-393-0401, TELEX: 3720078, FAX: 213-451-1058; FSC No.: 12745; Empl.: 100; *Sls. Mgr.:* Michael Mula

WESTBERG MANUFACTURING INC. (WESTACH), 3400 Westach Way, Sonoma, CA 95476, Tel: 707-938-2121; Empl.: 20; *Sls. Mgr.:* R. R. Westberg

WEST COAST ELEC. MFG., 14045 Garfield Ave, Paramount, CA 90723, Tel: 213-633-1010, FAX: 213-633-1018; FSC No.: 81823; Empl.: 25; *Sls. Mgr.:* W. E. Seal

WESTCON, 959 Cheney Ave., Marion, OH 43302, Tel: 614-382-5771, TELEX: 3775688; Empl.: 50

WESTCON, INC., 5101 N. Interstate Ave., Portland, OR 97217, Tel: 503-283-0132, FAX: 503-283-0137; Empl.: 15; *Sls. Mgr.:* Jan M. Rundquist; *Dist. Mgr.:* Jan M. Rundquist

WESTCOR CORPORATION, 485-100 Alberto Way, Los Gatos, CA 95032, Tel: 408-395-7050, FAX: 408-395-1518; *Sls. Mgr.:* Nancy Pepper

WEST ELECTRONIC SALES TEAM, 14340 Bolsa Chica Rd.G , Westminster, CA 92683, Tel: 714-898-0120, 213-495-5569, FAX: 714-894-6544; Empl.: 14; *Sls. Mgr.:* Mark Wickham; *Dist. Mgr.:* Jack Carrigan

WESTERN CASE, INC., 14351 Chambers Rd., Tustin, CA 92680, Tel: 714-838-8460, FAX: 714-838-3039; *Sls. Mgr.:* David B. Horne

WESTERN DIGITAL CORP., 8105 Irvine Center Drive, Irvine, CA 92718, Tel: 714-932-6000, FAX: 714-932-6498; Empl.: 6500; *Sls. Mgr.:* Tom DeMarchi

WESTERN ELECTRO-MECHANICAL CO., INC., 300 Broadway, Oakland, CA 94607, Tel: 415-452-1936, FAX: 415-452-1939; Empl.: 9; *Sls. Mgr.:* Hal Johnson

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FL Boca Raton, Western Graphtec 407-392-4550
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IL Arlington Hgts., Comtel Midwest 312-392-4040
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MN Wayzata, Comtel Midwest 612-476-1551
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VA Hampton, Sel-Tronics 804-827-6308
WA Bellevue, Western Instrs. 206-881-5110
WI New Berlin, Comtel Midwest 414-544-6042

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WESTERN RESERVE ELECTRONICS, 2150 Highland Rd., Twinsburg, OH 44087, Tel: 216-425-4951, FAX: 216-425-4956; Empl.: 100; *Sls. Mgr.:* Robert Rhodes

WESTINGHOUSE ELECTRIC CORP., Control Division, P.O. Box 819, Oldsmar, FL 34667, Tel: 813-855-4621, TELEX: 358713; Empl.: 200; *Sls. Mgr.:* E.A. Schiff

WEST INSTRUMENT, A Mark IV Company, 2101 Oxford Road, Des Plaines, IL 60018-1919, Tel: 708-390-7711, FAX: 708-390-7234; Empl.: 150; *Sls. Mgr.:* W. J. Bell, Jr.; *Dist. Mgr.:* W. J. Bell, Jr.

WESTLAKE COMPONENTS INTERNATIONAL, 30961 Agoura Rd., Ste. 309, Westlake Village, CA 91361, Tel: 800-228-1097, FAX: 818-717-1754; *Sls. Mgr.:* Rick Odorfer

WESTON INSTRUMENTS, Electrical Instrument Service, Inc., 25 Dock St., Mt. Vernon, NY 10550, Tel: 914-699-9717; FSC No.: 32590; Empl.: 35; *Sls. Mgr.:* Gerald D. Frank; *Dist. Mgr.:* Gerald D. Frank ..... **D•1338-1339**

Local Distributors

AL Birmingham, Brownell Instrs. & Controls Co. 205-323-4761
AL Mobile, Brownell Instrs. & Controls Co. 205-479-8581
AL Montgomery, Southern Controls, Inc. .. 205-277-5030
AZ Phoenix, Brownell Electro, Inc. 602-269-8396
AZ Tempe, Crompton Metermaster 602-431-0015
AR Little Rock, Brownell Electro, Inc. 501-562-2061
CA Los Angeles, Brownell Electro, Inc. 213-532-1150
CA Los Angeles, EIL Instrs., Inc. 213-685-7020
CA Palo Alto, Metermaster/Palo Alto 415-960-8500
CA San Diego, Crompton Metermaster ... 619-560-4841
CA Sunnyvale, EIL Instrs., Inc. 408-245-4320
CA Yorba Linda, Crompton Metermaster 714-921-2101
CO Aurora, R & R Instrmn. 303-340-8728
CO Denver, Brownell Electro, Inc. 303-333-3541
CO Denver, EIL Instrs., Inc. 303-534-4160
CT Middletown, EIL Instrs., Inc. 203-346-6646
CT Rocky Hill, Brownell Electro, Inc. 203-721-9343
FL Miami, Brownell Instrs. & Controls Co. 305-884-3197
FL Orlando, Brownell Instrs. & Controls Co. 407-843-6776
FL Palm Bay, EIL Instrs., Inc. 407-725-8300
GA Atlanta, Brownell Instrs. & Controls Co. 404-762-5181
GA Kennesaw, CMI Metermaster 404-425-8902
IL Bridgeview, EIL Instrs. 708-430-2292
IL Countryside, Inotek/Pacific Indicator .. 708-352-3500
IL Glendale Heights, Crompton Metermaster 708-351-4554
IN Indianapolis, EIL Instrs., Inc. 317-545-1373
IN Indianapolis, Rockwell Engrg. Co. 317-251-9453
KS Overland Pk., Brooks Elctrns., Inc. 913-648-3131
KY Louisville, EIL Instrs., Inc. 502-454-3420
LA Harahan, Butler Land Inc. 504-734-8888
LA New Orleans, Indl. Instr. Works 504-733-8355
MD Sparks, EIL Instrs., Inc. 301-771-4800
MA Burlington, EIL Instrs., Inc. 617-272-9450
MA Southbridge, Crompton Metermaster .. 508-765-1676
MA Woburn, Brownell Instrs. & Controls Co. 617-935-7820
MI Southfield, Comtel Instrs. 313-358-2505
MN Edina, Brownell Electro. 612-942-8171
MN Minneapolis, Instrmn. Svc., Inc. 612-544-8916
MO St. Louis, Indl. Svc. Labs. 314-535-5760
MO St. Louis, Scherrer Instrs., Inc. 314-644-5362
NJ Edison, Brownell Instrs. & Controls Co. 201-287-3355
IL Elk Grove Vlg., Brownell Electro, Inc. .. 312-364-9292
NJ Pennsauken, EIL Instrs., Inc. 609-488-0474
NY Clarence, EIL Instrs., Inc. 716-634-8500
OH Cleveland, Comtel Instrs. Co. 216-442-8080
NY Farmingdale, Brownell Instrs. & Controls Co. 516-420-5990
NY Hauppauge, EIL Instrs., Inc. 516-231-6333
NY New York, Brownell Instrs. & Controls Co. 212-691-1171
NY New York, Nilsson Labs. 212-675-7944
NY Pittsford, EIL Instrs., Inc. 716-586-8251
NC Charlotte, Brownell Instrs. & Controls Co. 704-597-1270
NC Charlotte, EIL Instrs., Inc. 704-376-2237
OH Hilliard, Comtel Instrs. Co. 614-872-8305
NC Raleigh, Brownell Instrs. & Controls Co. 919-876-6524
OH Cleveland, Crompton Metermaster 216-351-1234
OH Dayton, Comtel Instruments co. 513-426-5310
OH Dayton, EIL Instrs., Inc. 513-435-2134
OK Tulsa, Tri-State Instr. Lab 918-836-0286
OR Portland, Brownell Electro, Inc. 502-226-3286
PA Bridgeville, Brownell Electro, Inc. 412-221-0074
PA Pittsburgh, Comtel Instruments Co. 412-922-5720
PA Pittsburgh, EIL Instrs., Inc. 412-823-2255
PA Pittsburgh, Process Engrg. Co. 412-561-5050
PA Trevose, Brownell Electro, Inc. 215-364-1400
SC Columbia, Brownell Electro, Inc. 803-772-6111
TN Knoxville, Brownell Instrs. & Controls Co. 615-966-3441
TN Memphis, Brownell Instrs. & Controls Co. 901-795-8483
TN Nashville, Brownell Instrs. & Controls Co. 615-885-1302
TX Dallas, Butler & Land, Inc. 214-343-8800
TX Dallas, EIL Instrs., Inc. 214-357-0297
TX Garland, Crompton Metermaster 214-271-5671
TX Harlingen, Bush Supply Co. 512-428-1613
TX Houston, Brownell Instrs. & Controls Co. 713-699-1981
TX Houston, Butler & Land, Inc. 713-896-0808
TX Houston, CMI Meters & Instr. 713-644-1631
TX Houston, EIL Instrs., Inc. 713-271-3100
UT Salt Lake City, Brownell Electro, Inc. .. 801-262-8498
VA Bluefield, Brownell Electro, Inc. 703-322-3402
VA Norfolk, Brownell Electro, Inc. 804-855-2400
VA Norfolk, EIL Instrs., Inc. 804-885-9553
VA Richmond, Metermetrics 804-275-1431
TX Lubbock, Brownell Electro, Inc. 806-747-0211
WA Redmond, EIL Instrs., Inc. 206-882-3222
WI Milwaukee, E-M Instrs. 414-272-7799
Can Mississauga, Ont., EIL Instrs., Inc. 416-624-6660

WESTREX PRODUCTS, 25 Denby Rd., Boston, MA 02134, Tel: 617-254-1200, FAX: 617-254-6848; Empl.: 200; *Sls. Mgr.:* Bruce Burgess; *Dist. Mgr.:* Bruce Burgess

WESTRONICS INC. OF TEXAS, A Baker Hughes Co., 5001 Blue Mound Rd., Box 961003, Ft. Worth, TX 76161, Tel: 817-625-2311, FAX: 817-625-1068; Empl.: 180; *Sls. Mgr.:* Jim Bittikoffer

WHEELOCK, INC., 273 Branchport Ave., Long Branch, NJ 07740, Tel: 201-222-6880, FAX: 201-222-8707; Empl.: 200; *Sls. Mgr.:* William L. Goldstein, Sls./Mktg. VP

BRIAN R. WHITE CO., INC., 313 Henry Station Rd., Ukiah, CA 95482, Tel: 707-462-9795, FAX: 707-462-4800; *Sls. Mgr.:* Larry Richmond

WHITE-RODGERS LOGANSPORT DIV., See Stancor/ White Rodgers

S.S WHITE TECHNOLOGIES INC., 151 Old New Brunswick Rd, Piscataway, NJ 08854-3761, Tel: 908-752-8300; FSC No.: 0KZS2; Empl.: 100; *Sls. Mgr.:* Rich Henriksen; *Dist. Mgr.:* Pam Barnhard

WHITE TECHNOLOGY, INC., Bowmar Instrument Corp., 4246 E. Wood St., Phoenix, AZ 85040, Tel: 602-437-1520, FAX: 602-437-9120; FSC No.: 54230; Empl.: 105; *Sls. Mgr.:* Dan Hurd, Steve McComb

WHITMOR WIRE & CABLE, 27737 Ave. Hopkins, Valencia, CA 91355, Tel: 805-257-2400, FAX: 805-257-2495; FSC No.: 15851; Empl.: 29; *Sls. Mgr.:* Mark Lee; *Dist. Mgr.:* Mark Lee

WHITSO, 9326 Byron St., Schiller Pk., IL 60176, Tel: 708-678-5200, FAX: 708-678-0711; Empl.: 170

WHITTAKER CORP., Electronic Resources Div., 1955 N. Surveyor Ave., Simi Valley, CA 93063, Tel: 805-584-4100, TWX: 910-498-2751, FAX: 805-584-9157; FSC No.: 72152; Empl.: 200

WHITTAKER CORP., Providence Chemicals Div., King Philip Rd., P.O. Box 16069, E. Providence, RI 02916, Tel: 401-434-1770, TELEX: 92-7652, FAX: 401-434-8090; Empl.: 25

WICKMANN USA, INC., Wickmann-Werke GmbH, 3800 Camp Creek Pkwy.,Bldg. 2600,Suite 120, Atlanta, GA 30331, Tel: 404-699-7820, TELEX: 269 115 JIC UR, FAX: 404-691-2843; Empl.: 600-650; *Sls. Mgr.:* Michael V. Nagle; *Dist. Mgr.:* Michael V. Nagle ..... **B•1392-1394**

Local Sales Offices & Reps

AL	Athens, WLA & Assocs., Inc.	205-233-7894
CA	Laguna Hills, Bart Budge Assocs.	714-582-8720
CA	San Jose, Kottmeier Assocs., Inc.	408-371-8700
CO	Denver, West Inc.	303-477-8180
IL	Palatine, Goldbeck & Milota Assoc., Inc.	708-705-0602
MD	Baltimore, Manay Sls. Assocs.	301-484-6376
MA	Needham Hgts., Rosen & Assocs.	617-449-4700
MI	Grand Rapids, R.P.Urban & Assocs.	616-245-0511
MN	Minneapolis, RK Sls.	612-571-1001
TX	Dallas, Rem Comps.	214-234-1069

Local Distributors

CA	Sunnyvale, Target Elctrns.	408-733-0384
CA	Van Nuys, Fuses Unlimited/ Fusecom	818-786-8111
CT	Wallingford, Sager Elctrns.	203-265-4600
FL	Ft. Lauderdale, Stock Elctrns.	305-978-9875
IL	Cary, Gama Elctrns.	708-639-3424
MA	Hingham, Sager Elctrns.	617-749-6700
MN	Roseville, Parts 1	612-633-8079
NH	Salem, Sager Elctrns.	603-898-1348
NY	Hauppauge, Sager Elctrns.	516-348-1300
OH	Twinsburg, Schuster Elctrns.	216-425-8134
TX	Dallas, Fuses Inc.	214-341-6407
WI	Milwaukee, Progressive Image, Inc.	414-321-4722
Can	Ontario, PS Comps., Inc.	416-665-9546

WIDE BAND ENGINEERING CO., INC., Box 21652, Phoenix, AZ 85036, Tel: 602-254-1570; FSC No.: 58907; Empl.: 10

WIDE RANGE ELCTRNS. CORP., 174 Chesterfield Indl. Blvd., Chesterfield, Missouri 63005, Tel: 314-532-5887, FAX: 314-532-5492; Empl.: 11; *Sls. Mgr.:* Donald Toone

WIELAND INC., 466 Main Street, New Rochelle, NY 10801, Tel: 914-633-0222, TELEX: 646-186, FAX: 1-800-572-0057; *Sls. Mgr.:* Carl Gruenberg, V.P. Sls. & Mktg.; *Dist. Mgr.:* Steve Vineis

WILBRECHT ELECTRONICS

FAX: 612-222-7639

WILBRECHT ELECTRONICS, 346 Chester St., St. Paul, MN 55107, Tel: 612-222-2791; Empl.: 200; *Sls. Mgr.:* Laurie Wilbrecht ..... **A•2077; B•1211-1213, 1793**

Local Sales Offices & Reps

AL	Huntsville, DTM Inc.	205-539-1485
AZ	Phoenix, Toward Engr. Assoc., Inc.	602-955-3193
CA	Chatsworth, Wes K/ Raltech Inc.	818-700-0933
CA	Milpitas, Advanced Tech., Sls., Inc.	408-946-3208
CO	Broomfield, Connors Co.	303-466-9628
FL	St. Petersburg, JCS Assoc.	813-343-2679
GA	Duluth, DTM Inc.	404-381-5592
IL	Arlington Hgts., Dytec/Central	708-394-3380
IN	Ft. Wayne, Naunas Sls. Co.	219-432-4792
MA	Sudbury, KSA of New England	617-443-5881
MN	St. Paul, Wilbrecht Elctrns.	612-222-2791
NJ	Morristown, Andrews & Andrews Inc.	201-569-8800
NY	Huntington, Andrews & Andrews	516-692-8686
WA	Bellevue, Caruso & Co.	206-455-8811
NC	Raleigh, DTM Inc.	919-781-7004
OH	Cincinnati, Stegman Blaine	513-729-1969
PA	Paoli, Stitzer Assocs.	215-644-5500
TX	Austin, THT Sls. Co.	512-835-2796
Can	Thornhill, Ont., EMX Entprs. Ltd.	416-889-1204

WILCO

FAX: 317-293-9462

WILCO CORP., 6451 Saguaro Court, Indianapolis, IN 46268, Tel: 317-293-9300 ..... **A•1280-1283, 2464**

Local Sales Offices & Reps

CA	San Jose, The Mktg. Co.	408-272-6836
IL	Arlington Heights, M.B. Sls.	708-392-9499
MI	Madison Heights, DEM Elctrn. Sls.	313-583-1500

WILCO WIRE & CABLE CO., INC., 1921 Las Plumas Ave., San Jose, CA 95133, Tel: 408-926-8880, FAX: 408-251-0508; Empl.: 52; *Sls. Mgr.:* Joe Shepherd; *Dist. Mgr.:* Sylvia Neal

WILCOXON RESEARCH, 2096 Gaither Rd., Rockville, MD 20850, Tel: 301-330-8811, FAX: 301-330-8873; Empl.: 90; *Sls. Mgr.:* Bob Haggerson ..... **B•1959**

WILKINSON, P.O. Box 4558, Westlake Village, CA 91359, Tel: 818-889-0050, 800-822-4653, FAX: 818-889-3810; Empl.: 40; *Sls. Mgr.:* R. Cook; *Dist. Mgr.:* R. Cook

W.L. WILLIAMSON & ASSOC., LTD., 528 S. Extension Rd., Mesa, AZ 85210, Tel: 602-833-5202; Empl.: 3

WILLIAMSON CORPORATION, 70 Domino Dr., Concord, MA 01742, Tel: 508-369-9607, FAX: 508-369-5485; FSC No.: 92-3343 WILIAMSON WCRD; Empl.: 25; *Sls. Mgr.:* William R. Barron

WILMAR ELECTRONICS, INC., 2430 Amsler St., Torrance, CA 90505, Tel: 213-326-6668, FAX: 213-326-9147; FSC No.: 25248; Empl.: 25; *Sls. Mgr.:* Zev Heifetz

WILMINGTON RESEARCH & DEVELOPMENT, 461-Boston Road B-3, Topsfield, MA 01983, Tel: 508-887-2501, FAX: 508-887-3249; Empl.: 6

WILMORE ELECTRONICS CO., INC., Box 1329, Hillsborough, NC 27278, Tel: 919-732-9351, TELEX: 292617, FAX: 919-732-9359; Empl.: 48; *Sls. Mgr.:* J. L. Harris ..... **D•2136-2139, 2230-2231**

WILSON COMPANY-SYSTEMS DIVISION, 16301 Addison Road, Dallas, TX 75248, Tel: 214-931-8666, 800-325-4436, FAX: 214-248-1177; Empl.: 9; *Sls. Mgr.:* Dave Pellerin; *Dist. Mgr.:* Dave Pellerin

WILSON, H. F., ENGINEERING CO., 475 Taft Ave., Glen Ellyn, IL 60137, Tel: 708-469-7473, FAX: 708-469-8663; Empl.: 21; *Sls. Mgr.:* Robert W. Carroll

WILSON ELECTRONICS, See Regency Land Mobile, Inc.

WILTRON, 490 Jarvis Dr., Morgan Hill, CA 95037-2809, Tel: 408-778-2000, TELEX: 285227 WILTRON MH, FAX: 408-778-0239; FSC No.: 20944; Empl.: 800; *Sls. Mgr.:* W. Baxter

THE WINATIC CORP., Electro-Technik Industries, Inc., 409 Commerce Rd., Vestal, NY 13850, Tel: 607-729-6318, FAX: 607-729-6446; Empl.: 125; *Sls. Mgr.:* Ted Zaparzynski

WINSYSTEMS, INC., 715 Stadium DR.,Ste. 100, Arlington, TX 76011, Tel: 817-274-7553, FAX: 817-548-1358; FSC No.: 1AU87

WINTEK CORP., 1801 South St., Lafayette, IN 47904-2993, Tel: 317-448-1903, 800-742-6809, TELEX: 15-624-6480 Wintek, FAX: 317-448-4823; Empl.: 13 ..... **D•1122-1123**

WIREBENDERS, INC., 2440 W. Mission Ln., Ste. 9,10, Phoenix, AZ 85021-2824, Tel: 602-861-1856, FAX: 602-870-9242; FSC No.: 5950;FSCS/CAGE 1DA26; Empl.: 22; *Sls. Mgr.:* Charles Middleton

THE WIREMOLD COMPANY, 60 Woodlawn Street, W. Hartford, CT 06110, Tel: 203-233-6251, FAX: 203-232-2062; Empl.: 900; *Sls. Mgr.:* F. D. Casteel

WIRE-PRO, INC., 23 Front Street, Salem, NJ 08079, Tel: 609-935-7601, 609-935-7651, TWX: 510-680-4750, FAX: 609-935-0102; FSC No.: FSCN 50738; Empl.: 225; *Sls. Mgr.:* Russell Morgan, Sls. & Svc. Mgr.; *Dist. Mgr.:* Phil Negrin, Mktg. Mgr.

WIRING ANALYZERS, INC., P.O. Box 417, Edmonds, WA 98020-0417, Tel: 800-221-5979 (excl. CA); Empl.: 15; *Sls. Mgr.:* Norman Wartell

WOLFRAM RESEARCH, INC., 100 Trade Center Drive, Champaign, IL 61820-7237, Tel: 217-398-0700, FAX: 217-398-0747; Empl.: 1006; *Sls. Mgr.:* Stuart Ariewitz

WONTRONICS, 3048 N. Coolidge Ave., Los Angeles, CA 90039, Tel: 213-660-6230, FAX: 213-913-2299; *Sls. Mgr.:* Frank Phillips

WORLDNET MARKETING INC., 3187 F Airway Ave., Costa Mesa, CA 92626, Tel: 714-545-7118, TELEX: 3781824, FAX: 714-540-9138; Empl.: 7; *Sls. Mgr.:* Frank Buday; *Dist. Mgr.:* Frank Buday

WP®

FAX: 707-996-3380

WORLD PRODUCTS INC., 19654 8th St. East, Sonoma, CA 95476, Tel: 707-996-5201, TELEX: Worldpro snom 171715, FAX: 707-996-3380; FSC No.: 410966309; Empl.: 445; *Sls. Mgr.:* Mark Beynon; *Dist. Mgr.:* Jim Corbett ..... **A•1153, 2011, 2128-2129; B•1030**

Local Sales Offices & Reps

AL	Huntsville, The Novus Grp.	205-534-0044
AZ	Scottsdale, American Mktg.	602-948-2778
CA	Mission Viejo, Jay Mktg.	714-581-1211
CA	Mt. View, Straube Assocs. Inc.	415-969-6060
CO	Westminster, Straube Assocs.	303-426-0890
FL	Tampa, Electramark Florida Inc.	813-889-7775
GA	Norcross, The Novus Grp., Inc.	404-263-0320
IL	Arlington Heights, KMA Sls. Co.	708-398-5300
IA	Marion, Associated Elctrn. Mktg., Inc.	319-377-1129
MA	Burlington, Bob Dean Inc.	617-229-6800
MI	Holland, Comtek Sls. Inc.	616-392-7100
MN	Minneapolis, Tecteam Sls. Inc.	612-854-6616
MO	St. Louis, AEM, Inc.	314-298-9900
NJ	West Caldwell, Grimm. Siegel Assoc.	201-575-9300
NM	Albuquerque, Suntech	505-266-7951
NC	Cary, The Novus Grp., Inc.	919-460-7771
OH	Cincinnati, F.J. Campisano Co.	513-574-7111
OR	Portland, Caruso & Assocs.	503-246-5439
PA	Broomhall, L.D. Lowery	215-356-5300
PA	Coraopolis, F.J Campisano Co.	412-264-5151
UT	Salt Lake City, Straube Assocs.	801-263-2640
WA	Bellevue, Caruso & Assocs.	206-455-8811
WI	Milwaukee, KMA Sls. Co.	414-259-1771

Local Distributors

AL	Huntsville, Reptron Elctrns. Inc.	205-722-9500
CA	Anaheim, Compumech Elctrns.	714-939-9100
CA	Del Mar, Compumech Elctrns.	619-792-7800
CA	Milpitas, Compumech Elctrns.	408-945-9100
CA	San Diego, All American	619-268-1505
CA	San Diego, Neuman	619-695-3005
CA	San Jose, All American Semiconductor Inc.	408-943-1200
CA	Santa Clara, Trinity Elctrns.	408-980-9011
CA	Torrance, All American Semiconductor Inc.	213-320-0240
CA	Yorba Linda, Target Elctrns.	714-692-1630
FL	Melbourne, Pridmore	407-727-2491
FL	Miami, All American Semiconductor Inc.	305-621-8282
FL	Sunrise, All American Semiconductor Inc.	305-572-7999
FL	Tampa, Reptron Elctrns.	813-855-4656
GA	Augusta, Dixie Elctrns.	404-722-2055
GA	Norcross, Reptron Elctrns.	404-446-1300
ID	Boise, Radar Elctrn.	208-336-2227
IL	Lisle, Comps. Inc.	708-852-7707
IL	Schaumburg, Reptron Elctrns.	708-882-1700
MD	Rockville, All American Semiconductor Inc.	800-426-0420,301-251-1205
MA	Norwood, Emtel	617-769-9500
MA	Wakefield, All American Semiconductor Inc.	617-246-2300
MI	Livonia, Reptron Elctrns.	313-525-3209
MN	Eden Prairie, All American Semiconductor Inc.	800-342-7364
MN	Minnetonka, Reptron Elctrns.	612-938-0000
MO	Fenton, Beckwith Elctrns.	314-343-6463
NM	Albuquerque, Betatron	505-821-1122
NY	Canadaigua, Advacom Technlg.	716-396-9050
NY	Ronkonkoma, All American Semiconductor	800-874-2830
NC	Charlotte, Dixie Elctrns.	704-377-4348
NC	Raleigh, Reptron Elctrns.	919-870-5189
NC	Winston-Salem, Dixie Elctrns.	919-727-5961
OH	Columbus, Reptron Elctrns.	614-436-6675
OH	Solon, Reptron Elctrns.	216-349-1415
OH	Stow, Advacom, Inc.	216-688-5311
OR	Portland, Radar Elctrns.	503-232-3404
PA	Harrisburg, Cumberland Elctrns.	717-238-5999
PA	McKean, Advacom Inc.	800-678-0512
SC	Columbia, Dixie Elctrns.	800-868-2236
SC	Greensville, Dixie Elctrns.	800-868-2260
SC	No. Charleston, Dixie Elctrns.	803-868-3336
TN	Gray, Dixie Elctrns.	615-477-3838

TN Oakridge, Dixie Elctrns. 615-481-3393
TX Austin, Omni Pro Elctrns. 512-794-9200
TX Dallas, All American Semiconductor Inc. 800-541-1435
TX Dallas, Omni Pro Elctrns. 214-233-0500
TX Houston, Omni Pro Elctrns. 713-270-1700
VA Charlottesville, Virginia Elctrn. Comp. 804-296-4184
WA Richland, Radar Elctrns. 509-943-8336
WA Seattle, Radar Elctrns. 206-282-2511
WA Spokane, Radar Elctrns. 509-747-3053
Can Calgary, Alb., Zentronics 403-295-8838
Can Missisuga, Ont., Zentronics 613-226-8840
Can Nepean, Ont., Zanin Elctrns. 613-596-2911
Can Nepean, Ont., Zentronics 613-226-8840
Can Richmond, B.C., Zentronics 604-273-5575
Can St. Foy, Que., Zanin Elctrns. 418-681-1262
Can St. Laurent, Que., Zanin Elctrns. 514-342-6211
Can St. Laurent, Que., Zentronics 514-737-9700
Can Toronto, Ont., Zanin Elctrns. 416-695-6850
KS Lenexa, Associated Elctrn. Mktg., Inc. 913-888-0022

WORLD PRODUCTS INC., Systems Devices Grp., 19654 8th St. E., Sonoma 95476, Tel: 707-996-5201; Empl.: 50 ..... **A•1153, 2010-2011, 2128-2129; B•1030**

Local Sales Offices & Reps

AZ Tempe, Spectrum Assocs. 602-966-1788
CA Los Angeles, SPA Elctrn. Sls. 714-863-1193
CA San Jose, Signet Tech. Sls. 408-453-0611
CO Denver, Donohue Sls., Co. 303-455-1719
FL Melbourne, R-Rep Co., Inc. 407-242-9800
IL Arlington, KMA Sls. Co. 312-398-5300
IN Fort Wayne, Berberich Assoc. 219-486-0673
MN Minneapolis, Holmgren Assocs. 612-786-7641
NJ Livingston, Avemark Tech. Mktg. 201-992-5331
OH Dayton, Berberich Assocs. Inc. 513-433-0342
OR Beaverton, Luscombe Engrg./N.W. 503-636-6664
PA Hatboro, AQS Electro 215-674-4421
TX Dallas, Southwestern Tech. Sls. 214-369-0977
VA Herndon, Stinson Assocs. 703-620-1332
WA Bellevue, Luscombe Engrg./N.E. 206-643-1463
WI Milwaukee, KMA Sls. Co. 414-259-1771
Can Montreal, ELI Manis Inc. 514-484-2923

'WORLD' TEST SYSTEMS, INC., P. O. Drawer 1428, Waynesboro, VA 22980, Tel: 703-949-6753, FAX: 703-943-3826; *Sls. Mgr.:* Buford H. Baber

WOVEN ELECTRONICS, Woven Electronics Corporation, 1001 Old Stage Rd., Simpsonville, SC 29681, Tel: 803-963-5131, TWX: 810-963-5131, FAX: 803-963-1761; Empl.: 400; *Sls. Mgr.:* Tommy Little

WYLE LABS, See Electronic Enclosures

XCEL CORPORATION, See Digitran and Computron Display Sys. Divs.

XCEL CONTROLS INC., 1600 W. 6th, Mishawaka, IN 46544, Tel: 219-259-7804, FAX: 219-259-5769; Empl.: 40; *Sls. Mgr.:* Bruce Shepard

XCP, INC., 40 Elm St., P.O. Box 819, Dryden, NY 13053, Tel: 607-844-9143; *Sls. Mgr.:* Diane Rademacher

XEDAR CORP., 2500 Central Ave., Boulder, CO 80301, Tel: 303-443-6441, FAX: 303-443-6444; *Sls. Mgr.:* Andy Zeidler

XELTEK, 764 San Aleso Ave., Sunnyvale, CA 94086, Tel: 408-745-7974, FAX: 408-745-1401; Empl.: 17; *Sls. Mgr.:* Andrew Choi; *Dist. Mgr.:* John Kim

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XENOTRONIX INC., 26074 Ave., Hall No. 10, Valencia, CA 91355, Tel: 805-257-4793, FAX: 805-257-1093; *Sls. Mgr.:* Jeffrey Frotton; *Dist. Mgr.:* Loria Geery

Xentek

FAX: 619-727-8926

XENTEK, INC., Taiyo Yuden USA, Inc., 760 Shadowridge Drive, Vista, CA 92083, Tel: 619-727-0940, TELEX: 910-322-1155; FSC No.: 53279; Empl.: 220; *Sls. Mgr.:* Chuck Henry ..... **D•2140-2143, 2232-2233**

Local Sales Offices & Reps

AL Madison, Lamons Sls. Co. 205-461-7886
CA Glendale, Halbar Assocs. 818-246-8263
CA Huntington Bch., Regan/Munro Sls., Inc. 714-841-1411
CA San Jose, Richards Assocs. 408-452-8171
CA San Jose, Ruppert Sls. & Eng. 408-998-8717
FL Casselberry, Symco, Inc. 407-695-6010
FL Indian Harbor Bch., Post Mktg. 407-777-0994
GA Norcross, Lamons Sls. Co. 404-242-2610
IL Itasca, LTD Technlgs., Inc. 312-773-2900
IA Cedar Rapids, Midtec Assocs. 319-395-0028
KS Lenexa, Midtec Assoc. 913-541-0505
NJ Medford, Mech-Elec. Sls. 609-654-8209
MN Bloomington, Murnco 612-854-4161
MO St. Louis, Midtec Assocs. 314-275-8666
NH Nashua, Bell Controls 603-882-6984
NC Raleigh, Lamons Sls. Co. 919-846-1652
UT Salt Lake City, Pro Rep Mktg. 801-268-3434
NY Syracuse, M. M. Hare 315-457-6859
OH Cincinnati, Tri-State Mktg. 513-761-7993
OR Oregon City, Halbar, PNW 503-656-3714
TN Greenville, Lamins Sls. Co. 615-639-8711
TX Austin, Allied Comps. 512-331-4494
TX Dallas, Allied Comps. 214-238-0408
TX Houston, Allied Comps. 713-974-1903
TX Hurst, Allied Comps. Co. 817-589-0456
VA Richmond, Mech-Elec Sls. 804-231-4006
WA Redmond, Halbar PNW, Inc. 206-882-0990
WI Milwaukee, LTD Technlgs. 414-774-1000
Can Mississauga, Altus Technlgs. 416-858-8509

XERCON, INC., P.O. Box 554, Portland, OR 97207, Tel: 503-292-8682, FAX: 503-292-8697; Empl.: 6; *Sls. Mgr.:* G. Osgood

XEROX CORPORATION, Xerox Square, 0-5, Rochester, NY 14644, Tel: 800-832-6979; Empl.: 100,367

XEROX IMAGING SYSTEMS, INC., Xerox Corp., 535 Oakmead Parkway, Sunnyvale, CA 94086, Tel: 408-245-7900, 800-248-6550, TELEX: 701994 DATACOPY UO, FAX: 415-965-3474; Empl.: 235; *Sls. Mgr.:* Joe Burroughs

XERTEX CORP., See Rosemont Corp., Sensall National Sonics

XETEL CORPORATION, 8100 Cameron Rd., Austin, TX 78753, Tel: 512-834-2266, FAX: 512-834-9250; Empl.: 300; *Sls. Mgr.:* Mark Trutna

EXICO

FAX: 818-709-5235

XICO, INC., 9737 Eton Ave., Chatsworth, CA 91311, Tel: 818-709-4403, TELEX: 709577, ESYLNK: 62253150; Empl.: 21; *Sls. Mgr.:* Ralph Reccia ..... **D•1118**

XICON CAPACITORS, P.O. Box 170537, Arlington, TX 76003, Tel: 800-628-0544, FAX: 817-561-1480; *Sls. Mgr.:* Drey Hayford; *Dist. Mgr.:* A.T. White

XICOR, INC., 851 Buckeye Court, Milpitas, CA 95035, Tel: 408-432-8888, TWX: 910-379-0033, FAX: 408-432-0640; FSC No.: 60395; Empl.: 1010; *Sls. Mgr.:* Bruce Mattern,VP Sls.; *Dist. Mgr.:* Bruce Mattern

XITRON TECHNOLOGIES, 10225 Barnes Canyon Rd., San Diego, CA 92121, Tel: 619-458-9852, FAX: 619-458-9213; Empl.: 10; *Sls. Mgr.:* Stephen Merrill

XKD CORPORATION, 101 Cooper Court, Los Gatos, CA 95030, Tel: 408-395-3700, TELEX: 171946, FAX: 408-354-2606; *Sls. Mgr.:* Skip McLaughlin

XL MICROWAVE, 5811 Racine St., Oakland, CA 94609, Tel: 415-428-9488, FAX: 415-428-9469; Empl.: 6; *Sls. Mgr.:* William J. Artz

XSIS ELECTRONICS, INC., 12620 W. 63rd St, Shawnee, KS 66216, Tel: 913-631-0448, TELEX: 437227, FAX: 913-631-1170; FSC No.: 57051; *Sls. Mgr.:* Jerry Dehnert ..... **A•1491**

Local Sales Offices & Reps

AL Huntsville, Murcota Corp. 205-539-8476
AZ Phoenix, Western High Tech. Mktg. 602-266-2070
CA Los Altos, Kolm Mktg. Assoc. 415-948-2635
CA Mission Viejo, Chaparrah Elctrn. Sls. 714-582-2950
CT Cheshire, Ashworth Assocs. 203-968-0656
IL Schaumberg, Sieger Assocs. 312-310-8844
KS Lenexa, Midtec Assoc. Inc. 913-541-0505
KY Ft. Mitchell, G. W. Thelen Co. 606-341-8181
MD Ellicott City, VPI, Inc. 301-461-2525
MA Shrewsbury, Ashworth Assocs. 617-845-9688
MN Eden Prairie, Aldridge Assocs., Inc. 612-944-8433
MO St. Louis, Midtec Assoc., Inc. 314-275-8666
NJ Wayne, Ramar Assoc. 201-942-0480
NM Albuquerque, Western High Tech Mktg. 505-884-2256
NY E. Syracuse, R. D. Sherman 315-433-1165
NC Winston-Salem, Murcota Corp. 919-722-9445
PA Montgomeryville, Rufo Sys. Comps. 215-368-8495
TX Sherman, Repmaster 214-247-6236
EXP NY, Great Neck, Ad Auriema 516-487-0700

XYLOG CORP., 83 Hobart St, Hackensack, NJ 07601, Tel: 201-489-4040, FAX: 201-489-6745; Empl.: 30; *Sls. Mgr.:* Milton Frank

XYLOGICS, INC., 53 Third Ave., Burlington, MA 01803, Tel: 800-225-3317, FAX: 617-273-5392; Empl.: 200; *Sls. Mgr.:* David Padley; *Dist. Mgr.:* Joe Twardy

XYZ ELECTRONICS, 4700 N. 600 W, McCordsville, IN 46055, Tel: 317-335-2128, FAX: 317-335-2128; Empl.: 5; *Sls. Mgr.:* Gary Bannister

YAMAICHI ELECTRONICS, INC., Yamaichi Electronics Co., Ltd., 1420 Koll Circle, Ste.B, San Jose, CA 95112, Tel: 408-452-0797, FAX: 408-452-0799; Empl.: 19; *Sls. Mgr.:* Bob Million; *Dist. Mgr.:* Jim Bennett

YARDNEY TECHNICAL PRODUCTS, INC., 82 Mechanic St, Pawcatuck, CT 06379, Tel: 203-599-1100, TELEX: 6813114, TWX: 710-470-0260; FSC No.: 87362; Empl.: 250; *Sls. Mgr.:* Rene DuBois

YELLOW SPRINGS INSTRUMENT CO., Box 279, Yellow Springs, OH 45387, Tel: , , , 800-343-4357, TELEX: 205437, FAX: 513-767-9353; Empl.: 359; *Sls. Mgr.:* Michael Flora

YEW CORP., See Yokogawa Corp. of America

YORK METAL PRODUCTS, INC., 34-20 12th St, Long Island City, NY 11106, Tel: 718-932-3660, FAX: 718-932-0007; Empl.: 45

YORK TECHNOLOGY, INC., 210 N. Glenoaks Blvd., Ste. C, Burbank, CA 91502, Tel: 818-955-8927, TELEX: 990-968 York CA, FAX: 818-955-9728; *Sls. Mgr.:* Bradley E. Sousa

YSI INCORPORATED, P.O. Box 279, Yellow Springs, OH 45387, Tel: 513-767-7241, TELEX: 205437, FAX: 513-767-9353; Empl.: 300; *Sls. Mgr.:* Michael Flora; *Dist. Mgr.:* Michael Flora

YUASA BATTERY

FAX: 213-949-5527

YUASA BATTERY (AMERICA), INC., 9728 Alburtis Ave., Santa Fe Springs, CA 90670, Tel: 213-949-4266; Empl.: 5,000; *Sls. Mgr.:* Ron Alonso, Ed Stone; *Dist. Mgr.:* Greg Rapp ..... **D•1499**

Local Sales Offices & Reps

AL	Huntsville, Over & Over	205-837-7105
AZ	Chandler, Lindberg	602-786-9115
AZ	Tempe, Westrep	602-820-9932
CA	San Diego, West Elctrns.	619-233-0236
CA	Santa Clara, Novatronix	408-727-9530
CA	Westminster, West Elctrns.	714-898-0120
CO	Denver, Lindberg Co.	303-758-9033
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Altamonte Springs, Over & Over	407-332-1222
FL	Coral Springs, Over & Over	305-753-7050
FL	Tampa, Over and Over	813-626-9100
GA	Norcross, Over & Over	404-449-6205
GA	Norcross, Over and Over	404-449-6205
IL	Arlington Heights, Brainard Nielsen	708-437-2700
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
IA	Cedar Rapids, R.W. Kunz & Assocs.	319-396-5386
KS	Prairie Vlg., R.W. Kunz & Assocs.	913-648-3535
MD	Lisbon, Samual K. MacDonald	301-982-1088
MN	St. Louis Park, Elctrn. Innovators	612-922-2945
MO	St. Louis, R.W. Kunz & Assocs.	314-966-4977
NJ	Berkeley Hgts., Cambridge Allen & Assocs.	201-464-0203
NJ	Cherry Hill, Samuel K. MacDonald	609-482-2666
NM	Albuquerque, Lindberg	505-881-1006
NC	Charlotte, Over and Over	704-542-9111
NC	Raleigh, Over & Over	919-876-7338
OH	Columbus, McFadden Sls.	614-761-3177
OR	Beaverton, Westmark Elctrns.	503-641-8780
PA	Monroeville, Samuel K. MacDonald	412-373-1723
TX	Austin, Barry Sls.	512-837-3616
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255
UT	Salt Lake City, Lindberg	801-484-8689
UT	Salt Lake City, Lindberg Co.	801-484-8689
WA	Bellevue, Westmark Elctrns.	206-454-1944
WI	Waukesha, Brainard Nielsen	414-797-7940
WI	Waukesha, Brainard-Wilson Mktg.	414-797-7940
Can	Mississauga, Ont., Tech-Trek Ltd.	416-238-0366
Can	Nepean, Ont., Tech-Trek Ltd.	613-225-5161
Can	Richmond, B.C., Tech-Trek Ltd.	604-276-8735
Can	St. Laurent, Que., Tech-Trek Ltd.	514-337-7540

Local Distributors

AZ	Glendale, Lynntronics	602-931-5981
CA	Buena Park, Cypress Elctrns.	714-521-5230
CA	Costa Mesa, House of Batteries	714-642-8222
CA	Santa Clara, Cypress Elctrns.	408-980-2500
FL	Miami, Elctrn. Equip.	305-871-3500
GA	Norcross, Applied Power	404-263-0421
HI	Honolulu, Elctrl. Equip.	808-533-3881
IL	Downers Grove, Jarbo Battery	312-964-9358
MD	Beltsville, Mark Elctrns.	301-595-5040
MA	Middleboro, Glynn Elctrns.	617-947-4262
MI	Brighton, Applied Power	313-229-6550
MN	Minneapolis, Bergquist Co.	612-835-2322
NH	Salem, Cronin Elctrns.	603-898-4440
NJ	Clifton, Engrd. Assemblies	201-340-0600
NY	Farmingdale, Battery Expeditors	516-752-0111
NY	Flushing, W & W Assocs.	718-961-2103
NY	Rochester, Masline Elctrns.	716-546-5373
NC	Raleigh, Engrd. Assemblies	919-790-9700
OH	Columbus, Whitehead Elctrns.	614-224-1186
OH	Solon, Repco Elctrns.	216-248-8900
OR	Portland, Standard Batteries of Portland	503-234-7251
TX	Allen, Prime Distrbg.	214-231-0170
WA	Redmond, Priebe Elctrns.	206-881-2363
EXP	National & Canada, Newark Elctrns.	800-367-3573
Can	Brampton, Ont., Zentronics	416-451-8445

YUASA BATTERY (AMERICA) INC., Eastern Regional Office, 131 Industrial Ave., Hasbrouck Hgts., NJ 07604, Tel: 201-641-5900, FAX: 201-641-8720; *Sls. Mgr.:* Ed Stone/Cindy Werts; *Dist. Mgr.:* Toshio Hirai

ZAKI CORPORATION, 420 Maple St., Marlboro, MA 01752, Tel: 508-480-0201, FAX: 508-481-0595; *Sls. Mgr.:* Steven Sotsky

ZAMBRE CO., INC., 2134 Old Middlefield Way, Mountain View, CA 94043, Tel: 415-968-9176, FAX: 415-968-4851; FSC No.: 58758; 5950; Empl.: 20 Average

ZAX CORP., 2572 White Road, Irvine, CA 92714, Tel: 800-233-9817, 800-421-0982, FAX: 714-474-0159; Empl.: 25; *Sls. Mgr.:* Robert J. Parente, Dir. of Sls. & Mktg.

Z COMMUNICATIONS, INC., 5450 N.W. 33rd Ave., Ste. 100, Ft. Lauderdale, FL 33309, Tel: 305-735-1000, FAX: 305-735-1094; FSC No.: 1564A; Empl.: 20; *Sls. Mgr.:* Devang Patel

ZEBRA TECHNOLOGIES CORPORATION, 333 Corporate Woods Pkwy., Vernon Hills, IL 60061-3109, Tel: 708-634-6700, TELEX: 206230, FAX: 708-913-8766; Empl.: 175; *Sls. Mgr.:* Kevin O'Donnell

ZEHNTEL SYSTEMS, Div.of Teradyne Inc., 2625 Shadelands Dr., Walnut Creek, CA 94598, Tel: 415-932-6900, FAX: 415-934-0540; Empl.: 350; *Sls. Mgr.:* David Bernstein

CARL ZEISS, INC., One Zeiss Drive, Thornwood, NY 10594, Tel: 914-747-1800, TELEX: RCA 221834, TWX: WV64-6928

ZENDEX CORP., 6780 Sierra Court, Ste. A, Dublin, CA 94568, Tel: 415-828-3000, TWX: 910-389-4009, FAX: 415-828-1574; Empl.: 50; *Sls. Mgr.:* John Marceca

ZENITH

FAX: 708-391-7078

ZENITH MAGNETICS, Zenith Electronics Corp., 1000 Milwaukee Ave., Glenview, IL 60025-2493, Tel: 708-391-7733; *Sls. Mgr.:* Bob Cunningham; *Dist. Mgr.:* Allan Parker ..... **D•2145**

Local Sales Offices & Reps

AL	Huntsville, Macro Mktg. Assoc., Inc.	205-883-9630
AL	Huntsville, Pen-Tech Assoc.	205-881-9298
AZ	Phoenix, Howe & Howe Sls, Inc.	602-264-7971
CA	Laguna Hills, Electro Venture-s	714-581-9244
CA	Santa Clara, Ross Mktg. Assoc.	408-988-8111
CO	Denver, Tech Rep Sls.	303-758-7031
CT	Cheshire, Nesco	203-272-0368
FL	West Palm Bch., Pen-Tech Assoc.	407-640-0800
IL	Arlington Hts., Hill Sls. Corp.	708-255-4400
KS	Roeland Pk., MSB Assocs. Inc.	913-432-2131
MA	Franklin, OEM Mktg. & Sls.	508-528-4983
MI	Ann Arbor, S-Tek	313-572-0516
MN	Minneapolis, Comstrand Inc.	612-788-9234
NH	Salem, OEM Mktg. & Sls.	603-893-1197
NJ	Fairfield, Metro Logic Corp.	201-575-5585
NY	Rochester, Micro-Tech Mktg. Inc.	716-426-0806
NC	Raleigh, Prime Components, Inc.	919-850-9866
OH	Cleveland, S-Tek	216-468-0413
OR	Portland, Jos. V. Beluski CO.	503-222-4279
PA	Willow Grove, Tech Sls. Assoc.	215-784-0170
TX	Dallas, REM Comps.	214-234-1069
TX	Houston, REM Comps.	713-589-9721
VA	Front Royal, Eltron Sls.	703-635-7201

ZERCOM CORPORATION, P.O. Box 84, Zercom Drive, Merrifield, MN 56465-0084, Tel: 218-765-3151, FAX: 218-765-3900; *Sls. Mgr.:* Jeff Zernov

ZERO CORPORATION

FAX: 818-841-5618

ZERO ENCLOSURES, Zero Corp., 777 Front St., Burbank, CA 91503, Tel: 818-846-4191, 818-841-1825; Empl.: 1400; *Sls. Mgr.:* Doug Griffith, V.P. ..... **C•1130-1144**

Local Sales Offices & Reps

AL	Huntsville, BJR Mfrs. Reps.	205-881-3569
AZ	Phoenix, Howe & Howe Sls., Inc.	602-264-7971
AZ	Phoenix, Shefler/Kahn	602-581-0884
CA	Burbank, Zero-West Div.	818-846-4191
CA	Los Angeles, Landa & Assocs., Inc.	213-879-0770
CA	San Diego, Luscombe Engrg. Co.	619-292-4337
CO	Boulder, Component Prod. Sls. Co. Inc.	303-530-2800
FL	Maitland/Pompano Beach, Hutto Hawkins Assocs., Inc.	407-831-2474
FL	Pinellas Park, P & M Tech. Sls.	813-546-4175
GA	Norcross, Hollingsworth & Still, Inc.	404-447-1700
IL	Elk Grove Village, Carlson Elctrns. Sls.	708-956-8240
IN	Indianapolis, L.M. DeVoe Co.	317-842-3245
IA	Cedar Rapids, Carlson Elctrns. Sls.	319-378-1450
MD	Baltimore, Marktron	301-628-1111
MA	Monson, Zero-East Div.	413-267-5561
MN	Bloomington, Elctrn. Sls. Agcy.	612-884-8291
MS	Jackson, S. L. Welch	601-856-5471
MO	St. Louis, Cadon Techn. Sls.	314-645-8670
NY	Commack, MTR, Inc.	516-462-9580
NM	Albuquerque, Fry-Gates	505-262-1525
NY	East Syracuse, Fountain Young & Co.	315-437-7733
NC	Apex, Engineering Reps Assoc.	703-632-2365
OH	Cincinnati, K.C. Hoffman Co.	513-931-1686
OR	Tigard, RTS, Inc.	503-244-4123
PA	Boswell, B.E. Gibson	814-629-6772
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
SC	Greenville, Engineering Reps Assoc.	703-632-2365
TX	Austin, Tesco, Inc.	512-834-8374
TX	Dallas, Tesco Inc.	214-553-1200
TX	Houston, Tesco, Inc.	703-690-4909
TX	Richardson, Barry Sls., Inc.	214-234-0255
UT	Salt Lake City, Effective Sls.	801-266-9617
MD	Rockville, Marktron	301-251-8990
WA	Vashon, RTS, Inc.	206-285-1363
Can	Iberville, Que., Lhotellier Canada Inds.	514-358-4376

ZERO CORP., Zero East Div., 288 Main St., Monson, MA 01057, Tel: 413-267-5561, FAX: 413-267-5569; FSC No.: 19178; Empl.: 380; *Sls. Mgr.:* Roger St. Martin ..... **C•1130**

Local Sales Offices & Reps

AL	Huntsville, BJR Mfg. Reps.	205-881-3569
CT	Monson, Zero-East Div.	413-267-5561
IN	Indianapolis, C.C. Electro Sls.	317-355-1508
IN	Indianapolis, Leslie M. Devoe Co.	317-842-3245
MD	Rockville, Marktron, Inc.	301-251-8990
MA	Monson, Zero-East Div.	413-267-5561
MA	Palmer, Benoit-Senecal Co.	413-283-8384
MI	Grosse Pointe Pk., Greiner Assocs., Inc.	313-499-0188
MS	Jackson, S. L. Welch & Assocs.	601-932-5534
NY	Commack, MTR, Inc.	516-462-9580
NY	Syracuse, Fountain Young Co.	315-437-7733
NC	Martinsville, Engrg. Reps Assocs.	703-632-2365
OH	Columbus, Tom Mulligan & Assoc.	614-457-2242
PA	Boswell, B. E. Gibson	814-629-6772
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
SC	Martinsville W. VA, Engrg. Reps Assocs.	703-632-2365
Can	Islington, Ont., Pipe-Thompson Ltd.	416-236-2355

ZERO PLASTICS, A UNIT OF ZERO CORP., 672 Fuller Rd., Chicopee, MA 01020, Tel: 413-267-5561 Ext. 432, FAX: 413-592-5018; Empl.: 100; *Sls. Mgr.:* Brian Nichols

ZETA GRAPHICS CORP., 777 Arnold Drive, Martinez, CA 94553, Tel: 415-372-7568; Empl.: 138; *Sls. Mgr.:* Richard Howell, Natl. Sls. Mgr.

ZETEX, INC., Zetex plc., 87 Modular Avenue, Commack, NY 11725, Tel: 516-543-7100, FAX: 516-864-7630; *Sls. Mgr.:* Joseph M. DeBlasio

ZEUS INDL. PRODS. INC., P.O. Box 2167, Orangeburg, SC 29116, Tel: 803-531-2174, 800-526-3842, TWX: 710-480-9346, FAX: 803-533-5694; FSC No.: 32039; Empl.: 280; *Sls. Mgr.:* Wally Bernardo, OEM Sls. Mgr.; *Dist. Mgr.:* Heather Bernardo, Distr. Sls. Mgr.

ZEVATECH, INC., 2700 Gateway Centre Blvd. Ste., Morrisville, NC 27560, Tel: 919-460-0111, FAX: 919-469-0480; Empl.: 110; *Sls. Mgr.:* Bob Black; *Dist. Mgr.:* Bob Black

ZEXCO, 5526 Murietta Ave., Van Nuys, CA 91401, Tel: 818-997-7895

ZIATECH, 3433 Roberto Ct., San Luis Obispo, CA 93401, Tel: 805-541-0488, FAX: 805-541-5088; Empl.: 65; *Sls. Mgr.:* Ron Giovannelli

ZIERICK MANUFACTURING CORP., 56 Radio Circle, Mt. Kisco, NY 10549, Tel: 914-666-2911, 800-882-8020, TWX: 710-571-2143, FAX: 914-666-0216; Empl.: 120; *Sls. Mgr.:* L. T. Noyes; *Dist. Mgr.:* Jack Becker

ZIPPERTUBING CO., Box 61129, Los Angeles, CA 90061, Tel: 213-321-3901, FAX: 213-321-3086; Empl.: 60; *Sls. Mgr.:* Mike Sullivan

ZIRMEX, See Degussa Electronics, Hybrid Div.

ZI-TECH INSTRUMENT CORP., P.O. Box 391567, Mountain View, CA 94039-1567, Tel: 415-966-8484, TELEX: 334-447, FAX: 415-966-8201; Empl.: 15; *Sls. Mgr.:* J. Ziman

zitel

FAX: 408-262-6754

ZITEL CORPORATION, 630 Alder Drive, Milpitas, CA 95035, Tel: 408-946-9600, 800-622-5020, TELEX: 171607, TWX: 910-338-0567; Empl.: 145; *Sls. Mgr.:* Don Olker; *Dist. Mgr.:* Don Olker ..... **D•1119, 2239**

Local Sales Offices & Reps

CA	Granada Hills, West Coast Reps.	818-368-7385
CA	La Habra, West Coast Reps.	213-690-9960
CA	Meadow Vista, West Coast Reps.	916-878-7454
CA	Milpitas, Zitel	408-946-9600
CA	Norco, West Coast Reps.	714-261-5313
CA	Palo Alto, West Coast Reps.	415-325-6097
CA	San Diego, West Coast Reps.	619-581-2406
CT	Wallingford, Northern Computer Sales, Inc.	203-294-1004
FL	Cocoa Beach, Zitel	407-799-1000
IL	Hoffman Estates, Panatek	708-519-0867
MA	Canton, Northern Computer Sls, Inc.	617-821-2180
MI	Warren, Dietrich & Assocs.	313-751-4990
MN	Plymouth, James R. Johnson & Assocs.	612-478-9442
MO	St. Louis, Panatek Tech. Sls.	314-993-5088
NY	Elmont, Crane & Egert, Inc.	516-872-0800
NY	Fairport, Northern Computer Sls, Inc.	716-377-2650
OH	Cincinnati, Dietrich & Assocs.	513-984-8924
OH	Independence, Dietrich & Assocs.	216-642-7965
OK	Tulsa, Milco Mktg. Inc.	918-664-2188
PA	New Kensington, Zitel	412-795-0900
PA	Pittsburgh, Dietrich & Assocs.	412-892-2992
TX	Austin, Milco Mktg, Inc.	512-835-5359
TX	Houston, Milco Mktg, Inc.	713-469-5156
TX	Plano, Milco Mktg, Inc.	214-578-1996
WA	Snohomish, West Coast Reps.	206-483-5300

Z-LINE POWER CONTROLLERS, See Pulizzi Engineering, Inc.

ZMAN MAGNETICS, 7633 South 180th, Kent, WA 98032, Tel: 206-251-8064, FAX: 206-251-6264; Empl.: 35; *Sls. Mgr.:* Mark Mennella

Z-WORLD ENGINEERING, 1340 Covell Blvd. 101, Davis, CA 95616, Tel: 916-753-3722, FAX: 916-753-5141; Empl.: 9; *Sls. Mgr.:* Carrie Evanoff

ZYLAB CORPORATION, 100 Lexington Dr., Buffalo Grove, IL 60089, Tel: 708-459-8000, FAX: 708-459-8054; Empl.: 21; *Sls. Mgr.:* Beth Harvey

ZYTRON, Zytronics, 70 Tirrell Hill Road, Bedford, NH 03102, Tel: 603-623-8888, FAX: 603-623-4009; Empl.: 100; *Sls. Mgr.:* Jan St. Pierre

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

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AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
Fiber Optics, Miniglossary **B**•1224
Fiber Optics, Product Selection Guide **B**•1214
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Filters, Signal, Product Selection Guide **A**•1651
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Keyboards & Keypads, Product Selection Guide **B**•1794
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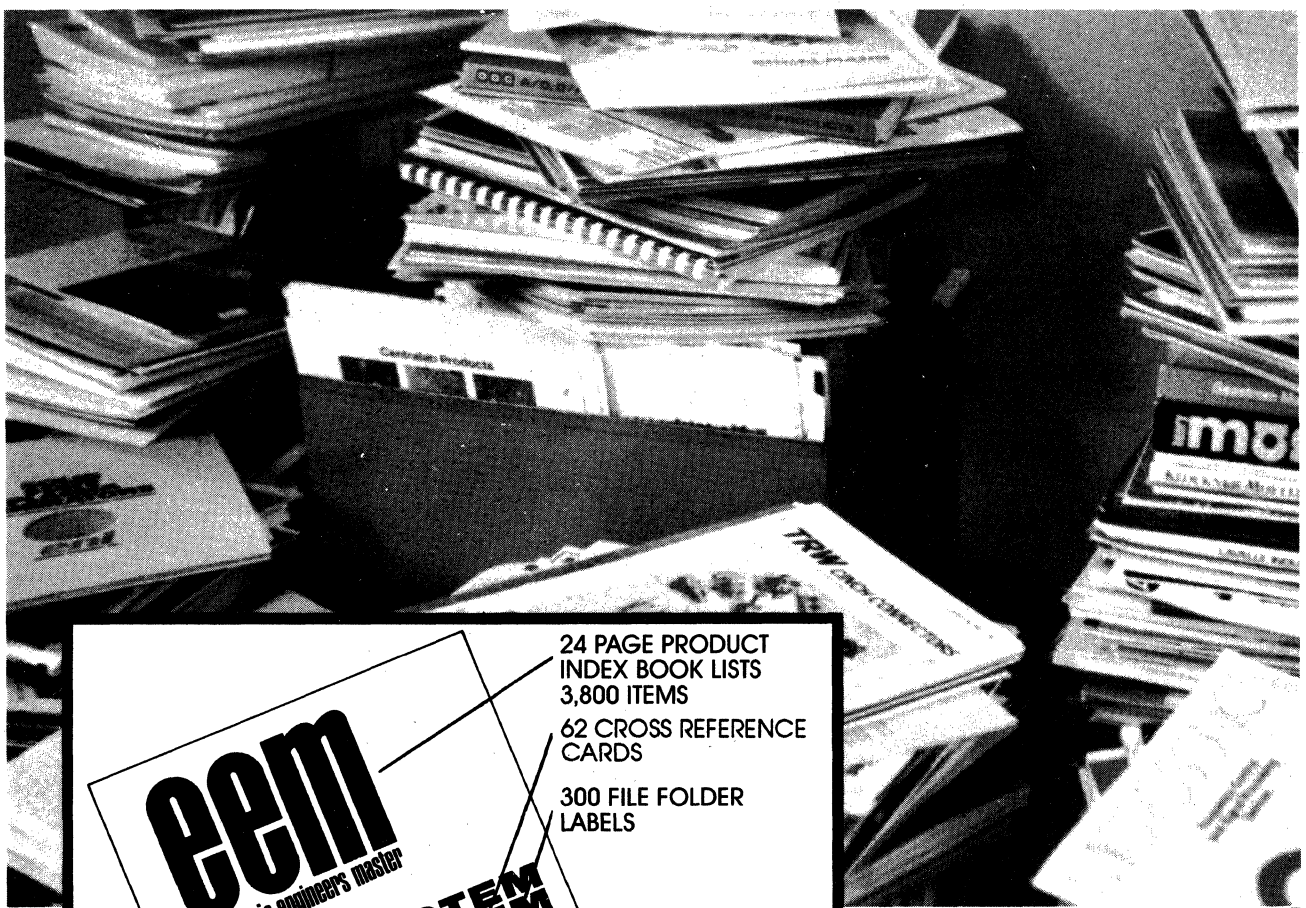
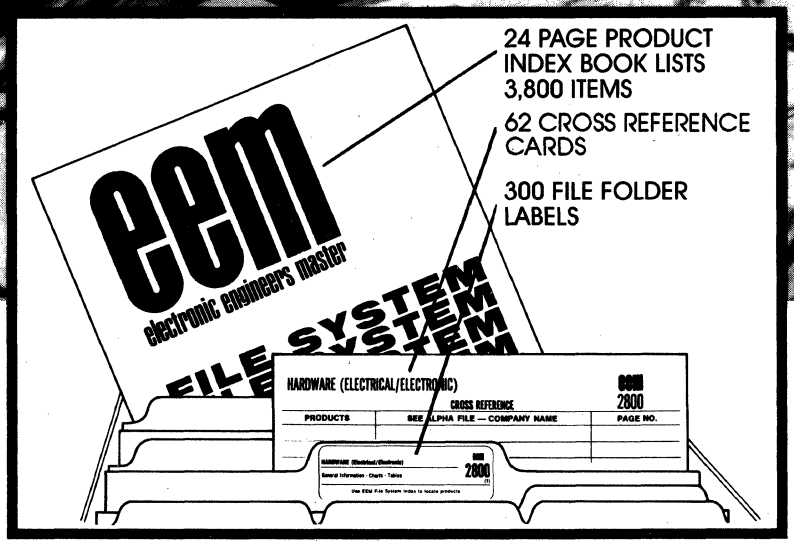
Transformers, Product Selection Guide **A**•2131
Wire & Cable, Product Selection Guide **C**•1705
Wire Gauges—Diameter, Area, Copper Weight **C**•1864





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eem SYMBOLS USED BY INTERNATIONAL REGULATORY AGENCIES

These symbols appear on many electrical/electronic components distributed in the world market. They indicate that a country's standard-setting agency has approved the design of the component and/or a testing agency has approved the performance of the component in meeting the standard. This page lists only those countries that have a *symbol* to represent their authority.

Argentina (IRAM) Instituto Argentino de Racionalization de Materiales

Australia (SAA) Standards Association of Australia

Austria (ÖVE) Öesterreichischer Verband für Elektrotechnik

Belgium (CEB) Comité Electrotechnique Belge

Brazil (ABNT) Associação Brasileira de Normas Teonicas

Canada (CSA) Canadian Standards Association

Czechoslovakia Urad pro Normalizaci a Mereni (Office for Standards and Measurements)

Denmark (DEK) Dansk Elektroteknisk Komite (Danish Electrotechnical Committee)

Egypt (EOS) Egyptian Organization for Standardization and Quality Control

Finland (SETI) Electrical Inspectorate

France (UTE) Union Technique de l'Électricité

Germany, Democratic Republic of (East) (ASMW) Amt für Standardi-sierung Messwesen und Warenprufung (Office for Standardization, Metrology and Quality Control)

Germany, Federal Republic of (West) (DKE) Deutsche Electrotechnische Kommission im DIN und VDE (German Electrotechnical Commission of DIN and VDE)

Greece (ELOT) The Hellenic Organization of Standardization

Hong Kong Hong Kong Standards & Testing Centre

Hungary (MSZH) Magyar Szabvanyugi Hivatal (Hungarian Office for Standardization)

India (ISI) Indian Standards Institute "Manak Bhavan"

Indonesia Badan Kerjasama Standardisasi LIPI-YDNI (LIPI-YDNI Joint Standardization Committee)

Iran Institute of Standards and Industrial Research of Iran

Ireland (IIRS) Institute for Industrial Research and Standards

Israel (SII) Standards Institution of Israel

Italy (CEI) Comitato Elettrotecnico Italiano (Italian Electrotechnical Committee)

Japan (JISC) Japanese Industrial Standards Committee Agency of Industrial Science and Technology

Korea, Republic of (South) Industrial Advance Administration

Mexico (DGN) Dirección General de Normas Secretaria de Patrimonio y Fomento Industrial Puente de Tecamachalco

Netherlands (NEC) Nederlands Elektrotechnisch Comite

New Zealand (SANZ) Standards Association of New Zealand

Norway (NEK) Norsk Elektroteknisk Komite (Norwegian Electrotechnical Committee)

Pakistan Pakistan Standards Institution

Poland Polski Komitet Normalizacji Miar i Jakosci (Polish Committee for Standardization, Measures and Quality Control)

Portugal (CEP) Comissão Electrotécnica Portuguesa

Romania Institutul Roman de Standardizare (Romanian Standards Institute)

Singapore Singapore Institute of Standards and Industrial Research

South Africa (SABS) South African Bureau of Standards

Spain (IRANOR) Instituto Nacional de Racionalización y Normalización

Sweden (SEK) Svenska Elektriska Kommissionen (Swedish Electrotechnical Commission)

Switzerland (SEV) Schweizerischer Elektrotechnischer Verein Postfach

Turkey (TSE) Turk Standardlari Enstitusu (Turkish Standards Institution)

United Kingdom (BSI) British Standards Institution

United States Underwriters Laboratories Inc. Recognized Component Mark

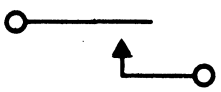
United States Underwriters Laboratories Inc.

Venezuela CODELECTRA en Conjunto con COVENIN Avda. Ppal.

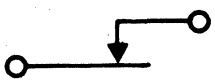
Yugoslavia Federal Institute of Standardization

MINIGLOSSARY
RELAY CONTACT FORMS

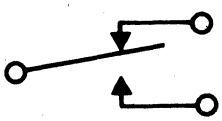
A
Make
SPST-NO



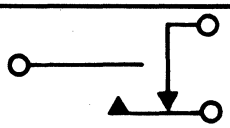
B
Break
SPST-NC



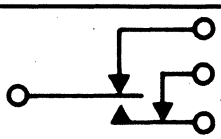
C
Break, Make
(Transfer)
SPDT



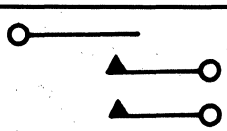
D
Make, Break
(Continuity
Transfer)



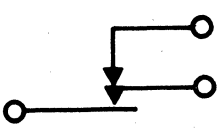
E
Break,
Make,
Break



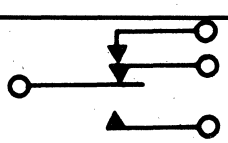
F
Make,
Make



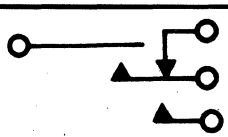
G
Break,
Make



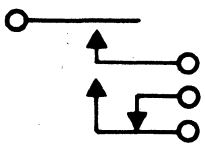
H
Break,
Break,
Make



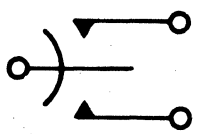
I
Make,
Break,
Make



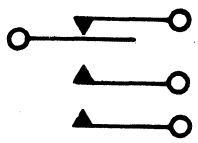
J
Make,
Make,
Break



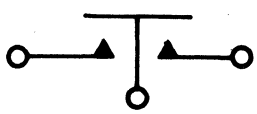
K
Center off
SPDT



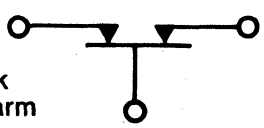
L
Break,
Make,
Make



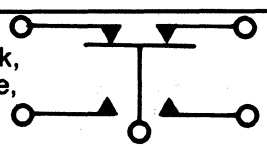
U
Double
make
Contact
on arm



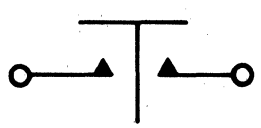
V
Double break
Contact on arm



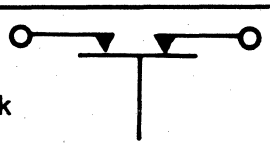
W
Double break,
Double make,
Contact
on arm



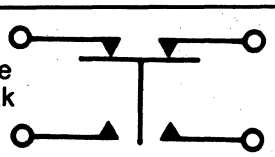
X
Double
make



Y
Double break



Z
Double make
Double break
SPDT-DB



CHARACTERISTICS OF BATTERIES AND FUEL CELLS

System	Anode	Cathode	Theoretical battery		Practical battery		
			Voltage, V	Capacity, Ah/kg	Typical voltage, V	Capacity[a]	
						Wh/kg	Wh/dm³
Primary:							
Leclanche	Zn	MnO_2	1.6	230	1.2	65	175
Magnesium	Mg	MnO_2	2.0	270	1.5	100	195
Organic cathode	Mg	*m*-DNB	1.8	1,400	1.15	130	180
Alkaline MnO_2	Zn	MnO_2	1.5	230	1.15	65	200
Mercury	Zn	HgO	1.34	185	1.2	80	370
Mercad	Cd	HgO	0.9	165	0.85	45	175
Silver oxide	Zn	AgO	1.85	285	1.5	130	310
Zinc-air	Zn	Air (O_2)	1.6	815	1.1	200	190
Li-organic electrolyte	Li	[b]	2.1-5.4	130-660	1.8-3.2	250	400
Secondary:							
Lead-acid	Pb	PbO_2	2.1	55	2.0	37	70
Edison	Fe	Ni oxides	1.5	195	1.2	29	65
Nickel-cadmium	Cd	Ni oxides	1.35	165	1.2	33	60
Silver-zinc	Zn	AgO	1.85	285	1.5	100	170
Silver-cadmium	Cd	AgO	1.4	230	1.05	55	120
Zinc-nickel oxide	Zn	Ni oxides	1.75	185	1.6	55	110
Zinc-air[c]	Zn	Air (O_2)	1.6	815	1.1	150	155
Cadmium-air[c]	Cd	Air (O_2)	1.2	475	0.8	90	90
Zinc-O_2	Zn	O_2	1.6	610	1.1	130	120
H_2-O_2	H_2	O_2	1.23	3,000	0.8	45	65
Reserve:							
Cuprous chloride	Mg	CuCl	1.5	240	1.4	45	65[d]
Silver-chloride	Mg	AgCl	1.6	170	1.5	60	95[d]
Zinc-silver oxide	Zn	AgO	1.85	285	1.5	30	75[e]
Thermal	Ca	[b]	2.8	240	2.6	10	20[f]
Ammonia-activated	Mg	*m*-DNB	2.2	1,400	1.7	22	60[g]
High-	NA	S	2.1	685	1.8	200	[h]
temperature	Li	S	2.2	1,150	1.8	200	[i]
Solid electrolyte	Ag	Polyiodide	0.66	. . .	0.6	180	75[j]
Fuel cell:							
Hydrogen[c]	H_2	Air	1.23	26,000	0.7		[k]
Hydrazine[c]	N_2H_4	Air	1.5	2,100	0.7	800[b]	[l]
Methanol[c]	CH_2OH	Air	1.3	1,400	0.9	175[b]	185[m]

a Delivered capacity when discharged at normal temperatures (20°C) at normal discharge rates.
b Based on fuel consumption only.
c Weight of air not considered in computation of watt hours.
d Water-activated
e Automatically activated; high rate discharge; 2- to 10-min rate.
f Fused salt; heat-activated; high rate discharge; 2- to 10-min rate.
g Four-minute discharge rate.
h β-alumina electrolyte, 300°C operation.
i Fused salt; 350°C operation.
j Solid $RbAg_4I_5$ electrolyte.
k Several different cathode materials used.
l Fuel consumption is based on source of H_2.
m Based on methanol battery-fuel supply in situ.

eem MINIGLOSSARY POWER SUPPLIES

Ambient reference: Refers to the temperature of the still air surrounding the power supply

Case reference: One of the specs that make up the nominal rating. The temperature of the case with the temperature of the surrounding still air at a stated temperature (usually 25°C).

Crowbar circuit: Protects the load. A protective circuit that applies a short circuit across the output immediately upon overload. (See overvoltage).

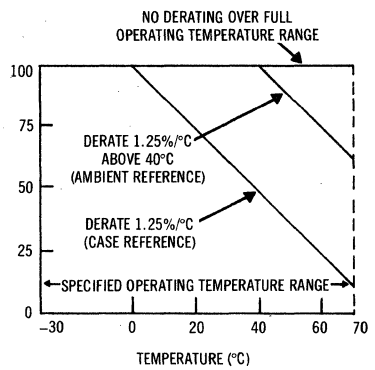


Fig. 1. Power output derating can be referred to ambient or case.

Derating: The degree output is reduced as temperature increases. Usually referenced to ambient case temperature and shown on a graph.

Efficiency: Ratio of the output power to the required input power. Usually expressed as a percentage given nominal environmental temperature.

EMI/RFI: Interference electronic circuitry caused by energy from electromechanical or radio frequency power supplies.

Foldback: Built-in protective circuits that automatically reduce the output voltage and/or current to very low levels in the event of an overload.

Holdover (Holdup): The interval that rated output will continue after input ceases. Usually milliseconds.

Input reflected current: The peak-to-peak alternating current generated by switching transients in DC/DC converters. Should not exceed 1%.

Inrush current limiting: Built-in circuits that monitor high currents through the rectifiers to the capacitors at turn ON. Circuit is usually inhibited as capacitors attain full charge.

Nominal rating: The spec value of the supply at stated conditions of input, output, and temperature.

Overshoot: A transient voltage change occurring during turn ON or OFF or during an abrupt load change.

Overvoltage (Overload) protection: Built-in circuits that protect the load or the supply by shutting it down or providing foldback.

Recovery: The time interval between the termination of an overload and restoration to normal operations.

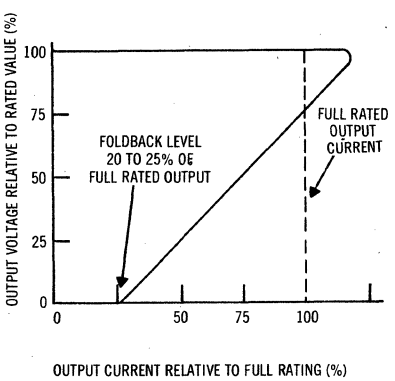


Fig. 2. Current foldback limiting self-resets with removal of fault.

Response: The time interval between a stated step change in input voltage or load current and return of output to normal operating conditions.

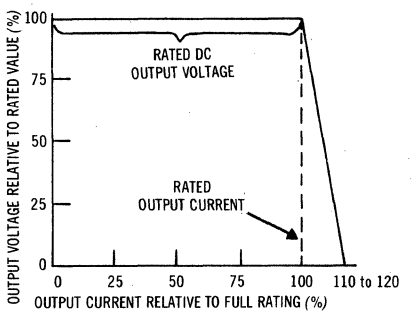


Fig. 3. Current limiting restrictions output current to a valve somewhat greater than full rated output; it resets when fault is removed.

Sensing: Regulation techniques that monitor output voltage and/or current. *Local sensing* refers to the output terminals. *Remote sensing* allows a feedback from the load circuit to the power supply.

Soft start: Allows the supply to start from zero current and/or voltage over a stated period of time during start up to prevent voltage overshoots and current imbalances.

Switchers: Power supplies using switching techniques to achieve high efficiency regulation. These techniques can have attendant EMI/RFI problems.

Tracking: The maintaining of fixed ratios between multiple outlets despite variations in line, load or temperature. Particularly important in supplies with symetrical (+)(−) outputs.

Transient protection: Circuitry designed to protect the supply from high amplitude line transients. Generally expressed in terms of peak voltage and maximum transient time duration.

THERMAL CONDUCTIVITY OF DIELECTRICS AT ROOM TEMPERATURE

Material	Thermal Conductivity, J/ (m.K)
Diamond	658
BeO	167
Graphite	117-200
Bonded SiC	42
MgO	42
Al_2O_3	33
TiC	33
BN	28
Mullite	6.3
Titania	3.3-4.2
Porcelain	1.7
Fused silica glass	1.5
Soda-lime glass	0.8
Cast epoxies	0.17-1.3
Wood	0.5-2.5
Melamines	0.3-0.7
Mica	0.3-0.7
Phenolics (molded)	0.17-0.67
Polyethylenes	0.33
Nylons	0.17-0.25
TFE fluorocarbons	0.25
Elastomers	0.08-0.17
Foams	0.003-0.04

SI UNITS

RELATIVE QUANTITY SYMBOLS

$\neq$	not equal to
$\approx$	approximately equal to
$\propto$	proportional to
$<$	smaller than
$\leq$	smaller than or equal to
$\ll$	much smaller than
$>$	larger than
$\geq$	larger than or equal to
$\gg$	much larger than
$\equiv$	identical to or equivalent
$\uparrow$	increases
$\downarrow$	decreases

PREFIXES FOR SI UNITS

Multiple	Prefix	Symbol
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p

Quantity	Symbol	SI Unit	Symbol	Derivation
acceleration	a	m s^{-2}	—	velocity/time
acceleration due to gravity	g	m s^{-2}	—	velocity/time
amount of substance	n	mole	mol	mole fraction (n) used
amplification factor	μ	*a ratio*	—	—
angle	$\theta_1, \varphi_1, \alpha_1$	—	—	—
angle of incidence	i	degree or radian	°	—
angle of refraction	r	degree or radian	°	—
angle, Bragg	θ	number	—	—
angle, critical	c	degree or radian	°	—
anode slope resistance	R_A	ohm	Ω	$\Delta V_a / \Delta I_a$
area	A	metres squared	m^2	$l \times b$
atomic number	Z	a number	—	number of protons
Avogadro constant	L, N_A	number	—	—
breadth	b	metre	m	fundamental unit
capacitance	C	farad	F	charge/p.d.
charge, electric	Q	coulomb	C	current × time
charge on electron	e	coulomb	C	$1{\cdot}6 \times 10^{-19}$ C
conductance	G	ohm^{-1}	Ω^{-1}	reciprocal of resistance
current, electric	I	ampere	A	fundamental unit
decay constant	λ	*a ratio*	—	—
density	ρ	kg m^{-3}	—	m/V
distance along path	s	metre	m	fundamental unit
efficiency	η	*a ratio*	—	work output/work input
electrochemical equiv.	z	g C^{-1}	—	mass/charge
electromotive force	E	volt	V	energy/charge
electron	e	—	—	—
energy	E	joule	J	N m
energy, kinetic	E_k	joule	J	N m. $E_k = 1/2mv^2$
energy, potential	E_p	joule	J	N m. $E_p = mgh$
Faraday constant	F	coulomb mol^{-1}	C mol^{-1}	96,500 C mol^{-1}
field strength, electric	E	V m^{-1}	—	potential gradient: p.d./dist.
field-strength magnetic	H	ampere-turns	—	current × no. of turns
flux, magnetic	Φ	weber	Wb	e.m.f/rate of change of flux
flux density	B	tesla	T	flux/area
focal length	f	metre	m	—
force	F	newton	N	kg m s^{-2}
free energy	ΔG	joule	J	—
frequency	f	hertz	Hz	oscillations/time
gas constant	r	joule	J	energy
half-life,radioactivity	$t_{1/2}$	second	s	fundamental unit
heat capacity	C	J K^{-1}	—	quantity of heat/temp. rise
heat of reaction	ΔH	joule	J	heat energy
heat capacity, specific	c	J K^{-1} kg^{-1}	—	heat capacity/mass
heat, quantity of	q	joule	J	energy

SI UNITS

Quantity	Symbol	SI Unit	Symbol	Derivation
height	h	metre	m	fundamental unit
image distance	υ	metre	m	fundamental unit
inductance, mutual	M	henry	H	induced e.m.f./rate of change of current
inductance, self	L	henry	H	—
intensity of radiation	I	*a number*	—	—
latent heat	L	joule	J	quantity of heat
latent heat, specific	l	J kg^{-1}	—	quantity of heat
latent heat, molar	L_m	joule mol^{-1}	J	quantity of heat
length	l	metre	m	fundamental unit
magnetizing force	H	ampere-turns	—	—
magnetic moment	m	Wb m	—	torque in unit magnetic field
magnification, linear	m	*a ratio*	—	—
mass	m	kilogramme	kg	fundamental unit
mass number	A	*a number*	—	number of neutrons + protons
molar volume	V_m	(dm^3)	—	volume of 1 mole
molar solution	M	*a ratio*	—	moles/dm^3
moment of force	—	N m	—	force × perp. distance
neutron number	N	*a number*	—	number of neutrons
number	n	—	—	—
number of molecules	N	—	—	—
number turns on coil	n	*a number*	—	—
number order spectrum	p	*a number*	—	—
object distance	u	metre	m	fundamental unit
peak current	I_O	ampere	A	see current
peak e.m.f.	E_O	volt	V	see e.m.f.
period	T	second	s	fundamental unit
permeability	μ	H m^{-1}	—	henry/metre
permeability, vacuum	μ_o	H m^{-1}	—	—
permeability, relative	μ_r	*a ratio*	—	$\mu = \frac{\mu}{\mu_o}$
permittivity	ε	F m^{-1}	—	farad/metre
permittivity, vacuum	ε_o	F m^{-1}	—	farad/metre
permittivity, relative	ε_r	*a ratio*	—	$\varepsilon_r = \frac{\varepsilon}{\varepsilon_o}$
potential, electric	V	volt	V	energy/charge
potential difference	V	volt	V	energy/charge
power	P	watt	W	J s^{-1}
pressure	p	pascal	Pa	N m^{-2}: force/area
radius	r	metre	m	fundamental unit
reactance	X	ohm	Ω	E_O/I_O
refractive index	n	*a ratio*	—	—
resistance	R	ohm	Ω	p.d./current
resistivity, electrical	ρ	ohm-metre	—	resistance × length
relative density	d	*a ratio*	—	ρ_{sub}/ρ_{water}
r.m.s. current	$I_{r.m.s}$	ampere	A	see current
r.m.s. voltage	$V_{r.m.s}$	volt	V	see e.m.f.
slit separation	s	metre	m	fundamental unit
tension	T	newton	N	see force
temperature, Celsius	θ	degree C	°C	from kelvin
temp. interval	θ	degree	° or K	—
temp. absolute	T	kelvin	K	fundamental unit
thickness	d	metre	m	fundamental unit
time	t	second	s	fundamental unit
torque	T	Nm	—	see moment
turns ratio	T	*a ratio*	—	n_{sec}/n_{prim}
(unit of electricity)	—	kW h	—	kilowatt × hour
velocity	u,υ	ms^{-1}	—	distance/time
velocity, angular	ω	$second^{-1}$	s^{-1}	angle/time
velocity, e.m.waves	c	m s^{-1}	—	—
velocity of sound	υ	m s^{-1}	—	—
volume	V	metre cubed	m^3	l × b × h
wavelength	λ	metre	m	fundamental unit
work	w	joule	J	force x distance (Nm)
weight	W	newton	N	kg m s^{-2}or mg

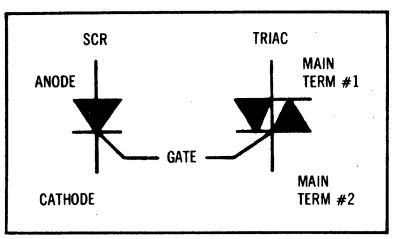
MINIGLOSSARY THYRISTORS/ HIGH POWER DIODES

THYRISTORS

A thyristor is a four-layer semiconductor (pnpn) that can be switched from an OFF to an ON state. This is usually done by a voltage or current pulse to the gate terminal. The device will then continue to conduct so long as the principal current of the device flows through the thyristor's two main terminals.

In many respects a thyristor is analogous to an electromechanical latching relay. In fact, thyristors have largely replaced these relays in newer equipment designs. But, misapplications and/or failure to fully understand the parameters of these and other solid state devices often leads to catastrophic field failures.

The terminology shown on this page has been condensed from common industry data books and is intended to be a guide for the engineer.



di/dt: *Critical rate of rise of ON state current* is the user's maximum design limit (Fig. 1).

di_R/dt: *Rate of decay of ON state current* (Fig. 1 & 2).

dv/dt (critical): *Rate of rise of OFF state voltage*. Lowest voltage rate of rise to cause a thyristor to turn ON.

dv/dt (reapplied) : *Rate of rise of reapplied OFF state voltage.*

I_{FSM}: *Nonrepetitive ON state surge current in diodes.* Maximum peak value of ½ cycles (60 Hz) a diode can withstand up to 100 times in its lifetime.

I_{TSM}: *Nonrepetitive ON state surge current in thyristors*. Maximum peak value of 60 Hz cycles a thyristor can withstand up to 100 times in its lifetime.

I_{DRM}/I_{RRM}: *Maximum peak forward/ reverse leakage current* at specified temperature and repetitive conditions.

I_{GDM}: *Continuous gate current not to trigger*. Highest dc gate current that will *not* cause thyristor to switch from OFF to ON at a specific temperature.

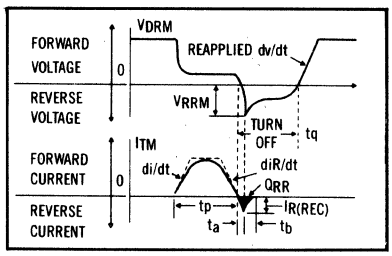


Fig. 1. Concurrent voltage and current waveforms

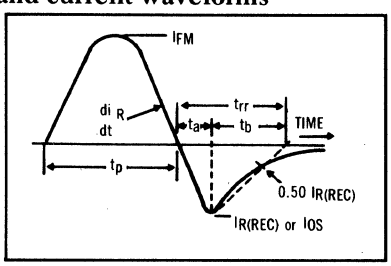


Fig. 2. Recovery current waveform

I_{GT}: *Continuous gate trigger current.* Absolute minimum gate current required to switch thyristor from OFF to ON.

I_H: *Holding Current*. Minimum current required to hold thyristor ON.

I_L: *Latching current*. Minimum current required to hold thyristor ON after removal of gate drive.

$I_{(REC)}$; *Recovery current*. Peak value of reverse current during recovery or turn OFF (Fig. 1 & 2).

I_{OS}: *Overshoot current*. See $I_{R(REC)}$.

I^2t: Maximum ON state, short time thermal capacity of the silicon element for operations less than ½ cycle of 180° conduction angle.

$I_{T(AV)}$: *Average ON state current* (max.)

Q_{RR}: *Reverse recovered charge* (Fig. 1).

$R_{\theta JC}$: *Junction-to-case thermal resistance* in degrees C per watt.

$T_{C(MAX)}$: *Max. allowable case temperature.*

$T_{J(MAX)}$: *Maximum allowable junction temp.*

t_d: *Delay time*. Interval between a specified point at beginning of gate pulse and the instant at which the principal voltage drops to a specified value. (OFF-ON) (Fig. 3)

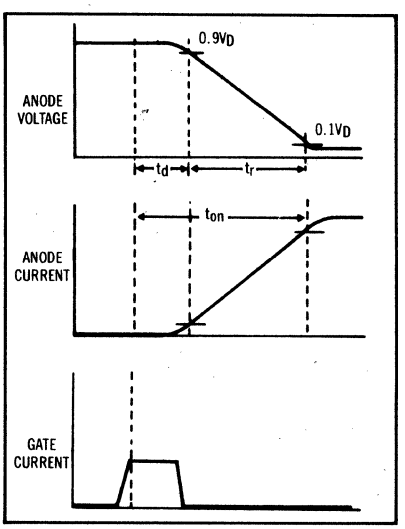


Fig. 3. Turn-on time waveforms

t_{on}: *Turn-on time*. The sum of delay time and rise time. (OFF-ON) (Fig. 3)

t_q: *Turn-off time.* Time between principal current reaching zero and the instant thyristor can block forward voltage without turning ON. (Fig. 1)

t_r: *Rise time*. Time between principal voltage dropping from one value to a second lower value when thyristor turns from OFF to ON. (Fig. 3)

t_{rr}: *Reverse recovery time*. (Fig. 2)

V_{DRM}/V_{RRM}: *Maximum repetitive peak OFF state/reverse voltage* excluding non-repetitive transients.

V_{DSM}/V_{RSM}: *Maximum nonrepetitive peak OFF state/reverse voltage*.

V_{FM}/V_{TM}: *Maximum forward voltage drop* at a specific forward current and case temp.

V_{GDM}: *Gate nontrigger voltage*. Highest dc voltage that will *not* cause thyristor to switch from OFF to ON.

V_{LATCH}: *Latching voltage*. Voltage required for thyristor to latch ON at a given gate current and junction temp.

$V_{TM(DYN)}$: *Dynamic ON state voltage*. Transient ON state voltage of thyristor when triggered into conduction for a given load and time.

eem MINIGLOSSARY ENCAPSULATION

MATERIALS/HANDLING

Catalyst: A substance which changes the *rate* of chemical reaction. Very small quantities can cause fast change.

Conformal coating Sprayed or dipped. A thin conformal jacket which protects an assembly from moisture or other degrading environments.

Curing agent: See catalyst.

Hardener: See catalyst.

Hermetic: A permanent gas-tight seal.

RTV: Room Temperature Vulcanizing. Associated with silicone rubber sealants which vulcanize at room temperature.

Thermoplastic: Plastic materials which can be made to flow *repeatedly* with the application of heat.

Thermosetting: Plastics which once cured cannot be made to flow again.

Thixotropy: The property of a coating compound which has low viscosity when agitated, but which thickens when the agitation ceases.

Viscosity: Measured in units of *poise* or *centipoise*. The property of a liquid which resists internal flow. Low viscosity equates with thin and vice-versa.

PROCESSING

Casting: Parts or assemblies are placed in a mold. Encapsulating material is added and cured. Part is then removed from the mold.

Dip coating: Part or assembly is dipped into the encapsulating material. Final thickness is determined by number of dips, viscosity, rate of withdrawal, and temperature.

Embedding: Wherein an encapsulant substantially fills all voids in and about an assembly.

Impregnation: A process of encapsulation involving evacuating all air and then allowing the encapsulating material to flow in and fill all voids.

Molding: Similar to casting except this process usually implies multicavity molds and costly machines.

Potting: Wherein the part or assembly is immersed in an encapsulating material contained in a shell which becomes a permanent outer surface after curing.

DIELECTRIC

Arc resistance: An encapsulant's resistance to the formation of a conductive path or track. Measured in time.

Breakdown voltage: The voltage at which an encapsulant fails electrically.

Capacitance: The property of conductors and dielectrics which allows the storage of an electrical charge when the voltage is applied.

Corona: A luminous discharge of electricity due to air ionization when a certain voltage is reached. Can be internal or external. The formation of ozone can cause rapid deterioration of certain materials.

Dielectric: Insulator (Nonconductor.)

Dielectric constant: The property of a material that determines its ability to store electrostatic energy.

Dielectric strength: The ratio of dielectric breakdown to the thickness of insulating material.

Dissipation factor: The ratio of a dielectric material's energy losses.

Flashover: Point at which an electric discharge occurs around an edge or across a surface. Can result in a carbon track and permanent degradation.

Insulation resistance: (IR) An insulating material's total DC leakage.

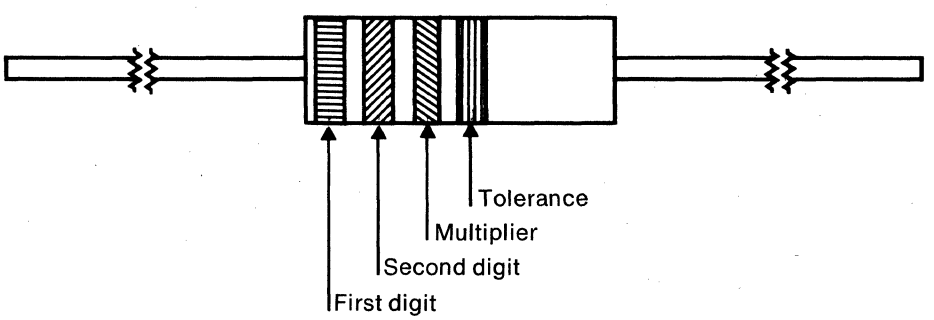
Surface resistivity: The resistance of the surface of an insulating material to the flow of direct current.

Voltage endurance: Sometimes called corona resistance. The ability of a material to withstand the application of sustained high voltage.

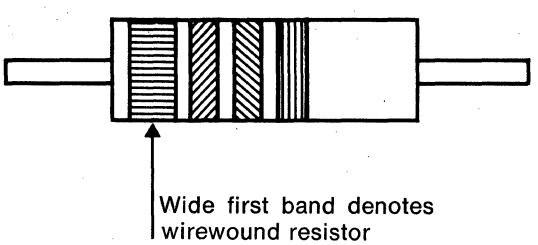
Volume resistivity: The resistance of a material to direct current flow as a measure of volume. Expressed as ohm-centimeters.

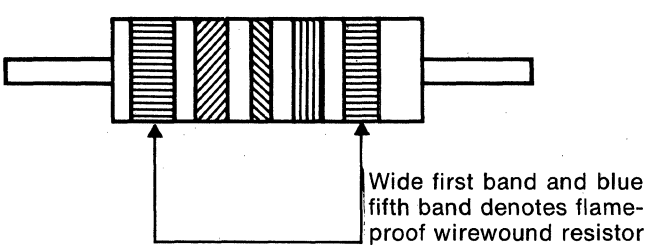
MINIGLOSSARY
RESISTOR COLOR CODES

EIA/MIL Resistor Color Codes



Color code for general-purpose industrial resistors

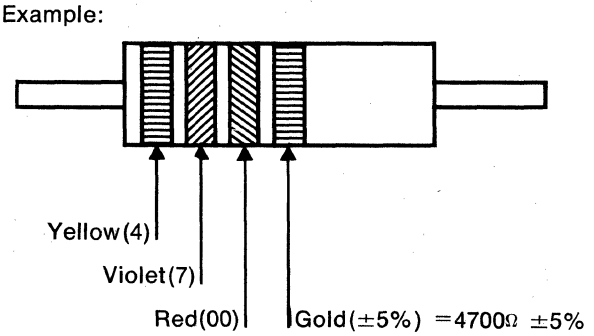




Color code for general-purpose wirewound resistors

Color	Significant digit	Multiplier	Tolerance
Black	0	1	—
Brown	1	10	± 1%
Red	2	100	± 2%
Orange	3	1000	± 3%
Yellow	4	10,000	± 4%
Green	5	100,000	—
Blue	6	1,000,000	—
Violet	7	10,000,000	—
Gray	8	—	—
White	9	—	—
Gold	—	0.1	± 5%
Silver	—	0.01	±10%
No color	—	—	±20%

Example:



MINIGLOSSARY TIMERS

Accuracy
The variation of unit performance, i.e., time delay, voltage trip point, etc., over the specified conditions of ambient temperature, input voltage range, and time between operations.

Adjustability
The changing of a unit set point, within the specified range of unit operation, by means of internal or external adjustment mechanism (i.e., changing time delay with potentiometer).

Contact Rating
The electrical power-handling capability of relay contacts under specified environmental conditions and for a prescribed number of operations.

Delayed Interval Timing Function
Input voltage is applied continuously. The timing cycle is started by momentarily actuating the control circuit. The functions of separate Delay-On-Operate and interval type timers are combined in one package providing a single OFF-ON-OFF output cycles

Also called: single shot.

Delay-On-Operate Timing Function
Application of the input voltage starts the time delay. At completion of the time delay, the relay contacts transfer.

Also called: Delay-On-Make, On-Delay, Delay Relay, Delay-On-Pickup.

Delay-On-Release Timing Function
Input voltage must be supplied continuously to timer. Actuation of control circuit causes relay contacts to transfer immediately. Time delay starts when control circuit is released. The relay remains energized for the duration of the time delay—then de-energizes.

Also called: Delay-On-Break, Off-Delay, Delay-On-Dropout, Delay-On-Energization.

Frequency Sensor
A device that monitors a predetermined overfrequency and/or underfrequecy condition, and changes output state when these conditions exist.

Hysteresis
The difference between the response of a unit or system to an increasing and a decreasing signal (example: a voltage sensor).

Interval Timer Timing Function
Application of input voltage causes relay contacts to transfer and time delay to begin. At completion of the time delay, the relay contacts return to de-energized state.

Also called: Delay Interval, One Shot.

Output Control
The switching device, either solid-state or electromechanical, used in the unit to control the load connected to the output terminal(s).

Phase Sensor
A device that monitors for proper phase rotation in 3-phase systems.

Programmability
Ability to modify function, time delay or input voltage of a timer.

Recovery Timer

(Delay-On-Operate/Interval Timer)
The minimum time that input voltage must be interrupted *prior* to time-out to insure a successive timing cycle within the specified limits.

(Delay-On-Release)
The minimum duration of time that control circuit must be re-actuated to insure a new timing cycle when the control circuit is released.

Recycle Time

(Delay-On-Operate or Interval Timer)
The minimum time that input voltage must be interrupted after the timing cycle is completed to assure a successive timing cycle within the repeatability specified.

(Delay-On-Release)
The minimum duration of time that control circuit must be actuated to insure a successive timing cycle within the repeatability specified when the control circuit is released.

Repeat Cycle Timer Timing Function
Application of power automatically initiates continuous off-on cycling of the output relay.
Also called: flasher, intervalometer

Reset Time
The time required for the contacts to return to normal position when power is removed.

Reverse Polarity Protection
Blocking circuitry arrangement within the timer to prevent damage or output actuation if reverse polarity input voltage is applied.

Tolerance
The difference between specified and actual timing or sense point (factory setup tolerance).

Transient Protection
Prevents damage to unit if positive or negative transients are applied to the unit. Insures proper operation of the unit during and after transient occurrence. Max. transients are usually specified as to amplitude and duration, i.e., 1000V for 1 second.

Trip Point
The predetermined point at which a sensing device is set to change the output state.

Voltage Sensor
A device that monitors for a predetermined overvoltage and/or undervoltage condition, and changes output state when these conditions exist.

eem MINIGLOSSARY ELECTROMECHANICAL RELAYS

RELAYS

Hybrid: Isolated input and output either with a solid-state input and an electromechanical output or vice versa. Typically a reed switch is used to trigger a solid-state output or a solid-state amplifier is used to trigger an electromechanical relay.

Differential: Have multiple windings to function when voltage, current and/or power difference reaches a specific level or value.

Close-differential: The dropout value is specified close to the pickup value.

Frequency sensitive: Operates at a set frequency or within specific frequency bands. A resonant reed, for example.

Hermetically sealed: Totally sealed by glass-to-metal or metal-to-metal seals to ensure very low rates of gas leakage over long time periods.

Encapsulated: Imbedded in a suitable potting compound.

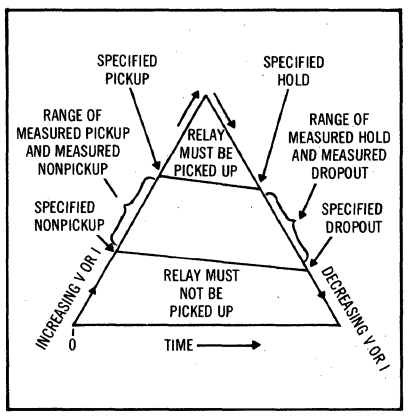
Sealed: Enclosed in a relatively airtight cover. (Not the same as hermetically sealed.)

Covered: Unsealed metal or plastic enclosure or housing.

CONTACTS

Dry circuit: contacts that carry current but do not open or close during energizing of the load circuit. Often wrongly used in reference to low level contacts.

Low Level: Contacts controlling relatively low voltages and low currents. Generally below 5 Vdc and 10mA.



OPERATING CHARACTERISTICS

Measured dropout: The value at which all contacts restore to their unoperated position as current or voltage decreases.

Specified dropout: The value at or *above* which all contacts *must* restore to their unoperated position as voltage or current is decreased.

Specified hold: The value that *must* be reached before any contact change occurs as voltage or current is decreased on an operated relay.

Specified nonpickup: The value that *must* be reached before any contact change occurs as voltage or current decreases on an unoperated relay.

Measured pickup: The value at which all contacts function as voltage or current increases on an unoperated relay.

Specified pickup. The value at or *below* which all contacts *must* function as voltage or current increases on an unoperated relay.

Sensitivity: Specified pickup expressed in watts.

Normal bridging: The make-before-break action between adjacent contacts on relays designed for this purpose.

Abnormal bridging: The undesired closing of contacts caused by a metal bridge or protrusion developed by arcing.

Magnetic freezing: Sticking of the armature to the core as a result of residual magnetism.

TIME

Actuation: The interval from coil energization or de-energization to the functioning of a specified contact.

Initial actuation: The interval from coil energization or de-energization to the *first* closing or opening of a previously open or closed contact.

Final actuation: Sum of initial actuation *and* bounce intervals following an actuation.

Contact bounce: The interval from close or opening of a contact to the end of the bounce of "chatter."

Chatter: See bounce.

Operate: Normally taken as the interval between energization and the opening or closing of the last contact to function not including bounce.

Release: Normally taken as the interval between de-energization and the opening or closing of the last contact to function excluding bounce.

Transfer: The interval between opening a closed contact and closing an open contact of a break-before-make relay.

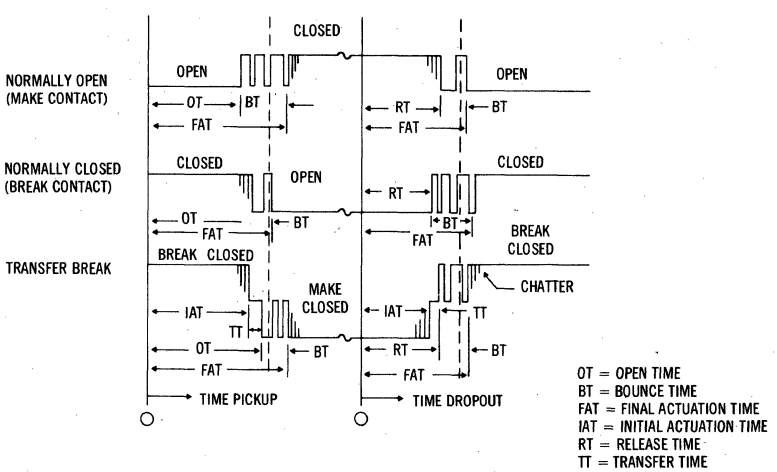


Fig. 2. Typical time vs. current (non-inductive load)

MINIGLOSSARY OPTO SEMICONDUCTORS

Avalanche Photodiode: A photodiode that takes advantage of avalanche multiplication of photocurrent. It is particularly suited to low noise and/or high speed applications.

Contrast: A noticeable difference in color, brightness, or other characteristics in a side-by-side comparison.

Chrominance Contrast: The color contrast between two adjacent surfaces of identical area, shape, texture, and luminance. The human eye is more sensitive to differences in color than it is to differences in brightness.

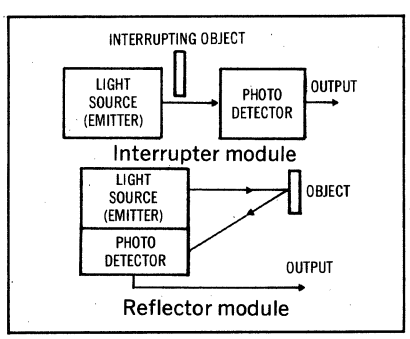
Current Transfer Ratio: The ratio of an optocoupler's output current to input current at a specified bias.

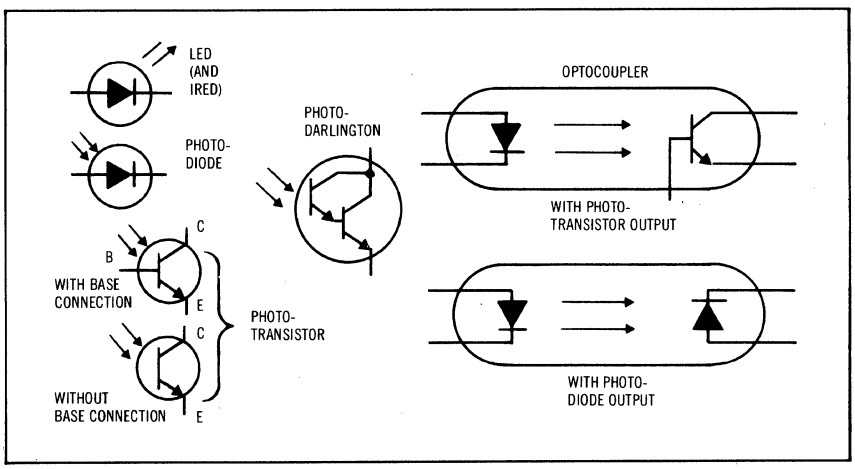
Dark Current: The leakage current of a photodetector with no incident light.

Dominant Wavelength: The wavelength that is a quantitative measure of apparent color of light as perceived by the human eye.

Infrared Radiation: The electromagnetic wavelength region between approximately 0.75 and 100 micrometers longer than the wavelength of visible light.

Interrupter (module): A device that produces an electrical output signal when an object breaks the light (visible or invisible) between a light source and a photodetector.





IRED: An infrared-emitting diode. See light-emitting diode.

Light Current: The current that flows through a photodetector when it is exposed to radiant energy.

Light-Emitting Diode (LED): A semiconductor diode that emits incoherent light at its PN junction when forward biased. The light can be in the visible or invisible (infrared) wavelength region.

Luminance Contrast: The observed brightness of a light-emitting element compared to the brightness of the "surround," an integral part of the device and inseparable from it.

Optocoupler: A device that transmits electrical signals, without electrical connection, between a light source (input) and the receiver (output). The input is generally an LED; the output might be a photodiode, phototransistor, a photo–Darlington, etc. Sometimes referred to as optoisolator.

Peak Wavelength: The wavelength at the peak of the radiated spectrum of an emitter.

Photo–Darlington: A light-sensitive Darlington-connected transistor pair. The photo–Darlington has a very high sensitivity to illumination or radiation.

Photodetector: A device that provides an electrical output signal when subjected to radiation in the visible, infrared, or ultraviolet regions of the electromagnetic spectrum. Photodiodes, phototransistors, and photo–Darlingtons are the most common type of photodetectors.

Photodiode: A junction diode that is responsive to radiant energy. Photodiodes have a high degree of linearity between the input radiation and the output current, and faster switching speeds than phototransistors.

Photothyristor: A thyristor whose switching action is controlled by light applied to the thyristor gate.

Phototransistor: A light-sensitive transister that delivers an electrical output proportional to the light intensity at its input. The low-level photocurrent that is generated is amplified by the current gain of the transistor. The base region (or gate in a FET) may or may not be brought out as an external terminal.

Point Source: A source with a maximum dimension less than one-tenth the distance between sources and detector.

Reflector (module): A device containing a light source and a photodetector that detects any object that reflects light produced by the source back to the detector.

eem

MINIGLOSSARY
BASIC ASCII CODE

				b7	0	0	0	0	1	1	1	1
				b6	0	0	1	1	0	0	1	1
				b5	0	1	0	1	0	1	0	1
b4	b3	b2	b1		0	1	2	3	4	5	6	7
0	0	0	0	0	NUL	DLE	SP	0	@	P	`	p
0	0	0	1	1	SOH	DC1	!	1	A	Q	a	q
0	0	1	0	2	STX	DC2	"	2	B	R	b	r
0	0	1	1	3	ETX	DC3	#	3	C	S	c	s
0	1	0	0	4	EOT	DC4	$	4	D	T	d	t
0	1	0	1	5	ENQ	NAK	%	5	E	U	e	u
0	1	1	0	6	ACK	SYN	&	6	F	V	f	v
0	1	1	1	7	BEL	ETB	'	7	G	W	g	w
1	0	0	0	8	BS	CAN	(	8	H	X	h	x
1	0	0	1	9	HT	EM	)	9	I	Y	i	y
1	0	1	0	10	LF	SUB	*	:	J	Z	j	z
1	0	1	1	11	VT	ESC	+	;	K	[	k	{
1	1	0	0	12	FF	FS	,	<	L	\	l	|
1	1	0	1	13	CR	GS	-	=	M	]	m	}
1	1	1	0	14	SO	RS	.	>	N	^	n	~
1	1	1	1	15	SI	US	/	?	O	_	o	DEL

Control Character Representations

NUL	Null
SOH	Start of Heading (CC)
STX	Start of Text (CC)
ETX	End of Text (CC)
EOT	End of Transmission (CC)
ENQ	Enquiry (CC)
ACK	Acknowledge (CC)
BEL	Bell
BS	Backspace (FE)
HT	Horizontal Tabulation (FE)
LF	Line Feed (FE)
VT	Vertical Tabulation (FE)
FF	Form Feed (FE)
CR	Carriage Return (FE)
SO	Shift Out
SI	Shift In
DLE	Data Link Escape (CC)
DC1	Device Control 1
DC2	Device Control 2
DC3	Device Control 3
DC4	Device Control 4
NAK	Negative Acknowledge (CC)
SYN	Synchronous Idle (CC)
ETB	End of Transmission Block (CC)
CAN	Cancel
EM	End of Medium
SUB	Substitute
ESC	Escape
FS	File Separator (IS)
GS	Group Separator (IS)
RS	Record Separator (IS)
US	Unit Separator (IS)
DEL	Delete

(CC) Communication Control
(FE) Format Effector
(IS) Information Separator

Special Graphic Characters

SP	Space
!	Exclamation Point
|	Logical OR
"	Quotation Marks
#	Number Sign
$	Dollar Sign
%	Percent
&	Ampersand
'	Apostrophe
(	Opening Parenthesis
)	Closing Parenthesis
*	Asterisk
+	Plus
,	Comma
-	Hyphen (Minus)
.	Period (Decimal Point)
/	Slant
:	Colon
;	Semicolon
<	Less Than
=	Equals
>	Greater Than
?	Question Mark
@	Commercial At
[	Opening Bracket
\	Reverse Slant
]	Closing Bracket
^	Circumflex
¬	Logical NOT
_	Underline
`	Grave Accent
{	Opening Brace
¦	Vertical Line (This graphic is stylized to distinguish it from Logical OR)
}	Closing Brace
~	Tilde

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- glossaries
- nomographs
- charts
- product selection guides

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CDM

MINIGLOSSARY CAPACITORS

Anode: One of two plates or conductors. In polarized capacitors, the anode should be connected to the positive conductor in the circuit.

Capacitive Reactance: The opposition (in ohms) of capacitance to the flow of alternating current, equal to the reciprocal of the product of the angular frequency (2π times frequency in Hertz) of the current times the capacitance in farads.

Cathode: One of two plates or conductors. In electrostatic capacitors the cathode is metallic. In electrolytic capacitors the cathode is a liquid, gel or other conductive material which is in intimate contact with a metallic cathodic connection.

Dielectric Constant: The ratio of the capacitance of a capacitor with some material other than air between the capacitor plates to the capacitance of the same capacitor with air between the plates. For example, the dielectric constants of air, Teflon®, polystyrene and ruby mica are 1, 2.1, 2.6 and 5.4, respectively.

Electrolytic: A capacitor with one metallic conductor (generally the anode) and with a liquid or semiconductor cathode. Nonpolarized electrolytic capacitors generally have two equal anodes as well as the liquid cathode. These anodes operate alternately as anode and cathodic connection as alternating current is applied.

Electrostatic: One of two general classes of capacitors in which two or more discrete metallic conductors are present and separated by an insulating dielectric material. Examples include: mica, ceramic, film, and paper types.

Farad: The basic unit of measure in capacitors. A capacitor charged to one volt with a charge of one coulomb (one ampere flowing for one second) has a capacitance of one farad. Capacitors are generally rated at portions of a farad (microfarads or picofarads).

1 farad (F) = 1,000,000 microfarads (μF) 1 microfarad (μF) = 1,000,000 picofarads (pF)

Impedance: All capacitors exhibit impedance. It is a function of capacitor type and internal construction. This can be particularly important in certain applications such as filters for switching power supplies. Capacitors used in these applications often have special multiple tab construction to shorten current paths and to reduce internal resistance.

Leakage Current: Expressed as dcl for electrolytic capacitors, a measure of the intrinsic losses in a charged capacitor. Generally speaking, the lower the dcl, the higher quality the capacitor.

Power Factor: A measure of the overall efficiency of a capacitor. Power factor ratings take all internal losses into consideration in a complex formula. This parameter of certain capacitors is often very important in AC applications such as motor-start and/or motor-run capacitors

Rated Voltage: The rated working voltage of a capacitor. Generally expressed in DC Volts (Vdcw). This is the voltage at which a capacitor may be safely operated at 25°C continuously within its overall parameters.

Ripple Current: The total amount of alternating and direct current that may be applied to an electrolytic capacitor under stated conditions. In general, the higher the ripple current applied, the shorter the operating life of the capacitor will be. Application of significantly higher than rated ripple currents can shorten the capacitor life dramatically and may even cause catastrophic failure (explosion).

Surge Voltage: The momentary surge voltage which may be applied for a stated length of time without doing permanent damage to the unit.

Temperature: Capacitors are generally rated at 25°C at sea level under specific humidity conditions. Operating temperature ranges are also given, along with derating (reliability) curves for operation at temperatures other than 25°C.

Temperature Coefficient: Expressed as TC in ppm (parts per million) or in percent (%) from the norm of 25°C. This is seldom a straight line and may vary widely for certain types. Most capacitors have positive TC in that the capacitance increases as temperature increases. Some types, however, have negative TC in that the capacitance decreases as temperature increases.

Ceramic Capacitor Codes
(Capacitance Given In pF)

Color	Digit	Multiplier	Tolerance			Temperature Coefficient ppm°C	Significant Figure	Multiplier
			Class 1		Class 2			
			10pF or less	Over 10pF				
Black	0	1	±2.0pF	±20%	±20%	0	0.0	–1
Brown	1	10	±0.1pF	±1%		–33		–10
Red	2	100		±2%		–75	1.0	–100
Orange	3	1000		±3%		–150	1.5	–1000
Yellow	4	10000			+100% –0%	–220	2.0	–10000
Green	5		±0.5pF	±5%	±5%	–330	3.3	+1
Blue	6					–470	4.7	+10
Violet	7					–750	7.5	+100
Gray	8	0.01	±0.25pF		+80% –20%	+150 to –1500		+1000
White	9	0.1	±1.0pF	±10%	±10%	+100 to –750		+10000
Silver								
Gold								

91
92 Trademark and Logofinder Directories

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ABLECAST - Ablestik Laboratories
ABLEFILM - Ablestik Laboratories
ABLESTIK - Ablestik Laboratories
ABLETHERM - Ablestik Laboratories
ACCELEREX - Sel-Rex
ACCELEREX - Sundstrand Data Control
ACCELOGRAPH - Humphrey
ACCENTR - National Information Systems
ACCESS - W.L. Gore
ACCESSOR - Applied Controls
ACCUCARD - Emerson Computer Power
ACCUCHART - Gould
ACCU-COAT - Aremco Products
ACCU-CURVE - Ketema/Rodan
ACCU-CUT - Aremco Products
ACCUDATA - Metrum Information Storage
ACCUDEX - Aerotech
ACCUFLEX - Eagle Signal Controls:A Mark IV Inds.
ACCU GUARD - AVX Corporation
ACCUPOWER - Emerson Computer Power
ACCUREX - PMI Motion Technologies
ACCUSAVER - Emerson Computer Power
ACCU-STRATES - Accumet Engineering
ACCU-STRIP - Ideal Industries
ACCU TONE - Magnetic Technologies
ACCUTONE - Roanwell
ACCUTROL - Westinghouse Electric
ACE - Audre
ACOUSTAZIP - Zippertubing
ACRYLWELD - Hardman A Harcros Chemical Group
ACT - Actel Corporation
ACTION DIAGRAMMER - KnowledgeWare
ACTION LOGIC - Actel Corporation
ACTION PAK - Action Instruments
ACTION PIN - AMP
ACTIONPROBE - Actel Corporation
ACTIVATOR - Actel Corporation
ACTO - Systron-Donner Instrument
ACT SERIES - Monarch Instrument
ACU-PROBE - EDL
ACUSTEK - Lamb Electric
ACU-THERM ANALOG - EDL
ADAPT-A-BOARD - Emulation Technology
ADAPT-A-POD - Emulation Technology
ADAPT-A-SOCKET - Emulation Technology
ADAPT-A-SWITCH - Arrow Hart Components
ADD-A-PAK - International Rectifier
AD-MU-00 - Ad-Vance Magnetics
ADVANZ P20C - Advanz Technologies
AEC - Andon Elctrns.
AEROFOIL - Aerovox
AEROGLAS RM - Aluminum Filter
AEROGROUND - Tech Spray
AEROMET - Aerovox
AEROPAD - ARi Industries
AERORAD - Judd Wire
AEROSTOR - Aerovox
AEROVAR - Aerovox
AGASTAT - Amerace Corporation
AGASTAT - Buchanan
AGGREGOMETER - Chrono-log
AIMAX - TA Engineering
AIMAX-PLUS - TA Engineering
AIMSERT - Aimsco
AIR CELL - Eveready Battery
AIR-JET - FTS Systems
AIR MAZE - Heat System
AIRO - Electronic Tele-Communications
AIRPAX - Weschler Instruments
AIRPOWER - Avionic Instruments
AIRTRIM - Sprague-Goodman Elctrns.
AIRWATCH - Baker
AIS-PL/I - Applied Information Systems
AI90 FACTORY MAC - Automatix
AJAXOMATIC - Ajax Magnethermic
AJUSTO-SPEDE - Eaton Corporation
ALAUTRONEX - Sel-Rex
ALCOLITE - Augat Alcoswitch
ALERT - Beswick:Cooper U.K. Ltd.
ALFCO - Aluminum Filter
ALGCO - The Auburn Manufacturing
ALGOCLAD - Sel-Rex
ALLOY MONITOR - Sensor
ALLROS - Alpha Metals
ALL-4-ONE - Signal Transformer
ALPAC - Semtech
ALPHABON - Alpha Wire
ALPHA DISPLAYS - Spectrum
ALPHA GRID - BayStat
ALPHLOC - Alpha Wire
ALU-FLEX - The Auburn Manufacturing
ALUMALOY - Lab-Line Instruments
ALUMAPAK - Sprague Electric
ALUMINEX - CTS Corporation
A-LUM-O-AIRE - Carey Electronics Engineering
ALU-SOL - Multicore Solders
AMBITROL - Power Designs
AMBYX - Micron Technology
AMERI-STAT - Baxter-Industrial
AMHERST - Amherst International
AMLIT - Mechanical Products
AMMONIASTAT - Sierra Monitor
AMPACT - AMP
AMPAK - Pacer Industries
AMP-BARREL - AMP
AMP-BLADE - AMP
AMP-CLAMP - Simpson Electric
AMP EDGE - AMP
AMP-FIT - AMP
AMP-IN - AMP
AMPIP - AMP
AMPLASTIC - AMP
AMP-LEAF - AMP
AMPLI-BOND - AMP
AMPLICENTER - Harris
AMPLIFIER - Eveready Battery
AMPLIFLEX - AMP
AMPLIMATE - AMP
AMPLI-PRESS - AMP
AMPLISEAL - AMP
AMPLIVAR - AMP
AMPLIVERSAL - AMP
AMPLI-VOX - Perma Power Elctrns.
AMP-LOK - AMP
AMP-O-LECTRIC - AMP
AMP-O-MATIC - AMP
AMPOMATOR - AMP
AMPORTAPOWER - AMP
AMPOWER - AMP
AMP PANEL-PAK - AMP
AMP-REG - Computer Products
AMPSEAL - AMP
AMPSULATION - AMP
AMP-TAB - AMP
AMP-TAPEMATIC - AMP
AMP-TAPETRONIC - AMP
AMPTRAN - Amprobe Instrument
AMP-TRAP - Gould Shawmut
AMRON - Eldre Corporation
ANASTOR - ITW Paktron
ANDON - Andon Elctrns.
ANGLYZER - Waters Manufacturing
ANGSTOR - ITW Paktron
ANHYDROGUIDE - Fiberguide Industries
ANNEX - Xylogics
ANNEX II - Xylogics
ANNUBAR - Dieterich Standard
ANOMATIC - Anorad
ANSLEY - Thomas & Betts Corporation, Electronics
ANTARES - Coherent
ANTEX - Newman, M. M.
AOFR - AOFR
AP BONDEZE - Phelps Dodge Magnet Wire
APOLLO - IEE (Industrial Electronic Engineers)
APT - Adatek
AQUACORE - Alpha Metals
AQUA-SOL - Alpha Metals
AQUA-SURE - Alpha Metals
ARAX - Multicore Solders
ARC-QUENCH - Kaiser Systems
AREMCOBOND - Aremco Products
AREMCOLOX - Aremco Products
ARGUS - IEE (Industrial Electronic Engineers)
ARMO-DUR - Shure Brothers
ARMORED POLY- THERMALEZE 2000 - Phelps Dodge Magnet Wire
ARMORWEAVE - Antenna Specialists
ARNAVAR - Arnold Engineering
ARNON - Arnold Engineering
ASAP - Ziatech
ASCI - Advanced Systems Concepts

ASCO - Automatic Switch
ASPI - Adaptec
ASTRA - NEC Technologies, INc.
ASTRACIDE - Heat System
ASTRO BERLINER - Ercona
ASTRO FLEX - Astro Cable
ASTROFLO - Astro Dynamics
ASTRO-GRAPH - Astro-Med
ASTROLIGHT - ElectroPhysics
ASTRO-PAK - Astro Cable
ASTROPLATE - Amphenol RF Operations
ASTRO PLX/100 - Astrosystems
ASTROSET - Astrosystems
ATCOM 64 - Automatic Timing & Controls
ATEC - Acme Electric Corporation
ATHENA - Crane Electronics
ATMOSCOPE - Edsyn
ATO - Littelfuse
ATOM - Sprague Electric
ATOMSOLVE - Atomergic Chemetals
ATVISTA - Truevision
AUDICHRON - Electronic Tele-Communications
AUDIOLARM - Bell, Floyd
AUDITOR - Leybold Inficon
AUGTENNA - Teledyne Ryan Electronics
AURION-X - Sel-Rex
AUROBOND - Sel-Rex
AURORA - Data Translation
AUTHENTI-KEY - Racal-Guardata
AUTO-VAC - Edsyn
AUTOBALANCE - Ballantine Laboratories
AUTOCAL - Wavetek RF Products
AUTOFUSE - Littelfuse
AUTO-GAIN - ITHACO
AUTOJUMPER - Autosplice
AUTO-LINE - Dataprobe
AUTO LINEAR - Jan Hardware Mfg.
AUTOLUG - Autosplice
AUTOMAGNETIC - Dowty RFL Inds. /Instrumentation
AUTO-NET - Dataprobe
AUTOPIN - Autosplice
AUTO-PLEXOR - Automation Displays
AUTOPOLAR - Teledyne Ryan Electronics
AUTO-RANGER - Unholtz-Dickie
AUTO SCAN - Coherent
AUTOSCOPE - Telenex Corporation
AUTOSEIS - Kinemetrics/Systems
AUTOSMART - Graphics Microsystems
AUTO-SNAP - Automation Displays
AUTO STEP - Step Engineering
AUTOSWITCH - Bytex
AUTOTAB - Autosplice
AUTOTAK - Howell Instruments
AUTOTEMP - Howell Instruments
AUTOVISION - Automatix
AUTRONEX - Sel-Rex
AVANPAK - Avantek
AVI-LOK - Avibank Manufacturing
AX - Avanti Circuits
AXILOK - American Radionic
AX-PAK - ITW Paktron
AZURE II - Babcock Display Products
BABY BEAR - Divelbiss
BACK PACK - International Instrumentation
BAL-CON - EBY
BALLASTLESS - A.L.E. Sys.
BALLISTRAK - EG & G Flow Technology
BALL-LOK - Avibank Manufacturing
BAM - Berkeley Process Control
BANDOMATIC - Burndy Corporation
BANTAM - Burndy Corporation
BANTAMATE II - Burndy Corporation
BARATRON - MKS Instruments
BAR-CAP - Dielectric Labs.
BARGUARD - Control Module
BAR-LOK - Dennison Mfg.
BCAS - Endevco Corporation
BCI51 - Systronix
BEAMBUILDER - Sencore
BEAMSCAN - Photon
BEAR BONES - Divelbiss
BEAR PAW - Jobmaster
BECON - Teledyne Kinetics
BEE LINE - Hughes Aircraft
BELDFOIL - Cooper Industries/Belden
BELLING LEE - Ercona
BEL-RINGER - Bell, Floyd
BELT-LINE - U.S. Terminals
BEMCOIL - Bemco
BENCHMASTER - Tenney Engineering
BENDER - Fancort Industries
BEND/FLEX - Rogers
BERGCON - DuPont Connector Systems
BERGPIN - DuPont Connector Systems
BERGPOST - DuPont Connector Systems
BERGSTIK - DuPont Connector Systems
BERYLLIUM COPPER GASKETS - Tecknit (Eastern Facility)
BESPONDER - Vega Precision Labs.
BET - Motorola Semiconductor Prods.
BETA-CALC - Beta Review
BETACHIP - Betatherm
BETACURVE - Betatherm
BETAPURE - CUNO
BETA 58 - Shure Brothers
BICEMOS - Integrated Device Technology
BICROFLEX - Bicron Electronics
BICRONITE - Bicron Electronics
BIFIFO - Integrated Device Technology
BIG INCH - Haydon Switch & Instrument
BIMORPH - Morgan-Matroc
BINAVERTER - Metric Systems
BIO-COOL - FTS Systems
BIOGARD - Baker
BI-OPTIC - Transtechnology Electronics
BIOTRONETTE - Lab-Line Instruments
BIOX - IVEK
BI-PRO - Transtechnology Electronics
BI-SHELL - Transtechnology Electronics
BI-SHIELD - Transtechnology Electronics
BISIC - Trio-Tech International
BISYN - Unitrode
BIT-DRIVER - S.I. Tech
BIT GUARD - AVX Corporation
BIT LITE - Cooper Industries/Belden
BI-TRIM - American Technical Ceramics Corporation
BLACK MAGIC - Cambridge Electronics Laboratories
BLAC-STAT - Maine Poly
BLAK-RAY - UVP
BLENDMASTER - Hull
BLEND-OHM - Methode Electronics
BLOCK PAC - Powercube
BLO-HARD - Heat System
BLOW-GLOW - FIC
BLU-CHIP - RCD Components
BLUE MAX - International Instrumentation
BLUE BIZ - CTSI International
BLUE CHIP - CTSI International
BLUE CHIP - Philips Components Discrete Products
BLUE CHIP - Philips Components Discrete Products
BLUE LYNX - Techland BLUELYNX
BLUE MAX - CTSI International
BLUE MIKE - Aerovox
BLUE PRINT - CTSI International
BLUE SHOWER - Tech Spray
BLUE STREAK - CTSI International
BLUE STUFF - Tech Spray
BLUE WIZ - CTSI International
BOARD MAKER - Instant Board Circuits Grp.
BOARD PLATER - Instant Board Circuits Grp.
BOMB-TAIL - AMP
BONARC - Hobart Tafa Technologies
BONDALUM - Craig Systems
BONDEZE M - Phelps Dodge Magnet Wire
BOOK OF BOOKS - Omega Engineering
BORD PAK - Buckeye Stamping
BOSS BEAR - Divelbiss
BOSTFLEX - BIW Cable Systems
BOSTGARD - BIW Cable Systems
BOSTRAD - BIW Cable Systems
BOSUN - General Instrument
BOX-MOUNT - Hollingsead International
BRADYCODE - Brady, W. H.
BRAKE-PAK - Ambi-Tech Inds.
BREVEL - Howard Industries
BRIBBON - Brim Electronics
BRIDGESENSOR - Calex Mfg.
BRIDGE SENTINEL - Vibra-Metrics
BRIFLON - Brim Electronics
BRIMCROM - Brim Electronics
BRIMFLEX - Brim Electronics
BRIMFLYX - Brim Electronics
BRIMGARD - Brim Electronics
BRIMITY - Brim Electronics
BRIMLITE - Brim Electronics
BRIMLON - Brim Electronics
BRIMPRENE - Brim Electronics
BRITE-EYE - Shelly Associates
BRONCO - Teledyne Thermatics
BROWN DEVIL - Ohmite Manufacturing
BRYON - Brim Electronics
BSA - In.Circuit Test
BUBBL-BOARD - Bubbl-Tec
BUBBL-MACHINE - Bubbl-Tec
BUBBL-PAC - Bubbl-Tec
BUCHANAN - Amerace Corporation
BUCHANAN - Buchanan
BUFFALO - Motorola Semiconductor Prods.
BUG BOX - International Instrumentation
BUG CAGE - International Instrumentation
BUG CATCHER - Emulation Technology
BUG TAG - International Instrumentation
BUG TRAY - International Instrumentation
BULLET-PROOF - Motorola Semiconductor Prods.
BULLS-EYE - Hughes Aircraft
BURCOM - Applied Information Systems
BUSINESSMATE - NEC Technologies, INc.
BUS TAP - Elcon Products International
BUTTERFLY - ITW Switches
BUTTONEER - Dennison Mfg.
CABELABEL - Datak
CABLE-LINE - Perma Power Elctrns.
CABLEMASTER - Chatsworth Data Corporation
CACHERAM - Integrated Device Technology
CACHETAPE - Cipher Data Products
CADAPPLE - Versacad Computervision Personal CAD/CAM
CADDY-PACK TRANSPORTERS - ADE
CADNICA - Sanyo Energy
CADON - Monsanto
CAF - In.Circuit Test
CAGECALC MODULES - Gage Applied Sciences
CAGE KEEPER - International Instrumentation
CALCART - Ballantine Laboratories
CALIFLOW - MKS Instruments
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CALTRAK - EG & G Flow Technology
CANCEL CUSHIONING MATERIAL - ADE
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CAPAR - MP/Capar
CAP BUS - Eldre Corporation
CAPLET - Augat/Pylon
CAP-RANGER - Ohmite Manufacturing
CAPSTICK - ITW Paktron
CAPSUL - LocTite Luminescent Sys.
CAPSYLITE - Sylvania Lighting -U.S.
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CARDGARD - Airpax-Cambridge
CARD-O-PULL - Bivar
C*ARDS - Systems Data
CAREFREE - Eagle-Picher
CARFIL - Elastomeric Technologies
CARFLEX - Carlon
CARI-LOC - Andon Elctrns.
CASE MATE - Diversified Case
CASP - Christie Electric
CATHORAD - Judd Wire
CAVITENNA - Amplifier Research
CB-MATE - Bird Electronic
C-BOX - IET Labs
CC-TRON - Bussmann:Cooper Industries
CC VIEW - Meret Optical Communications
CEBRA 286 - Colorgraphic Communications
CECO - Magnetic Component Engineering
CE-CON - EBY
CELLECTION - Electrochem Industries
CELLULINE - Cooper Industries/Belden
CELSIDOT - Solder Absorbing Technology (SAT)
CELSIMETER - Solder Absorbing Technology (SAT)
CEMDAS - Enviroplan
CEMEX - Enviroplan
CEMOP - Enviroplan
CEMOX2 - Enviroplan
CENTAURI - International Machine & Tool
CENTIGRID - Teledyne Relays
CENTI-LOC - ITT Cannon
CENTREX - Monsanto
CEN-TRI-CORE - Alpha Metals
CENTRISAFE - Trio-Tech International
CENTRY - Leeds & Northrup, General Signal
CENTUM - Johnson Yokogawa
CENTURION - Lutron Electronics
CENTURY - Vibra-Metrics
CERACIRCUIT - Sprague Electric
CERADOT - CTS Corporation
CERAFIL - Murata Manufacturing , Ltd.
CERALAM - AVX Corporation
CERALOCK - Murata Manufacturing , Ltd.
CERAMABOND - Aremco Products
CERAMAGNET - Stackpole, Magnet
CERAMIPEC - Murata Manufacturing , Ltd.
CERAMIPHONE - Murata Manufacturing , Ltd.
CERAMITONE - Murata Manufacturing , Ltd.
CERAMO - Thermo Electric
CERASEAL - AVX Corporation
CERASTAT - Murata Manufacturing , Ltd.
CERATRIM - CTS Corporation
CERA-TRIM - Johanson Manufacturing Corporation
CERATRON - Murata Manufacturing , Ltd.
C.E RIVETS - Stimpson
CERMAX - ILC Technology
CEROL - AVX Corporation
CERTACELL - Koep Precision Standards
CERTAVOLT - Koep Precision Standards
CER-T-FIED - Berg, W. M.
CERTI-CRIMP - AMP
CERTI-LOK - AMP
CERTI-SEAL - AMP
CERTO - Heidenhain
CETRON - Richardson Electronics, Ltd.
C-GRID - MOLEX
C-GRID SL - MOLEX
CHALLENGER - Equipto Electronics
CHAMP - AMP
CHAMPION SERIES - Analogic
CHAMP-LOK - AMP
CHAMPOMATIC - AMP
CHAN-L-WIRE - The Wiremold
CHANNELIZER - Sencore
CHANNEL AXCESS - Andrew/KMW Systems

CHANNELTRON - Galileo Electro-Optics
CHARABAND - Dataproducts Corporation
CHARGE-GUARD - 3M Electrical Specialities
CHARGE-MASTER - Simco
CHART-TEMP - Omega Engineering
CHASE-FOSTER - Flexible Technologies
CHASSIS-TRAK - General Devices
CHASSIS-TRAN - EWC
CHECK-LITE - Adalet-PLM/ of Scott & Fetzer
CHEMOLY - Chemtronics
CHEM-O-SOL - Whittaker
CHEM-O-THANE - Whittaker
CHEMTRON - Graphics Microsystems
CHEM-WIK - Chemtronics
CHIPAK - Burndy Corporation
CHO-BOND - Chomerics, :W.R. Grace
CHO-CELL - Chomerics, :W.R. Grace
CHO-DROP - Chomerics, :W.R. Grace
CHO-FLEX - Chomerics, :W.R. Grace
CHO-FOIL - Chomerics, :W.R. Grace
CHO-JAC - Chomerics, :W.R. Grace
CHO-MASK - Chomerics, :W.R. Grace
CHO-NECTOR - Chomerics, :W.R. Grace
CHO-SEAL - Chomerics, :W.R. Grace
CHO-SHIELD - Chomerics, :W.R. Grace
CHO-SHRINK - Chomerics, :W.R. Grace
CHO-SIL - Chomerics, :W.R. Grace
CHO-SORB - Chomerics, :W.R. Grace
CHO-STRAP - Chomerics, :W.R. Grace
CHO-THERM - Chomerics, :W.R. Grace
CHROMA-LINE - Simpson Electric
CHROMATO-VUE - UVP
CHROME A - Video Display
CHRONO-LUME - Chrono-log
CHRONO-PAR - Chrono-log
CHRONOTROL - Barber-Colman
CIC - CIC Components Inds., Ltd.
CIFLEX - CICOIL CORP.
CIMPLE - Syscon Intl.
CINCH - Hancock Electronics
CINCHNET - Hancock Electronics
CINCH PAC - Hancock Electronics
CIRCBORD - Vector Electronic
CIRC-O-GIDE - Bivar
CIRCUIT CEEZ - Electra-ssembly
CIRCUITIP - AMP
CIRCUITMATE - Beckman Industrial
CIRCUITRIM - Vernitron
CIRCUIT SAFE - Carlon
CIRKITBLOCK - Powercube
CLASPCON - MOLEX
CLASSETTE - Audiotronics
CLASSIC - Eveready Battery
CLASSY CHASSIS - Gimix
CLASS 10 - General Chemical Corporation
CLEANLINE - Controlled Environmental Equipment
CLEAN-O-POINT - ELVO: of Zumbach Electronics Corporation
CLEAN PAL - Clean Room Prods.
CLEAN SOUND - Recoton
CLEAR-ALL - Nu-Concept Systems
CLEARFLEX - Carol Cable
CLEARPASS - Sprague Electric
CLEERTREND - Leeds & Northrup, General Signal
CLICK TITE - Ostby-Barton Test Probes
CLINCHER II SNAP JACKETS - ADE
CLIP-AC - Adtech Power
CLIPLITE - Visual Communications
CLIPPER - Intergraph
CLIPPER GRAPHICS - Pixelworks
CLIPSLEEVES - Brady, W. H.
C-LITES - Genisco Technology
CLIX - Intergraph
CLOAKED MEMORY - Benchmarq Microelectronics
CLOVER - Hollingsead International
CLUZ - FIC
C-MART 1000 - Verdure Industries
COAXICLAMP - AMP
COAXICON - AMP
COAXITUBE - Precision Tube
COAXWITCH - Bird Electronic
CODEAMP - Codenoll Technology
CODELED - Codenoll Technology
CODELINK - Codenoll Technology
CODEMAN - Codenoll Technology
CODESTAR - Codenoll Technology
CODE TAP - Applied Microsystems
COGNITO - Ontrack Data Recovery
COHRLASTIC - CHR
COILBAND - Fibertek
COIL-FIX - Tra-Con
COLEFLEX - Cole-Flex Corporation
COLE-PAK - Cole-Flex Corporation
COLOR * CAL - GM Nameplate
COLOR CAPTURE - Data Translation
COLOR KIT - Data Translation
COLORMASTER - Lance Industries
COLOROPTICS - MetriCor
COLORSCAN - Datamedia Corporation
COLUMBIA BRAND - Mutual Industries
COMBAT BORON NITRIDE - The Carborundum
COMBI-TERM - Arrow Hart Components
COMBO-RAK - Fancort Industries
COMBO-SLIDE - Fancort Industries
COMBO-STRIP - Chomerics, :W.R. Grace
COMCAB - COMCAB
COMFORM I - Pace
COMLINE - Piezo Technology
COMMUNITEL - Bogen Communications
COMPAC - Semtech
COMPACT SCOUT - Compact Software
COMPARASCOPE - Vision Engineering
COMPIX 6000 - Compix
COMPLIMITER - Spectra Sonics
COMPLOT - Houston Instrument
COM-PREP 838 - Pressure Controls
COMPROTENN - Tenney Engineering
COMPUCOIL - Astro Cable
COMPUCOM - Paso Sound Products
COMPUGEN 840 - Gage Applied Sciences
COMPULIFT - Litton Potentiometer
COMPULYTIC - Sprague Electric
COMPUSCOPE - Gage Applied Sciences
COMPUSEIS - Kinemetrics/Systems
COMPUTACH - Sensor
COMPUTAMITE - Cormell-Dubilier Elctrns. (Intl. Sls., Distbn. Warehouse)
COMPUTERBUS - Burndy Corporation
COMPUTERSCOPE - R. C. Electronics
COMPUTEST - Ballantine Laboratories
COMTRAK - EG & G Flow Technology
CONACURE - Conap
CONAPOXY - Conap
CONATHANE - Conap
CONCENTRIKIT - CTS Corporation
CONCESSION/MASTER - Di/An Controls
CONCIERGE - Electronic Tele-Communications
CONCO-FOAM - Consolidated Electronic Wire & Cable
CODENET - Codenoll Technology
CONDUCTA-COTE - Thermalloy
CONDUCTO-STAT - Maine Poly
CONDUCTROX - Ferro Corporation
CONDUCTWEEZ - Pace
CO-NETIC - Magnetic Shield Corporation
CONFIDENCER MICROPHONE - Roanwell
CONFOR - E-A-R Specialty Composites
CONFORM-A-SLEEVE - Markel
CONHEX - ITT Sealectro
CONMAX - Tecknit (Eastern Facility)
CONNECT - Monolithic Sys.
CON-O-CLAD - Conax Buffalo Corporation
CONSIL - Tecknit (Eastern Facility)
CONSOCARD - Consolink
CONSTAC - Lorain Products
CONTACT-SERT - Hybricon Corporation
CONTINUAC - Lortec Power Systems
CONTROFLEX - Tapeswitch of America
CONTROFLUXER - Adtech Power
CONVERTEMP - EDL
CONVEYOR-CURE - American Ultraviolet
CONXRITE - Visual Communications
COOLANOL - Monsanto
COOL GLO - Bishop Graphics
COPALUM - AMP
COPLAMOS - Standard Microsystems
COPPERTHERM - Flexible Technologies
COPYCORDER - Hecon
COPYGARD - Sutton Designs
CORELOCKED JACKET - Optical Cable
CORE MODULE - Ampro Computers
CORFLEX - Canada Wire and Cable Limited
CORGUIDE - Corning
CORNER-MATE - Hardigg Inds.
CORNING COUPLERS - Corning
CORRECT-A-CHIP - Aries Electronics
CORRIB - Ohmite Manufacturing
COUNTOMATIC - Electromatic Controls
COUNTROLLER - Veeder-Root
COUTANT - Coutant Lambda Ltd.
COVER CRAFT - Amherst International
COVEROHM - Ferro Corporation
COVERT - Cooper Tools
C-PROBE - International Instrumentation
CRADELAIR SUSPENSION PACK - ADE
CRANEGARD - Dillon
CREDENZA - Lutron Electronics
CRICKET - Sencore
CRIMP-ACON - Methode Electronics
CRITERIA - Reliability
CRITERIUM E1.0 - Sygenex
CR MAGNETICS - CR Magnetics, (Formerly Current Ring ,)
CROMA - Advance Wire & Cable
CROMIT - ULVAC North America Corporation
CROMIX - Dynatech Computer
CROSSBOW - Onset Computer
CROSSOVER - Middleberg Corporation/Middco Connectors
CROWN - Elcon Products International
CRT-PAC - Semtech
CRYOTERM - Maury Microwave
CRYPTO SERVER - Racal-Guardata
CRYTALBOND - Aremco Products
CRYSTAL CLEAR MONITOR - Interaction Systems
CRYSTAL CLEAR TOUCH SCREEN - Interaction Systems
CR100 - Baxter-Industrial
C-THRU - American Arium
CUBATH - Sel-Rex
CUBELITE - Visual Communications
CUPAC - Semtech
CURASTAT - Herbert Prods.
CURCUIT FIX - Datak
CURRENT GUN - Bell, F. W.
CURRENT RING - CR Magnetics, (Formerly Current Ring ,)
CURVALUME - Sylvania Lighting -U.S.
CUSR - Tri-Mag
CUTBEND - ELVO: of Zumbach Electronics Corporation
CYCLEASE - Lilly-Ram Industries
CYCL-FLEX - Eagle Signal Controls:A Mark IV Inds.
CYCLON - Gates Energy Products
CYCLOPS - Land Infrared
CYCOM MCG FIBER - American Cyanamid
CYLINDICATOR - Namco Controls
C2R - General Semiconductor Ind.
DACPORT - Analog Devices
DAFLEX - Daburn Electronics & Cable
DAFLON - Daburn Electronics & Cable
DAG - Acheson Colloids
DAGE - Dage-MTI
DAGLAS - Phelps Dodge Magnet Wire
DAKA WARE - Davies, Harry, Molding
DALITE - Daburn Electronics & Cable
DALSA INC. - Dalsa
DANYON - Daburn Electronics & Cable
DAP - Microstar Laboratories
DAPEX - Rogers
DAPL - Microstar Laboratories
DAPRENE - Daburn Electronics & Cable
DAPVIEW - Microstar Laboratories
DART - Dieterich Standard
DA SERIES - Bomem
DASH-ABEL - Data I/O
DASH II - Astro-Med
DATA BIT 32 - Data Environment
DATABON - Canada Wire and Cable Limited
DATA-BOY - Mimic
DATABS - Brady, W. H.
DATACRYPTOR - Racal-Milgo
DATA DESIGNER - KnowledgeWare
DATAGARD - SL Waber
DATAGUARD - Control Module
DATAKOAT - Datak
DATALENE - Cooper Industries/Belden
DATALITE - Dialight Corporation
DATA-MATE - Weed Instrument
DATA MITE - Thermo Electric
DATANETWORK - Honeywell Information Systems
DATA-PATCH - Telenex Corporation
DATA PLOT - B-G Instruments
DATA PORTER - ADE
DATARIBBON - Dataproducts Corporation
DATASCOPE - Telenex Corporation
DATASEEKER - Dataprobe
DATASEIS - Kinemetrics/Systems
DATASWITCH - Wheelock
DATATAB - ALTEK Corporation
DATATAKER - ZI-TECH Instrument
DATATALK - Labtronics
DATA TORK - GSE
DATATRANS - Canada Wire and Cable Limited
DATA TWIST - Cooper Industries/Belden
DATA VIEWS - V.I. Corporation
DATAVISION - LTX Corporation
DATAWATCH - Metrix Instrument
DATRILINK - Datricon
DATUM - Ballco
DAYMAX - ILC Technology
DAYSTAR - IEE (Industrial Electronic Engineers)
DAZORB - General Semiconductor Ind.
DBUG 88 - Ziatech
D.C FINDER - MBD International
DEAP - Fujitsu Microelectronics
DECAP - Dynaloy
DECATRAN - Amprobe Instrument
DECCO - Detroit Coil
DECI-CENTER - Aries Electronics
DECI-FLEX - Aries Electronics
DEC-RANGER - Ohmite Manufacturing
DEEP TRACE - American Arium
DEFLECTRON - CELCO
DEKABOX - Electro Scientific Industries, (ESI)
DEKASTAT - Electro Scientific Industries, (ESI)
DEKAVIDER - Electro Scientific Industries, (ESI)
DEKTAK - Sloan Technology Corporation
DELTAFILM - Sprague Electric
DELTA SHEAR - Bruel & Kjaer Instrs.
DENFLEX - Dennis Chemical
DENSE-STACK - Densepac Microsystems
DENSITROL - Princo Instruments
DEPEND-A-BOND - Alpha Metals
DEPENDAC - Lortec Power Systems
DESIGNER'S - Motorola Semiconductor Prods.
DETECTA-DUCT - Standard Wire & Cable
DETECTAVERSE - Magnum Opus Custom Elctrn. Engrg.
DI - Ungar
DIAL-A-GAIN - Unholtz-Dickie

DIAL-A-LIMIT - Astrosystems
DIAL-A-POWER - Pulizzi Engineering
DIAL-A-SPEED - Plant Specialties
DIAL-A-SWITCH - Pulizzi Engineering
DIAL-A-TEMP - Hexacon Electric
DIAMFILE - Jonard Industries
DIAMOND GRIP - AMP
DIAZO-JET - Teledyne Rotolite
DI-CAP - Dielectric Labs.
DIELECTRITE - Industrial Dielectrics
DIE-SPY - Dolan-Jenner Inds.
DIFILM - Sprague Electric
DIGI-FILTER - Ballco
DIGI-CAL - Analogic
DIGICATOR - Omega Engineering
DIGICEPT - Electronic Tele-Communications
DIGICHEK - Applied Controls
DIGICOUNT - BEI Motion Systems
DIGIDECADE - Digitran
DIGIDIAL - Beckman Industrial
DIGIFEEDER - IVEK
DIGIFROST - EliWell-USA Ltd.
DIGI-KLIPS - Components
DIGILEVER - Digitran
DIGILINE - BEI Motion Systems
DIGI-LITES - Lumex Opto/Components
DIGIMATIC - Amprobe Instrument
DIGIMITE - Thermo Electric
DIGI-PLATE - Kraft Dynatronix
DIGIPOT - Digitran
DIGIPROTECT - ING. F. P. KOGL
DIGISCALE - BEI Motion Systems
DIGISCAN - ING. F. P. KOGL
DIGISEC - BEI Motion Systems
DIGISEIS - Kinemetrics/Systems
DIGI-SHAFT - Computer Conversions
DIGI-SNAP - Sperry, A. W. Instruments
DIGISPENSE - IVEK
DIGI-STRAIN - Helm Instrument
DIGISTROBE - Ametek
DIGISWITCH - Digitran
DIGITENN - Tenney Engineering
DIGITRAK - EDO /Electro-Acoustic
DIGITRONIC - Despatch Industries
DIGIVIDER - Digitran
DILPAK - Burndy Corporation
DI-MIC - Dielectric Labs.
DIMMIC - Motorola Semiconductor Prods.
DIM-N-GLO - Lutron Electronics
DIODE-LITE - Dialight Corporation
DIP-A-DIP - Micro Electronic Systems
DIPATCH - Aries Electronics
DIP BITE - Minelco - A Talley Ind.
DIP GRIP - Pomona Electronics
DIP GUARD - AVX Corporation
DIPLOMATE - AMP
DIPMATE - Burndy Corporation
DIP-PAK - Fidelity Chemical Products
DIP-RITE - Exselect Engineering Ltd.
DIPSERT - Mann, Henry
DIRECTRON - Sanford-Miller
DIRECTWELD - ITT Higbie Baylock
DISCAN - Antenna Specialists
DISCO - Panduit
DISK MANAGER - Ontrack Data Recovery
DISS-O-PAD - Bivar
DISS-STAT - In.Circuit Test
DISTEC - Helm Instrument
DITRAN - EMCA-REMEX Products
DITRONIC - RAYOVAC Corporation
DIVERSIPHASE - Shure Brothers
DIVIDOHM - Ohmite Manufacturing
DIVIMASTER - International Machine & Tool
DIVITRON - International Machine & Tool
DOCUFAX - Alden Electronics
DOCUTEMP - Metrosonics
DOLFLEX - Dolph, John C.
DOORMAN - Speco
DORIS - Sprague Electric
DOT-X - Dotronix
DOUBL-GARD - Southco
DOVTREX - Gandalf Data
DP1000 - Labtronics
DRIFT-LOCK FLUXMETER - Walker Scientific
DRILLDIRECTOR - Humphrey
DROSS-X - Multicore Solders
DRUMSTICK - Gems Sensors
DRY-BLEND NCG FIBER - American Cyanamid
DRYFIT - East Penn Manufacturing
D-SODR SYSTEMS - Pace
DSPATCH - Analog Devices
DT/IDL - Data Translation
D-TROL - Electrol
DUALATCH - AMP
DUAL FLEX - OakGrigsby
DUAL-SHORE - ITT Cannon
DUAL-SHRINK - Zeus Indl. Prods.
DUMMY COMPONENTS - Topline Components
DUNCO - Struthers-Dunn, and Hi-G
DUODIAL - Beckman Industrial
DUOFOIL - Cooper Industries/Belden
DUO-SEEL - Kemlon Products & Development
DUOSIL - Tecknit (Eastern Facility)
DUOTRONIC - Edwards
DUO-TYNE - AMP
DUO-VAC - Lab-Line Instruments
DUOWATT - Motorola Semiconductor Prods.
DUPLINE - Electromatic Controls
DURACOLOR - Carol Cable
DURA-DRY - FTS Systems
DURA-FLEX - Antenna Specialists
DURA FLO - Kurz Instruments
DURAFOAM - Carol Cable
DURALCO - Cotronics
DURANT - Eaton Corp
DURAPOT - Astrosystems
DURATHERM - BIW Cable Systems
DUREX - PMI Motion Technologies
DUROTHERM - Hexacon Electric
DUST MAGNET - Clean Room Prods.
DV-DRAW - V.I. Corporation
DV-TOOLS - V.I. Corporation
DYAD - C.P. Clare
DYKANOL - Cornell-Dubilier Elctrns. (Intl. Sls., Distbn. Warehouse)
DYMAC - SKF Condition Monitoring
DYNAC - Dynisco
DYNACEL - Exide Corporation
DYNACLAD - Exide Corporation
DYNA-CORE - Alpha Metals
DYNA-CRIMP - AMP
DYNADISC - Portescap U.S.
DYNADRIVE - Portescap U.S.
DYNA-JET - B & K Precision
DYNALOAD - Transistor Devices
DYNAMASTER - Bristol Babcock
DYNAMATIC - Eaton Corporation
DYNA-MITE - LH Research
DYN/AMP - Halmar Electronics
DYNA-PEAK - B & K Precision
DYNAPHASE - Stanton Magnetics
DYNAPOUR - Ajax Magnethermic
DYNASOAP - Heat System
DYNASOLVE - Dynaloy
DYNA SOURCE - EG&G Geometrics
DYNASTY - Johnson Controls Battery Group
DYNA-SWITCH - Dillon
DYNATACH - Electric Tachometer
DYNATALK - Dynatech Computer Power
DYNA-TEMP - EDL
DYNATIME - Electrodynamics
DYNATRAC - ITHACO
DYNATROL - Automation Prods.
DYNATRON - International Machine & Tool
DYNAYOKE - CELCO
DYNETIC - Shure Brothers
EAGLE EYE - Dieterich Standard
EARSPLITTER - Kolin Inds.
EASI-DISK - Analog & Digital Peripherals, (ADPI)
EASYENTRY - Applied Information Systems
EASYMATCH - Teleplex
EASY-METER - Sperry, A. W. Instruments
EASY PEEL - Brand-Rex
EASYPOXY - Conap
EASY START - Westinghouse Electric
EASY START JR - Westinghouse Electric
EASY-VIEW - Telenex Corporation
EB-CON - EBY
E-BUS - E-Systems
ECCI - Electronic Counters & Controls
ECHO-LOCK - Marsh-McBirney
ECHOTEL - Magnetrol International
ECLIPSE - Materials Research Corporation
ECLYPSE - Eclypse International
ECOALUBE - E/M Corporation
ECONO-BEAM - Banner Engineering
ECONOCAP - Motorola Semiconductor Prods.
ECONOCODER - Astrosystems
ECONODIN - Teka Interconnection Systems
ECONOFIRE - EMCA-REMEX Products
ECON-O-GIDE - Bivar
ECONO-HEAT - Aremco Products
ECONO JET - Teledyne Rotolite
ECONO-LAP - Accumet Engineering
ECONOMATE - AMP
ECONO-POLISH - Accumet Engineering
ECONO ZIP - 3M-Electronic Products
EDGEGARD HOOD - Baker
EDGE-ON - Burndy Corporation
EDGE-TITE - Burndy Corporation
EDGEWEDGE - Lamptronix , Ltd.
EE DESIGNER - Visionics Corporation
E-FETS - Motorola Semiconductor Prods.
EIN SIGHT - Infometrix
EISABUS - Burndy Corporation
EJECT-A-DIP - Aries Electronics
EKLP - High Technology Sensors
ELASTO-FLEX II - Craig Systems
ELASTOFOAM - Tecknit (Eastern Facility)
ELASTOMET - Tecknit (Eastern Facility)
ELECPAC - Wilbrecht Electronics
ELECTOTUNE - Paso Sound Products
ELECTRA - IEE (Industrial Electronic Engineers)
ELECTRICORD - Pacific Electricord
ELECTRIX - Patton-MacGuyer
ELECTRLOY - Molecu-Wire
ELECTROCOM - Electrocom Industries
ELECTRODAG - Acheson Colloids
ELECTROLAB - LJ Technical Systems
ELECTROLERT - Leeds & Northrup, General Signal
ELECTROMATIC - C.G. Instruments
ELECTROMAX - Leeds & Northrup, General Signal
ELECTRO MAZE - Electro Maze Air Filters
ELECTRO-PAC - Instrumentation & Control Sys.
ELECTRO-PROBE - Sperry, A. W. Instruments
ELECTRO-TAP - AMP
ELECTRO-WASH - Chemtronics
ELINA - Indek Corporation
ELINCO - Electric Indicator
ELIX - Monsanto
ELNIKORD - IPM
ELPH - Thermo Electric
ELTRON - International Machine & Tool
ELVOX - Paso Sound Products
EMIFIL - Murata Manufacturing , Ltd.
EMI-X - ICI Advanced Materials
EMPIRE - Video Display
EMRALON - Acheson Colloids
EMU - Benchmarq Microelectronics
EMULYZER - HILEVEL Technology
ENA - BayStat
ENCLOZ - Fastex
ENDSULATOR - Unadilla Antenna Mfg.
ENDUR - Rogers
ENERCON - Amerace Corporation
ENERGEX - Canada Wire and Cable Limited
ENERGIZED - Alpha Metals
ENERGIZER - Eveready Battery
ENERGY-MISER - Kalglo Elctrns.
ENERGY-SAVER - Westinghouse Electric
ENERSCAN - Despatch Industries
ENGEL - Micro Mo Electronics
ENTITY RECOGNITION - Audre
ENVEX - Rogers
ENVIRONMENTAL CHAMBER SYSTEM CONTROLLER - JC Systems
ENVIRONETTE - Lab-Line Instruments
ENVIRONOL - Aerovox
ENVIROSTAT - Simco
ENVIRO-SWITCH - Giannini Institute
ENVISION - LTX Corporation
E-PAC - Instrumentation & Control Sys.
EPIBASE - Motorola Semiconductor Prods.
EPICAP - Motorola Semiconductor Prods.
EPION - Solid State Devices
EPITRAN - Solid State Devices
EPLATRONICS - Epsilon-Lambda Elctrns.
EPOCAP - Hardman A Harcros Chemical Group
EPOCH - Multi-Amp
EPOCRETE - Hardman A Harcros Chemical Group
EPO-TEK - Epoxy Technology
EPOWELD - Hardman A Harcros Chemical Group
EPOXYCAST - ISOREG
EPSON - Epson America, /OEM
EPTAK - Eagle Signal Controls:A Mark IV Inds.
E-QUALIDYNE - Shure Brothers
EQUITY - EG & G Flow Technology
ERDAC - Macrodyne
ERGO KEY - Advanced Input Devices
ERSA - Caig Labs.
ESCAP - Portescap U.S.
ESICO - ESICO/TRITON
ESSEX - United Technologies Control Systems
ET & T - ET&T Corporation
ETATECH - Adtech Power
ETERNACELL MDX - Power Conversion
EVA - Kurz Instruments
EVERFAST - Ambroid
EVERLASE - Coherent General
EVERLUBE - E/M Corporation
EVERMATIC - Coherent
EVERMIX - Coherent
EVERPULSE - Coherent General
EVERSCRIBE - Coherent
EVERSHIELD - E/M Corporation
EVER SLIDE - Finishers
EVERSTRIP - Coherent
EVERTRIM - Coherent
EXAKTA - Ercona
EXAR - Champlain Cable
EXCALIBER - Sinclair Radio Laboratories Ltd.
EXCALIBUR - Illinois Lock
EXCALIBUR - Racal-Milgo
EXCEL - Honeywell
EXCELIX - Excel Technology Intl.
EXMOS - Powerex
E.X.P. - Zytron
EX-STATIC - In.Circuit Test
EXTRALITE CASES - Diversified Case
EXTRALYTIC - Sprague Electric
EXTRUSOL - Multicore Solders
EYRING - Eyring
E-Z CIRCUIT - Bishop Graphics
EZ-CONTROL - M-Tek
E-Z COUNT - EDL
EZE-IMAGE - Fitchburg Coated Products

E-Z-ENTRY - Berg, W. M.
EZE-STIK - Fitchburg Coated Products
E-Z GROUND - Eagle Electric Mfg.
EZ INSERTA - Garry Electronics an LPL
E-Z-JECT - Scanbe
EZ-NET - LTX Corporation
EZ-PRO - American Arium
E-Z PROBE - EDL
E-Z-READER - PERCON
EZSTEP - Step Engineering
E-Z-TRIM - Bourns
E-Z WIRE - Eagle Electric Mfg.
FAC PAC - Datricon
FAIRLOC - Sterling Instruments
FALLBACKER - Dataprobe
FALT TRAP - Gould Shawmut
FANDIAL - Lutron Electronics
FAN PAK - Unitrack Industries
FAS'N-IT - Ambroid
FASTAIRE - Humphrey
FAST CHARGE - Gates Energy Products
FAST CLIP - Hardigg Inds.
FASTEMP - Amprobe Instrument
FAST FIT - Cambridge Products
FASTIN-FASTON - AMP
FASTOCK - Analog Devices
FASTON - AMP
FASTPAK - Teccor Electronics
FASTRACK - Harris Semiconductor
FASTRAK - Gandalf Data
FAST TRAC - JC Systems
FASTTRAC - JC Systems
FAST TRACK - Ball Corporation
FAULHABER - Micro Mo Electronics
FAULTFINDER - Wiltron
FAXGARD - Sutton Designs
FAX-LINE - Perma Power Elctrns.
FAXMATE - Alden Electronics
FEME - C.G. Instruments
FENICULOY - Molecu-Wire
FERRETRAC - Ferretec
FERREX - ACD-Elcor Products
FERRINOX - Thomson Passive Components
FERROSORB - Microwave Filter
FERROTITE - Murata Manufacturing , Ltd.
FERRUPS - Best Power Technology
FETMOD - Powerex
FIBERFLEX - CICOIL CORP.
FIBERLAB - Math
FIBERLEN - Scientific Technologies
FIBERLINK - Math
FIBER-LITE - Dolan-Jenner Inds.
FIBER MASTER - L & L Special Furnace
FIBER SITE - Gems Sensors
FIBERVISION - Math
FIBER-VUE - Cambridge Instruments
FIBREYE - Galileo Electro-Optics
FIELD COMMANDER - Solid State Systems
FIELD PIECE - Fieldpiece Instruments
FIELD-PRO - Amherst International
FILMATIC - ITW Paktron
FILMBRID - Merrimac Industries
FILMTRIM - Sprague-Goodman Elctrns.
FINAL AIR - Aluminum Filter
FINE-L-KOTE - Tech Spray
FINGRIP - Burndy Corporation
FIN-PAC - Semtech
FIREFLY - Dupree
FIRE QUEST - THORN Automated Systems, Inc
FIREX II - Canada Wire and Cable Limited
FIRON - EMCA-REMEX Products
FISHERCAST - FISHERCAST
FIX ACE - Intellution
FIXTURBLOK - FISHERTECH
FLAMARREST - Cooper Industries/Belden
FLAME-EYE - Barber-Colman
FLAMEOTROL - Barber-Colman
FLAMON - Bailey Controls
FLASHBLAST - Maxwell Laboratories
FLASH CUTTER - Ewald Instruments
FLASH STRIPPER - Ewald Instruments
FLAT-HEAD - Signal Transformer
FLAT PAC - Vicor
FLATSO - KDI/Triangle Electronics
FLATSTACK - Microtran
FLEX/EL - GM Nameplate
FLEXAGUIDE - Airtron
FLEXCON - Air-O-Tronics
FLEX-E-BELT - Berg, W. M.
FLEX FILE - Celadon Corporation
FLEX-FIT - Thomas & Betts Corporation, Electronics
FLEXFOAM - Carol Cable
FLEXFOIL - Carol Cable
FLEXI-BLOCK - AMP
FLEXI-COOL - FTS Systems
FLEXI-DRY - FTS Systems
FLEXI-GLOVE - Clean Room Prods.
FLEXINOL - Dynalloy
FLEXISHIFT - Integrated Device Technology
FLEXITE - Markel
FLEXLEAD - Markel
FLEXLIFE - Carol Cable
FLEX-LOCK - Namco Controls
FLEXLOK - Burndy Corporation
FLEXOLON - Tensolite
FLEXOPRENE - Standard Wire & Cable
FLEXOPULSE - Eagle Signal Controls:A Mark IV Inds.
FLEXPAC - Thomas & Betts Corporation, Electronics
FLEXRAD - Judd Wire
FLEXSWITCH - Sheldahl
FLEXTAC - Hypertronics
FLEXTENSION - Tech Spray
FLEX-THANE - Berg, W. M.
FLEXTIME - Hecon
FLEXVYN - Tensolite
FLEXY-MARKER - Datak
FLOBAR - ABB Kent-Taylor
FLOCELL - Heat System
FLO-MATE - Marsh-McBirney
FLOPPY COPPY - Applied Data Communications
FLO-RITE - Kester Solder
FLO-TOTE - Marsh-McBirney
FLOTRAC - Hull
FLOTROL - Lorain Products
FLUITROL - Heat System
FLUON - ICI Advanced Materials
FLUOROCOMP - ICI Advanced Materials
FLUOROMELT - ICI Advanced Materials
FLUORO-XECON - Chomerics, :W.R. Grace
FLUX-OFF - Chemtronics
FLUX STRIPPER S - Tech Spray
FOAMCONE - Teledyne Ryan Electronics
FOCAL - Digital Equip.
FOCEST - Materials Research Corporation
FONE-A-LERT - Bell, Floyd
FONO-MAGIC - R-Columbia Prods.
FORERUNNER - Data Translation
FORMKOTE - E/M Corporation
FORM-TRAN - EWC
FORTRON - Fortron/Source
FOTOCERAM - Corning Glass Works
FOTOFET - Teledyne Crystalonics
FOTOFOIL - Miller Dial
FOTOFORM - Corning Glass Works
FOX - E & L Instruments
FRAM - Ramtron
FREED MEGOHMMETERS - Industrial Test Equipment
FREEZ-IT - Chemtronics
FRESCO - Celadon Corporation
FRICTION-AIRE - Blue M, A Unit of General Signal
FRIGICHIP - Melcor/Materials Elctrn. Prods.
FRIGITOTE - Melcor/Materials Elctrn. Prods.
FRISKEM - Infinetics
FROST - L.H. Frost Limited
FROST-OFF - Merix Chemical
FULL PAK - Motorola Semiconductor Prods.
FULL-VIEW - Brooks Instrument
FULSCOPE - ABB Kent-Taylor
FUSEPLUG - Arco Electronics
FUSE TEC - Ewald Instruments
FUSE TEC WELDERS - Ewald Instruments
FUSETRON - Bussmann:Cooper Industries
FUSIONBRAZED - ITT Higbie Baylock
FUSIONWELD - ITT Higbie Baylock
FUSTAT - Bussmann:Cooper Industries
FUTURA - Teledyne Rotolite
FUTURESCRIBE - The Recorder
FUZZ BUTTONS - Tecknit (Eastern Facility)
FYRESTAN - Leeds & Northrup, General Signal
GALAXY - Nova Electric
GAMMA - KnowledgeWare
GAMMACELL - Nordion International
GAMMATROL - Nuclear Research
GANGSITE - BYTEK
GAP-KAP - Philips Components Discrete Products Div
GAP-KAP - Philips Components Discrete Products
GAP-SWITCH - K-Two Industries
GARALEASE - Lilly-Ram Industries
GARALYST - Lilly-Ram Industries
GARDSMAN - West Instrument
GAROX - Lilly-Ram Industries
GASK-O-SEAL - Parker Seal Group
GATEWAY - Digital Products
GATLIN GUN - Mann, Henry
GC-CAM - GraphiCode
GC-PREDITOR - GraphiCode
GC-PREVUE - GraphiCode
GECELL - GE Microelectronics Center
GEGATE - GE Microelectronics Center
GEL/CELL - Johnson Controls Battery Group
GELYTE - SAFT America
GEMAX - Gates Energy Products
GEMFET - Motorola Semiconductor Prods.
GEMNI 300 - Chiu Technical
GENERATION 4 - Opto 22
GENESIS - Gates Energy Products
GENGUIDE - General Cable
GEO-MARINE - Glenair
GEPEG - General Elec.
GHOST - Gimix
GIBSON GIRL - Benjamin International
GIGAFIL - Murata Manufacturing , Ltd.
GIGARAM - Monolithic Sys.
GIGA-TRIMS - Johanson Manufacturing Corporation
GLASGUARD - AVX Corporation
GLO-BOX - L & L Special Furnace
GLOBTEK - Globtek
GLOCOIL - Eagle Electric Mfg.
GLO-DOT - Industrial Devices
GLO-RING - Eraser
GLO-STAT - Sylvania Lighting -U.S.
GLYDER - Lutron Electronics
GOAT - Craig Systems
GOLD CONNECTION - Recoton
GOLD DOT - Hughes Aircraft
GOLDENPOWER - Baknor Industries
GOLD-FISH - Ideal Industries
GOLDTOP - Gates Energy Products
GORE-TEX - W. L. Gore
GORE-WRAP - W. L. Gore
GO TRONICS - Go Switch
GRAB'M QUIK - Brim Electronics
GRAF/BAR - Science Accessories
GRAFMATIC - Microcompatibles
GRAF/PEN - Science Accessories
GRALAB - Dimco-Gray
GRAND SLAM - Potter Instrument
GRANT - Science/Electronics
GRAPHALLAST - Graphite Metallizing
GRAPHALLOY - Graphite Metallizing
GRAPHI-COAT - Aremco Products
GRAPHILM - Graphite Metallizing
GRAPHMETEX - Graphite Metallizing
GRAPHOVER 9500 - New Media Graphics
GRASIS - Andrew
GREALSTAR - Intepro Systems
GREENIE - Ideal Industries
GRIDPAK - Andrew
GRID ZIP - 3M-Electronic Products
GRIPLET - DuPont Connector Systems
GRIP-O-GIDE - Bivar
GRIP-TITE - Instrument Specialties Headquarters
GRO-LUX - Sylvania Lighting -U.S.
GROMSTRIP - ICO-RALLY Corporation
GROUND-R-GUIDE - Unitrack Industries
GS EYELETS - Stimpson
GUARD-TEMP - EDL
GYROSURVEYOR - Humphrey
HALLTRON - Ohio Semitronics
HAM-MATE - Bird Electronic
HANDI-GRIP - Ideal Industries
HANDYPIN - Autosplice
HANDYTAB - Autosplice
HARDKOAT - Datak
HARDSET - Hardman A Harcros Chemical Group
HAROSYN - Harowe Servo Controls, :A Fasco
HART - Nu-Concept Systems
HARTREX - Harbour Ind. (Canada) Ltd.
HEAR WELL - Eveready Battery
HEAT GUARD - Hexacon Electric
HEATRAN - Power Designs
HEATRAX - ICO-RALLY Corporation
HEET SPREADER - Opto 22
HEBBAR - Melles Griot
HEJET - Pamran
HELIAX - Andrew
HELI-CAL - Helical Prods.
HELICOP HUT - Craig Systems
HELIPOT - Beckman Industrial
HELITRIM - Beckman Industrial
HELI-TUBE - Newman, M. M.
HELMETER - Helm Instrument
HELM-PAK - Helm Instrument
HELMSMAN - Helm Instrument
HENCOL - Cole Hersee
HERCULES - Eveready Battery
HERMETICOOL - Tenney Engineering
HETERO-CAVITY - Security Plastics
HEXCOLUMNS - Paso Sound Products
HEXFET - International Rectifier
HEXPAK - International Rectifier
HEXSENSE - International Rectifier
HEX WIK - Hexacon Electric
HG BRIGHT GOLD - Technic
HIC - Murata Manufacturing , Ltd.
HICAP - Bussmann:Cooper Industries
HI-COAT - Murata Manufacturing , Ltd.
HI-CON - Panduit
HI-COR - Alpha Metals
HIC 1000 - Harbour Ind. (Canada) Ltd.
HI-FLUX - Arnold Engineering
HIGH-LITE - Schott Glass Technologies
HIGH STEPPER - Cyberpak
HI IMAGE MAKER - Houston Instrument
HI JET PRO - Houston Instrument
HI-LIFE - Sprague-Goodman Elctrns.
HI-LITE - Schott Glass Technologies
HI-LUME - Lutron Electronics
HI-MEG - Dolph, John C.
HIMELINE - Carlon
HINIL - Teledyne Components
HIPAD - Houston Instrument
HIPEC - Dow Corning
HIPLOT - Houston Instrument
HIPOTRODE - Hipotronics
HIPPO-CLIP - Mueller Elec.
HI-SCALE - Heyco Molded Products
HI-THERM - Dolph, John C.
HIWIRE - Wintek
HOK - Hokuriku USA Ltd.
HOKUOHM - Hokuriku USA Ltd.
HOLTITE - Augat

HOMEBASE - Hand Held Products
HONEY BEE - Hurst Manufacturing
HORNET - Hexacon Electric
HOT BOX - L & L Special Furnace
HOT LIPS - ESICO/TRITON
HOT NEWS - Omega Engineering
HOT SHOT - Eveready Battery
HOT SPOT - Pace
HOT SPOTZ - Zippertubing
HOT TIP - Contact
HOTVAC - Ungar
HP2GBR - GraphiCode
HR VIEW - Meret Optical Communications
HUB-CLAMP - Sterling Instruments
HUB-LOCK - Sterling Instruments
HUMIDOLAIN - Star Porcelain
HUMISEAL - HumiSeal
HUSKY - Clean Room Prods.
HY-A-SIL - Sanford-Miller
HYBRID CARE - Gandalf Data
HYBRIDGE - Teleplex
HYDENT - Burndy Corporation
HYDRA - CTSI International
HYDRIVE - Infodex
HYDROCHART - General Instrument
HYDROFEED - Components
HYDRO-FLOW - Alpha Metals
HYDROSOLV - Alpha Metals
HYDROSTAT - Middleberg Corporation/Middco Connectors
HYDRO-X - Multicore Solders
HYFEN - Burndy Corporation
HYGRADE - Markel
HYGROLINE - Rosemount Analytical
HYJOULE - Associated Research
HYLINK - Burndy Corporation
HYLOK - Burndy Corporation
HYLUG - Burndy Corporation
HYPASS - Sprague Electric
HYPERFORMANCE - Motorola Semiconductor Prods.
HYPERION - Lutron Electronics
HYPOINT - Burndy Corporation
HYPRESS - Burndy Corporation
HYREL - Sprague Electric
HYRING - Burndy Corporation
HY-THERM - Hy-Cal Engineering
I/O PLEXER - duTec
ICAS - Endevco Corporation
ICCON - Elcon Products International
ICCS - Bailey Controls
ICE CUBE - Powercube
ICE PAC - Powercube
ICEPAK - Motorola Semiconductor Prods.
ICMAKER - Aldec
ICONTROL - International Data Aquistion & Control
ICS - ICS Electronics
ICS DATACOM - ICS Electronics
ICS ELECTRONICS CORPORATION - ICS Electronics
ICSOTIMER - Instrumentation & Control Sys.
IC6000 - Leybold Inficon
IDAC - International Data Aquistion & Control
IDEACOMM - IDEAssociates
IDEAMAX - IDEAssociates
IDEAMINI - IDEAssociates
IDEA MINICOMM - IDEAssociates
IDEAMINIMAX - IDEAssociates
I-DENT - Telesis Controls
IGNITOR - Eveready Battery
IMA - FISHERTECH
IMAC - Advanced Video Products
IMAGECOM - Paso Sound Products
IMAGESCOPE - Galileo Electro-Optics
IMAGING ASSISTANT - Vista Systems
IMCOM - IMC Magnetics
IMCON - Andersen Laboratories
IMCOOL - IMC Magnetics
IMCUBE - IMC Magnetics
IMIDEZE - Phelps Dodge Magnet Wire
IMLEC - Inter-Market
IMMERSION GOLD - Sel-Rex
IMPAC - Modular Audio Products
IMPACT-O-GRAPH - Chatsworth Data Corporation
IMPERVITRAN - Micron Industries
IMPLION - Loral Microwave-FSI
INCA - Kalglo Elctrns.
INCHWORM - Burleigh Instruments
INCONIX - Hancock Electronics
INDAC - Digital Equip.
INDEXMATIC - International Machine & Tool
INDUCT-A-RING - Unholtz-Dickie
INDUSTRIAL COMPUTER SOURCE-BOOK - Industrial Computer Source
INDUSTRITE - BIW Cable Systems
INFINITY - Newport Electronics
INFI-90 - Bailey Controls
INFOMETRIX - Infometrix
INJECTED METAL ASSEMBLY - FISHERTECH
INLINE - Unadilla Antenna Mfg.
INSULGEL - Insulcast
INNOVA - Coherent
INNOVATION - Reliability
INSET - Materials Research Corporation
INSTALL488 - Ziatech
INSTANT IMAGE - Consolink
INSTA-SET - Barber-Colman
INSTA-TEST - Grand Transformers
INSUL-BOLT - Augat/Pylon
INSULBOND - Insulcast
INSULCAST - Insulcast
INSUL-COTE - Thermalloy
INSULCURE - Insulcast
INSULET - Augat/Pylon
INSULFILM - Accessories For Electronics
INSULINK - Burndy Corporation
INSULSPLICE - Autosplice
INSULSTRUC - Industrial Dielectrics
INSULTEK - IERC
INSULUBE - IERC
INSULUG - Burndy Corporation
INTENNA - Unadilla Antenna Mfg.
INTER-ACCESS - Elcom Industries
INTERCHECK - Guildline Instruments
INTERCHIP - International Components
INTERFILTER - Unadilla Antenna Mfg.
INTERKIT - International Components
INTERLEAF - ITW Paktron
INTERLITE - Baknor Industries
INTERNALIGN - Bowmar Instrument
INTEROHM - International Components
INTERROSPONDER - Vega Precision Labs.
INTERTOOLS - Intermetrics Microsystems Software
INTERVIEW - Telenex Corporation
INTERVOX - International Components
INTER-8 WEAVE - Magnetic Shield Corporation
INTRALUX - Volpi-MFG-USA
INTRASCOPE - Volpi-MFG-USA
INVERTRON - California Instruments
IOCHROME - Materials Research Corporation
IONEX - Special Electric
IONEX 2000 - Kester Solder
IONOGRAPH - Alpha Metals
IPAC - Instrumentation & Control Sys.
IPDS - Integrated Technologies Solutions
IR EYE - IR Scientific
IRIS - Point 4 Data
IRISCORDER - Hamamatsu Photonics K.K.
IRIS TUTOR - Data Translation
IRONCLAD - Exide Corporation
IRON CLOTH - Pyle Industries
IRON GLAZE - Pyle Industries
ISA-FLEX - Isotek Corporation
ISA-PLAN - Isotek Corporation
ISIS - Litton Poly-Scientific
ISLATRAN - Control Concepts
ISLATROL - Control Concepts
ISLATROL PLUS - Control Concepts
ISLATRON - Control Concepts
ISOCAM - GraphiCode
ISO-CHIP - Fenwal Electronics, /APD
ISO-CUBE - Teledyne Solid State
ISO-CURVE - Fenwal Electronics, /APD
ISO-DAC - Analog Devices
ISODAMP - E-A-R Specialty Composites
ISOFORMER - ACD-Elcor Products
ISO-GATE - Dionics
ISOGUARD - ISOREG
ISOLENE - Hardman A Harcros Chemical Group
ISOLOSS - E-A-R Specialty Composites
ISO-OHM - Ferro Corporation
ISOPAC - Semtech
ISO-PAK - Computer Products
ISOPLY - ACD-Elcor Products
ISOREX - ACD-Elcor Products
ISOSHEAR - Endevco Corporation
ISOSHIELD - ISOREG
ISOTHERM - Victory Engineering
ISOTHERMAL - Motorola Semiconductor Prods.
ISOTRON - Endevco Corporation
ISO-VERTER - Love Controls
IST - International Sensor Technology
ITECO - Industrial Test Equipment
ITRON - Noritake
IVONDING - IVO Industries
IVOTAPE - IVO Industries
JANETTE - Eastern Air Devices
JANSET - Jan Hardware Mfg.
JELLY BEANS - Augat/RDI
JETCAL - Howell Instruments
JET-FLECS - MOLEX
JETFLOW - Ajax Magnethermic
JET PLATER - Sel-Rex
JET PORT STOCK - Bailey Controls
JFD - Sprague-Goodman Elctrns.
JIF-TEMP - EDL
JOBMAG - Jobmaster
JOLTA - Jan Hardware Mfg.
JOTDRAFT - Datak
JUNO - Crane Electronics
JUPITER - IEE (Industrial Electronic Engineers)
JUST RAM - Monolithic Sys.
JUST-WRAP - OK Industries
KALAR - Hardman A Harcros Chemical Group
KALENE - Hardman A Harcros Chemical Group
KALEX - Hardman A Harcros Chemical Group
KANGAROO - Sencore
KARATCLAD - Sel-Rex
KARD-O-LITE - BKL
KARI - ZI-TECH Instrument
KARRY-ALL - Fancort Industries
K-BAR - Kurz Instruments
K CONNECTOR - Wiltron
KEEPER II - Eagle-Picher
KEMTITE - Kemlon Products & Development
KEWAUNEE - Kewaunee Scientific
KEYCEPTACLE - Datakey
KEYCODER - Usar Systems
KEYCOUNTER - Hecon
KEY SYSTEM - Electromatic Controls
KILOBYTE - Vertex Industries
KILOVOLT STAC - Semtech
KINGBRIGHT - Kingbright USA
KING Q - Vanguard Electronics
KINGSPLICE - Autosplice
KINOPTIK - Heitz, Karl
KK - MOLEX
KLEEN-ALL - Tech Spray
KLEEN LINE - Electronic Specialists
KLEEN-STRIP - National Wire & Cable
KLIPPON - Weidmuller
KLIP SELS - International Rectifier
KLIPSOCKET - ITW Switches
KLIXON - Texas Instruments
KNOBPOT - Bourns
KOBELL - Incotherm Limited
KONEKT-ALL - Jonard Industries
KONFORM - Chemtronics
KONTACT 60 - Jonard Industries
KOOLER-GUIDE - Unitrack Industries
KORE - Digital Dynamics
KORLESS ELECTRODES - Rosenberger-Micro Coax
KOROSEAL - RJF Interantional
KOTRON - Magnetrol International
KRONAGOLD - E/M Corporation
KRONAPLATE - E/M Corporation
KRYTERION - Everett/Charles Test Equipment
K-TROL - Electrol
KV-PAC - Semtech
KWICK-KONNECT - ITT Sealectro
KWIKI - Lightning Protection
KWIK-SNAP - Accurate Electronics
KWIK-TAB - Accurate Electronics
KWIK-TIE - Accurate Electronics
KW PAC - Semtech
KYNAR - Atochem North America
KYNAR - ICO-RALLY Corporation
KYNAR FLEX 2900 - Atochem North America
LABDRIVER - National Instruments
LABTECH - Laboratory Technologies
LABVIEW - National Instruments
LABWINDOWS - National Instruments
LAMB - Lamb Electric
LAMPLIGHTER - Cardinal Control
LAMTAC - Hypertronics
LANCE-A-LOCK - Techdyne
LANCELOK - AMP
LAN CONNECT - Monolithic Sys.
LANLINK - The Software Link
LANSPRINT - Digital Products
LANVIEW - Cabletron Systems
LAPFLO - Pace
LASER GEM - Laser Technology
LASERMATIC - General Laser
LASERNET - Namco Controls
LASER PURE - Coherent
LASERSCRIBE - Quantronix
LASERTABS - Brady, W. H.
LASERTRAC - Coherent
LASER-WAND - Hand Held Products
LASTEC - Laser Technology
LATCH-N-LOK - DuPont Connector Systems
LAT-CON - Panduit
LAVOLAIN - Star Porcelain
LBA - Syscon Intl.
L-BOX - IET Labs
LC^2 MOS - Analog Devices
LEAD EDGE - Texas Instruments
LEAD SHUNT - Gordon, L., Packaging
LEAK-PRUF - Alpha Metals
LECTRA-LOAD II - Power/Mate Corporation
LECTR-AU-LYTE - Sel-Rex
LECTRODUCT - Lectro Magnetics
LECTROLESS - Sel-Rex
LECTRO LINE - Lectro Magnetics
LECTRO-NIC - Sel-Rex
LECTRONICCOMPASS - Humphrey
LECTRO-QUIP - Illinois Lock
LECTROSHIELD - Lectro Magnetics
LECTROVENT - Lectro Magnetics
LEDCO - Wilbrecht Electronics
LEDDICON - EEV
LED-EYE - Shelly Associates
LED-PAK - Dolan-Jenner Inds.
LEEBOND - Leepoxy Plastics
LEE-STRIP - Atlee
LEKTRON SERIES - Paso Sound Products
LEPAK - Lepel
LEISTER HOT-AIR TOOLS - Brian R. White
LEV CHEK - Hexacon Electric
LEVEL-LOC - Shure Brothers
LEVELMARK - Penberthy
LEVEL/PAK - Square D
LEVEL PLUS - Temposonics Sensors

LEVER-LOC - Teledyne Kinetics
LEVOLIER - McGill Manufacturing
LGH - AMP
L. H. FROST - L.H. Frost Limited
LIFEGARD - Antenna Specialists
LIFE-GUARD - Xentek
LIFELINE - Instrumentation & Control Sys.
LIFELINE - LocTite Luminescent Sys.
LIFEX - RAYOVAC Corporation
LIGHTNING CIRCUITS - Electrohome Limited
LIGHTWAVE - Lentronics
LIMITRON - Bussmann:Cooper Industries
LINEGARD - SL Waber
LINEMATE - Coherent Communications Sys.
LINE MISER - Gandalf Data
LINE-O-LITE - Industrial Devices
LINE-SAVER - Kalglo Elctrns.
LINE TAMER - Shape Electronics
LINISTOR - Keystone Carbon
LINK/CHEK - S Squared Electronics
LINKéC.488 - Ziatech
LINK/VIEW - Timeplex
LINK 2000 - Gandalf Data
LIN-R-TRAN - Waters Manufacturing
LISTENER - Dataprobe
LITE - United Foam Plastics
LITE LINE - ALTEK Corporation
LITE LOCK - Illinois Lock
LITHIODE - Catalyst Research
LITHOCON - Princeton Electronic Products
LITMUSTIK - Omega Engineering
LITTELITES - Littelfuse
LITTL-LYTIC - Sprague Electric
LITTLE BOARD - Ampro Computers
LITTLE CAESAR - ITT Cannon
LITTLE DEVIL - Ohmite Manufacturing
LITTLE DIPPER - Techni-Tool
LITTLE GENERAL - Barksdale Controls
LITTLE GRIPPER - Techni-Tool
LITTLE HUEY - Sencore
LITTLE-MITE - LH Research
LITTLE REBEL - Ohmite Manufacturing
LOAD BLOCK - Kistler-Morse
LOAD DISC - Kistler-Morse
LOADGARD - Helm Instrument
LOAD LINK - Kistler-Morse
LOAD-PAK - Gems Sensors
LOAD STAND - Kistler-Morse
LOADSTAR - Intepro Systems
LO CAP - Consolidated Electronic Wire & Cable
LOCATE 88 - Ziatech
LOCKIT-SOCKET - U.S. Terminals
LOCK-O-SEAL - Parker Seal Group
LO-COG - PITTMAN
LOCOST - Julie Research Labs.
LOC-TRAC - Alpha Wire
LOGCELL - Fifth Dimension
LOGDAC - Analog Devices
LOGIC II - B & B Motor & Control
LOGIPAC - Densepac Microsystems
LOGO-LITE - Zero Enclosures
LOK-TAINER - EG & G Birtcher
LO-MITE - Ohmite Manufacturing
LONER - Edsyn
LONGFELLOW - Waters Manufacturing
LONGHAIR - Stanton Magnetics
LONGHOLD - Teradyne Connection Sys.
LONG LIFE - Berg, W. M.
LONG RANGER - Automatic Timing & Controls
LOOK-AHEAD - Analog Devices
LO-PROFILE - Aries Electronics
LO-RISE - Wells Electronics
LO-SMOKE - BIW Cable Systems
LOSSYLINE - Capcon
LOTO-MASTER - CVDS
LOW BOY - Stancor
LOW-PEAK - Bussmann:Cooper Industries
LTMOS - Motorola Semiconductor Prods.
LUBE-LOK - E/M Corporation
LUBRI-BOND - E/M Corporation
LUBRICOMP - ICI Advanced Materials
LUBRI-SHINE - Tech Spray
LUFKIN - Cooper Tools
LUMALUX - Sylvania Lighting -U.S.
LUMAPAC - EWC
LUMA 2 - RAYOVAC Corporation
LUMEA - Lutron Electronics
LUMEX-LITES - Lumex Opto/Components
LUMI - Chrono-log
LUMIGRAPH - International Instruments, A Prime Technology
LUMINA I - Chiu Technical
LUSTRAN ABS - Monsanto
LUSTRE-ZINC - Titchener, E. H.
LUXAMP - Force
LUXICON - Dolan-Jenner Inds.
LUXTHERM - Eraser
LYTHERM - Lydall , Manning
L2TMOS - Motorola Semiconductor Prods.
MACDSP - Spectral Innovations
MACH SERIES - Data Translation
MAC N' TOUCH - MicroTouch Systems
MACONTROL - International Data Aquistion & Control
MACOR - Corning Glass Works
MACROEDITOR - Applied Micro Circuits
MACROLOADER - Macrolink
MACRO MATRIX - Applied Micro Circuits
MACRO-T - Motorola Semiconductor Prods.
MACRO-X - Motorola Semiconductor Prods.
MACRO-3 - Macrolink
MACSART - Multi-Amp
MACSYM - Analog Devices
MACXLINE - Andrew
MAGNACOMP - ICI Advanced Materials
MAGNA-GUARD - Egis Corporation
MAGNA/PAC - Rogers
MAGN-A-PAK - International Rectifier
MAGNA Q - Vanguard Electronics
MAGNA-SET - Princo Instruments
MAGNATORC - Hansen Manufacturing
MAGNA-VISUAL - Jobmaster
MAGNEFORM - Maxwell Laboratories
MAGNEMETRICS - Walker Scientific
MAGNEPAINT - Micro-Circuits
MAGNESEARCH - Dowty RFL Inds. /Instrumentation
MAGNESIL - Magnetics
MAGNESTIR - Lab-Line Instruments
MAGNET-METAL - Egis Corporation
MAGNETOOL - Jobmaster
MAGNETREATER - Dowty RFL Inds. /Instrumentation
MAGNET STICK - MBD International
MAGNETTE - Heinemann Electric
MAGNION - Walker Scientific
MAGNI-WHIRL - Blue M, A Unit of General Signal
MAG-PIPE - ABB Kent-Taylor
MAGSTRIPE - American Magnetics Corporation Group 4
MAGTERM - Zierick Manufacturing
MAGTON - Lucas Ledex
MAINTAINER - IVEK
MANCHEX - Exide Corporation
MANIX - Mann, Henry
MANNIGLAS - Lydall , Manning
MANNING - Lydall , Manning
MANNITHERM - Lydall , Manning
MANNIWEB - Lydall , Manning
MAN-TRIX - Mantex
MARATHON - Babcock Display Products
MARCOFLEX - OakGrigsby
MARELCO - Marel Instr.
MARINEFAX - Alden Electronics
MARINE-MATE - Bird Electronic
MARK * CAL - GM Nameplate
MARK C - Cole Instrument
MARKET-COM - Aiphone
MARNAV - Markat
MARNIS - Avelem
MAS-CON - Panduit
MASQ-MATIC - Sel-Rex
MASS-TER - Cooper Industries/Belden
MAS/TER - ITT Cannon
MASTERCOUNT - Master Electronic Controls
MASTERELAY - Master Electronic Controls
MASTERFLASH - Master Electronic Controls
MASTER FLOW - Master Appliance
MASTER-MITE - Master Appliance
MASTER MODULE - Vicor
MASTERTIME - Master Electronic Controls
MATCHWORK - ENI, of Astec America
MATE-N-LOK - AMP
MATHEMATICA - Wolfram Research
MATLAB - The MathWorks
MATRI DOT - Practical Automation
MATRIX MOES - Elastomeric Technologies
MATTHEY - Television Equipment
MAVILOR - Infranor
MAX - Dynapar
MAXBRITE - Melles Griot
MAXBUS - Datacube
MAXCAP CAPACITORS - The Carborundum
MAX-E-PITCH - Berg, W. M.
MAXI-AMP - Banner Engineering
MAXI-BEAM - Banner Engineering
MAXI CHIP - AVX Corporation
MAXI CLIPPER - Mueller Elec.
MAXI-COLOR - Cooper Industries/Belden
MAXI-DRY - FTS Systems
MAXI FUSE - Littelfuse
MAXIGRABBER - Pomona Electronics
MAXIPOWER - Trio Laboratories
MAXI-QUBE - American Technical Ceramics Corporation
MAXTROL PRESSURE SWITCH - Barksdale Controls
MAXVIDEO - Datacube
MCCOMM - Analog Devices
MDTL - Motorola Semiconductor Prods.
MEASUROMETER - Analogic
MECL - Motorola Semiconductor Prods.
MEDCELL - Alexander Batteries
MEDI-SAFE - Brand-Rex
MEGACLUSTER - Parsytec
MEGAMODULE - Vicor
MEGASTRATES - Coors Ceramics
MEGATROMETER - Transicoil
MEG-CHEK - Associated Research
MEGGER INSULATION TESTERS - Biddle Instruments
MEGMETER - Ross Engineering
MEG-O-VOLT - Sperry, A. W. Instruments
MEKTRONIX - Mektronix Technology
MEMAMP - Multi-Amp
MEMORASE - UVP
MEMORY GUARD - Johanson Dielectrics
MEMORY MAG - EG&G Geometrics
MEMORYMATE - Burndy Corporation
MEMPAC - Varta Batteries
MEREDIAN - Leeds & Northrup, General Signal
MERLYN OPTICAL SWITCH - SC Technology
MERRILL - Cooper Tools
MESH STRIP - Chomerics, :W.R. Grace
MESSENGER - Babcock Display Products
META-CAST - Mereco Products
META-DUCT - Mereco Products
METAFILM - Sprague Electric
METAICE - MetaLink Corporation
METALARC - Sylvania Lighting -U.S.
METALAST - Electro Physics
METALASTIC - Chomerics, :W.R. Grace
METAL DEVIL - Ohmite Manufacturing
METALINK - MetaLink Corporation
METALKLIP - Chomerics, :W.R. Grace
METAL-MITE - Ohmite Manufacturing
METALOK - Burndy Corporation
METAL V-SEAL - Parker Seal Group
METANET - Sprague Electric
METAPART - Mereco Products
METASTEP - Step Engineering
METATERGE - Mereco Products
METFILM - Sprague Electric
METOXILITE - Semtech
METRAL - DuPont Connector Systems
METRE GRIP - Mereco Products
METRISITE - Gould
METRO - Heidenhain
METRO-COLOR - Cooper Industries/Belden
METROLOGGER - Metrosonics
METROREADER - Metrosonics
METROSOFT - Metrosonics
MHTL - Motorola Semiconductor Prods.
MHW - Phoenix Wire
MICAL - Topflight
MICAMP - Avantek
MICAP - Tobe Deutschmann Labs.
MICHELSON SERIES - Bomem
MICRATHERM - Land Infrared
MICRO BEAD - Victory Engineering
MICRO-BURNER - Baradine Products Ltd.
MICROCAP - American Technical Ceramics Corporation
MICROCELL - Kistler-Morse
MICRO-CLEAN - Baxter-Industrial
MICRO CLIPPER - Mueller Elec.
MICROCOAX - Rosenberger-Micro Coax
MICRO-C/PROBE - International Instrumentation
MICROCYCLE - Syscon Intl.
MICRO-DIP - EECO
MICRO-FERRUPS - Best Power Technology
MICROFIBRE - Balston
MICRO-FILE - Scanbe
MICRO-FILTER - RFI Corporation
MICROFLEX - Precision Interconnect
MICROFLEXX - Montrose Products
MICRO-FLUOR - CUNO
MICROFORK - Murata Manufacturing , Ltd.
MICROFRAME - Monolithic Sys.
MICRO-GATOR - Mueller Elec.
MICROGPIB - National Instruments
MICROGRABBER - Pomona Electronics
MICRO-I - Delevan
MICRO ICE - MetaLink Corporation
MICROKEY - Advanced Input Devices
MICRO-KLEAN III - CUNO
MICROLABELLER - EPC Identification Sys.
MICRO LINK - Timeplex
MICRO-LOC - BEI Motion Systems
MICRO-LOK - Electro-Science Labs.
MICROMATH - MicroMath
MICROMATIC - ITW Paktron
MICROMAX - Leeds & Northrup, General Signal
MICRO MELT - Ajax Magnethermic
MICRONOX - Caddock Electronics
MICRO/OMNITRAK - EG & G Flow Technology
MICRO-OPTIC - Dolan-Jenner Inds.
MICRO-PAC - Semtech
MICROPAINT - Micro-Circuits
MICROPAX - DuPont Connector Systems
MICROPIN - ITT Cannon
MICROPLEXER - Timeplex
MICROPLOT - Gulton Graphic Instruments
MICROPORT 8 - Telesis Controls
MICROPOS - GME Systems
MICROPOS MMC - GME Systems
MICRO POWER - RAYOVAC Corporation
MICROPROX - Bently Nevada
MICRO/Q - Rogers

MICROSAFE - Control Microsystems
MICRO-SCAN - ABB Kent-Taylor
MICROSCRIBE - Houston Instrument
MICROSCRIBE - The Recorder
MICROSEAL - E/M Corporation
MICROSERIES - BEI Motion Systems
MICROSIX - GME Systems
MICROSLICE - Integrated Device Technology
MICRO-SLIDE - Grant Hardware
MICROSOCKET - ITT Cannon
MICROSOLDE - Analytic Technology
MICROSQUARE - MWS Wire Industries
MICRO-STAC - Semtech
MICROSTAT II - Ecosoft
MICRO-STEDI - Hexacon Electric
MICROSTEPPER - Mesur-Matic Elctrns.
MICROSTREAMER - Cipher Data Products
MICRO-SYNCLAMPS - Timber-Top
MICRO-T - Motorola Semiconductor Prods.
MICROTEMP - Therm-O-Disc
MICROTENN - Tenney Engineering
MICROTHERM - Canadian Thermostats & Control Devices Ltd.
MICROTIP - Heat System
MICROTOUCH - Microavionics
MICROTRAC - Endevco Corporation
MICROTRAC - Leeds & Northrup, General Signal
MICROTRON - Bussmann:Cooper Industries
MICROTRON - Endevco Corporation
MICRO TUF - DELTA M Corporation
MICROVGA - Monolithic Sys.
MICROWAFER - Stanton Magnetics
MICRO-WAND - Hand Held Products
MICROWAVE HARMONICA - Compact Software
MICROWAVE SUCCESS - Compact Software
MICRO Z - MCG Elctrns.
MICROZOOM - Cambridge Instruments
MIDAS TOUCH - International Instrumentation
MIDGET - Sprague Electric
MIDIP - Grayhill
MID-RISE - Wells Electronics
MIGHTY-MITE - LH Research
MIGHTY MUX - Point 4 Data
MIKRO STEPPING - ADVANCED MICRO SYSTEMS, INC.
MIL/PAC SERIES - Abbott Electronics
MIL-CLAMP - Amphenol RF Operations
MIL-CRIMP - Amphenol RF Operations
MIL-ENE - W. L. Gore
MILLENNIUM - Gates Energy Products
MIL-REL - Codar Technology
MILROS - Alpha Metals
MIN-E-PITCH - Berg, W. M.
MINERALIGHT - UVP
MINI-BEAM - Banner Engineering
MINI BEE - Hurst Manufacturing
MINI BITE - Minelco - A Talley Ind.
MINI-BLOK - Bivar
MINI-BREAKER - Mechanical Products
MINIBRIDGE - Electronic Devices
MINIBUTTON - Digitran
MINI-CATOR - Industrial Devices
MINICHINE - Pace
MINI CLIPPER - Mueller Elec.
MINICOUNTER - Veeder-Root
MINI-CUBE - American Technical Ceramics Corporation
MINIDAC - Analog Devices
MINI-DEK - Braemar
MINI-DOT - Industrial Devices
MINIFAX - Alden Electronics
MINI-FIT,BMI - MOLEX
MINIFLYX - Brim Electronics
MINI FUSE - Littelfuse
MINI-GATOR - Mueller Elec.
MINIGRABBER - Pomona Electronics
MINIKEY - Digitran
MINILEVER - Digitran
MINILOAD - Bird Electronic
MINILOK - Burndy Corporation
MINILYTIC - Sprague Electric
MINI-MAG - Potter & Brumfield
MINI/MATE - Power/Mate Corporation
MINI-METER - Sperry, A. W. Instruments
MINI-METOXILITE - Semtech
MINI-METRIC - Allen Bradley , Electronic Components
MINI-MIKE - ITW Switches
MINI MITE - Thermo Electric
MINI MODULE - Ampro Computers
MINIMOTOR - Micro Mo Electronics
MINI-IN-DISGUISE - International Instrumentation
MINI-PAK - DEVAR
MINI-PAL - Sundstrand Data Control
MINIPROBE - Sperry, A. W. Instruments
MINIPROGRAMMER - Cole Instrument
MINI-ROCKETTE - Communication Devices
MINISAT - Powertech
MINI-SENSOR - Ketema/Rodan
MINISERT - DuPont Connector Systems
MINISERVO - Esterline Angus Instrument
MINI-SLIDE - Industrial Devices
MINISPLICE - Autosplice
MINISTAC - Semtech
MINISTIC - Semtech
MIN-ISTOR - Quality Thermistor
MINI-STUD - Semtech
MINISWITCH - Digitran
MINI-SYNCLAMPS - Timber-Top
MINITAC - Hypertronics
MINITERM - Computer Devices
MINITHIN - Thermax Wire
MINITORCH - Fisons Instruments
MINI TRIM - Kappa Technologies
MIN MAX ALERT - John Fluke Mfg.
MINNISCRUBBERS - Tech Spray
MINTSYSTEMS - MiNT Systems Corporation
MINUET - Beswick:Cooper U.K. Ltd.
MISTIC - Opto 22
MITAS - Superior Electric
MITE - LH Research
ML-SOFT - EPC Identification Sys.
MM-SERIES SPS SYSTEMS - Sutton Designs
MOBIC - Aldec
MODCELL - ABB Kent-Taylor
MODCOM-C - Virginia Plastics
MODEMULATOR - S Squared Electronics
MOD-FIELD - Dataprobe
MOD POT - Allen Bradley , Electronic Components
MOD SQUAD - International Instrumentation
MOD-U-BOX - Precision Fabrication Technologies
MOD-U-DESK - Precision Fabrication Technologies
MODULA - Gennum Corporation
MODULE-MATIC - Sel-Rex
MODULEVEL - Magnetrol International
MODULE-X - Sel-Rex
MOD-U-LINE - Precision Fabrication Technologies
MODULOAD - Bird Electronic
MODULOK - Burndy Corporation
MODULYNX - Superior Electric
MODU-RAY - Kalglo Elctrns.
MODUTRIM - Sprague-Goodman Elctrns.
MOD 30 - ABB Kent-Taylor
MOES - Elastomeric Technologies
MOISTURPUMP - Electro Impulse
MOLD-EASE - Merix Chemical
MOLECULOY - Molecu-Wire
MOLGARD - Lilly-Ram Industries
MOLICEL - Moli Energy Limited
MOLYDACQ - M-Tek
MOLYDAG - Acheson Colloids
MOLYGRAPHICS - M-Tek
MOLYKOTE - Dow Corning
MOLYNET - M-Tek
MONITROLLER - Analogic
MONO-AXIAL - Philips Components Discrete Products Div
MONO-AXIAL - Philips Components Discrete Products
MONOBRID - ILC Data Device
MONOCERAM - SFE Technologies
MONO-GLASS - Philips Components Discrete Products Div
MONO-KAP - Philips Components Discrete Products Div
MONOMAX - Motorola Semiconductor Prods.
MONO-PAK - Philips Components Discrete Products Div
MONOPAX - Tra-Con
MONOPOXY - Hardman A Harcros Chemical Group
MONOZOOM - Cambridge Instruments
MORE-4-LESS - Signal Transformer
MORNICK - Graphics Microsystems
MOSAIC I - Motorola Semiconductor Prods.
MOSBIP - Powerex
MOSP - Corvus Microwave
MOTO-VATOR - Electrol
MOVIE/MASTER - Di/An Controls
MOXIE - Canadian Thermostats & Control Devices Ltd.
MPAS - Maine Poly
MPCII - HMW Enterprises
MPD - Memory Protection Devices
M POWERCELL - Catalyst Research
M/R THERMALEZE - Phelps Dodge Magnet Wire
MRTV - Insulcast
MS-SYNCLAMPS - Timber-Top
M-SYSTEM - Electromatic Controls
MTD - Pulizzi Engineering
MTI - Dage-MTI
M-TIMER - Codar Technology
MULTI-BEAM - Banner Engineering
MULTI-CAGE - Electronic Solutions
MULTICLUSTER - Parsytec
MULTICOM - Multi-Tech Systems
MULTI-CONN - Vector Electronic
MULTI-COOL - FTS Systems
MULTI/COUNT - HH Controls
MULTIDEX - OakGrigsby
MULTIDIAL - Spectrol Electronics
MULTIDUCTOR - Ajax Magnethermic
MULTIFILAR - MWS Wire Industries
MULTIFIRE - Ferro Corporation
MULTIGARD - Helm Instrument
MULTI-GRAPHIC - Bogen Communications
MULTI-LINK - Cooper Industries/Belden
MULTILOC - Precision Interconnect
MULTIMEC - MEC A/S
MULTI MITE - Thermo Electric
MULTIMODEM - Multi-Tech Systems
MULTIMUX - Multi-Tech Systems
MULTI-PAK - Motorola Semiconductor Prods.
MULTIPLE TIME DELAY - Pulizzi Engineering
MULTIPOWER - Trio Laboratories
MULTI-PURE - Multicore Solders
MULTIREED - Thermosen
MULTI-STRIP - W. L. Gore
MULTI-SWAGE - Bead Electronics
MULTISYST - EMCA-REMEX Products
MULTI-TET - W. L. Gore
MULTITOOL - Parsytec
MULTITRAK - BYTEK
MULTI-TRAN - Sperry, A. W. Instruments
MULTITUBES - Casso-Solar
MULTI-VOLT - Multi-Amp
MUSEOCOPE - Avelem
MU-STAT - Princo Instruments
MYAD - C.P. Clare
MYSTAIRE - Heat System
MYSTR - Waters Manufacturing
NAFOIL - National Wire & Cable
NAMCO - Namco Controls
NANOFLEX - Circuit Assembly
NANOFLEX - Yamaichi Electronics
NANOHEX - ITT Sealectro
NANOMIN RECEIVER - E-Systems
NANOTIP - Heat System
NANOTRAN - Computer Products
NARR-O-GIDE - Bivar
NASTY GAS - EG&G Rotron
NAVCORE - Collins Commercial Avionics
NAVITAR - D. O. Industries
NAVLINE - Veeder-Root
NAVTRAK - EDO /Electro-Acoustic
N-CLAD-N - Incotherm Limited
NEDAP PS - Nedap N.V.
NELCO - Whittaker
NEMACOMP - Telesis Controls
NEPTUNE - SFE Technologies
NET AXCESS - Andrew/KMW Systems
NETCOMMANDER - Digital Products
NETIC - Magnetic Shield Corporation
NETMASTER - Innovative Electronics
NETSAVERS - Sutton Designs
NETSET - Fortron/Source
NET UTILS - Ontrack Data Recovery
NETWORK-90 - Bailey Controls
NEUTROLOY - Molecu-Wire
NEUTRONEX - Sel-Rex
NEUTRO-STAT - Simco
NEWDAMP - Bacon Industries
NEW HORIZONS - Omega Engineering
NEWPORT - Newport Electronics
NEWSMATE - Graphics Microsystems
NEYDIUM - The J. M. Ney
NEYETCH - The J. M. Ney
NEYORO - The J. M. Ney
NICAD - SAFT America
NICHOLSON - Cooper Tools
NICROBELL - Incotherm Limited
NIGUARD - AVX Corporation
NIOBELL - Incotherm Limited
NISENSOR 35 - Molecu-Wire
NOALOX - Ideal Industries
NOBRUSH - Georator
NOHKEN - ZI-TECH Instrument
NOISE TACKLE - Wells Electronics
NO-MAR - PIC Design
NO-NIK - Clauss Cutlery
NOR - Ferraz Corporation
NORAC - BIW Cable Systems
NORBATHERM - Cross Electronics
NORDBAK - ChemRex
NORFA - IPM
NORPAK - Square D
NO-SLIP - PIC Design
NO-SWAB - E/M Corporation
NOVA - Ball Corporation
NOVABEAM - Video Display
NOVACLAD - Sheldahl
NOVA-STROBE - Monarch Instrument
NOVCEL - Simtek
NOXIDE - Solder Absorbing Technology (SAT)
N-SEE - Microcompatibles
NU-BLAC - Star Porcelain
NUCLESTAT - NRD
NUCON - CINCH Cylindrical
NULL-KOTE - Princo Instruments
NU-LOK - CINCH Cylindrical
NUMATRON - Leeds & Northrup, General Signal
NUSYN - Mesur-Matic Elctrns.
NU VISTA - Truevision
NWA LIMS - Northwest Analytical
NWA QUALITY ANALYST - Northwest Analytical
NWA STATPAK - Northwest Analytical
NYEBAR - William F. Nye
NYETACT - William F. Nye
NYLEZE - Phelps Dodge Magnet Wire
NYLOCLIP - Burndy Corporation
NYLOX - Hardman A Harcros Chemical Group
NYMPH - SARONIX
NYOGEL - William F. Nye
NYTYE - Heyco Molded Products

NYWARE - Heyco Molded Products
NYZIN - Yardney Technical Products
OCTA-SCAN - EDL
OCTRON - Sylvania Lighting -U.S.
ODORPEDIC - United Foam Plastics
OHM-A-TONE - Ohmite Manufacturing
OHMEX-AG - Transene
OHMICONE - Ohmite Manufacturing
OHMITRAN - Ohmite Manufacturing
OHMITROL - Ohmite Manufacturing
OHM-RANGER - Ohmite Manufacturing
OHM-SPUN - Multi-Amp
OILDAG - Acheson Colloids
OMEGA-BENCH - Omega Engineering
OMEGA BOND - Omega Engineering
OMEGA BUS - Omega Engineering
OMEGA BYTE - Omega Engineering
OMEGACOAT - Omega Engineering
OMEGAFLEX - Omega Engineering
OMEGA-FLO - Omega Engineering
OMEGAFLOW ONSTREAM - Omega Engineering
OMEGALLOY - Omega Engineering
OMEGALOG - Omega Engineering
OMEGALUX - Omega Engineering
OMEGAMAG - Omega Engineering
OMEGAMARKER - Omega Engineering
OMEGA METER - Alpha Metals
OMEGAMETER - Omega Engineering
OMEGA-PAD - Omega Engineering
OMEGAPAK - Square D
OMEGAPHONE - Omega Engineering
OMEGA PROBE - Omega Engineering
OMEGAROMETER - Omega Engineering
OMEGASAYS - Omega Engineering
OMEGASEZ - Omega Engineering
OMEGASNAP - Omega Engineering
OMEGASOFT - Omega Engineering
OMEGASTIK - Omega Engineering
OMEGATHERM - Omega Engineering
OMEGETTE - Omega Engineering
OMICRON-B - TRW LSI Products INC.
OMMI-COAT - Nuclear Research
OMNI - Haverly Systems
OMNI-BLOK - Littelfuse
OMNIBUS - Square D Power Protection Systems
OMNICAL - Omega Engineering
OMNI CELL - Chomerics, :W.R. Grace
OMNICLOSURE - Techmar
OMNICUTTER - ELVO: of Zumbach Electronics Corporation
OMNIFLO - EG & G Flow Technology
OMNI-GLOW - Industrial Devices
OMNIGRAPHIC - Houston Instrument
OMNIMODE - Racal-Milgo
OMNIMUX - Racal-Milgo
OMNIPROX - Scientific Technologies
OMNISCRIBE - Houston Instrument
OMNISCRIBE - The Recorder
OMNI-SPRA - Tech Spray
OMNI-STRIPPER - Mann, Henry
OMNY-BUS - Methode Electronics
OMNY-PAC - Methode Electronics
ONCE - Motorola Semiconductor Prods.
ONE CHIP PLUS - Capital Equipment Corporation
ONéLINE SERIES - Dynamic Power Systems
ON-SIGHT - Cognex
ONSPEC - Heuristics
ON THE BALL - Merix Chemical
OOPS PROOF - Beckman Industrial
OPCOA - Electronics Research Associates
OPEN-BRIK - Powerex
OPIC - Sharp Electronics
OP-TACH - Amprobe Instrument
OPTACH - HH Controls
OPTALIGN - Cinch Connector
OPTASPLICE - Cinch Connector
OPTECON - Data Technology
OPTEL - Electronics Research Associates
OPTEMP - Beede Electrical Instrument
OPTICAL ENCODERS - U. S. Digital
OPTIGUARD - Dow Corning
OPTIGUIDE - Mitec Electronics
OPTI-KEY - Bowmar Instrument
OPTI-LIGN - In.Circuit Test
OPTIMATE - AMP
OPTIMATION - Julie Research Labs.
OPTI-MAX - Solid State Systems
OPTI-MISER - Acme Transformer
OPTODATA - Scientific Technologies
OPTO/LINK - Interoptics
OPTOLITE - OakGrigsby
OPTOLOGIC - Quality Technologies
OPTOMUX - Opto 22
OPTOSAFE - Scientific Technologies
OPTOSWITCH - Scientific Technologies
OPTOWARE - Opto 22
ORANGE DROP - S. B. Electronics
ORASORB - Sel-Rex
OROCLAD - Technic
OROMERSE - Technic
OROSENE - Technic
OROTEMP - Technic
OROTHERM - Technic
ORTHONOL - Magnetics
ORTHOSTAR - FEI Microwave
OSCAR - E & L Instruments
OVERTIME - Eveready Battery
OXYTRON - Sel-Rex
P/REL - OakGrigsby
PACENTER - Pace
PACE/PAK - International Rectifier
PACHYDYNE - Ajax Magnethermic
PACX - Gandalf Data
PADLA - Macrolink
PAESAR - Lutron Electronics
PAGEPAC - Harris
PAK - Dynamic Power Systems
PAK-RAK - Unitrack Industries
PAK-X-TRAC - Nu-Concept Systems
PAL-DOC - H. Wm. Myers
PALINEY - The J. M. Ney
PALLADEX - Sel-Rex
PALLAMERSE - Technic
PALLETEDAC - Integrated Device Technology
PALOMAR - Palomar Engineers
PALOMAR TECHNOLOGY - SKF Condition Monitoring
PAMUX - Opto 22
PANALYZER - Panametrics
PANAPRESS - PanaVise Products
PANCAKE - The Wiremold
PAN-CODE - Panduit
PANDUCT - Panduit
PANELCODER - Disc Instruments
PANELKEY - Advanced Input Devices
PANELMAKER - Berkeley Process Control
PANELMASTER - Esterline Angus Instrument
PANEL MITE - Tech Laboratories
PANELSWITCH - IEE (Industrial Electronic Engineers)
PANEL-TRAN - Acme Transformer
PAN-FLEX - Panduit
PAN-L-SCREW - Dupree
PAN-L-TEMP - EDL
PAN-STEEL - Panduit
PANTEC - C.G. Instruments
PAN-TERM - Panduit
PAN-TY - Panduit
PAN-WAY - Panduit
PAR - General Instrument
P.A.R. - Zytron
PARABOLIX-100 - Merix Chemical
PARACONVERTER - LNR Communications
PARAFORMER - Adtech Power
PARARECEIVER - LNR Communications
PARASOL-II - Berkeley Process Control
PARSHIELD - Parker Seal Group
PARTGARD - Helm Instrument
PARTICU-LO - General Chemical Corporation
PARTILOK - Ferro Corporation
PASO - Paso Sound Products
PASSGUARD - THORN Automated Systems, Inc
PATCHMASTER - Cinch Connector
PATCHMATE - ADC Telecommunications
PATHFINDER - Bishop Graphics
PATHFINDER - Teledyne Gurley
PATRIOT - Aydin
PAVE-MATE - PAVE Technology
PCB IMPAC - Semtech
PCB-TAINER TM - EG & G Birtcher
PC-ELEVATOR - Applied Reasoning
PC EMULINK - The Software Link
PC-GRAPHOVER - New Media Graphics
PC LAB - Data Translation
PC-LABCARD - American Advantech
P-C-LITE - Visual Communications
PC-MDS - The Software Link
PC-MDS GATEWAY - The Software Link
PCMS - RACET Computes, Ltd.
P-CNC - Mektronix Technology
P-CONN - Panduit
PC-PLOT - MicroPlot Systems
PC SEMPER - Data Translation
PC SHARE - Zaki Corporation
PC-TRON - Bussmann:Cooper Industries
PC/4000 - Micro Palm Computers
P-DOS - Eyring
PDS PLANAR DIFFUSION SOURCES - The Carborundum
P E C - Promax-Johnton Electronic
PECOS - Ohmite Manufacturing
PED-A-VAC - Pace
PEEL-A-WAY - Advanced Interconnections
PEE-WEE - Mueller Elec.
PEGASUS - Crane Electronics
PEGI - Adalet-PLM/ of Scott & Fetzer
PELCOLOY - Molecu-Wire
PEM - Penn Engineering & Manufacturing
PEMFLEX - Penn Engineering & Manufacturing
PEMHEX - Penn Engineering & Manufacturing
PEM-SERTER - Penn Engineering & Manufacturing
PENFILE - Jonard Industries
PEN-RAY - UVP
PENTAFLOW - Interfan
PEN WAND - Interactive Computer Products
PERFEC - Advanced Hardware Architectures
PERFORMAXX - Electrochem Industries
PERI-APOLLAR - Heitz, Karl
PERMABOND - Alpha Metals
PERMACOTE - Miller Dial
PERMAFOAM - Carol Cable
PERMALINE - Carol Cable
PERMANODE - Sel-Rex
PERMA-SHIELD - Brady, W. H.
PERMA SLEEVE - Brady, W. H.
PERMA-SLIK - E/M Corporation
PERMOHM - Cooper Industries/Belden
PERM-O-PAD - Bivar
PERSONAL-CNC - Mektronix Technology
PESCHEL - Hipotronics
PGADESIGNER - Minc
PGA E-Z MOUNT - Thermalloy
PHASAR-TACH - Monarch Instrument
PHASOR - Ajax Magnethermic
PHENOWELD - Hardman A Harcros Chemical Group
PHI-DECK - Phi Technologies
PHILIP - Pixelworks
PHOTO-BOARD - Global Specialties
PHOTOCOR - Corning
PHOTO ETCH - Datak
PHOTO-OPTIC - Dolan-Jenner Inds.
PHOTOZOOM - Cambridge Instruments
PH SOLUTIONS - Omega Engineering
PIANO-DIP - Grayhill
PIC - Microchip Technology
PICABOND - AMP
PIC-A-DIP - Micro Electronic Systems
PICGRIND - Giddings & Lewis-Nexes Automation
PICK-A-BACK - EG & G Flow Technology
PICLINK - Giddings & Lewis-Nexes Automation
PICLOCK - Giddings & Lewis-Nexes Automation
PICMOTION - Giddings & Lewis-Nexes Automation
PICOCHIP - Endevco Corporation
PICOPROBE - GGB Industries
PICOTRIM - Voltronics Corporation
PIC409 - Giddings & Lewis-Nexes Automation
PIDG - AMP
PIELEFORK - Murata Manufacturing , Ltd.
PIELEOSCILATOR - Murata Manufacturing , Ltd.
PIEZOFET - Wilcoxon Research
PIEZORINGER - Murata Manufacturing , Ltd.
PIEZOTITE - Murata Manufacturing , Ltd.
PIGMY-HIPPO - Mueller Elec.
PINGUIDE - Mann, Henry
PINLITES - Electronics Research Associates
PIN SERIES - Gandalf Data
PINSETTER - MOLEX
PINSTAMP - Telesis Controls
PINWRITER - NEC Technologies, INc.
PIPETRON - Electro-Support Systems
PIROVETTE - Infometrix
PISTONCAP - Sprague-Goodman Elctrns.
PITMO - PITTMAN
PLANAR CROWN - Lucas Weinschel
PLANAR PAK - Avantek
PLANER - Planar Systems
P-LANGUAGE - GME Systems
PLASMAFLEX - Babcock Display Products
PLASMAFLUX - Walker Scientific
PLASTI-BOND - AMP
PLASTIDOME - Andrew
PLASTIFLEX - The Auburn Manufacturing
PLASTIFORM - Jobmaster
PLASTI-GRIP - AMP
PLASTILEASE - Lilly-Ram Industries
PLASTINITE - Fastex
PLASTI-PLUGS - Fastex
PLASTI-RING - Fastex
PLAST-N-GLASS - Chemtronics
PLATANEX - Sel-Rex
PLATANIUM - Sel-Rex
PLATO - Crane Electronics
PLAY MATES - Speco
PLC VISION - Ball Corporation
PLDESIGNER - Minc
PLENAIR - Teledyne Thermatics
PLICE - Actel Corporation
PLOTAMATIC - Allen Datagraph
PLUGAROUND WIRELESS SOUND - Recoton
PLUGMOLD - The Wiremold
PLUG STAT - Control Products
PLUMB - Cooper Tools
PLUMBICON - Philips Components Discrete Products , A North American Philips Co
PLUMBICON - Philips Components Discrete Products
PLYCON - Methode Electronics
PLYO-DUCT - Methode Electronics
PM-GRAPH - Esterline Angus Instrument
POCKET FLOW - Kurz Instruments
POCKET-PROBE - EDL
POCKET-TACH - Monarch Instrument
POGO CONTACT - Augat/Pylon
POGO LAMP - Dupree
POINTFINDER - Teledyne Gurley
POINT GUARD - Litton Poly-Scientific
POLA-H - Chomerics, :W.R. Grace

POLARHEX - Hughes Aircraft
POLARIS - IEE (Industrial Electronic Engineers)
POLASHEET - Chomerics, :W.R. Grace
POLASTRIP - Chomerics, :W.R. Grace
POLY * CAL - GM Nameplate
POLYCOHR - CHR
POLY-DIMENSIONAL - Amco Engineering
POLYFLEX - Eagle Signal Controls:A Mark IV Inds.
POLYFLEX - Judd Wire
POLYGLAS - Liberty Polyglas
POLYHAL - Judd Wire
POLY-META-SYMBOLICS - Step Engineering
POLYPAD - Bergquist
POLYPLY - PolyPly
POLYPRO - CUNO
POLYRAD - Brand-Rex
POLYRITE - PolyPly
POLY-TOUCH - Miller Dial
POLYTWIST - Litton Poly-Scientific
PORCUPINE METALASTIC - Chomerics, :W.R. Grace
PORON - Rogers
PORTA-CURE - American Ultraviolet
PORTANIM - Berkeley Nucleonics
PORTA-PACK - Brady, W. H.
PORTA-PEAK - Helm Instrument
PORTA-PROCESSOR - Teledyne Ryan Electronics
PORTA Z - Sencore
PORT COMMANDER - Point 4 Data
PORTFOLIO - Tele-Denken Resources
PORTION-AIRE - Glenmarc Manufacturing
POSI-CHIP - Fenwal Electronics, /APD
POSI-CRIMP - Teledyne Ansonia
POSI-GROUND - Hexacon Electric
POSI-LOCK - ITT Sealectro
POSISTOR - Murata Manufacturing , Ltd.
POSITRAK - Delta Design
POST/BOXE - Methode Electronics
POSTLATCH - Burndy Corporation
POT-RITE - Alpha Metals
POUNDER - Pyle Industries
POWERBASE - Motorola Semiconductor Prods.
POWER COMMANDER - Perma Power Elctrns.
POWERDEX - Gould
POWERDIAL - Lutron Electronics
POWERFET - Teledyne Crystalonics
POWERFLYTIC - Sprague Electric
POWERHOUSE - Dynatech Computer Power
POWERITE - Sencore
POWERLOGIC - Square D Power Protection Systems
POWERMAKER - Square D Power Protection Systems
POWER MASTER - Shure Brothers
POWERMATE - NEC Technologies, INc.
POWER MEG - Pacer Industries
POWER MISER - Westinghouse Electric
POWEROHM - Ferro Corporation
POWER-O-MATIC 90 - Blue M, A Unit of General Signal
POWER PAC - Power Pac
POWER PROCESSOR - Powercube
POWERPROFILER - Basic Measuring Instruments
POWER-READY - Acme Electric Corporation
POWERSAFE - Computer Products
POWERSCOPE - Basic Measuring Instruments
POWER SCREEN - Intepro Systems
POWER SENTRY - Surgeonics Limited
POWERSTAR - Alexander Batteries
POWERSTAR - Intepro Systems
POWERSTAT - Superior Electric
POWERSTICK - Gates Energy Products
POWERSTRESS - Intepro Systems
POWER-STRIPMASTER - Ideal Industries
POWER-STYLE - Square D
POWERTALK - Basic Measuring Instruments
POWERTAP - Motorola Semiconductor Prods.
POWERTEST - NH Research, Instrumentation Products
POWERTRON - Industrial Test Equipment
POWERTRON - Powertron Corporation
POWERTRONS - Zytron
POWERVISA - Basic Measuring Instruments
POWER WAVE - Recoton
POW-R-BLOK - Powerex
POW-R-BRIK - Powerex
POW-R-DISC - Powerex
POW'R ETCH - Datak
POWR-RIB - Ohmite Manufacturing
POW-R-SAFE - Multi-Amp
POW-R-TOW - Berg, W. M.
POW-R-VEE - Berg, W. M.
PRB LINE - Projector Recorder Belt
PRECIPLACER - ELVO: of Zumbach Electronics Corporation
PRECISION - Precision Interconnect
PRECISION DUSTER - Tech Spray
PRECISION-MASTER - Ideal Industries
PRECISION PRINTER II - Tech Spray
PREKOTE - Tech Spray
PRE-MET - Sel-Rex
PRE-PACK - Lutron Electronics
PRESSERTS - Precision Metal Products
PRESS-FIT - ITT Sealectro
PRESSLITE - OakGrigsby
PRESS-LOK - Aries Electronics
PRESSMATE - Graphics Microsystems
PRESS-TO-HEAT - ESICO/TRITON
PRESSURE LINES - Omega Engineering
PRIMARY STORAGE - Zitel Corporation
PRINCESS - Ungar
PRINTDIRECTOR - Digital Products
PRINT STIX - Topflight
PRITCHARD - Photo Research:Kollmorgen
PROB-A-LARM - Princo Instruments
PRO-DUCER - Dieterich Standard
PROFESSIONAL - CELCO
PROLOGUE - Shure Brothers
PROLOID - Teledyne Ryan Electronics
PROMAC - CMV Software Specialists
PROMAX - Promax-Johnton Electronic
PROMAX-JOHNTON - Promax-Johnton Electronic
PROMPRO - International Instrumentation
PROMUX - Grayhill
PRONTO - Thermo Electric
PROPHET - Timeplex
PROSCAN - Advanced Video Products
PRO-SET - Blue M, A Unit of General Signal
PRO-STAR - Blue M, A Unit of General Signal
PROSWITCH - IEE (Industrial Electronic Engineers)
PROTAB - CMV Software Specialists
PROTECTOCOATS - Alpha Metals
PROTECTOGLOVE - Clean Room Prods.
PROTECTOMATIC - Schott Glass Technologies
PROTECTOR PACKS - Lumex Opto/Components
PROTECTOX - Technic
PROTISTOR - Ferraz Corporation
PROTO-BOARD - Global Specialties
PROTO BOARD - Regulus Systems
PROTOBOOK - E & L Instruments
PROTO-CARD - Global Specialties
PROTO-CLIP - Global Specialties
PROTO-KEY - Global Specialties
PROTOLOY - Molecu-Wire
PROTONEX - Sel-Rex
PROTOPAK - Global Specialties
PROTO-PAK - International Instrumentation
PROTRIP - CMV Software Specialists
PRO-TRONIX - Blue M, A Unit of General Signal
PROVICTOR - Victor Elec. Wire & Cable
PROXIMITOR - Bently Nevada
PRO-ZIF - Wells Electronics
PRO-700 - Blue M, A Unit of General Signal
PSM - Adatek
PUL-A-DIP - Micro Electronic Systems
PULL-OFF-CARRIER - Andon Elctrns.
PULL-THRU - Hughes Aircraft
PULSAR - Heat System
PULSAR II - E-Squared Technology
PULSECAP - American Radionic
PULSER - Associated Research
PULSERAD - Physics International
PULSISTOR - Victory Engineering
PUPPETS - Bishop Graphics
PUR-A-GOLD - Sel-Rex
PURE CORE - Alpha Metals
PURE-STAT - Maine Poly
PURITAN - Tansitor Electronics
PURSE LOCK - Fastex
PUSH BITE - Minelco - A Talley Ind.
PYLE DRIVER - Pyle Industries
PYR-AU-BOND - Sel-Rex
PYREX - Corning Glass Works
PYROCOAT - SpecTran
PYRO-DUCT - Aremco Products
PYROMARK - Tempil
PYRO-SCOPE - Capintec Instruments
PYROTRON - Bailey Controls
PYROTRON - Endevco Corporation
PYROVIEWER - ElectroPhysics
QALTA - Macrolink
QC TALK - Labtronics
Q-FLEX - Sundstrand Data Control
QIKEJECT - Burndy Corporation
QIKLATCH - Burndy Corporation
QIKMATE - Burndy Corporation
QIKSTACK - Burndy Corporation
Q-MONITOR - Codar Technology
Q/PAC - Rogers
Q-PAD - Bergquist
Q-TIMER - Codar Technology
QUAD-SHEET DIGITIZER - ALTEK Corporation
QUAD-LED - Dialight Corporation
QUAD PAK - Opto 22
QUADRAC - Teccor Electronics
QUADRADAR - ITT Gilfillan
QUADRA-TONE - Audiosone
QUAD-SPRING - Garry Electronics an LPL
QUALIFIBER - Dolan-Jenner Inds.
QUALIFIER - Pioneer Research
QUANTA - Newport Electronics
QUANTACHRON - Matrix
QUAN-TECH - QUAN-TECH
QUASI-VISION - Dolan-Jenner Inds.
QUENCHARC - ITW Paktron
QUICK ALERT - C-COR Elctrns.
QUICKCABLE - Manhattan Electric Cable Corporation
QUICK CAPTURE - Data Translation
QUICK CONNECT - Ostby-Barton Test Probes
QUICK DRAW - L & L Special Furnace
QUICK-E-POLES - The Wiremold
QUICK GRIP - Antenna Specialists
QUICKIE - DuPont Connector Systems
QUICKPRO - Fujitsu Microelectronics
QUICKTIP - Leeds & Northrup, General Signal
QUICKTRIM - Amphenol RF Operations
QUICK-WEDGE - Kedman
QUICK-2-LOCK - Berg, W. M.
QUIET FORCE - Howard Industries
QUIK/CIRCUIT - Bishop Graphics
QUIK KLIPS - Brim Electronics
QUIKLINK - Cambridge Electronics Laboratories
QUIK-PICK 48 HOUR SYSTEM - American Technical Ceramics Corporation
QUIK/PIK - Akro-Mils
QUIK-WRAP - Jonard Industries
QUIL - Motorola Semiconductor Prods.
QUIN-TONE - Audiosone
QUIPTRON - Equipto Electronics
QWIK-TY - Glenair
RACE - Data Race
RACK-ALL - Fancort Industries
RA-CON - EBY
RADIAX - Andrew
RADI-FLUX - Hy-Cal Engineering
RADPLANE - Glenro
RADROUND - Glenro
RAHAM - General Microwave Corporation
RAILITE - Tensolite
RALLY RAP - ICO-RALLY Corporation
RAMAGE - Avelem
RAMANEL - Lilly-Ram Industries
RAMASET - Lilly-Ram Industries
RAMBO - Onset Computer
RAM PART - Lilly-Ram Industries
RANGE RIDER - TEGAM
RAPIDRIV - Vaco Products
RAPID-SET - Mereco Products
RAPID-SYN - Rapidsyn
RAP-TIGHT - All-States
RASCO - Champion Technologies
RATE/CON - S Squared Electronics
RATEWATCHER - Leybold Inficon
RATIO-PROBE - Capintec Instruments
RATIO-SCOPE - Capintec Instruments
RAYMASTER - Gates, Geo. W.
RAYNGER - Raytek
RAYOSCAN - Leeds & Northrup, General Signal
RAYOTUBE - Leeds & Northrup, General Signal
RAYSISTOR - Raytheon
R-BOX - IET Labs
RBS—AC - Control Technology
RC-BOX - IET Labs
RDSP HIGHWAY - Rhetorex
REACTALLOY - EMCA-REMEX Products
READE - Reade Advanced Materials
READY CACHE - Zitel Corporation
REAL-WORLD - Industrial Computer Designs
RE-CIRK-IT - Heinemann Electric
RE-COIL - Miller, L.C.
RECON - Digital Dynamics
RECON MICA - Stanley Electronics
RECORDALL - The Recorder
RECORD-A-TEMP - EDL
RECOVER EASE - Ontrack Data Recovery
RECTIGRAPH - Esterline Angus Instrument
RECTODYNE - Christie Electric
RED LINE - MISCO/Minneapolis Speaker
RED ARROW - Savoy Electronics
REDDI-BLENDER - Tra-Con
RED-EYE - Capintec Instruments
RED-HAT - Automatic Switch
REDI AIR - Automatic Switch
REDI-BAR - Hoffman, P.R., , Materials Proc
REDI-TROL - Electrol
REEDAC - Gordos
REEDLAYS - Computer Components
REEL-QUIK - Alpha Wire
REEVELEC - Reeve Electronics
REF BLOC - Hy-Cal Engineering
REF CEL - Hy-Cal Engineering
REFLEX - Christie Electric
REFLEX - Precision Interconnect
REFRACTOSYN - HH Controls
REGAL - Electro-Science Labs.
REGATRAN - Electronic Measurements
REGATRON - Electronic Measurements
REGATTA - Amherst International
REL - Richardson Electronics, Ltd.
RELAYMASTER - Master Electronic Controls
RELCO - Ritz Electronics/Relco

RELCO - U.S. Power Converting /Relco
RELEX - RAYOVAC Corporation
RELIABRAZE - Alpha Metals
RELI-ACON - Methode Electronics
RELIACOR - Alpha Metals
RELIAFOAM - Alpha Metals
RELIALAB - Tenney Engineering
RELI-ALOK - Methode Electronics
RELI-APAC - Methode Electronics
RELI-APLANE - Methode Electronics
RELI-APLUG - Methode Electronics
RELIAROS - Alpha Metals
RELIASOLV - Alpha Metals
RELIA-TEMP - EDL
RELIATEMP - Tenney Engineering
RELIFLEX - DuPont Connector Systems
RELIMATE - DuPont Connector Systems
REMAT - Digital Dynamics
REMOTECTOR - Superior Electric
REMOTE LANVIEW - Cabletron Systems
REMOTE TALK - Network Software Associates
REMOVE-A-PAD - Dynaloy
REMOV-IC - Solder Removal
REMRAD - Nuclear Research
REPLENISHER - IVEK
RESIDUMETER - Jobmaster
RESINITE - Precision Paper Tube
RESISTWEEZ - Pace
RES-LOK - Sinclair Radio Laboratories Ltd.
RESNET - Beckman Industrial
RESOLON - Duncan Electronics
RESOMICS - Murata Manufacturing , Ltd.
RESTECH - ChemRex
RESTORER - Telenex Corporation
RES 1 GLAS - Fibertek
RETIP - Solder Removal
RETROKIT - Heidenhain
REVER-SYNCLAMPS - Timber-Top
REVEX - PMI Motion Technologies
RF GAIN - Richardson Electronics, Ltd.
RF*MACRO - Motorola Semiconductor Prods.
RGB/VIDEOLINK - RGB Spectrum
RGB/VIEW - RGB Spectrum
RHENEX - Sel-Rex
RHEOMET - Kester Solder
RHINO-HIDE - Pacific Electricord
RHODEX - Sel-Rex
RIBBON AX - W.L. Gore
RIBBON LINE - W. L. Gore
RIBBON WRAP - W.L. Gore
RIB-CAGE - DuPont Connector Systems
RIB LOCK - Genisco Technology
RIGEL II - Motortest
RIGEL-II - Motortest
RINGAR - Ballco
RINGER - Sencore
RIPPLE ROUND - Alpha Metals
RIPPLEWELD - ITW Paktron
RITEOHM - Ohmite Manufacturing
RITE-TRAK - Instrument Specialties Headquarters
RITE-WIRE PLUG - Brim Electronics
R-LITES - Genisco Technology
ROBOTEC - Power Designs
ROLCOM - Coors Ceramics
ROLIVAM - Infranor
ROLL CALL - Vibra-Metrics
ROLOX - Hardman A Harcros Chemical Group
ROMIS - Bently Nevada
ROMULATOR - Onset Computer
RONOVI - International Machine & Tool
ROTA-CRIMP - AMP
ROTA-SLIDE - C & K Components
ROTO-DROSS - Atlantic Magnetics
ROTOPULSER - Dynapar
ROTOR FLOW - Gems Sensors
ROTO-TRACK - Barnes Engineering
ROUGHNECK - RAYOVAC Corporation
ROW-L-ER - Berg, W. M.
ROYALITIC - Charles Inds. Ltd.
RUBICON - Transicoil
RUF-NEK - Hughes Aircraft
RUSH - Eraser
RUSSELLSTOLL - Buchanan
RUTHENEX - Sel-Rex
RUTILCON - Taiyo Yuden (USA)
SAFE-ALARM - Thermax Wire
SAFELINE - Sylvania Lighting -U.S.
SAFE-PAK - Gems Sensors
SAFESCAN - Dolan-Jenner Inds.
SAFE-T-GRIP - Ideal Industries
SAFE-T-KLIP - Industrial Devices
SALI - Adalet-PLM/ of Scott & Fetzer
SAM - Wavetek RF Products
SAMATIC - Samatic Winding Machine
SAMPLE & SEND - International Technologies
SANTOTRAC - Monsanto
SATFIND-406 EPIRB - Alden Electronics
SATORI - Coherent
SAV-CON - Glenair
SCAN-CAD - Houston Instrument
SCANSWITCH - Motorola Semiconductor Prods.
SCANTEMP - Markem
SC-CONSIL - Tecknit (Eastern Facility)
SCEPTRE - Golden Pacific Electronics, Inc
SCHEMA III - Ornation
SCHOTT DIRECTRITE - Schott Glass Technologies
SCOLOR - The First Electronics
SCOTCHFLEX - 3M-Electronic Products
SCOTCHLOK & SCOTCHCODE - ICO-RALLY Corporation
SCREEN WRITER - MicroTouch Systems
SCULPTURED CIRCUITS - Advanced Circuit Technology
SEA BEAM - General Instrument
SEAFORCE - General Instrument
SEALCAP - Sprague-Goodman Elctrns.
SEALINK - Burndy Corporation
SEAL-TRIMS - Johanson Manufacturing Corporation
SEARCH PRO - Direct Aid
SECRE/DATA - S Squared Electronics
SECUR-A-TACH - Dennison Mfg.
SECUR-A-TIE - Dennison Mfg.
SECUR CODE II - Control Module
SECURE-COPY - Video Automation Systems
SECUREX - Canada Wire and Cable Limited
SE-CUR-IT - Ambroid
SECURSTRIP - Control Module
SF/DUROID - Rogers
SEED - Cooper Industries/Belden
SEICO - Syscon Intl.
SEISMOPROBE - Bently Nevada
SEIS VIEW - EG&G Geometrics
SELECT-O-TEMP - Hexacon Electric
SELECTROL - Thermo Electric
SELECTRONIC - JMR Electronics
SELF-LOC-K - AirBorn
SELF-TUNE - Love Controls
SEL-MASQ - Sel-Rex
SEMCONN - MOLEX
SEMI/DYNE - LogiMetrics
SEMI-FLEX - Quality Microwave Interconnects
SEMIPACK - Semikron
SEMISTACK - Semikron
SEMITRON - Bussmann:Cooper Industries
SEMPER - Synoptics, Ltd.
SENSABLE - Hy-Cal Engineering
SENSA TEMP - Pace
SENSE & SWITCH - International Technologies
SENSEFET - Motorola Semiconductor Prods.
SENSIMETER - Hy-Cal Engineering
SENSITOUCH - Bowmar Instrument
SENSOHM - Ferro Corporation
SENSORBEAD - Sensor Scientific
SENSORCHIP - Sensor Scientific
SENSOR-MATE - Weed Instrument
SENSORNET - Namco Controls
SENSORPROBE - Sensor Scientific
SENTARA 324 - Honeywell
SENTINEL III - Leybold Inficon
SENTREX - The Wiremold
SENTRILINE - Bird Electronic
SERENDIP - Teledyne Solid State
SERPAC - Serco Products :Serco Mold
SERVICEMASTER - International Components
SERVODISC - PMI Motion Technologies
SERV-RITE - Gordon :Watlow
SHAWMUT - Gould Shawmut
SHAWNEE - Automatic Timing & Controls
SHEAR-SEAL - Barksdale Controls
SHEER-SHIELD - Zippertubing
SHIELD CELL - Chomerics, :W.R. Grace
SHIELDMESH - Chomerics, :W.R. Grace
SHIELDOFLEX - CICOIL CORP.
SHIELD-PLUS - Daburn Electronics & Cable
SHIELDSCREEN - Chomerics, :W.R. Grace
SHIELD TAPE - Chomerics, :W.R. Grace
SHIELD-VU - Chomerics, :W.R. Grace
SHIELD WRAP - Chomerics, :W.R. Grace
SHOCK LOG - Vibra-Metrics
SHOCK SENTRY - Eagle Electric Mfg.
SHOCKWATCH - Media Recovery
SHO-PAK - Eagle Electric Mfg.
SHOPSHEET - Telesis Controls
SHO RATE - Brooks Instrument
SHORT SQUEEK - E & L Instruments
SHRINK-ABLE - ABL Electronics Supply
SHRINKDOWN - Markel
SIAMESE - Montrose Products
SIDACTOR - Teccor Electronics
SIDE WINDER - Stancor
SIGNAFAX - Alden Electronics
SIGNAGUARD - Signatron
SIGNALEX - Staver
SIGNALOCK - LogiMetrics
SIGNATURE - Bristol Babcock
SILASTIC - Dow Corning
SILCAD - Yardney Technical Products
SILENT PARTNER - Industrial Computer Designs
SILENTWRITER - NEC Technologies, INc.
SILFIL - Elastomeric Technologies
SILICA-SEAL - Ferro Corporation
SILIC-O-NETIC - Heinemann Electric
SILKON 35 - Chemtronics
SIL-PAD - Bergquist
SILTHERM - Industrial Dielectrics
SILVAINT - Murata Manufacturing , Ltd.
SILVERCEL - Yardney Technical Products
SILVERFILM - Charles Inds. Ltd.
SILVER-GRIP - PIC Design
SILVER II - RAYOVAC Corporation
SILVER STAR DELAYS - Television Equipment
SILVERSTAT - Edsyn
SILVER STAX - Elastomeric Technologies
SILVERWELD - Bourns
SILVREX - Sel-Rex
SIMULASER - Simulaser
SIMULINE - Comstron A of Aeroflex
SINE-UPS - Electronic Specialists
S.I.R. - Geophysical Survey Systems
SITEWATCH - THORN Automated Systems, Inc
SITRONIC - ING. F. P. KOGL
SKANDLE - Lazer Data
SKID-MATE - Hardigg Inds.
SKINI-DIP - Meret Optical Communications
SKINNY DIP - SFE Technologies
SKY CAP - AVX Corporation
SKYLARK - Lutron Electronics
SKY-TIE - Adalet-PLM/ of Scott & Fetzer
SLAPSHOT PULSERS - Plasma Research
SLEEV-SCRU - Augat/Pylon
SLENDYNE - Shure Brothers
SL-GMS - SL Corporation
SLIDELINE - Duncan Electronics
SLIDE LITE - Leecraft Mfg.
SLIM JR. - Hexacon Electric
SLIMLINE - Weschler/NES Instruments
SLIMPAC - Semtech
SLIMPAK - American Zettler
SLIM-SNAP - Sperry, A. W. Instruments
SLIM SR. - Hexacon Electric
SLIMSWITCH - Digitran
SLIM-TRACK - Barnes Engineering
SLIMVIEW - Weschler/NES Instruments
SLIP-LOCK - U.S. Terminals
SLIT-N-WRAP - Vector Electronic
SLO-BLO - Littelfuse
SLO-SYN - Superior Electric
SLOT BOARD - Ampro Computers
SMAC - Endevco Corporation
SMART - Standard Microsystems
SMART BITE - Minelco - A Talley Ind.
SMARTDESCRETES - Motorola Semiconductor Prods.
SMART DIGITIZER - ALTEK Corporation
SMARTECH - Burndy Corporation
SMART FAN - Control Resources , Smart Fan
SMART-LINE - Dataprobe
SMARTMOS - Motorola Semiconductor Prods.
SMART SOURCE - Pacific Power Source
SMARTSWITCH - Motorola Semiconductor Prods.
SMARTWORK - Wintek
SMD - Philips Components Discrete Products
SMD GRABBER - Pomona Electronics
SMD-TRON - Bussmann:Cooper Industries
SMOOTH CUBE - Quality Power Systems
SNAIL - Augat/Pylon
SNAP - Automatic Timing & Controls
SNAPAK - Airpax-Cambridge
SNAP CONNECTOR - Advanced Circuit Technology
SNAPFLEX - Bowmar Instrument
SNAPLITE - Leecraft Mfg.
SNAP-ON - Vibra-Metrics
SNAPSHOT - Bently Nevada
SNAPSHOT - Photon
SNAP STAT - Control Products
SNAP-TAINER TM - EG & G Birtcher
SNAP-TITE - Instrument Specialties Headquarters
SNAPTRACK - Augat/RDI
SNAPTROL - CTS Corporation
SNIPE - OakGrigsby
SNO GUN - VA-Tran Systems
SNOOP LOOP - Sencore
SOAR - C.G. Instruments
SOCKETRAC - Custom Connector
SOCKET-SERT - Hybricon Corporation
SOCKETS-PLUS - Perma Power Elctrns.
SOD - Solitron Devices
SODEREZE/155 - Phelps Dodge Magnet Wire
SODER-MASK - Solder Removal
SODER-WICK - Solder Removal
SODR-X-TRACTOR - Pace
SOFKEY - EECO
SOF SWABS - Clean Room Prods.
SOFT LANDING - Benchmarq Microelectronics
SOFTPLC - Tele-Denken Resources
SOFTPOT - U. S. Digital
SOFT SHIFT - Lucas Ledex
SOFTWIRES - Tele-Denken Resources
SOFTY - Clauss Cutlery
SOGGY FOIL - Cornell-Dubilier Elctrns. (Intl. Sls., Distbn. Warehouse)
SOLAR - E-Squared Technology
SOLAR INFRARED - Casso-Solar
SOLAR UNITUBE - Casso-Solar

SOLATRON/ACUVOLT - Sola
SOLDAPULLT - Edsyn
SOLDER-AID - OK Industries
SOLDEREX - Sel-Rex
SOLDER MASTER - Hexacon Electric
SOLDER-OFF - Kester Solder
SOLDER SIGNATURE - Metcal
SOLDER STRAP - Metcal
SOLDR-MITE - Wall Lenk Corporation
SOLIDIZED - ABL Electronics Supply
SOLID-TUBES - Electronic Devices
SOLISTRAND - AMP
SOLO - Land Infrared
SOLOK - DuPont Connector Systems
SOLU BRIDGE - Rosemount Analytical
SOLU CHEK - Rosemount Analytical
SOLUCOMP - Rosemount Analytical
SOLU METER - Rosemount Analytical
SOL-U-SALT - Sel-Rex
SONABOX - Heat System
SONA GRAPH - Kay Elemetrics
SONALERT - Mallory/North American Capacitor
SON-CASTER - Ansonics
SONICALL - Sonicall
SONICATOR - Heat System
SONIMIST - Heat System
SONOBAR - Shure Brothers
SONOCELL - Kistler-Morse
SONOLOGIC - Kistler-Morse
SONOWELD - Sonobond Ultrasonics
SON-TECTOR - Ansonics
SOOPERSPOOLER - Consolink
SORN - Sprague Electric
SOUNDCASTER - Paso Sound Products
SOUND DIRECTOR - Argos Prods.
SOUND MASTER - Covox
SOUND MATES - Speco
SOUND SCENE - Shure Brothers
SOUND SCOPE - Shure Brothers
SOURCE - Fortron/Source
SPACE MISER - Philips Components Discrete Products
SPADE-LOK - AMP
SPARK GUN - Morgan-Matroc
SPASAVER - ITW Switches
SPECIFIX - Intellution
SPECTRAGUIDE - SpecTran
SPECTRA SCAN - Photo Research:Kollmorgen
SPECTRAY - Leeds & Northrup, General Signal
SPECTROLINE - Spectronics
SPECTRON - Telenex Corporation
SPECTRUM - Cabletron Systems
SPEECH DIRECTOR - Argos Prods.
SPEECH THING - Covox
SPEEDIAL - Lutron Electronics
SPEEDIP - Mann, Henry
SPEEDOMAX - Leeds & Northrup, General Signal
SPEED READER - Analog Devices
SPEED-WRAP - OK Industries
SPHINCTER - Augat/Pylon
SPIKE-SPIKER - Kalglo Elctrns.
SPINGUARD - AVX Corporation
SPINWRITER - NEC Technologies, INc.
SPIRADEL - Allen Avionics
SPIRALTRON - Galileo Electro-Optics
SPIRAL WELD - Fastex
SPIRAP - AMP
SPIRA-SHIELD - Magnetic Shield Corporation
SPIRFLAME - Solder Absorbing Technology (SAT)
SPLITFORM - Microtran
SPLIT/TRAN - Signal Transformer
SPOOLX - Algo
SPORTSMAN - RAYOVAC Corporation
SPOT CHECK - Pacific Transducer
SPOTMATIC - Auric
SPOTMETER - Photo Research:Kollmorgen
SPOT-ON - Multicore Solders
SPOTSCAN - Photon
SPOX - MOLEX
SPRING LOC - Garry Electronics an LPL
SPRINGTER - Augat/Pylon
SPRING-THING - Southco
SPUTTER-RING - Temescal/Airco Coating Technology
SPYRALINE - Alpha Metals
SQUARE-CUT - Amphenol RF Operations
SQUARE-PAK - QMI/NIEC
SQUARESTIX - Aries Electronics
S-SYSTEM - Electromatic Controls
STABELEX - Charles Inds. Ltd.
STABILARC - ISOREG
STABIL-GLOW - Blue M, A Unit of General Signal
STABILINE - Superior Electric
STABIL-THERM - Blue M, A Unit of General Signal
STAB-L - Sprague-Goodman Elctrns.
STABLE-LOK - Zierick Manufacturing
STABON - Stackpole, Magnet
STACK - CUI Stack
STAC K BIN - Stackbin
STACKBOX - Stackbin
STACK PLANE - Ampro Computers
STACKRACK - Stackbin
STACKSTIX - Aries Electronics
STACPAC - Semtech
STAKE FASTENER - Dupree
STAKELOCK - Middleberg Corporation/Middco Connectors
STAK'M QUIK - Brim Electronics
STAK PAC - Vicor
STAK PAK - Zippertubing
STALOK - Fastex
STANCAP - Stanley Electronics
STANDARD CLIPPER - Mueller Elec.
STANDARD POWER - Acme Electric Corporation
STANOMERSE - Technic
STAPLE-PRUF - Carol Cable
STAR CHIP - Philips Components Discrete Products
STARDUSTER - Antenna Specialists
STARMASTER - Gandalf Data
STARPOINT PARALLELING - Qualidyne Systems
STAR PORT - Gandalf Data
STA-TEMP - Metcal
STATES - Multi-Amp
STAT-GARD - Ideal Industries
STATICIDE - ACL
STATIC WATCH - Nu-Concept Systems
STATI-EX - Solder Absorbing Technology (SAT)
STAT-KON - ICI Advanced Materials
STAT-O-GIDE - Bivar
STAT-O-MATIC - Nu-Concept Systems
STAT-O-SEAL - Parker Seal Group
STAT PRUF - Amherst International
STATUS SEEKER - Dataprobe
STAVOLT - Christie Electric
STAX - Elastomeric Technologies
STEDI-HEAT - Hexacon Electric
STEELGRIP - Alpha Metals
STEEL-TOUGH - Ideal Industries
STEMCO - United Technologies Control Systems
STENAFAX - Fitchburg Coated Products
STEREOHEDRON - Stanton Magnetics
STEREOWAFER - Stanton Magnetics
STEREOZOOM - Cambridge Instruments
STETRON - Stetron International
STICK-ON LOGGERS - ACR Systems
STICKY MAT - Controlled Environmental Equipment
STICPAC - Semtech
STIK KLIPS - Daburn Electronics & Cable
STOPSLIP - Solder Absorbing Technology (SAT)
STRAINRITE - Star Porcelain
STRATE-BREAKS - Coors Ceramics
STRATO GREY - BayStat
STRATO-THERM - AMP
STRIPALL - Teledyne Kinetics
STRIPMASTER - Ideal Industries
STRIP-MOUNTS - Bivar
STRIP-N-STICK - CHR
STRIPSWITCH - EECO
STRIPTROL - CTS Corporation
STRIPTWEEZ - Pace
STROBETTE - Ametek
STURDILITE - Kewaunee Scientific
STURDI-STAND - Hexacon Electric
STYLE-LITE - Zero
STYLUS - Point 4 Data
SUB-LITE-WALL - Zeus Indl. Prods.
SULFAMEX - Sel-Rex
SUNCAP - Baknor Industries
SUN STICK - Sylvania Lighting -U.S.
SUNVERTER - Abacus Controls
SUN WIPE - Clean Room Prods.
SUPERBRIDGE - Motorola Semiconductor Prods.
SUPER CAESAR - ITT Cannon
SUPERCAP - Baknor Industries
SUPER CHAMP - AMP
SUPERCHARGER - Hand Held Products
SUPERCHIPS - American Technical Ceramics Corporation
SUPERCLUSTER - Parsytec
SUPERCOMPACT - Compact Software
SUPERCON - Superior Electric
SUPERCONDUCTING DIPSTICK - American Magnetics
SUPER-D - Cinch Connector
SUPERECTIFIER - General Instrument
SUPERFAST - Cinch Connector
SUPERFAST - Semtech
SUPERFLEX - Carol Cable
SUPERFLEX - Sundstrand Data Control
SUPERFLOOD - Sylvania Lighting -U.S.
SUPER-GRAPH - Aremco Products
SUPERGUIDE - Fiberguide Industries
SUPERIBBON - Cinch Connector
SUPERINTENDENT - Heuristics
SUPERIOR - Eagle Electric Mfg.
SUPERLITE - Cooper Industries/Belden
SUPERLITE - United Foam Plastics
SUPERMIUM - Brush Industries
SUPER MOD - Cinch Connector
SUPERNOL - Aerovox
SUPER-PLAST - Stock Drive Products
SUPERPLOT - Gulton Graphic Instruments
SUPERPORT - International Instrumentation
SUPERPROMS - Ontrack Data Recovery
SUPER PUNCH - Shure Brothers
SUPER/REG - Trio Laboratories
SUPERSAVER - Sylvania Lighting -U.S.
SUPER SAVER PLUS - Sylvania Lighting -U.S.
SUPERSCRIBE - The Recorder
SUPER SNAP - Philips Components Discrete Products
SUPERSNAP - Philips Components Discrete Products
SUPER-SOURCE - Temescal/Airco Coating Technology
SUPER SPEC - Eagle Electric Mfg.
SUPER STEP - Materials Research Corporation
SUPERSTRATE - Coors Ceramics
SUPER-SUN - Pacific Microcomputers
SUPERSWITCH - Baknor Industries
SUPER-SYNCLAMPS - Timber-Top
SUPER-TORQUE - Beede Electrical Instrument
SUPERTRAC - Control Concepts
SUPERTRAK - Gulton Graphic Instruments
SUPERTRENDS - Heuristics
SUPER-TWISTAGUIDE - Airtron
SUPER/UNI - Power/Mate Corporation
SUPER VISION - Litton Poly-Scientific
SUPER VU-TRON III - Carol Cable
SUPRASHIELD - Alpha Wire
SURE-HOLD - Sencore
SURE-LOCK - Pacific Electricord
SURE-SEAL - ITT Cannon
SURE SITE - Gems Sensors
SURE-TWIST - Amphenol RF Operations
SURFACE STACK - Teledyne Kinetics
SURFBOARD - E & L Instruments
SURFCAP - Sprague-Goodman Elctrns.
SURFCOIL - Sprague-Goodman Elctrns.
SURFILM - ITW Paktron
SURFMATE - Burndy Corporation
SURFTRIM - Sprague-Goodman Elctrns.
SURGE BLOC - Eagle Electric Mfg.
SURGE GARD - Ketema/Rodan
SURGE GUARDIAN - MCG Elctrns.
SURGE MASTER - MCG Elctrns.
SURGE-SAFE - Acme Transformer
SURGISTOR - Stetron International
SURGITRON - Joslyn Electronic Systems
SURMETIC - Motorola Semiconductor Prods.
SUSIE - Aldec
SWEMAR - Leader Instruments
SWIDGET - CW Industries
SWIFT - RCD Components
SWIFTACHMENTS - Dennison Mfg.
SWIM - Samatic Winding Machine
SWITCH-A-ROO 232 - International Instrumentation
SWITCHCARE - DOW SWITCH
SWITCHGUARD - Qualidyne Systems
SWITCHMASTER - Master Electronic Controls
SWITCHMODE - Motorola Semiconductor Prods.
SWITCHMUX - Gandalf Data
SWITCH-PAK - Computer Products
SWITCH PLUS - General Semiconductor Ind.
SWITCH PLUS III - General Semiconductor Ind.
SWIVEL-BLADE - Ideal Industries
SWIVLTOP - Moody Tools
SY BONDEZE - Phelps Dodge Magnet Wire
SY-LENT - Berg, W. M.
SYLGARD - Dow Corning
SY/MAX - Square D
SYNAMP - CML MACARR
SYNCHROMATIC - Schott Glass Technologies
SYNCHRON - Hansen Manufacturing
SYNCHROVISION - Schott Glass Technologies
SYNCLAMPS - Timber-Top
SY/NET - Square D
SYNTHAR - Charles Inds. Ltd.
SYNTHINOL - Consolidated Electronic Wire & Cable
SYNTHITE - Dolph, John C.
SYSNET - Syscon Intl.
SYSTEM FAULHABER - Micro Mo Electronics
SYSTRON - Systron-Donner Inertial
TABL-TOP - Sel-Rex
TACH-IV - Monarch Instrument
TACHLITE - Ametek
TACH-PAK - Airpax Sensor
TACH-TROL - Airpax Sensor
TACTIFLEX - Bowmar Instrument
TAFALOY - Hobart Tafa Technologies
TAG-RING - Glenair
TAIL/EXTENDER - S Squared Electronics
TAK-ETTE - Ametek
TAK/SHIELD - C.A.M. Graphics
TAMELOX - Ohmtek
TANDEM - RAYOVAC Corporation
TANDEMOUNT - Fastex
TANFILM - International Resistive
TANITE - Sprague Electric
TANKARD - Automatic Timing & Controls
TANTALEX - Sprague Electric
TANTAMOUNT - Sprague Electric
TANTAPAK - Sprague Electric
TANTIN - International Resistive
TAPE CABLE - Brand-Rex

TAPE/FOIL - Tapecon
TAPE PAK - Ideal Industries
TAPER-CLAMP - Amphenol RF Operations
TAPOLENE - Tappan Wire & Cable
TA'POT - Howell Instruments
TARGA - Truevision
TARNIBAN - Technic
TATTLETALE - Onset Computer
TAYLOR - Taylor Industrial Software
TAZ-TRANSIENT ABSORPTION ZENER - Microsemi - Scottsdale
TC - Tumbler Cable
TCAS - Endevco Corporation
TDQ - Phoenix Wire
TEACHWARE - LJ Technical Systems
TEAM SYSTEMS - Team Systems
TEAM SYSTEMS - Toyo Spectrum
TEC-CUT - Techni-Tool
TECH - Altek
TECHCLEAN - Tech Spray
TECHMASTER - Sperry, A. W. Instruments
TECHNICART - Leader Instruments
TECH-TIN - Technic
TECKAIRE - Tecknit (Eastern Facility)
TECKBOND - Tecknit (Eastern Facility)
TECKMESH - Tecknit (Eastern Facility)
TECKSHIELD - Tecknit (Eastern Facility)
TECKSOF - Tecknit (Eastern Facility)
TECKSTIK - Tecknit (Eastern Facility)
TECKSTRIP - Tecknit (Eastern Facility)
TECK TERM - Two Technologies
TECLAB - TECLAB
TEC-TAC - Techni-Tool
TEC-TUFF - Techni-Tool
TEENY-TINY-MITE - LH Research
TEFLON - ICO-RALLY Corporation
TEGLAR - Andrew
TEL-A-TONE - Bell, Floyd
TELEDISPLAY - Telegenix
TELE-LINE - Perma Power Elctrns.
TELEM-A-FLOW - Control Microsystems
TELEMAX - Thermax Wire
TELEMETROLL - Bristol Babcock
TELE-POWER - The Wiremold
TELEPRO - Advanced Video Products
TELESAFE - Control Microsystems
TELESAFE VS/2 - Control Microsystems
TELESPIKER - Kalglo Elctrns.
TELESPONDER - Vega Precision Labs.
TELE-SPOT - F-P Electronics
TELFLEX - Chemtronics
TELLEM - Infinetics
TEMPCAL - Howell Instruments
TEMPCUBE - Digital Dynamics
TEMPEREX - Sel-Rex
TEMPGARD - Tenney Engineering
TEMPILABELS - Tempil
TEMPILAQ - Tempil
TEMPILSTIK - Tempil
TEMP-MASTER - Blue M, A Unit of General Signal
TEMP-O-GIDE - Bivar
TEMPOSONICS - Temposonics Sensors
TEMP-R-GLAS - CHR
TEMP-R-TAPE - CHR
TEMPSISTOR - Therm-O-Disc
TEMP STAR - Thermo Electric
TENNTROL - Tenney Engineering
TENSOL-THERM - Tensolite
TENULINE - Bird Electronic
TERM-ACON - Methode Electronics
TERMALINE - Bird Electronic
TERMALUM - AMP
TERMASHIELD - AMP
TERMI-BLOK - AMP
TERMI-FOIL - AMP
TERMI-GRID - AMP
TERMINUS - Litton Poly-Scientific
TERMINYL - AMP
TERMI-PLATE - AMP
TERMI-POINT - AMP
TERMI-TWIST - AMP
TERMO - Panduit
TEST-GLO - Ideal Industries
TESTPAC - Multi-Amp
TETCO - Electric Tachometer
TETRA-CRIMP - AMP
TETRA-ETCH - W. L. Gore
TETRA-THIN - W. L. Gore
TETRINOX - Caddock Electronics
TEX L-88 - Precision Interconnect
TEXTUR TOUCH - C.A.M. Graphics
TFAS - Endevco Corporation
THE ACQUIRER - Omega Engineering
THE BIG SIGNAL - Unadilla Antenna Mfg.
THE BLACK HOLE - International Instrumentation
THE BOS/S - Electronic Measurements
THE BUS MASTERS - Comark
THE DEFINITION OF QUALITY - Planar Systems
THE EYE - Analog Devices
THE FERRET - General Electric
THE GREAT PROTECTORS - United Foam Plastics
THE HANDLERS - Paso Sound Products
THE HORN - Gabriel Electronics
THE ICE-HOUSE - MetaLink Corporation
THE IMPERSONATOR - Direct Aid
THERMACON - Dexter Research Ctr.
THERMAL BLOCK - Quality Power Systems
THERMALBOND - Thermalloy
THERMAL CLAD - Bergquist
THERMALCOTE I - Thermalloy
THERMALERT - Raytek
THERMALEZE N - Phelps Dodge Magnet Wire
THERMALEZE T - Phelps Dodge Magnet Wire
THERMALFILM - Thermalloy
THERMALSIL - Thermalloy
THERMASPLICE - AMP
THERMAZIP - Zippertubing
THERMILINEAR - Yellow Springs Instrument
THERMIVOLT - Yellow Springs Instrument
THERMO-CABLE - Thermo Electric
THERMOCHUCK - Temptronic Corporation
THERMOCOAT - Fiberguide Industries
THERMOCOMP - ICI Advanced Materials
THERMOFLAG - Staver
THERMOFORM - Precision Paper Tube
THERMO-GRIP - Ideal Industries
THERMOHM - Leeds & Northrup, General Signal
THERMO-HUNTER - Capintec Instruments
THERMOLAIN - Star Porcelain
THERMOPAD - Motorola Semiconductor Prods.
THERMOPART - Pace
THERMO PRO - L & L Special Furnace
THERM-O-SCOPE - Capintec Instruments
THERMO-SHRINK - Ideal Industries
THERMO SOCKET - Temptronic Corporation
THERMOSPOT - Temptronic Corporation
THERMOSTREAM - Temptronic Corporation
THERMO-STRIP - Ideal Industries
THERMOTAB - Teccor Electronics
THERMOTERM - Maury Microwave
THERM-O-TRAC - Hexacon Electric
THERMOVANE - Staver
THERMOWATT - Motorola Semiconductor Prods.
THERMOX - Process & Analytical Instruments
THERMOZONE - Temptronic Corporation
THERMSTRATE - Power Devices
THERM-X - Ideal Tape
THE SMART TELEPHONE SYSTEM - Solid State Systems
THE SOFTWARE IS THE INSTRUMENT - National Instruments
THE STATES COMPANY - Multi-Amp
THE TOTAL WORKDAY SYSTEM - Viewlogic Systems
THE UNMOUSE - MicroTouch Systems
THINKING CAP - Global Specialties
THINLAY - Handy & Harman Elctrn. Matls.
THINPAK - American Zettler
THINPANEL - IEE (Industrial Electronic Engineers)
THIN-TRIMS - Johanson Manufacturing Corporation
THINVERTER - Arnold Magnetics
THIN-WALL - Berg, W. M.
THIRSTY WIPE - Clean Room Prods.
THORKOM - Viking Electronics
THREDS - Southco
THREDSEAL - Parker Seal Group
THREE-FIVE SYSTEMS, INC. - Three-Five Sys.
THRIFT/MATE - Sylvania Lighting -U.S.
THRIFTSWITCH - IEE (Industrial Electronic Engineers)
THRULINE - Bird Electronic
THUMB MITE - Tech Laboratories
THYRISTROL - Cross Electronics
THYZORB - General Semiconductor Ind.
TIEMASTER - Mann, Henry
TIGOLD - ULVAC North America Corporation
TILTAR - Dova Controls
TIM - Aldec
TIMEFAX - Fitchburg Coated Products
TIMEKEEPER - Eagle-Picher
TIMEMARK - Fitchburg Coated Products
TIMEPAC - Timeplex
TIMEPRINT - Fitchburg Coated Products
TIME RANGER - Macromatic
TIME/VIEW - Timeplex
TINEON - Leecraft Mfg.
TINITRON - Bussmann:Cooper Industries
TINNIT - Datak
TINY-GLOW - Industrial Devices
TINYMAX - Torwico Elctrns.
TINY-PAK - Mini-Systems
TINY TRIM - Kappa Technologies
TISSUMIZER - Heat System
TITAN - Compact Power
TI-TITE - Daburn Electronics & Cable
TKO - Teka Interconnection Systems
TMOS - Motorola Semiconductor Prods.
TOOLHEAD - Southco
TOOLS OF THE TRADE - Omega Engineering
TOPDOC - Tele-Denken Resources
TOPDRAW - Tele-Denken Resources
TOP FLIGHT - Data Translation
TOP-SLOT - Aries Electronics
TORKDUCER - Mag Dev
TORMAX - IMC Magnetics
TORQSYN - Magtech Controls
TORQ TITE - CW Industries
TORQUE WATCH - Waters Manufacturing
TOUCH DRY - Markem
TOUCH-HOLD - John Fluke Mfg.
TOUCH PEN - MicroTouch Systems
TOUCH-TEST - Sencore
TOUCH THE FUTURE - Aztec Industries
TOUCHVIEW - C.A.M. Graphics
TRA-BOND - Tra-Con
TRA-CAST - Tra-Con
TRACER-FLO - Trio-Tech International
TRANCELL - Koep Precision Standards
TRANSCAP - Tusonix
TRANS-EYE - Shelly Associates
TRANSFILTER - Morgan-Matroc
TRANSHEAT - BTU International, :BTU Systems
TRANSITAINER - Zero
TRANSLOCK - Surgeonics Limited
TRANSNUBBER - Powercube
TRANSTERM - Computerwise
TRANSVOLT - Guildline Instruments
TRANSZORB - General Semiconductor Ind.
TRA-PAX - Tra-Con
TRA-PRIME - Tra-Con
TRASAR - Andrew
TRA-SEAL - Tra-Con
TRA-STRIP - Tra-Con
TREADWRITER - Telesis Controls
TREELOK - Fastex
TRENDLINE - Weschler/NES Instruments
TRIAMESE - Montrose Products
TRIATHALON - Montrose Products
TRIAX - Monsanto
TRICONEX - Triconex
TRIDUNDANT - LNR Communications
TRI-FET - Analog Devices
TRIFURCON - MOLEX
TRIGARD - Joslyn Electronic Systems
TRIGOMET - International Machine & Tool
TRIGON - Temescal/Airco Coating Technology
TRIMCAP - Murata Manufacturing , Ltd.
TRIMDAC - Precision Monolithics Subsidiary of Bourns
TRIMIT - Bourns
TRIM KIT - American Technical Ceramics Corporation
TRIMLINE - ESC Electronics
TRIMPOT - Bourns
TRIMSCREEN - Tecknit (Eastern Facility)
TRIMSTRIPS - Southco
TRI-ONIC - Gould Shawmut
TRIPLATE - Alpha Industries
TRIPLE FLEX - Shure Brothers
TRIPLEGARD - Joslyn Electronic Systems
TRI-POINT - Automatic Switch
TRI-ROUNDULAR - Fastex
TRI-STATE BOX - Electro Standards Lab.
TROLEX - CTS Corporation
TRON - Bussmann:Cooper Industries
TRU/BLU - Timeplex
TRU-CAL - EDL
TRUE ANGLE - Stock Drive Products
TRUE BLUE - PIC Design
TRUE GRID - Houston Instrument
TRUE METRIC - Stock Drive Products
TRUE-POWER - Acme Electric Corporation
TRUE VIEW - Lance Industries
TRUFLEX - Texas Instruments
TRU-GLIDE - Jonathan Manufacturing
TRUMETER - Trumeter
TRUSS-LOK - Avibank Manufacturing
T-SOFT - Taurus Computer Products
T-TRON - Bussmann:Cooper Industries
TUBE-PAC - Semtech
TUFCON - W.L. Gore
TUFCOTE - E-A-R Specialty Composites
TUFFCOTE - Tensolite
TUF-FLEX - Pacific Electricord
TUFFLITE - Tensolite
TUFFY - Magnetrol International
TUF STUF - Clean Room Prods.
TUF-TIES - Amrad & Transcon Mfg.
TUNER RUNU - Chemtronics
TUNING STICK - American Technical Ceramics Corporation
TUN-O-POWER - Chemtronics
TUN-O-WASH - Chemtronics
TURBO - Brand-Rex
TURBO-PROBE - EG & G Flow Technology
TURBO-SLOT - IMC Magnetics
TURBOTEK - Lamb Electric
TURBO VISION - Vista Systems
TURBO488 - National Instruments
TURBULA - Glen Mills
TURNER - Cooper Tools
TUTORETTE - Audiotronics
TU-WIRE - Lutron Electronics

TWIN AXCESS - Andrew/KMW Systems
TWIN-CAP - American Technical Ceramics Corporation
TWINGLE - Gimix
TWIP - Edsyn
TWISTAGUIDE - Airtron
TWISTITE - MWS Wire Industries
TWISTLOK - Sprague Electric
TWIST-PROTECT - Electronic Specialists
TWIST TIES - Brim Electronics
TY-ABLE - ABL Electronics Supply
TYKON - Cinch Connector
TYPEX - Square D
TYTEX - Exide Corporation
UCAR - Eveready Battery
U C-PROBE - International Instrumentation
ULTI-MATE - Victor Elec. Wire & Cable
ULTIMAX SURVEYOR - Humphrey
ULTRA-BEAM - Banner Engineering
ULTRA-CHIP - Wilbrecht Electronics
ULTRA-GOG 300 - American Ultraviolet
ULTRA-GROUND - Square D Power Protection Systems
ULTRAGUARD - EPE Technologies
ULTRA H - Hy-Cal Engineering
ULTRA-HI Q - Rutherford Research
ULTRA-ISOLATOR - Square D Power Protection Systems
ULTRA-KAP - Philips Components Discrete Products Div
ULTRA-KAP - Philips Components Discrete Products
ULTRALLOY - Arco Electronics
ULTRA-LOC - BEI Motion Systems
ULTRAMET - American Radionic
ULTRAMIN FILTERS - Wavetek RF Products
ULTRA MITE - Thermo Electric
ULTRAN - Schott Glass Technologies
ULTRAPURE - Kester Solder
ULTRA-QUITE - Micronel U.S.
ULTRAR - Atomergic Chemetals
ULTRA-SEAL - Alpha Metals
ULTRA-SHIELD - ABL Electronics Supply
ULTRA-SLIM - Micronel U.S.
ULTRA-SMART - Micronel U.S.
ULTRA-SOL - Alpha Metals
ULTRA-SPEC 100 - American Ultraviolet
ULTRA-STRATES - Accumet Engineering
ULTRA-TECH - Mueller Elec.
ULTRA-TEMP - Aremco Products
ULTRATEST - Leybold Inficon
ULTRATORCH - Master Appliance
ULTRAVOX - Paso Sound Products
ULTRA 7 - Hy-Cal Engineering
ULTREX - Canada Wire and Cable Limited
ULTROL - Brand-Rex
UMAC - Analog Devices
UMACBASIC - Analog Devices
UMEGA - Omega Engineering
UNGARMATIC - Ungar
UNIBLOC - Motorola Semiconductor Prods.
UNICOAT - Bacon Industries
UNI-CORE - Alpha Metals
UNI-COVER - Amherst International
UNI-CURVE - Fenwal Electronics, /APD
UNIDELTA MARK II - Johnson Yokogawa
UNIDEX - Aerotech
UNIDYNE - Shure Brothers
UNI-FACTOR - Computer Products
UNI MAG - EG&G Geometrics
UNIMEC - MEC A/S
UNIMORPH - Morgan-Matroc
UNIPLY - Power Designs
UNIPROX - Scientific Technologies
UNIRAY - MCE Semiconductor
UNIRING - Burndy Corporation
UNI-RON - Shure Brothers
UNI-ROTOR - Astro Dynamics
UNISENS - Scientific Technologies
UNISERT - Unicorp
UNISLIDE - Velmex
UNISPHERE - Shure Brothers
UNISYSTEM - Pacific Microcomputers
UNI-TERM - American Technical Ceramics Corporation
UNIT/PAK - Motorola Semiconductor Prods.
UNITRACK - Unitrack Industries
UNITRAK - BYTEK
UNITWIST - Jan Hardware Mfg.
UNITY - Bytex
UNIVERSAL DATA LANGUAGE - Hand Held Products
UNIVERSE/200 - Charles River Data Systems
UNIWATT - Motorola Semiconductor Prods.
UNIWELD - Endicott Coil
UNIWRITER - Red Square
UNOS - Charles River Data Systems
UNREEL - Cooper Industries/Belden
UP/DOC - Xcel Controls
UPOWER - Interpoint Corporation
URESOLVE - Dynaloy
USA TIME - Electronic Tele-Communications
UTIFLEX - Rosenberger-Micro Coax
UTILI*COM - Relm Communications
UTILI-TAP - AMP
UTILI-TENSHUN - AMP
UV-TRAN - Schott Glass Technologies
UV TRON - Hamamatsu Photonics K.K.
VACOIL - Transene
VACOMATIC - Vaco Products
VACOMBO - Vaco Products
VACOTOTAL - Vaco Products
VACPAC - Hull
VAC-PIC - SC Technology
VACTROL - EG & G Vactec
VACULOY - Alpha Metals
VACUTEC - Atomergic Chemetals
VAGABOND - Shure Brothers
VAL-AN - Zero Enclosures
VALIDATE - Applied Microsystems
VALU-BEAM - Banner Engineering
VALUMAX - Gates Energy Products
VALUTRAN - Micron Industries
VANTAGE POINT - Industrial Computer Designs
VAPORFLO - Tenney Engineering
VARAD - Shure Brothers
VARA-TEMP - Hexacon Electric
VARAX - Adtech Power
VAREO - Lutron Electronics
VARIAC - Technipower, A Penril
VARICOUNTER - Veeder-Root
VARIDAC - Perkin-Elmer
VARILITE - Taliq
VARIOCUT - ELVO: of Zumbach Electronics Corporation
VARISTOMER - Electrostatic Consulting
VARI-SYNC - Colorgraphic Communications
VARITEMP - Master Appliance
VARITRIM - Voltronics Corporation
VARI-TWIST - Cooper Industries/Belden
VARY-TALLY - Veeder-Root
VCAS - Endevco Corporation
V CONNECTOR - Wiltron
VECTORBORD - Vector Electronic
VECTOR-PAK - Vector Electronic
VELOCIMITE - Vibra-Metrics
VELOSTAT - 3M Electrical Specialities
VENDACARD - XCP
VENDACODER - XCP
VENT-RAK - General Devices
VERAFLEX - Shure Brothers
VERGER - Alpha Metals
VERIGRAPH - International Instruments, A Prime Technology
VERNISTAT - Perkin-Elmer
VERNITORQ - Magtech Controls
VEROBLOC - BICC-VERO Electronics
VEROBOARD - BICC-VERO Electronics
VEROBOX - BICC-VERO Electronics
VEROCASE - BICC-VERO Electronics
VEROLOCK - BICC-VERO Electronics
VERORACK - BICC-VERO Electronics
VEROWIRE - BICC-VERO Electronics
VERSACAD - Versacad Computervision Personal CAD/CAM
VERSACAGE - Unitrack Industries
VERSA-CAL - Biddle Instruments
VERSACON - Teradyne Connection Sys.
VERSA-CRIMP - Square D
VERSALOOP - Magnetrol International
VERSAMOUNT - Unitrack Industries
VERSAPAC - Densepac Microsystems
VERSAPLEX - Lutron Electronics
VERSA-PROBE - EDL
VERSA-RANGE - Blue M, A Unit of General Signal
VERSA-TEMP - EDL
VERSATENN - Tenney Engineering
VERTILYTIC - Sprague Electric
VERTISOCKETS - Aries Electronics
VERT-O-GIDE - Bivar
VERT-O-MOUNTS - Bivar
VERTON - ICI Advanced Materials
VET-THERM - Everest Interscience
VHDLSHORTHAND - Aldec
VHSICON - Teradyne Connection Sys.
VIBRALARM - Vibra-Metrics
VIBRALERT - Metrix Instrument
VIBRALOG - Metrix Instrument
VIBRA LOK - CINCH Cylindrical
VIBRAMIKE - Alpha-M
VIBRAMITE - Vibra-Metrics
VICTREX - ICI Advanced Materials
VIDEOBEAM - Video Display
VIDEOBRIDGE - Electro Scientific Industries, (ESI)
VIDEO DISPLAY - Video Display
VIDEOGRAPHIC RECORDER - Esterline Angus Instrument
VIDEO LAB - Data Translation
VIDEOMASTER - Lance Industries
VIDEO STICKS - Chemtronics
VIDEOTENN - Tenney Engineering
VIDEOWINDOWS - New Media Graphics
VIEWBASE - Viewlogic Systems
VIEWDATA - Viewlogic Systems
VIEWDESIGN - Viewlogic Systems
VIEWDOC - Viewlogic Systems
VIEWDRAW - Viewlogic Systems
VIEWFILE - Viewlogic Systems
VIEWFRAME - Viewlogic Systems
VIEWGEN - Viewlogic Systems
VIEWLOGIC - Viewlogic Systems
VIEWMAIL - Viewlogic Systems
VIEWMOUSE - Viewlogic Systems
VIEWPLACE - Viewlogic Systems
VIEWPOINT - Tele-Denken Resources
VIEWSIM - Viewlogic Systems
VIEWSYS - Viewlogic Systems
VIEWTERM - Viewlogic Systems
VIEWTEXT - Viewlogic Systems
VIEWTRACE - Viewlogic Systems
VIEWVAC - Temescal/Airco Coating Technology
VIEWWAVE - Viewlogic Systems
VIK-STIX - Viking Electronics
VINYL STIX - Topflight
VINYLUG - Burndy Corporation
VIP - Wells Electronics
VIRTRONICS - VirTis
VISCOFILM - Charles Inds. Ltd.
VISICORDER - Metrum Information Storage
VISICOUNTER - Veeder-Root
VISIDAQ - Electronic Associates
VISI-GUARD - Joslyn Electronic Systems
VISI-PITCH - Kay Elemetrics
VISTAL - Coors Ceramics
VISUAL VOICE EDITOR - Rhetorex
VITACOTE - ESICO/TRITON
VITEL - Viking Electronics
VITR-AU-LESS - Ferro Corporation
VITROLAIN - Star Porcelain
VIVISUN 20/20 - Aerospace Optics
VI-100 - Vicor
VMAX - Tempustech
VMEPROM - Eyring
VOCAL MASTER - Shure Brothers
VOICE DIRECTOR - Argos Prods.
VOICEGATE - Shure Brothers
VOICE MASTER - Covox
VOL-CON - Ideal Industries
VOLTEX - Lydall , Manning
VOLTMAN - TEGAM
VOLTPROBE - Amprobe Instrument
VOLTRONICS - Voltronics Corporation
VOLTSENSOR - Calex Mfg.
VOLT STICK - MBD International
VOL-U-METER - Brooks Instrument
VSTAR - Varian Microwave Equip.
VUEPOINT - General Digital
VYCOR - Corning Glass Works
VYDYNE - Monsanto
VYLINK - Brand-Rex
WAFERGUIDE - SC Technology
WATERWEB - Heat System
WATER WELDER - Hydro-Gen Products
WATTCHER - Bird Electronic
WAT-TROLLER - Glenro
WATTSHAVER - Solid State Systems
WATTS-ON - Tech Laboratories
WAVEGUARD - Krohn-Hite
WAVELABS - Systron-Donner Inertial
WAVEMETER - Burleigh Instruments
WBS - Corvus Microwave
WEATHERTEL - Electronic Tele-Communications
WEDGE - ABB Kent-Taylor
WEDGE-LOK TM - EG & G Birtcher
WEECOIL - Syscon Intl.
WEECON - Tusonix
WEIGHFLOW - Kistler-Morse
WEIGHLITE - Kistler-Morse
WELDOHM - Cooper Industries/Belden
WELLER - Cooper Tools
POWERITE P - Sencore
WESTACH - Westberg Manufacturing (WESTACH)
WESTAT - Wescorp Antistatic Products
WESTINGHOUSE - Weschler Instruments
WET-SPEC - Electrol
WHISPERCABLE - Thermax Wire
WHITE JACKET - Sprague Electric
WILBRAZ - Wilkinson
WILD ROVER - Electronics Research Associates
WINDJAMMER - Lamb Electric
WING-NUT - Ideal Industries
WIRE-LUBE - Ideal Industries
WIREMATE - Burndy Corporation
WIREMOLD - The Wiremold
WIRE NUT - Ideal Industries
WIREPLIER - Vaco Products
WIREPOST - Burndy Corporation
WIRE PREPPER - Ideal Industries
WIRE WRINGER-10 - MBD International
WISS - Cooper Tools
WORKVIEW SERIES I - Viewlogic Systems
WORKVIEW SERIES II - Viewlogic Systems
WONDER MASK - Tech Spray
WONDER WIPE - Clean Room Prods.
WORD-SLICE - Analog Devices
WORKHORSE - RAYOVAC Corporation
WORKVIEW - Viewlogic Systems
WORKVIEW SERIES II - Viewlogic Systems
WORKVIEW SERIES - Viewlogic Systems
WRAP-CAP - Ideal Industries
WRAPOST - Autoswage Products
WYBAR - Eraser
XACTEMP - Gordon :Watlow
XACTGLAND - Gordon :Watlow
XACTHEAD - Gordon :Watlow
XACTLOK - Gordon :Watlow
XACTOHM - Gordon :Watlow
XACTPAK - Gordon :Watlow

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
AAK Corp	ACL Inc.	Advanced Circuit Technology	Advantest America, Inc.
Aalpha Precision Pacific Resistor Co.	Acme Electric Corporation	Advanced Components Inds., Inc. Spitznagel GmbH	Advantest America, Inc.
AAVID Engineering, Inc.	Acme Transformer Acme Electric Corporation	Advanced Components Inds., Inc. Spitznagel GmbH	Advanz Technologies, Inc.
Abacus Controls Inc.	Acon, Inc.	Advanced Control Sys.	A E G Corporation
Abbott Electronics	Acopian Technical Company	Advanced Electronic Packaging	Aeroflex Laboratories Inc. ARX, Inc.
Abbott Technologies, Inc Transformer Division	Acurex Corp./Autodata Div.	Advanced High Voltage Co. Inc.	Aeroflex Laboratories Inc. ARX, Inc.
ABL Electronics Supply, Inc.	Adaptec, Inc.	Advanced Input Devices	Aerotech, Inc.
ACC Electronics Company Echlin Inc.	Adaptive Networks	Advanced Interconnections Corp.	AES Corp.
Accel Technologies, Inc.	Adatek, Inc.	Advanced Linear Devices, Inc.	Aiphone
Acculex Corporation	ADC Telecommunications, Inc.	ADVANCED MICRO SYSTEMS, INC.	AirBorn, Inc.
Accutech Benchmark Services	A.D. Data Systems Corp. Photographic Sciences Corp.	Advanced Systems Concepts, Inc.	Airflyte Elctrns. Co.
ACDC Electronics, Div. of Astec America See Astec America	Adtech Power Inc.	Advanced Technology Company	Air Maze Corp.
Acheson Colloids Div. of Acheson Industries, Inc.	Advance A Unit of Zero Corporation	Advanced Technology Company	Airpax-Cambridge Division A North American Philips Co.
A.C. Interface Inc.	Advance Conversion Devices Co.Unit of Transitor Dvcs., Inc.	Ad-Vance Magnetics, Inc.	A.J.'s Power Source
ACL Inc.	Advanced Analog Intech	Advantest America, Inc.	AKG Acoustics, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Akro-Mils Myers Industries	Alpha Products, Inc.	American Cyanamid Co. Metal Coated Fibers Dept.	AMITRON American Micro-Tronix, Inc.
Albar, Inc.	Alpha Wire Corp.	American Electronics	AMP
Aldec, Inc.	Alps Electric (USA), Inc.	American Insulated Wire Corp. Leviton Mfg. Co.	Amperite Co., Inc.
A.L.E. Sys., Inc.	Altair Exchange Corporation	American Laser Systems, Inc.	Amphenol Corporation Corporate Headquarters
Alexander Manufacturing Company	Altech Corp.	American Magnetics Corporation Group 4	Amplifier Research
Allegro MicroSystems, Inc. formerly Sprague Semiconductor Grp.	Altek Co.	American Magnetics	Amprobe Instrument Core Industries, Inc
Allen Avionics, Inc.	Amber Inds., Inc.	American Microsemiconductor, Inc.	Amuneal Manufacturing Corp.
Allen Bradley Co., Electronic Components Div. A Rockwell International Co.	Amco Engineering	American Microwave Technology, Inc.	Analog & Digital Peripherals, Inc.(ADPI)
Allen Co., Inc., Robert G.	Amecon, Inc.	American Radionic Co. Inc.	Analog Devices, Inc.
Allied-Signal Aerospace Co. Bendix Communications Div.	American Advantech Corp.	American Relays, Inc.	Analog Equipment Corporation
Alligator Technologies	American Aerospace Controls	American Skynet Electronic Co.	Analogic Corp.
Alpha-M Corp.	American Assembly Inc.	American Technical Ceramics Corporation	Analogic Corp. Data Conversion Prods. Grp.
Alpha Metals	American Arium Formerly American Automation & Arium	American Zettler	Analog Modules, Inc.
Alpha Omega Computer Systems	American Control Technology, Inc.	Ametek Controls Div. Ametek Fiber Optic Products	Analytic Technology Corp.
Alpha Omega Computer Systems	American Cyanamid Co. Metal Coated Fibers Dept.	Lamb Electric Division Ametek, Inc.	Anatech Electronics, Inc.

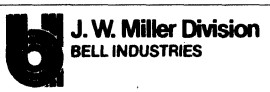
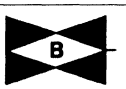
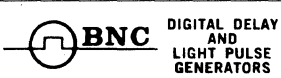
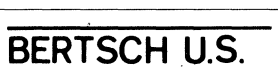
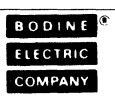
LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Anco Electronics, Inc.	Apollo Magnetics Corp.	Argos Prods.	Aslan Computer Corporation
AND William J. Purdy Co.	Applied Controls Co., Inc.	Ariel Corporation	ASM Corporation
Anderson Electronics	Applied Data Systems	Aries Electronics	Assmann Electronics, Inc. Assmann Electronics GMBH
Anderson Power Products Div. of High Voltage Engineering	Applied Microsystems Corp.	Arium Corporation	Associated Circuits Inc.
Andon Elctrns. Corp.	Applied Plastics Technology	Ark Elctrns. Corp.	Associated Research, Inc.
Ango Electronics Corp.	Applied Power Conversion Technology Dynamics, Inc.	Armbar Industries, Inc.	Associated Spring, Barnes Grp.
Angstrohm Precision, Inc. A Company of Vishay	Applied Reasoning Corp.	Arnold Magnetics	Astec America
Angstrohm Precision, Inc. A Company of Vishay	Applied Software Tech., Inc.	Aromat Corp. Matsushita Electrical Works Ltd.	Astro International Corp.
Annulus Technical Industries, Inc.	Approved Purification Corp.	Array Connector Corporation	Astromec, Inc.
Anritsu	APX-Arstan Products	Arrow Fastener	Astromec, Inc.
Antenna Specialists The Allen Group	Arco Electronics	Arrow Hart Components Cooper Industries	Astromec, Inc.
Antex Electronics Corp.	Arcolectric Corp.	Artel Communications Corp.	Astro-Med, Inc.
A. P. Circuit	Arc Systems, Inc.	ASC	Astro-Med, Inc.
A.P.C.S. America	A.R.F. Prods.	Ascent Power Technology	Astrosystems
Apex Microtechnology Corp.	ARGA Controls	Ashland Elec. Prods., Inc.	Astro Tool Corp.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
A-Systems Inc.	Ault, Incorporated	Avtel Div., Unitron Inc.	Basic Measuring Instruments
AT&T Microelectronics	Austria Mikro Systeme International	Avtel Div., Unitron Inc.	Basler Elec. Electronic Product Group
ATC Power Systems, Inc.	Autec Power Systems	AVX Corporation	Battery Engineering, Inc.
Atec, Inc.	Automatic Coil Corp. A DSG Company	Axis Corporation	Battery Engineering, Inc.
Atlanta Signal Processors, Inc.	Automatic Timing & Controls Co.	Aztec Industries, Inc.	Bead Electronics Div. Bead Industries, Inc.
Atlantic Magnetics, Inc.	Automation Displays Inc.	Babcock, Inc.	Beau Products Div. Vernitron Corp.
Atlantic Scientific Corporation	Automotion, Inc.	Babcock Display Products, Inc. A Subsidiary of Babcock, Inc.	BEC Inc./Certified Calibration Labs
Atlas Energy Systems, Inc.	Autoroll Machine Corporation	Ballantine Laboratories Noise Unlimited Inc.	Beckman Industrial Corp. An Affiliate of Emerson Elec. Co.
Atlas/Soundolier	Autoswage Products	Ballco Inc.	Behlman Electronics, Inc.
Atlas/Soundolier	Avantek, Inc.	Ball Corp., Efratom Division	Behlman Electronics, Inc.
Atlee Inc.	Avel-Lindberg Inc.	Balston	BEI Motion Systems Company Corporate Off.
Atomergic Chemetals Corp.	Avibank Manufacturing, Inc.	B & K Precision Maxtec International Corp	Bel Fuse
ATV Research, Inc.	Avibank Manufacturing, Inc.	Barber-Colman Co. Indl. Instrs. Div.	Bel Fuse
Augat Inc.	Avionic Instruments	Barksdale Controls Div. Imo Industries Inc.	Bell, Floyd, Inc.
Augat, Inc. Interconnection Products Group	Avtech Electrosystems Ltd.	Barnes Engineering Div. EDO Corporation	Bell, F. W., Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
 Bell Inds. J. W. Miller Div.	Betatherm Corp.	Boschert, Inc. Computer Products/Boschert	BURGESS-SAIA, Inc.
Bellofram Corporation	Bey Electric, Inc.	Bourns, Inc. Electric Components Sls.	BURGESS-SAIA, Inc.
Bellofram Corporation	B-G Instruments, Inc.	Bourns, Inc. Electric Components Sls.	Burling Instruments, Inc.
Belting Industries Co., Inc.	BH Electronics, Inc.	Bowmar Telecommunications Div.	Burndy Corporation An FCI Company
Belmont Instrument Corp.	BICC-VERO Electronics, Inc.	 Branmag, Inc.	Burr-Brown Corp.
Benchmarq Microelectroelectronics, Inc.	Bicron Electronics	Brentek International, Inc.	Bussco Inc.
Bergquist	Bivar, Inc.	Bren-Tronics, Inc.	Bussmann:Cooper Industries
 Berkeley Nucleonics Corp.	Blatek, Inc.	Bren-Tronics, Inc.	BYTEK Corp. Instrument Systems Div.
Berkeley Process Control, Inc.	BLH Electronics, Inc.	Brim Electronics	CableStar, Incorporated
Berk-Tek Inc.	Bliley Electric Co.	Brooks Instrument Div. Emerson Elec. Co.	Cabletest International Inc.
Bertan Assocs.	Blue M, A Unit of General Signal	BTC Electronic Components	Cabtron Systems, Inc.
 Bertsch U.S.	 Bodine Electric Company	BTU International, Inc.:BTU Systems Division	CAC Microcircuits Inc. Bel Fuse
Best Power Technology, Inc.	Bogen Communications, Inc. Sound Prods.	Bubbl-Tec	Caddell-Burns Mfg.
Best Technology Inc.	Bopla Enclosures	Buckeye Stamping Co.	Caddell Coil Corp.
Beta Review, Inc.	Bosch, Robert, Corp.	Buehler Products, Inc.	Caddock Electronics, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Calex Mfg. Co., Inc.	Canyon Elctrns.	Caton Connector Corp.	Cherry Electrical Products Cherry Corporation
Calibron Instruments Burton-Rogers Co.	Capintec Instruments	CBM America Corp.	Cherry Semiconductor Corp
California Eastern Labs. Inc.	Capitol Switch Inc.	CDRL Data, Inc.	Chesterfield Products, Inc.
California Instruments Corp.	The Carborundum Company Electric Products	CEC Electronics Corp.	Chicago Laser Systems, Inc.
California Micro Devices, Inc.	Caristrap Internatonal, Inc.	Cell-Con, Inc.	Chloride Electro Networks Chloride Power Electronics, Inc.
Calmark Corp.	Carlingswitch, Inc.	Centronic, The Morgan Crucible Company, Spec. Matls. & Tech Division	Christiana Industries Corp.
Calmos Semiconductor, Inc.	Carol Cable Co. Inc.	Centurion International, Inc.	Christie Electric Corp.
Cambridge Aeroflo, Inc.	Carol Cable Co. Inc.	Ceramaseal	Chrono-log Corp.
Cambridge Aeroflo, Inc.	Carroll Touch, Inc.	Champion Technologies, Inc.	CICOIL CORP.
C&D Charter Power Systems	Carrot Components Corporation	Chatsworth Data Corporation	CIDTEC (CID Technologies Inc.)
C & K Components, Inc.	Carter Motor	Chemical Abstracts Service American Chemical Society	Cincinnati Sub-Zero Prods.
C & K Components, Inc.	Catalyst Research Mine Safety Appliances Co., Inc.	ChemRex Inc. ResTech Prods. Div.	Circuit Assembly Corp.
C & K/Unimax, Inc. C & K Components, Inc.	Catalyst Research Mine Safety Appliances Co., Inc.	Chemtronics Inc.	Cirris Systems Corp.
Candela Laser Corporation	Catalyst Research Mine Safety Appliances Co., Inc.	Chemtronics Inc.	C.P. Clare Corp.
Canon U.S.A. Elctrn. Comps. Div.	Catamount Manufacturing	Cherokee International, Inc. Core Industries	C.P. Clare Corp.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Clarke-Hess Communications Research Corp.	Colorado Crystal Corp.	Computer Maintenance Corp.	Connectronics Corp.
Clarostat Mfg. Co., Inc. Hawker Siddeley, PLC.	Colorado Crystal Corp.	Computer Optical Products, Inc. Sub. of Hathaway Corp.	Connor-Winfield Corp.
Clarostat Mfg. Co., Inc. Hawker Siddeley, PLC.	Colorado Crystal Corp.	Computer Power Inc.	Conrac Display Products, Inc.
Clearpoint Research Corp.	Communication Coil Inc.	Computer Products Inc. Power Conversion America	Consolidated Electronic Wire & Cable
Clifton Precision Litton Systems, Inc.	Communications Instruments, Inc.	Computerware, Inc.	Contaq Technologies Corp.
CML MACARR A Marine Electric Systems Co.	Compac	Comstron A Div. of Aeroflex	Continential Device India Limited
Coaxial Dynamics	Compact Power Company	Comus International	Control Cable, Inc.
Codar Technology, Inc.	Compact Power Company	Concord Electronics Corporation	Controlled Environmental Equipment Corp.
Codenoll Technology Corp.	Compar D.G.W. Electronics Corporation	Condenser Products Corp.	Controlled Power Co.
Cognitronics	Compix, Inc.	Condor D.C. Power Supplies, Inc.	Control Microsystems Inc.
Coherent General, Inc.	Component Mfg. Svc., Inc.	Condor D.C. Power Supplies, Inc.	Control Sciences, Inc.
Colber Corp.	Component Research Co. Inc.	Condor Systems, Inc.	Control Sciences, Inc.
Cole Hersee Co.	Computer Components, Inc.	Conklin Instrument Corp.	Control Technology Co., Inc.
Cole Instrument Corp.	Computer Conversions Corp.	Connecticut Microwave Corp.	Conversion Devices, Inc.
Collmer Semiconductor, Inc.	Computer Dynamics Sales	Connector Corp.	Converter Concepts, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
The Cool-Amp Conducto-Lube Co.	Creare Inc.	CTS Corp.,Electrocomponents business unit (Formerly Elkhart Div.)	CYTEC Corp.
Cooner Wire Co.	Creative Automation Co.	CTS Corp., Resistor Network business unit (Formerly CTS Corp., Berne Div.)	Daburn Electronics & Cable Corp.
Cooper Industries/Belden Div.	Crissman Manufacturing Co.	CTSI International Inc.	Dage Precision Industries, Inc.
Corcom, Inc.	Criterion Instrs., Ltd.	CUI Stack Inc.	Daico Industries, Inc.
Cornell-Dubilier Elctrns. (Intl. Sls., Distbn. Warehouse)	CRL Components, Inc. Roxboro Group	CUNO, Inc. Process Filtration Products	Dale Electronics, Inc. Columbus Div.
Corning Incorporated Opto-Electronics Group	CR Magnetics, Inc. (Formerly Current Ring Co., Inc.)	Current Technology, Inc.	D & B Power, Inc.
Coto Wabash Kearney National Corporation	Crosspoint Div. of Info-Lite Corp.	Curtis Industries	Daniels Manufacturing Corp.
Coto Wabash Kearney National Corporation	Crouzet Corporation	Curtis Instruments, Inc.	dataCon, Inc. Interconnect Sub-Systems
Covid, Inc.	Crydom Company	Custom Cable Corp.	Data Delay Devices
Covox, Inc.	Cryomagnetics, Inc.	Custom Coils Inc.	Data Display Products
CP Technology, Inc.	CSI Capacitors CSI Technologies	Custom Micro Systems, Inc.	Data Environment, Inc.
Craig Systems Corp. Eastern Technologies, Ltd.	C-Tek Inc.	Custom Power Systems	Data Instruments, Inc.
Cramer Coil & Transformer Co., Inc.	CTI Electronics	Custom Sci. Instrs.	Datak Corp.
Cramer Co.	CTS Corporation	CVC Products, Inc.	Datakey, Inc.
Crane Electronics, Inc.	CTS Corporation	CW Industries	DataLux Corp.

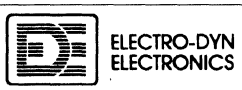
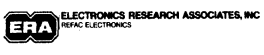
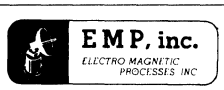
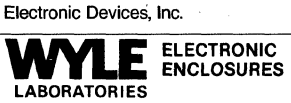
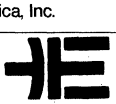
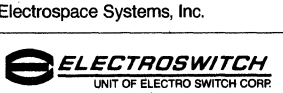
LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Data Mega Inc. Mega Data	Dearborn Wire & Cable, Inc.	De Young Mfg., Inc.	Direct Sound Corporation
Dataproducts New England, Inc.	DEK, Inc.	Dialight Corporation	Disc Instruments Honeywell
Dataq Instruments, Inc.	Del Elctrns. Corp.	Dianachart Inc.	Distributed Processing Technlg. Corp.
Data Race, Inc.	Delevan Div. American Precision Inds. Inc.	Di/An Controls, Inc.	Diversified Electronics, Inc.
Dataram Corp.	DELTA M Corporation	Dielectric Labs.	Diversified Technlg.
Data Ray Corp.	Delta Products Corporation	Die-Tech Inc.	Diversified Technlg.
Data Technology, Inc.	Deltrol Controls	Dieterich Standard A Dover Industries Company	DJ Instruments, Inc.
Datatran Corp.	Deltron, Inc.	Digital Dynamics, Inc.	D. L. Custom
Dataware Electronics Inc.	Densitron Corporation Densitron International	Digitran Division Xcel Corporation	Dolan-Jenner Inds.
Datel, Inc.	Design Components, Inc.	Dillon Weigh-Tronix, Inc.	Dormeyer Inds. A. F. Dormeyer Mfg. Co., Inc.
Datron Systems, Inc.	Design Technology	Dillon Weigh-Tronix, Inc.	Dova Controls
Datum Timing Datum Inc.	Design Technology	DILOG	Dover Electronics Manufacturing
Datum Timing Datum Inc.	Detroit Coil Co.	Diodes Inc.	Dow Corning Corp.
DCI Inc.	Detroit Testing Laboratory, Inc.	Dionics	Dow-Key Microwave Corporation
DDK Electronics, Inc.	DEVAR, Inc.	Dio-Rey Div. of Info-Lite Corp.	Dowty Control Technologies

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Dowty RFL Inds. Inc./Instrumentation Div. The Dowty Grp. PLC	Dynamics Div. of Waugh Controls Corp.	EBY Company	EG & G Wakefield Engineering
Dranetz Technologies, Inc.	Dynamics Div. of Waugh Controls Corp.	Eclypse International Corp.	Ehrhorn Technological Opers., Inc.
Dranetz Technologies, Inc.	Dynapower Corporation	ECS Composites	Eichhoff Electronics
Dreefs Switch, Inc.	Dynatech Computer Company	Ectron Corp.	E.I.L. Instruments, Inc.
Drumlin Micro/Sys, Inc.	Dynatech Computer Power, Inc.	EDA Inc. Div. of Connector	El Microcircuits, Inc.
Dubbeldee Harris Diamond Corp.:D. Drukker & Zn. N.V.	Eagle Magnetic Company, Inc.	Edac Inc.	EIP Microwave, Inc.
Dukane Corp. Communications Sys. Div.	Eagle-Picher	EDAK Inc. EDAK Ltd.	Elan Digital Systems Div. of Elan Digital Sys. Ltd.
Duncan Electronics, Inc.	Eagle Signal Controls:A Mark IV Inds. Co.	EDA Instruments, Inc.	Elan Technical Corp.
DuPont Connector Systems DuPont Elctrns.	Eagle Wichita	EDL, Inc.	Elantec, Inc.
Duracell Inc.: OEM Sales & Marketing	EAO Switch Corp.	EDO Corporation Electro-Ceramic Division	Elastomeric Technologies, Inc.
Durakool, Inc. American Electronic Components	E-A-R Specialty Composites Cabot Safety Corp.	Edsyn, Inc.	Elcom Industries, Inc.
duTec, Inc.	Eastern Air Devices, Inc.	EFI Elctrns.	Elcom Systems, Inc.
DY-4 Systems Inc.	Eaton Corporation Electric Drives Division	EG & G Birtcher EG & G, Inc.	Elcon Products International Company
Dynacircuits Inc.	Eberhard Mfg. Co., Div. Eastern Co.	EG & G Birtcher EG & G, Inc.	Electrical Instrument Service
Dynage/Power & Magnetics Division Of Oakleaf, Inc.	ebm Industries, Inc.	EG&G Optoelectronics EG&G Canada Ltd.	Electrical Insulation Suppliers, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Electrochem Industries Wilson Greatbatch Ltd.	Electronic Applications Co.	Electronic Modules, Inc.	Electro-Tec Corporation A Kaydon Company
Electrochem Industries Wilson Greatbatch Ltd.	Electronic Components Groupe Stein Industries, Inc.	Electronic Precision Components Corporation	Electrovert USA Corp.
Electrodynamics, Inc. A Talley Inds. Co.	Electronic Components Groupe Stein Industries, Inc.	Electronic Resources Inc.	Eletech Electronics, Inc.
Electro-Dynamics Dev. Co.	Electronic Components Groupe Stein Industries, Inc.	Electronic Solutions A Unit of Zero Corp.	Elgar Electronics Corporation
 Electro-Dyn Electronics	Electronic Concepts, Inc.	Electronic Space Systems Corp.	Elgar/Intepro Systems
Electrofilm	Electronic Controls Design	Electronic Specialty Corp.	Elgenco, Inc.
Electro-Films, Inc.	Electronic Design Engineering	 Electronics Research Associates Inc.	Elgin Electronics
Electrol Co.	Electronic Development Associates, Inc.	Electronics Systems, Inc.	EliWell-USA Ltd. EliWell, S.P.A.
Electrol Hamlin, Inc.	Electronic Development Corp. EDC	Electro-Numerics, Inc.	ELMA Electronic Inc.
 Electro Magnetic Processes, Inc.	Electronic Devices, Inc.	Electro Optical Industries Inc.	Elma Engineering
Electromatic Controls Corp.	 Electronic Enclosures Div. Wyle Laboratories	Electrorack Products Co.	ELMEC TECHNOLOGY OF AMERICA, INC.
Electromech, Inc.	Electronic Industries Assoc.	Electro Scientific Industries, Inc. (ESI)	Elmwood Sensors
Electro-Mechanisms, Inc.	Electronic Innovations Corp.	Electro Space Fabricators	Elna America, Inc.
Electro-Mech Co.	Electronic Measurements	Electrospace Systems, Inc.	 Elpac Components Elpac Electronics, Inc.
Electro-Mech Components, Inc.	Electronic Measurements	 Electroswitch Unit of Electro Switch Corp.	Elpac Power Systems Elpac Electronics, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Elpaz Instruments, Inc.	Endevco Corporation Allied Signal Aerospace Co.	EPD Electronics, Inc.	ETM Electromatic Inc
Eltec Instruments Inc.	Endicott Research Group	Epic Resins General Fiberglass Supply, Inc.	ETRI, Inc.
Eltec Instruments Inc.	Enerco, Inc.	EPM Corporation	Eveready Battery Co. Inc.
Eltrol Corporation	Energy, Ltd.	Epoxy Technology, Inc.	Eveready Battery Co. Inc.
EMCO High Voltage Co.	Energy Systems	Epsco Incorporated	Everest Electronic Equipment, Inc.
E/M Corporation	Engineered Assemblies & Components Corp.	Epson America Inc. Component Sales Dept.	Everlight - USA
Emcor Products Crenlo, Inc.	Engineered Components Co.	Equipto Electronics Corp.	EWC, Inc.
EMDS, Inc.	Engineered Magnetics, Inc.	Ericsson Components, Inc.	Exatron Automatic Test Equip.
Emerson Computer Power	ENI, Div. of Astec America, Inc.	Ericsson Components, Inc.	Excel Technology Intl. Corp.
Empro Manufacturing Company, Inc.	ENM Company	Erni Components	Exel Microelectronics Rohm Corporation
E.M.S. Div. of Sandberg Industries	Enprotech Corp.	ESC Electronics Corp.	Extrusion Technology, Inc.
Emulation Technology, Inc.	EnTech Corporation	E-T-A Circuit Breakers	E-Z Hook Tektest Inc.
Enclosure Corp.	Entech Systems, Inc.	ET&T Corporation	Fabricast
Encoder Products	Entran Devices	ETI Systems Polaris Indl. Entprs.	Fair-Rite Prods.
Endevco Corporation Allied Signal Aerospace Co.	EPC Identification Sys.	ETI Systems Polaris Indl. Entprs.	Fancort Industries, Inc.

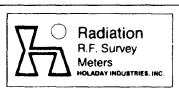
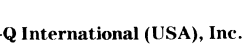
LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Faria Faria, Thomas G., Corp.	5D Fifth Dimension, Inc.	FOREDOM THE FOREDOM ELECTRIC CO Bethel Connecticut 06801 Foredom Elec. Co. Blackstone Inds. Inc.	FUJITSU Fujitsu America, Inc. Computer Products Group
FARNELL ADVANCE POWER Farnell Advance Power	fil-coil Fil-Coil Company, Inc.	FORTRON/SOURCE Fortron/Source Corp. Power Supplies	F Fujitsu America, Inc. Computer Products Group
FASCO MOTORS AND BLOWERS Fasco Industries, Inc. Hawker Siddelem No. 200	FM Film Microelectronics Inc.	FOUNDATION INSTRUMENTS Foundation Instruments Inc.	FUJITSU Fujitsu of America
FDK FDK America, Inc. Fuji Electrochemical Co., Ltd.	FILTER CONCEPTS INC Filter Concepts Inc.	FOXCONN® Foxconn International Hon Hai	FUJITSU MICROELECTRONICS INC Fujitsu Microelectronics Inc. Integrated Circuits Division
FEI Microwave, Inc. A SUBSIDIARY OF FREQUENCY ELECTRONICS INC FEI Microwave, Inc. Frequency Electronics, Inc.	FILTRON Filtron Co., Inc. Sub. of ARX Inc.	FOX ELECTRONICS Fox Electronics	gamma-f corp. Gamma-f Corp. Electromagnetic Sciences, Inc.
Fenwal Electronics Division of Kidde Inc. american power devices Fenwal Electronics, Inc./APD	FISCHER CONNECTORS INCORPORATED Fischer Connectors	FOX METER INC. FOX METER INC.	 Gamma High Voltage Resch. Inc.
Fernwood Transformer Fernwood Transformer Co. Transistor Devices Inc.	FISCHER AMERICA, INC. Fischer Connectors	FREED Megohmmeters® FREED Megohmeters See Industrial Test Equipment	 Gardiner Solder Co. Div. of Gardiner Metal Co.
FERRANTI INTERNATIONAL Ferranti Venus Ferranti Venus, Inc. Ferranti International	FISCHER CONNECTORS Fischer Connectors	 Frequency Control Products, Inc. American Time Products Div.	GASKETDYNAMICS Gasket Dynamics, Inc.
VENUS SCIENTIFIC INC Ferranti Venus, Inc. Ferranti International	FISHERCAST® DIVISION OF FISHER GAUGE LIMITED FISHERCAST Fisher Gauge Limited	 Frequency Devices, Inc.	Gates Energy Products Gates Energy Products, Inc.
FERRAZ Ferraz Corporation	FLEX-CORE DIV. MORLAN & ASSOCIATES, INC. Flex-Core Div. Morlan & Assocs., Inc.	FE Frequency Electronics, Inc.	GC INDUSTRIES G.C. Industries, Inc.
 Ferraz Corporation	FLEX-KEY Flex-Key Corporation	FRIWO Friwo Friemann & Wolf	G C INTERNATIONAL, INC. GC International Inc.
ferretec Ferretec Inc.	FLEX-LINK Flex-Link Products, Inc.	FRONTIER ELECTRONICS CO., LTD Frontier Electronics	GC ELECTRONICS GC-Thorsen
 Ferretec Inc.	FLEXTRONICS Flextronics International	FTS/AUSTRON INC FTS/AUSTRON	FANUC Ge Fanuc Automation North America Inc.
FERRO Ferro Corporation Powder Coatings Div.	FCI® Fluid Components, Inc.	FTS SYSTEMS FTS Systems, Inc.	 Gemini Inc.
fic FIC Corp.	FLUKE® John Fluke Mfg. Co., Inc.	fujipoly® Fujipoly, Inc.	 Gemini Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
IMO Imo Delaval Inc. Gems Sensors Division Div. of IMO Industries Inc.	GENSTAR RENTAL ELECTRONICS, INC. Genstar Rental Electronics, Inc.	GPE Golden Pacific Electronics, Inc	GRIM GRIM Corporation
Gems Sensors Division Div. of IMO Industries Inc.	Georator Corp.	GoldStar® Goldstar Precision Co. Ltd. Lucky Goldstar	GSI GSI Corp.
General Cable General Cable Co.	GRI George Risk Industries, Inc.	GOODALL Good-All Electric, Inc.	GTE GTE Products Corporation Miniature Lighting Products
General Controls, Inc.	GFC POWER GFC Power Ltd.	Gordon Brush Mfg. Co., Inc.	GUARDIAN® Guardian Elec. Mfg. Co. Koike Electric
GENERAL DEVICES Electronic Hardware Manufacturers General Devices Co., Inc.	Picoprobe GGB Industries, Inc. Picoprobe Division	GORDOS Gordos A Flint Industries Company	Guildline Guildline Instruments
VENT RAK Electronic Cabinetry General Devices Co., Inc.	Giddings & Lewis-Nexes Automation Giddings & Lewis, Inc.	GORE Creative Technologies Worldwide W. L. Gore & Assocs., Inc.	HADLEY Hadley, Robert M. Co., Inc.
GE MT General Electric Materials Technology	Gilway Technical Lamp Gilway Technical Lamp	GOSSEN Gossen/Texmate	HAEFELY TEST SYSTEMS Haefely Test Systems E. Haefely & Co. LTD.
General Industries	GIMIX Gimix, Inc.	GOULD Electronics Gould Inc. Corporate Headquarters	HALMAR Halmar Electronics, Inc. High Voltage Engrg. Corp.
General Microwave Corporation	Gimix, Inc.	POWERDEX® Gould Inc. Foil Div.	HAMLIN Hamlin Inc.
GENERAL POWER CORPORATION GENERAL POWER CORPORATION	Glasgal Communications, Inc.	Graham Electronics Manufacturing, Inc. Graham Electronic Manufacturing Inc.	HAMMOND MANUFACTURING Hammond Manufacturing Co.
GENERAL RESISTANCE A PRIME TECHNOLOGY COMPANY General Resistance A Prime Technology Company	Glassman High Voltage Inc.	The Graphics Technology Co.	INCONIX CORPORATION Hancock Electronics Corp.
GENERAL RESISTANCE General Resistance A Prime Technology Company	GlobTek Globtek, Inc.	Graphic Strategies, Inc. The leader in VMEbus GRAPHICS CONTROLLERS Graphic Strategies, Inc.	CONTROL LOGIC Hancock Electronics Corp.
GENERAL SCANNING INC. General Scanning Recorder Products Division	Glowlite Glolite Sales Ltd/Glowlite Div.	Grayhill INC. Grayhill Inc.	HAND HELD PRODUCTS Hand Held Products, Inc.
GENICOM Genicom Corp.	GML Chip Components Limited	GRI™ Greenray Inds., Inc.	HANTRONIX Hantronix, Inc. Liquid Crystal Display
GENROCO, Inc.	GPE Golden Pacific Electronics, Inc	Greibach Instruments Div.	HARDIGG Hardigg Inds., Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Harowe Servo Controls, Inc.:A Fasco Co.	Hexacon Electric Co.	Hi-Tech, Inc.	Hybrids International Ltd. Thick Film Division
Harrel, Inc.	Heyco Molded Products, Inc.	Hitran Corporation	Hybridyne, Inc.
Harris Semiconductor	Heyco Molded Products, Inc.	Hobart Tafa Technologies Hobart Bros. Co.	Hycomp, Inc.
Harting Elektronik, Inc.	Hibbing Electronics Corporation	Hobson Bros.	Hypertronics Corp.
Hasco Components International Co.	High Technology Sensors, Inc.	 Holaday Industries, Inc.	 Hy-Q International (USA) Inc.
Hauman, Inc.	High Voltage Systems, Inc.	Hollingsead International	ICC, Inc.
Haydon Switch & Instrument	High Voltage Technology Inc.	Homalite Whitco, Inc.	ICS Electronics Corp.
HBM, Inc.	Hipotronics Inc.	Hopkins Engrg.	Idea, Inc.
HC Power Inc.	Hi-Q Crystals Hybrids International Ltd.	Howard Industries, Inc.	IDEC Corporation
HDS Inc.	Hiram Jones Electronics	HP Direct Hewlett-Packard	IEC Electronics Corp.
Headway Research, Inc.	Hirose Electric U.S.A., Inc. (HRS) Div. of Hirose Electric Co. Ltd. (Japan)	Hughes Aircraft Co. Industrial Products Division	IERC
HEI, Inc. Optoelectronics Div.	Richard Hirschmann of America Inc.	Hughes Microelectronic Circuits Division	IET Labs, Inc.
Heinemann Electric Co.	Hisonic, Inc.	Humphrey, Inc.	ILC Data Device Corp.
Hewlett-Packard Co.	Hitachi America, Ltd. Electron Tube Division	Huntington Electric Inc.	Illinois Capacitor, Inc.
Hexacon Electric Co.	HiTech Equipment Corp.	Hurst Manufacturing Div.	Illinois Lock Co. The Eastern Co.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Image Systems Corp.	Industrial Electronics Corp.	Instrumentation & Control Sys. ICS.Inc.	Interfan William J. Purdy Co.
Imaging & Sensing Technology Corp.	Industrial Service Technology	Instrumentation & Control Sys. ICS.Inc.	International Components Corp.
I.M.C. (International Microtronics Corp.)	Industrial Test Equipment Co. Inc.	Instruments for Industry, Inc.	International Crystal Mfg.
IMC Magnetics Corp. Exec. Off.	Industrial Test Equipment Co. Inc.	Instrument Society of America	International Eyelets, Inc.
IM/D Corp.	Industrial Test Equipment Co. Inc.	Instrument Specialties Co. Headquarters	International Instrumentation, Inc.
Imperial Astronics	Infodex, Inc.	Intaq Key Panels GM Nameplate, Inc.	International Machine & Tool Corp.
In.Circuit Test	Infodex, Inc.	Integrated Device Technology, Inc.	International Manufacturing Services
Indek Corporation	Infoprint, Inc. Micro Electronic Business, Inc.	Integrated Microwave	International Microsystems
Indek Corporation	Information Transfer Inc.	Integrated Power Designs, Inc.	International Polarizer, Inc.
Industrial Computer Designs, Inc.	ING. F. P. KOGL	Intelligence Power Technology	International Power DC Power Supplies, Inc.
Industrial Control Co.	Injectorall Electronics (Woman Owned)	Intelligence Power Technology	International Power Devices Inc.
Industrial Control Co.	Inland Motor Kollmorgen Corp.	Interaction Systems Inc.	International Power Sources, Inc.
Industrial Devices Corporation	Inmos Corp.	Interactive Computer Products, Inc.	International Power Sources, Inc.
Industrial Devices, Inc.	Innovus	Interface Engineering Inc.	International Rectifier Corp.
Industrial Drives A Kollmorgen Div.	Instant Board Circuits Grp.	Interfan William J. Purdy Co.	International Resistive Company

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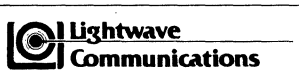
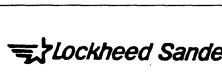
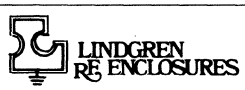
Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
International Sensor Systems, Inc.	ITW Switches Illinois Tool Works	Jennings	Jolo Industries, Inc.
International Transducer Corp. Channel Technologies, Inc.	IVO Industries, Inc.	Jensen Tools, Inc. Axia, Inc.	Jori Resources
Interoptics Purdy Group	IXYS Corp.	Jerome Industries Corp.	Joule Power, Inc.
Interpoint Corporation	JAE Electronics Inc.	JETA Power Systems, Inc.	Judco Mfg. Inc.
Interswitch Wm. J. Purdy Co.	Jaico Products Jaidinger Mfg. Co., Inc.	Jewell Electrical Instruments	Judd Wire Inc.
Intronics, Inc.	James Electronics	JFW Industries, Inc.	Julie Research Labs.
Ion Physics Co.	Janco Corp.	JKL Components Corporation	Jumo Process Control, Inc.
ISC Datacom ISC Defense & Space	Jan Hardware Mfg. Co.	JMJ Technical Prods.	Kaiser Systems, Inc.
ISKRA Electronics, Inc.	Japan Electronic Manufacturers Agency, Inc.	JMK, Inc.	K & M Electronics
ISL Products Int'l, Ltd.	Jaro Components, Inc.	JM Transformer Co., Inc.	Kappa Technologies, Inc.
Isotek Corporation	Jayco Plastics of California, Inc.	Jobmaster Corp.	Kavlico Corp.
Isotemp Research, Inc.	JBM Electronics, Inc.	Johanson Dielectrics, Inc.	KDI/Triangle Electronics
Itronic-Fuchs Corp.	J-B-T Instruments, Inc.	Johanson Manufacturing Corporation	KDS America Daishinku Corp.
ITT Components ITT Corporation	JC Systems, Inc.	Johnson Controls Battery Group, Inc.	Keithley Instrs.
ITT Sealectro, Inc.	JDK Controls, Inc.	Johnson Controls Battery Group, Inc.	Keithley MetraByte

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Keltron Corp. High Voltage Power Supply Div.	KGS Electronics, Inc.	KR Electronics, Inc.	L & L Special Furnace
Kelvin Industries, Inc.	Kikusui International Corp.	Kristel Corporation	Laser Technology, Inc.
Kemet Electronics Corporation	Kilovac Corp.	KRL/Bantry Components, Inc.	Laurel Electronics, Inc.
Kemlon Products & Development Company	Kinemetrics/Systems Kinemetrics, Inc.	Krohn-Hite Corp.	Lazer Data Electro Corporation
Kepco, Inc.	KineticSystems	Krystinel Corp.	L-Com Inc.
Kepco, Inc.	Kingbright USA Corp. Kingbright Elec. Co., Ltd.	K-Systems of Texas, Inc.	LDJ Incorporated
Keptel/Armiger	Kings Electronics Co., Inc.	Kulite Semiconductor Prods., Inc.	Leach Corporation
Kessler-Ellis Prods.	Kistler-Morse	Kulite Semiconductor Prods., Inc.	Leader Instruments Corp.
Kester Solder Div. Litton Sys., Inc.	KMS Advanced Products, Inc.	Kycon Cable & Connector, Inc.	LeCroy Corp.
Kester Solder Div. Litton Sys., Inc.	KNIGHTFIRE TECHNOLOGY	Kyocera Northwest Electronic Components Group	Lectronic Research Labs., Inc.
Ketema/Rodan Division	KnowledgeWare, Inc.	Laboratory Technologies Corp.	Ledtronics, Inc.
Ketema/Rodan Division	Knurr USA Inc. Knurr A.G.	Lake Shore Cryotronics, Inc.	Leeds & Northrup, General Signal
Keystone Carbon Thermistor Div.	KOA Speer Electronics	Lambda Electronics Inc.	LEMO U.S.A., Inc.
Keystone Electronics Corp.	KOA Speer Electronics	Lamb Industries, Inc.	LEM U.S.A., Inc.
KeyTek Instrument Corp.	Kraft Dynatronix, Inc.	Lamptronix Co., Ltd.	LEM U.S.A., Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Lenco Elctrns., Inc.	Lite-On Inc.	Logitek, Inc.	Lumex Opto/Components, Inc.
Leonische of America	Littelfuse, Inc.	Logitek, Inc.	LXD, Inc.
Leviton Telcom Leviton Manufacturing	Litton Poly-Scientific Div. of Litton Industries	Loral Data Systems	Lyn-Tron, Inc.
LG Systems Corp. Lockwood Greene Engineers, Inc.	Litton Poly-Scientific Div. of Litton Industries	Loral Data Systems	LZR Electronics, Inc.
LH Research, Inc.	Litton Potentiometer Div.	Loral TerraCom Sub. of Loral Corp.	LZR Electronics, Inc.
Liberty Controls	LMI Connectors Inc.	Low Key Corporation Strong Group	Mabuchi Motor America Corp.
Light Control Systems Inc. M/A COM Inc.	LNR Communications, Inc.	LSI Logic Corp.	Machine Components Corp.
 Lightwave Communications, Inc.	 Lockheed Sanders, Inc.	LTI, Inc.	Macrodyne Inc.
Lincoln Laser Co.	LocTite Luminescent Sys., Inc. LocTite Corp.	LTX Corporation	Mag-Head Engineering Co.
 Lindgren RF Enclosures, Inc.	LocTite Luminescent Sys., Inc. LocTite Corp.	Lucas Deeco Corp.	Magna-Power Electronics, Inc.
Linear Motions Co.	LocTite Luminescent Sys., Inc. LocTite Corp.	Lucas Duralith Corporation	Magnecomp, Inc.
Linear Technology Corp.	Locus, Inc.	Lucas Ledex Inc.	Magnecraft Electric Co.
Line Electric Products	Locus Computing Corp.	Lucas Ledex Inc.	Magnelab
Line Electric Products	Lodestone Pacific	Lucas Schaevitz	MagneTek Transducer Products
Linseis, Inc.	Logic Beach Inc.	Lucas Zeta, Inc. Lucas Aerospace, Inc.	MagneTek Defense Systems MagneTek, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Magnetek Triad	Markat Div. Wild Oats Corp.	Matsuo Electronics	3M Electrical Specialities Division
Magnetic Instrumentation	Markel Corp.	Maurey Instrument Corp.	3M-Electronic Products Division
Magnetico Inc.	Markel Corp.	Maxus Electronic Corp.	3M Photodyne Products Dynatel Systerms Division
Magnetic Shield Corporation Perfection Mica Co.	Markenrich Corp.	Maxwell Electronics	MDF Products Inc.
Magnos	Mark Polarized Corp.	McCoy Electronics Co. A Sub. of Oak Industries	MDS Calibration Lab. Inc.
Magtech Controls Vernitron Corporation	MarLee Switch Co.	MCE Semiconductor, Inc.	Measurement Systems, Inc.
Maida Development Co.	Marlow Industries, Inc.	MCG Elctrns.	Mechanical Products Inc.
Maine Poly, Inc.	Marquardt Switches Inc.	McGill Manufacturing Co., Inc.	Mechatronics Inc.
Mallory/North American Capacitor Co.	Marway Prods. Inc.	MCI Transformer Corporation	Mechatronics Inc.
Manage, Inc. Fibre Optics Elctrns. Sys. Grp.	Master Electronic Controls	MCI Transformer Corporation	Mektronix Technology, Inc.
Manhattan Electric Cable Corporation	Materials Research Corporation	McKenzie Technology	Melcher, Inc.
Mantex Corp.	Matrix Corp.	MCL, Inc.	Melcher, Inc.
Manu-Tronics, Inc.	Matrix Systems Corp.	McLean Engineering Zero Corporation	Melcor/Materials Elctrn. Prods.
Marcon America Corp.	Matrox Electronic Systems, Ltd.	McLean Midwest Sub. of Zero Corporation	Memcor-Truohm, Inc.
Marconi Instruments	Matrox Electronic Systems, Ltd.	McLean Midwest Sub. of Zero Corporation	Memcor-Truohm, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
MEMCOR-TRUOHM INC. Memcor-Truohm, Inc.	METROLAB Instruments SA Metrolab Instruments SA	Micro Micro Industries	MTI MICRO-TECHNICAL INDUSTRIES Micro Technical Industries
COMPUTER PRODUCTS MEMODYNE CORP. Memodyne	METROSONICS Metrosonics, Inc.	Micro Mo Micro Mo Electronics, Inc.	Microtec Research Inc. Microtec Research, Inc.
X Memory X, Inc.	mci Metuchen Capacitors, Inc.	micronel Micronel U.S.	 Microtran Co. Inc.
MEMTRON® Memtron Technologies, Inc.	MF MF Elctrns. Corp.	 Micro Networks Unitrode Corporation	MICROVISION Microvision Corp.
mensor Mensor Corporation	MFM TECHNOLOGY, INC. An Affiliate of UNITRODE Corporation MFM Technology, Inc. Affiliate of Unitrode Corp.	MICRON TECHNOLOGY, INC. Micron Technology, Inc.	M A G Microwave Applications Group
MEPCOPAL Mepcopal Company	MG ELECTRONICS MG Electronics	 Micro-Ohm Corp.	MDT Microwave Device Tech.
Simpson Mercer Electronics Simpson Electric Co.	µA Microavionics Corp.	MPL Micro Pneumatic Logic, inc.	MICROWAVE FILTER COMPANY, INC. Microwave Filter Inc.
 Meret Optical Communications, Inc. An Amoco Co.	MICROCAP Microcap, Inc. A MicroSemi Company	MICRO POWER SYSTEMS Micro Power Sys. Inc.	 Midcom, Inc.
MERET, inc. Meret Optical Communications, Inc. An Amoco Co.	Microchip Microchip Technology Inc.	Microsemi Corp. Microsemi Corp.	ME Mid-Eastern Industries Technology Dynamics Inc.
MERET Optical Communications, Inc. an Amoco Company Meret Optical Communications, Inc. An Amoco Co.	micro-circuits Micro-Circuits Co., Inc.	Coors Microsemi Corp. Colorado Microsemi Corp.	Midtex Relays, Inc. Midtex Relays, Inc.
Meriam Instrument a Scott Fetzer company Meriam Instrument Scott Fetzer	MCS MICRO CRYSTAL DIVISION / SMH Micro Crystal/Division SMH	MICROSONICS INCORPORATED Microsonics, Inc.	MIKRON® Mikron Instr.
MP Mesa Power Systems	MicroDimensions, Inc. MicroDimensions, Inc.	MICROSTAR LABORATORIES™ Microstar Laboratories	JAMES MILLEN MANUFACTURING James Millen Elctrns. Caywood Elec. Inc.
METHODE Methode Electronics, Inc.	MALCO Microdot, Interconnect Systems Division	MICRO SWITCH a Honeywell Division Micro Switch A Honeywell Div.	MILLIVAC INSTRUMENTS, INC. Millivac Instruments, Inc.
Metra Metra Instruments, Inc.	MET Micro Electronic Technologies	MICRO/SYS Micro/sys	MILL-MAX Mill-Max Manufacturing Corp.
MetriCor MetriCor, Inc.	TM Micro Industries	m Microtech	PRECI-DIP CONNECTORS FROM MILL-MAX Mill-Max Manufacturing Corp.

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Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Mills Resistor Co.	ModuPower, Inc.	MPC Div. of Consulting Systems	Nano Pulse Industries
Milross Controls, Inc.	MOLEX, Inc.	MSD, Inc. Magnecraft	Natel Engineering Co., Inc.
Milwaukee Resistor Corp.	Moli Energy Limited	M-Tron Industries	National Electronics Corp.
Minelco Inc. - A Talley Ind.	Molon Motor & Coil Corporation	Mueller Elec. Co.	National Controls Corp.
Mini-Circuits Lab.	Monitor Products Co., Inc.	Multi-Amp Corp. TBG	National Information Systems, Inc.
Mini Computer Technology	Monolithic Sys. Corp.	Multi-Contact USA	National Instruments Corp.
Mini-Systems, Inc. Electronic Package Div.	Morgan-Matroc Vernitron Div.	Multipower, Inc. Spectrum Electronics Corp.	National Semiconductor
Mini-Systems, Inc. Thick/Thin Film Division	Morgan-Matroc Vernitron Div.	Multi Products International	National-Standard Co.
Minor Rubber Co., Inc.	MORS/ASC	MULTISENS Inc	National Wire & Cable Corp.
Mitchell Electronics Corp.	Mosaic Semiconductor Inc. Implex Inc.	Mupac Corp. Carlo Gavazzi Co.	NCE:National Custom Enterprises, Inc.
MITEQ Inc.	Motion Science Inc.	Murata Erie North America, Inc.	NCE:National Custom Enterprises, Inc.
Mitsubishi Electronics	Motorola Inc. Auto. & Indl. Elctrns.;Elctrn. Sys. Comps. Div.	The Mushield Co. Inc.	NCR Comten, Inc. NCR Corp.
MKS Instruments, Inc.	Motor Technology, Inc.	MWS Wire Industries	NDK America, Inc.
MODULAIR	Motor-Tronics, Inc.	H. Wm. Myers & Assocs.	NDK America, Inc.
Modular Devices	M P C	Namco Controls An Acme-Cleveland Co.	NEC Electronics, Inc.

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Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
NEL FREQUENCY CONTROLS, INC. NEL Frequency Controls, Inc.	NKK switches OF AMERICA INC NKK Switches of America, Inc.	NOVA Nova Electric Corp. Technology Dynamics, Inc.	OSI Ohio Semitronics, Inc.
NTC Neshaminy Transformer Corp.	NMB TECHNOLOGIES INCORPORATED NMB Technologies	TAURUS By Nov Nova Electric Corp. Technology Dynamics, Inc.	 Ohmite Manufacturing Co.
NETCOM NETCOM, Inc	NOBLE Noble U.S.A., Inc.	novotechnik u.s., inc. Novotechnik U.S., Inc.	OHMTEK SFERNICE. INC. Ohmtek Inc. Vishay
 Neural Systems Inc.	nohau CORPORATION Nohau Corporation	NTE NTE Electronics, Inc.	 Olektron Corp. Signal Technology Corp.
 Newman, M. M., Corp. Heli-Tube Div.	NOISE/COM Noise Com Inc.	NTK NTK Technical Ceramics NGK Spark Plugs (USA)	OMEGA® Omega Engineering
™ Newport Electronics	NLS Non-Linear Systems – Division of Kaypro Non-Linear Systems/Div. of Kaypro Corp.	NS Nu-Concept Systems	OMEGA ENGINEERING, INC. Omega Engineering
NEWPORT Newport Electronics	NOREN PRODUCTS INCORPORATED Noren Products Inc.	NWL TRANSFORMERS NWL Transformers	OMNIBYTE Omnibyte Corp.
 New Wave Instruments	north atlantic a computer products company North Atlantic Industries	NYE® Designer Lubricants William F. Nye, Inc.	OMNIPrint Omniprint, Inc.
NEY The J. M. Ney Company	Northeast Innovations Northeast Innovations, Inc.	Nytronics Components Group Nytron Inductors, Inc.	OSI OMNI Switch USA, Inc.
NF NF ELECTRONIC INSTRUMENTS NF Electronic Instruments	nac Northern Ampower Corp.	OAKGRIGSBY OakGrigsby Inc.	OVI Omni Vision Inc.
NH RESEARCH NH Research, Incorporated Instrumentation Products Division	Northern Technologies Northern Technologies Corp.	OAKTRON Oaktron Corporation Mtx	OMRON Responsive Innovation Omron Electronics, Inc. Control Components Division
nc NIC Components Corp.	North Hills A Porta Systems Company North Hills Electronics	OCEAN MOTIONS COMPANY Ocean Motions Co.	 Opamp Labs, Inc.
 Nichicon (America) Corp.	North Hills Electronics, Inc. North Hills Electronics	OST OCEAN STATE THERMOTICS Ocean State Thermotics, Inc.	OPTEK Optek Technology Inc.
NTE Nicolet Instrument Corp. Test Instrument Division	DISPLEX, INC. A SUBSIDIARY OF NORTH HILLS ELECTRONICS INC North Hills Electronics Inc. Power Products Div.	OCTAGON SYSTEMS CORPORATION Octagon Systems	OPTEK Optek Technology Inc.
NJE POWER SUPPLIES NJE Corporation	NORWESCO INTERCONNECT DEVICES Norwesco Interconnect Devices	OECO Oeco Corp.	optelecom The Optical Communication Company Optelecom, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
Optical & Conductive Coatings Meridian Inds., Inc.	Oshino Lamps Limited	Pacific Transducer Corp.	PCB Piezotronics
Optima Electronic Packaging Systems	Oslo Controls	PacTec LaFrance Corp.	PCD
Optima Precision, Inc.	Ostby-Barton Test Probes	PacTec LaFrance Corp.	Pearson Electronics, Inc.
Opto Diode Corp.	Otto Controls Otto Engineering	Paladin Corp.	The Pedro Companies
Optoelectronics/Textron	Ovenaire-Audio-Carpenter Oak Crystal Inc.	Panametrics	Penn Engineering & Manufacturing Corp.
Opto 22	Ovenaire-Audio-Carpenter Oak Crystal Inc.	Panametrics	Penn-Tran Corp.,Sub. of Spectrum Elctrns. Inc.
Optrex/Satori	Oxley Inc.	Panasonic Industrial Co. Battery Sales GP	Penny & Giles Data Systems, Inc.
Oram High Voltage	Pace Inc.	Panduit Corp.	Penril DataComm Networks
Orbit Instrument of Cal. Orbit Instrument Corp.	Pacer Industries, Inc.	Panel Components Corp.	Perma Power Elctrns.
OrCAD	Pacific Industrial Components Corp. See Altair Exchange Corp.	Pan International (U.S.A.) Inc.	Perma Power Elctrns.
Oriental Motor U.S.A. Corporation	Pacific Instruments Inc.	Papst Mechatronic Corp.	Philips ECG North American Philips Co.
Oriental Motor USA Corp. Super Vexta	Pacific Microcomputers Signal Technology	Paragon Electric Co., Inc.	Phi Technologies, Inc.
Orion Instruments, Inc.	Pacific Power Source Corp.	Para-Line Transformer Co., Inc.	Phoenix Contact Inc.
Ortel Corp.	Pacific Resistor Co.	Parker Seal Group	Phoenix Wire, Inc.
Oscillatek A Dover Technology Company	Pacific Scientific Co.	PCA Electronics	Phoenix Wire, Inc.

LOGOFINDER DIRECTORY

Logo/Mfr.	Logo/Mfr.	Logo/Mfr.	Logo/Mfr.
PICO Electronics, Inc. Pico Electronics, Inc.	PLASTICORP Plasticorp	POTRANS® Potrans International Inc. Potrans Electrical Corp., Ltd.	Power Pak, Inc. Power-Pak, Inc.
Piconics, Incorporated	PLATO PRODUCTS, INC. Plato Products, Inc.	P&B Potter & Brumfield A Siemens Co.	POWER SONIC RECHARGEABLE BATTERIES Power-Sonic
PIEZO Piezo Electric Products, Inc.	Pletronics Pletronics, Inc.	Potter & Brumfield Potter & Brumfield A Siemens Co.	Power Star, Inc. Power Star, Inc.
Piezo Technology Inc.	PLITRON Plitron	powerbox inc. Powerbox Inc.	Power Star, Inc.
PIHER Piher International Corp.	PMI MOTION TECHNOLOGIES Division of Kollmorgen Corporation PMI Motion Technologies Kollmorgen Corporation	PowerCard CORPORATION Powercard Corp.	power SWITCH Corp. Power Switch Corporation
Pillar Industries, Inc.	POINT 4 DATA CORPORATION Point 4 Data Corp.	ETERNACELL Power Conversion, Inc. Hawker Siddely Group, Ltd.-London, England	Power Systems, Inc. Power Systems, Inc.
Pioneer Magnetics Pioneer Magnetics	POLARA Polara Engineering Inc.	Power Conversion Products	POWERTEC A DIVISION OF ASTEC AMERICA, INC. Powertec Power Supplies,Inc. Div.of Astec America
Pioneer Magnetics Pioneer Magnetics	POLYCASE® PRODUCTS DIVISION E•C•P CORPORATION POLYCASE PRODS. ECP Corp.	POWER DESIGNS Power Designs, Inc.	POWERTEC, INC. Powertec Power Supplies, Inc., Div. of Astec America See Astec America
PITTMAN® PITTMAN Penn Engrg. & Mfg. Corp.	POLYPHASE A KAPPA NETWORKS COMPANY Polyphase Instrument	THERMSTRATE® Power Devices Inc.	Powertec A Bonar Power Supplies Company Powertec Power Supplies,Inc. Div.of Astec America
elcom PITTMAN Penn Engrg. & Mfg. Corp.	PolyPhaser Corporation PolyPhaser Corporation	Power Dynamics, Inc. Power Dynamics Inc.	PTC TECHNOLOGY Power Technology Components A Div. of Microsemi Corp.
PITMAN PITTMAN Penn Engrg. & Mfg. Corp.	POLYTRON DEVICES, INC Polytron Devices, Inc.	POWEREX Powerex Westinghouse, GE, Mitsubishi	Power Technology, Inc. Power Technology, Inc.
Pixelworks, Inc.	Polytronix, Inc.	POWER GENERAL A SUBSIDIARY OF UNITRODE CORPORATION Power General Unitrode Corp.	10 POWER TEN INC. Power Ten, Inc.
Plainview Batteries, Inc.	Pomona Electronics	POWERLINE 10 Cochituate Street Natick, MA 01760 (617) 655-7987 Powerline,Inc. Chloride Power Elctrns.	PowerTest Division, Inc. A SUBSIDIARY OF ANALOGIC Power Test Division, Inc. Subsidiary of Analogic Corp.
PLANAR The Definition of Quality Planar Systems, Inc.	portasol Portasol Oglesby and Botler Ltd.	Power Measurement Ltd.	POWER TRENDS Power Trends, Inc.
Plastic Capacitors, Inc.	Positronic Industries, Inc.	POWER-ONE D.C. POWER SUPPLIES Power-One, Inc.	Powertron Powertron Corporation Industrial Test Equipment Co., Inc.

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PPC Products Corporation	Precision Specialties, Inc.	Professional Engineering Systems	QMI/NIEC
PPD, Inc.	Preh Electronic Industries, Inc.	Programmed Test Sources	QMI/NIEC
PPM, Inc.	Premier Metal Prods. Co.	Projector Recorder Belt Corp.	QSI Corporation
Precicontact, Inc.	Prem Magnetics, Inc.	Project Resources Inc.	Q-Tech Corp.
Precision Components, Inc.	Pres-Air-Trol Corp.	Project Resources Inc.	Quad Design Technology, Inc.
Precision Control Manufacturing, Inc.	Pressure Controls, Inc.	Projects Unlimited	Qualidyne Systems, Inc. Lambda Group of Unitech, plc
Precision Electronics	Prime Power A Prime Technology Co.	Promax-Johnton Electronic Corp.	Qualitec Technologies, Inc.
Precision Fabrication Technologies, Inc.	Prime Power A Prime Technology Co.	PROTEK Inc.	Quality Automation, Inc.
Precision Fabrication Technologies, Inc.	Princeton Electronic Products	Proto Systems	Quality Microwave Interconnects, Inc.
Precision Filters	Princo Instruments, Inc.	Prototek, Inc.	Quality Power Systems, Inc.
Precision Interconnect	Printer Products	Pulizzi Engineering, Inc.	Quality Thermistor
Precision Metal Products Co.	Probe Master, Inc.	PUREDATA	Qualogy Inc.
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Precision Resistor Co., Inc.	Product Technology, Inc.	Q-Card, Inc.	Quantum Data Inc.

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Radstone Technology	Reactel, Inc.	Renco Electronics, Inc.	Robbins & Myers/Electro-Craft
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Raltron Electronics	Recognition Concepts,Inc.	Reproduction Technologies Inc.	Robison Electronics
Ramtron Corp.	Redington Counters	Republic Electronics Co.	Rodale Technical Sales Inc.
Rank Brimar Inc.	Red Square Company	Resistors, Inc.	ROD-L Electronics, Inc.
Rantec Microwave & Elctrns., Inc.	Reeves-Hoffman Div. Dynamics Corporation of America	Resonant Power Technology	ROD-L Electronics, Inc.
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RAYOVAC Corporation	Regdon Solenoid, Inc.	RF Monolithics, Inc.	Rogers Corporation Flexible Interconnections Div.
Ray Proof Shielding Systems Corp.	Regdon Solenoid, Inc.	RGB Spectrum	Rohm Corporation Rohm Electronics Division
Raytek, Inc.	Regent Controls, Inc.	Rhombus Industries	Rose Enclosures Sys., Inc.
Raytheon Semiconductor	Regulus Systems	Richardson Electronics, Ltd.	Rosemount Analytical Inc.
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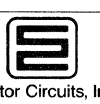
 Milton Roy Co. Environmental	SANYO Sanyo Energy Corp.	S F Schuster Electronics	SENSIDYNE Gas and Particulate Detection Sensidyne, Inc.
Rtron Rtron Corp.	..SaRonix..... SARONIX	SAC Science Accessories Corp.	Sensitive Research Sensitive Research Instruments
rustrak A MARK IV COMPANY Rustrak Instruments Mark IV Company	NYMPH SARONIX	B/E Science / Electronics Science/Electronics	SENSITRON SEMICONDUCTOR Sensitron Semiconductor RSM Electron Power Div.
RXD R X D Inc. Relm Communications	SAVOY ELECTRONICS, INC Savoy Electronics, Inc.	Sti Scientific Technologies Inc. Optical Sensor Div.	HAWKEYE SenSym SOLID STATE SENSORS Sensym, Inc.
DYTRONICS Ryan International Corp.	savoy ELECTRONICS, INC Savoy Electronics, Inc.	AET Scientific Technologies Inc. Optical Sensor Div.	SenSym Sensym, Inc.
NIFE POWER S A B NIFE, Inc. Div. of Sonesson	 Sawtek Inc.	SEACOR INC. Seacor, Inc.	 Sentry Manufacturing Company
SAFT Saft America Inc. Power Sources Div.	SBE SB ELECTRONICS THE MARK OF DEPENDABILITY S. B. Electronics, Inc.	seeQ SEEQ Technology	SERCO Serco Products Division:Serco Mold, Inc.
SAFT SAFT America, Inc. Portable Battery Division	ZERO SCANBE UNIT OF ZERO CORPORATION Scanbe Unit of Zero Corporation	Seiko Instruments Seiko Instruments U.S.A., Inc. Electronic Components	ServoByte ServoByte Inc.
SAMARIUS Samarius Precision Instruments, Inc.	SCHAFFNER Schaffner EMC, Inc. Instr. Div.	SEIKO INSTRUMENTS Seiko Instruments U.S.A., Inc. Electronic Components	servo SERVO CORPORATION OF AMERICA Servo Corporation of America
SAMHWA Samhwa U.S.A. Inc.	SCHENCK PEGASUS Test Systems · Dynamometers · Servovalves Schenck Pegasus Corp.	SII Seiko Instruments Inc Seiko Insts. USA, Inc. Graphic Devices & Systems Div.	SERVO-TEK Servo-Tek Products Co.
samtec Samtec, Inc.	SCHLEUNIGER Schleuniger USA Inc.	SII Seiko Instruments U.S.A., Inc. Robotics/Automation Div.	SESCOM Sescom, Inc.
S&EI S & EI Manufacturing	Schlumberger Schlumberger Instruments Schlumberger Technologies	selco Selco Products Co. SEL Sales, Inc.	setra Setra Systems, Inc.
S H S & H INDUSTRIES, INC. S & H Inds.	Schroff Schroff Incorporated	OMI Sel-Rex Div. OMI Intl. Corp.	SGS-THOMSON MICROELECTRONICS SGS-THOMSON Microelectronics, Inc.
 S & S Associates, Inc.	SCHURTER Schurter, Inc.	 Semiconductor Circuits, Inc. Astec America, Inc.	Shallco Shallco, Inc.

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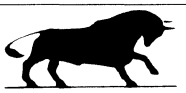
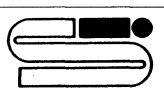
SHALLTRONIX Shalltronix Corp.	SIERRA SEMICONDUCTOR Sierra Semiconductor Corp.	SD P Singer Data Products, Inc.	sonicall inc Sonicall, Inc.
 Shamrock Plastics & Rubber, Inc.	 Sigmapower, Inc.	 Sjoberg, C., & Son, Inc.	Sorensen Sorensen Company
SHARP Sharp Electronics Corp. Microelectronics Grp.	SIGMA SYSTEMS San Diego Sigma Systems Corp.	SKY SKY COMPUTERS Sky Computer, Inc.	SoLiCo/mec FAX: 1-800-331-1184 Sorenson Lighted Controls
 Sheldahl, Inc.	 Signal Research Inc.	SKYDYNE Skydyne Div., AAR Mfg.	SoLiCo Sorenson Lighted Controls
SHELLY Shelly Associates, Inc.	 Signal Research Inc.	SL SL Corporation	SOR SOR, Inc.
SKC Shinano Kenshi Corp. (SKC)	SIGNAL SYSTEMS INTERNATIONAL INC. Signal Systems International	The Sloan Company "THE TOUCH OF BRILLIANCE IN PANEL DESIGN" Sloan Co.	SOSHIN Soshin Electric Co., Ltd.
Shindengen America, Inc. Shindengen America Inc.	signal TRANSFORMER Signal Transformer Co., Inc. Insilco Corporation	SMK SMK Electronics Corporation, U.S.A.	SOURIAU Souriau, Inc.
Shin-Etsu Shin-Etsu Polymer America, Inc.	SDC SILICON DETECTOR CORP. Silicon Detector Corp.	SMT EAST SMT East Corporation	SOUTHCO fasteners Southco, Inc.
Shin-Etsu Shin-Etsu Polymer America, Inc.	SILICON GENERAL Silicon General	SOFTAID, Inc. Softaid, Inc.	SCC Southern Computer Corp.
SHOGYO Shogyo International Corp.	 Silicon Power Cube Corp.	 THE SOFTWARE LINK The Software Link, Inc.	 Special Electric Co., Inc.
SHOKAI Shokai Far East Ltd.	SILONEX Silonex Inc.	SSDI SOLID STATE DEVICES, INC Solid State Devices	PIRELLI Specialty Cable Corporation
SHURE® Shure Brothers Inc.	SIMCO Simco	 Solid State Systems	SPECO Speco Div. Components Specialties, Inc.
SIEMENS Siemens Components, Inc. Optoelectronics Division	Simpson® Simpson Electric Co.	SST Solid State Testing, Inc.	 Spectral Innovations
Sierracin/Magnedyne Sierracin/Magnedyne	SIMTEK Simtek Corp.	Solitron Devices, Inc Solitron Devices, Inc. Semiconductor Group	Spectrol Spectrol Electronics Corp.
SMC Sierra Monitor Corp.	SINCLAIR Sinclair Radio Laboratories Sinclair Radio Laboratories Ltd.	S/M Solitron/Microwave Solitron Devices, Inc.	 Spectron Glass & Electronics, Inc.

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Spectrum Signal Proc.	Standard Condenser Corp.	Strawberry Tree, Inc.	Sygenex Inc.
Spectrum Technology, Inc. DATUM, Incorporated	Standard Insert Co. Penn Engrg. & Mfg. Corp.	Struthers-Dunn, Inc. and Hi-G Co., Inc.	Sygenex Inc.
Spellman High Voltage Elctrns. Corp.	Standex Electronics Standex International	Sullins Electronics Corp.	Sylvania GTE Control Devices
Spellman High Voltage Elctrns. Corp.	Stanford Resch. Sys., Inc.	Sundstrand Data Control Inc. Sundstrand Corporation	Symbicon Assoc. Inc.
Spellman High Voltage Elctrns. Corp.	Stanford Telecommunications, Inc.	Sun Electronic Systems, Inc.	Sym-Tek Sys., Inc.
Spiricon, Inc.	I I Stanley Co. INC. Stanley Electric Co. LTD.	Sun Electronic Systems, Inc.	Symtron Corp. Div. Diceon Elctrns.
Sprague-Goodman Elctrns., Inc.	Stantron Unit of Zero Corporation	Sunrise Electronics, Inc.	Synektron Corporation
S-Products Inc.	Star Micronics, Inc. OEM Division	Sunx Sensors/Imported by Ramco Elect.	Synoptics, Ltd. Paragon Towers
Square D Co.	Statek Corp.	Superior Electric	Syntest Corp.
SSAC Incorporated	State of the Art, Inc.	Susco Elctrns.	System General Corporation
Staco Energy Products Co.	Staver Co., Inc.	Susco Elctrns.	TAB/McGraw-Hill McGraw-Hill Inc.

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Tadiran Electronic Industries, Inc.	Techmar Corp.	Tekworks, Inc.	Tenney Engineering
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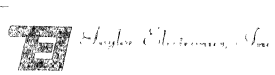
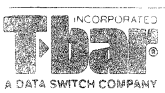
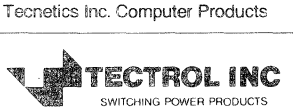
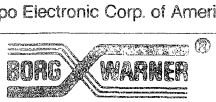
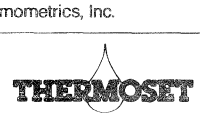
Taliq Corp.	Techmation, Inc.	Telectro Systems Corp.	Ten-Tec, Inc.
Tamura Corporation of America	Techni-Tool	Tele-Denken Resources, Inc.	Tepro of Florida
Tamura Corporation of America	Technitrol	Teledyne Relays Teledyne, Inc.	Tektex Instruments, Inc.
Tamura Corporation of America	Technology Dynamics Inc.	Teledyne Solid State A Div. of Teledyne Relays	Texas Optoelectronics, Inc.
Tauber Electronics, Inc.	Techron Div. Crown Intl., Inc.	Telegenix, Inc. Div. of Inductotherm Industries	Texmate, Inc.
 Taylor Electronics, Inc.	Techtrol Cyclonetics, Inc.	Telepacific Electronics Co., Inc. Pacific Vista Sys.	Texmate, Inc.
 T-Bar Data Switch Corp.	Tecknit (Eastern Facility)	Telonic/Berkeley Berkeley Inds. Inc.	Thermalloy, Inc.
TDJ Co., Inc.	TECLAB Kalamazoo Technical Furniture	Telpar, Inc.	Therm-O-Disc, Inc. Sub. Emerson Elec. Co.
TDK Corporation of America Electronic Components & Material	Tecnetics Inc. Computer Products	TELTEC, INC.	Therm-O-Disc, Inc. Sub. Emerson Elec. Co.
Teapo Electronic Corp. of America	 Tectrol, Inc.	Temescal/Airco Coating Technology The BOC Group, Inc.	Thermo Electric
 TECA, ThermoElectric Cooling America Corp.	TEGAM, Inc.	Temposonics Sensors Division MTS Sys. Corp.	Thermometrics, Inc.
Teccor Electronics, Inc.	Teka Interconnection Systems	Temptronic Corporation	 Thermoset Plastics Inc.

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THIRD DOMAIN Third Domain, Inc.	TOROTEL PRODUCTS INC. Torotel Prods. Inc.	 Transmagnetics	 TRM, Inc.
 Thordarson Meissner Components Corp. of Amer.	TOROTRON CORP. Torotron Corp.	trans metrics tm Inc. Trans Metrics, Inc.	 Trompeter Electronics, Inc.
 Thorn EMI Electron Tubes Inc.	Tortran Tortran Inc.	Transonic Systems Inc. Excellence in Medical Ultrasound Transonic Systems Inc.	TRUEVISION Truevision
THREE-FIVE SYSTEMS, INC. Three-Five Sys., Inc.	TORWICO ELECTRONICS INC Torwico Elctrns. Inc.	TRATEC Tratec of California, Inc.	 Truline Corporation
TII ELECTRONICS, INC. TII Industries Inc.	TOTAL POWER INTERNATIONAL, INC Total Power International, Inc.	 Trek, Incorporated	 TS Products, Inc.
 Timber Top	 Tower Electronics, Inc.	TREMETRICS™ A Baker Hughes company Tremetrics Inc. Baker Hughes Incorporated	TTE TTE, Incorporated
TL Industries Inc. TL Inds. Inc.	TOYOCOM TOYOCOM U.S.A., INC. TOYOCOM USA INC.	TRICONEX Triconex Corp.	 Tucker Electronics
TOCOSAMERICA Tocos America, Inc. Tokyo Cosmos Electric Co., Ltd.	TEAM systems Toyo Spectrum Corp.	PARTNERS IN INNOVATION TRIGON Adcotech A Dynatech Company TRIGON/ADCOTECH Dynatech	 Two Technologies,Inc.
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TOKO TOKO AMERICA, INC. Toko America, Inc.	TRAK SYSTEMS DIVISION OF TRAK MICROWAVE CORP TRAK Systems Div. TRAK Microwave Corp.	 Trinetics Inc.	ue SYSTEMS inc. U. E. Systems, Inc.
MEMBRANE SWITCH DIVISION TOPFLIGHT CORPORATION Topflight	Trans American Transformer, Inc. Trans American Transformer	TRIO LABS Trio Laboratories, Inc.	ULTRAVOLT ULTRA VOLT
TORAD Torad Coil Co., Inc.	TRANSCO Transco Products, Inc. Subsidiary of Datron Systems Inc.	TRIO-TECH INTERNATIONAL Trio-Tech International	ULTRONIX SFERNICE, INC. Ultronix, Inc. A Company of Vishay
TORELCO INC. Torelco, Inc.	TRANSDUCERS & SYSTEMS Transducers & Systems A Prime Technology Company	TRIPLETT CORPORATION Triplett Corporation	Ulveco Ulveco, Inc.
TOREMA TRANSFORMERS Torema U.S.A., Inc.	Transistor Devices Inc. Transistor Devices, Inc.	TRIPP LITE EST 1922 "THE POWER PEOPLE" Tripp-Lite	UNADILLA A Division of ANTENNAS ETC. Unadilla Antenna Mfg. Co.

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U. S. Digital Corp.	Vector Electronic Co., Inc.	Vibro-Meter Corp.	VME Microsystems Intl. Corp.
USD Products Div. of Bussmann	Vectronics Microwave Corp.	Vicom Systems, Inc.	Voltage Multipliers, Inc.
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WECO Electrical Connectors, Inc.	West Instrument A Mark IV Company	Xerox Imaging Systems, Inc. Xerox Corp.	Zierick Manufacturing Corp.
Weed Instrument Co., Inc	Westrex Products	Xetel Corporation	Zippertubing Co.
Weico Wire & Cable, Inc.	S.S White Technologies Inc.	Xico, Inc.	Zitel Corporation

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES
TECHNICAL INFORMATION
WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

Abbreviations/Acronyms **A**•1114, **B**•1037, **C**•1116, **D**•1068
AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
Fiber Optics, Miniglossary **B**•1224
Fiber Optics, Product Selection Guide **B**•1214
Filters, Power, Product Selection Guide **A**•1609
Filters, Signal, Product Selection Guide **A**•1651
Instruments, Test & Measuring, Product Selection Guide **D**•1207
Interconnection Systems, Product Selection Guide **C**•1678
Keyboards & Keypads, Product Selection Guide **B**•1794
Lamps, Lights, & Indicators, Product Selection Guide **B**•1135
Logofinder & Trademark Directories **C**•901
Microwave Components, Product Selection Guide **A**•1746
Military Qualified Products List **B**•1002
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Panel Meters, Analog & Digital, Product Selection Guide **D**•1340
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide **A**•2013
Power Supplies, Miniglossary **D**•1522, **D**•2184
Power Supplies, AC, Product Selection Guide **D**•2146
Power Supplies, DC, Product Selection Guide **D**•1501
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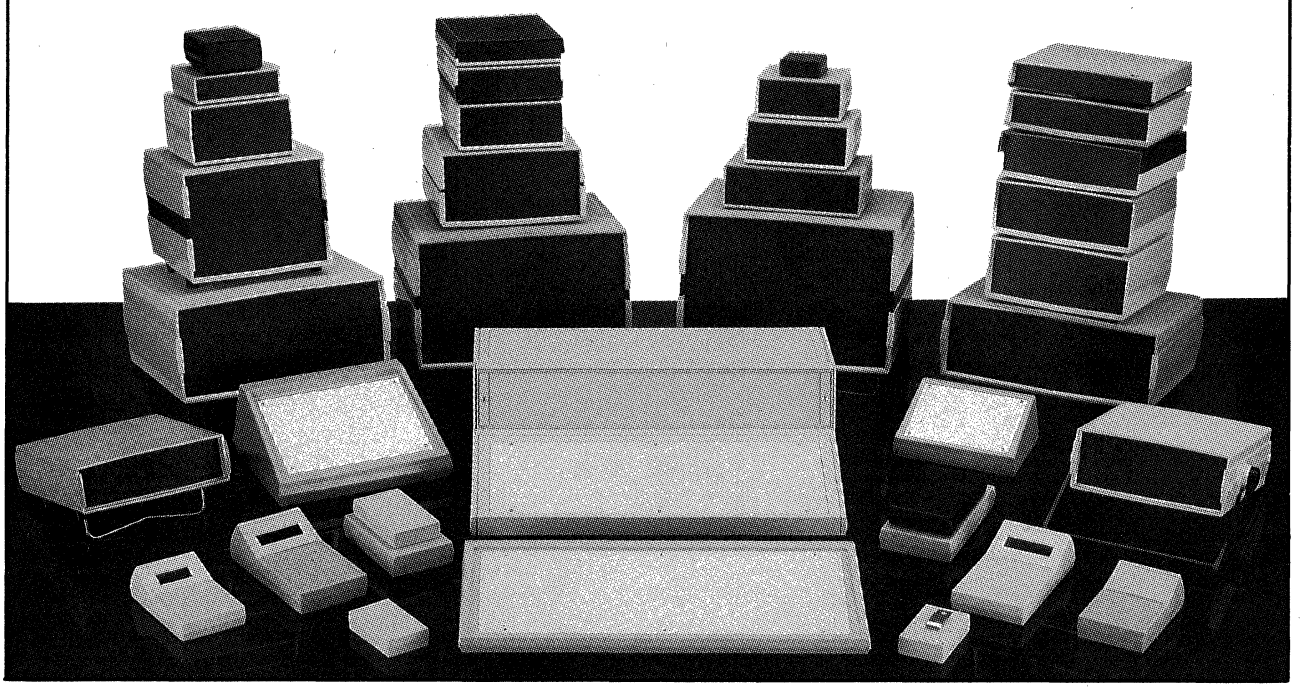
Relays, Product Selection Guide **B**•1397
Resistor Color Codes **A**•1924
Resistors, Product Selection Guide **A**•1835
Servo Components, Miniglossary **B**•1270, **D**•2244
SI Units, Basic Guide To, **A**•2080, **B**•1666, **C**•1362, **D**•2246
Solenoids, Product Selection Guide **B**•1614
Switches, Product Selection Guide **B**•1639
Symbols—International Authorities **A**•1139, **B**•1024, **C**•1156, **D**•1090
Thermal Components, Product Selection Guide **B**•1831
Thermal Conductivity of Dielectrics at Room Temperature **C**•1709
Thyristors/High Power Diodes, Miniglossary **A**•1728, **A**•2084
Timers, Miniglossary **B**•1409, **D**•1149
Trademark & Logofinder Directories **C**•901
Transducers & Encoders, Product Selection Guide **B**•1872
Transformers, Product Selection Guide **A**•2131
Wire & Cable, Product Selection Guide **C**•1705
Wire Gauges—Diameter, Area, Copper Weight **C**•1864

PACTEC®
Division of LaFrance Corp.

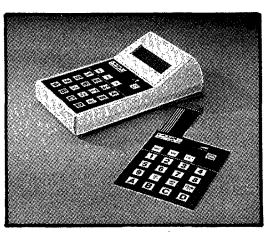
Electronic Enclosures

designed to work for you.



Standard Enclosures • Modified Standard Enclosures • Customization • Design Support

- **Standard Enclosures** - More than 118 models are currently in production. In stock at electronic distributors throughout the U.S.A. and worldwide. Standard Enclosures may be ordered as Prototype Kits (with all components necessary to assemble one enclosure) or as Production units (supplied without panels, card guides or mounting rails in certain models).
- **Machine Modified Standard Enclosures** - Modifications are made by CNC machining of standard models.
- **Custom Modified Enclosures** - In-mold modifications are made using unique, low cost tooling for specified "insert" areas of the enclosure. May be combined with CNC machining.
- **Custom Enclosures** - Contact factory for design support and quotations.
- **Prototype Kits** - Contain all components needed to assemble one unit. Certain C and CL Models are available in Kits which can be easily assembled into a choice of pre-selected heights; see page C•1073
- **Design Support** - With more than forty years experience in design and production of quality products the PacTec engineering staff can collaborate in every phase of your product design cycle; from pre-production prototype to totally custom original designs. Modifications can be made to top and bottom covers, front and rear panels and includes provisions for positioning PCB's and LCD's, controls and access points for Input/Output devices.
- **Other Available Literature** - Representative/ Distributor List, Price List, EMI/RFI Shielding & Material Properties, Engineering Drawings.



- **Custom and standard Membrane Switches** see page C•1075
- **Custom Printed Overlays** see page C•1076

see pages C•1070 thru C•1076

PacTec Division 8425 EXECUTIVE AVENUE, PHILADELPHIA, PA 19153 215/365-8400 800/220-9800 FAX: 215/365-4420

CABINETS

Manufacturer	Starting EEM Page No.	Consoles		Cabinets						Turrets		Racks		Special		Characteristics		
		Desk-top	Free-standing	Sys-tems	Bench	Desk-top	Instru-ment	Rack	Port-able	Bench	Desk-top	Equip-ment	Kits	Equip-ment Stands	Desks, Work Stations	Composition	19 in. Stan-dard	Shielded
AMCO Engineering Co.	C•1008	√		√	√	√	√	√	√	√	√	√			√		√	√
Ango Electronics Corp.	C•1012				√	√		√				√					√	√
Atlas/Soundelier	C•1013	√	√	√		√	√	√			√	√			√	14 Gauge Welded CRS	√	
Bopla Enclosures	C•1016			√	√	√	√		√							Plastic/ Aluminum	√	√
Buckeye	C•1017				√	√			√							Estrud. Alum./ Sheet Alum.	√	
Cabtron Systems Inc.	C•1018	√	√	√	√	√	√	√	√	√	√	√					√	
Compac Dev. Corp.	C•1021						√	√	√			√						√
D.L. Custom	C•1026	√	√	√											√		√	√
ECS Composites	C•1027						√	√	√					√				
EG&G Birtcher	C•1028						√	√				√	√					
Electronic Enclosure (Wyle)	C•1030		√	√	√		√	√					√		√	Aluminum	√	√
Electra-Tec	C•1033				√		√											
Electro-Space Fabricators Inc.	C•1034	√				√	√	√									√	√
Elma Electronics	C•1039		√	√	√	√	√	√	√			√	√				√	√
Emcor Products	C•1043		√	√		√	√	√		√	√	√			√	Steel	√	√
Equipto Electronics	C•1044	√	√	√	√	√	√	√		√	√	√			√	Steel	√	√
Everest Electronic Equipment	C•1050			√		√	√	√							√	Metal	√	√
Extrusion Technology	C•1051	√				√	√		√									√
Flexible Furniture Div./ Metal Components Inc.	C•1053														√			
Gemini	C•1054						√	√	√									
General Devices	C•1056			√			√	√								Steel, Stainless Steel	√	√
Hammond Mfg. Co. Inc.	C•1058	√	√	√		√	√	√		√	√	√	√	√	√		√	√
Hardigg Industies	C•1059							√	√								√	√
Lansing Instrument	C•1063					√	√	√				√				Alum., Steel, Plastic	√	√
Optima Enclosures	C•1064	√	√	√		√	√	√				√					√	√
Par Metal Products Inc.	C•1077	√	√			√	√	√			√	√		√	√	Steel	√	
Powerbox	C•1079				√	√	√											
Precision Fabrication Technologies Inc.	C•1081					√	√	√				√				Steel, Aluminum	√	
Premier Metal Prods.	C•1090	√	√	√	√	√	√	√	√	√	√	√					√	√
Ritz /Relco	C•1092	√	√	√	√	√	√	√	√			√	√	√	√	Metal Paint Silkscreen	√	√
Rose Enclosures Sys. Inc.	C•1093		√		√	√	√		√					√		Metal, Plastic		√
Serco Products	C•1100	√		√	√				√									√
Sescom	C•1102				√			√										
Starcase Mfg. Co. Inc.	C•1097											√			√	Laminates	√	
Strongbox	C•1108																	
TDJ Co. Inc.	C•1110	√					√	√										
Techmar Corp.	C•1113				√			√					√				√	
Teclab	C•1117				√	√									√			
Tracewell Enclosures	C•1120			√		√	√	√	√								√	√
Zero Corp.	C•1130	√	√	√	√	√	√	√	√			√		√	√	Steel, Aluminum	√	√

CASES

Manufacturer	Starting EEM Page No.	Type									Characteristics		
		Bench-top	Dis-play	Desk-top	Key-board	Kits	Instru-ment	Port-able	Tran-sit	Equip-ment, General	Composition	19 inch Stand-ard	Shielded
Altech	C•1006			√			√	√	√	√	Polystyrene, Polycarbonate, Glass		
Bopla Enclosures Sys.	C•1016	√	√	√	√		√	√			Plastic/Aluminum		√
Buckeye	C•1017	√		√	√	√	√	√			Ext. Aluminum/ Sheet Aluminum		
Compac Dev. Corp.	C•1021						√	√		√			√
D.L. Custom	C•1026									√		√	√
ECS Composites	C•1027				√	√	√	√	√	√	Thermo stamped Composites Thermoplastic Moldings	√	√
EG & G Birtcher	C•1028						√					√	√
Electro-Space Fabricators Inc.	C•1034	√		√	√							√	
Elma Electronics	C•1039	√	√	√	√	√	√	√	√	√		√	√
Everest Electronic Equipment	C•1050			√			√				Metal	√	√
Extrusion Technology	C•1051	√	√	√	√	√	√	√	√	√			√
Gemini Inc.	C•1054		√				√	√	√	√		√	√
Hammond Mfg. Co. Inc.	C•1058	√	√	√	√		√			√		√	√
Hardigg	C•1059				√		√	√	√	√		√	√
Lansing Instrument Corp.	C•1063	√		√			√			√	Aluminum, Steel, Plastic, plus other sizes	√	√
Optima Enclosures	C•1064							√		√		√	√
PacTec	C•1070	√		√	√	√	√				Injection Molded ABS		√
Polycase Products	C•1078	√	√	√			√			√	ABS, Nylon, Polypropylene		
Powerbox Inc.	C•1079	√		√		√	√			√	Aluminum Extruded	√	
Precision Fabrication Technologies Inc.	C•1081			√	√		√				Aluminum	√	
Premier Metal Prods. Inc.	C•1090	√		√			√	√	√	√		√	
Ritz /Relco	C•1092	√	√	√	√	√	√	√	√	√	Metal Paint Silkscreen	√	√
Rose Enclosures Sys. Inc.	C•1093	√			√		√	√		√	Metal & Plastic		√
S & S Associates	C•1094	√		√		√	√	√			High Impact ABS		√
Serco Products Div.	C•1100	√	√					√					√
Simco	C•1103	√		√		√	√	√			ABS		√
Skydyne	C•1106	√					√	√	√	√	Fiberglass, ABS Alum. Composite	√	√
Starcase Mfg. Co. Inc.	C•1097	√		√	√		√	√	√	√	Laminates-Modular	√	√
TDJ Co. Inc.	C•1110	√		√			√						
Techmar Corp.	C•1113	√		√								√	
Tracewell Enclosures	C•1120	√	√	√	√		√	√		√		√	√
Underwater Kinetics	C•1127		√		√	√	√	√	√	√	ABS/Polycarbonate Plastic		
Zero Corp.	C•1130	√	√	√			√	√	√	√	Steel & Alum.	√	√

PCB MOUNTING

Manufacturer	Starting EEM Page No.	Card Cages/ Frames	Card Files	Card Guides	Vertical Card Guides	Retainers	Inserters/ Extractors	Ejectors
Altech	C•1006			√		√		
Amco Engineering	C•1008	√	√					
Ango Electronics Corp.	C•1012	√						
Atlee	C•1014			√				
Bivar Inc.	C•1015			√	√		√	√
Bopla Enclosures Sys.	C•1016	√		√	√	√	√	
Buckeye Stamping	C•1017	√		√				
Calmark Corp.	C•1019	√	√	√	√	√	√	√
Compac	C•1021	√			√	√		
EG&G Birtcher	C•1028	√	√	√		√	√	√
Electro-Space Fabricators Inc.	C•1034	√	√	√	√	√	√	√
Elma Electronics	C•1039	√	√	√	√	√	√	√
Extrusion Technology	C•1051			√				
General Devices	C•1056	√						
Hammond Mfg. Co. Ltd.	C•1058	√	√	√	√		√	√
Optima Enclosures	C•1064	√		√	√			
Ritz/Relco	C•1092	√	√	√	√	√	√	√
S & S Associates	C•1094			√	√			
Scanbe	C•1098	√	√	√	√	√	√	√
Techmar Corp.	C•1113	√						
Tracewell Enclosures	C•1120	√	√	√	√			

CHASSIS/TRACKS

Manufacturer	Starting EEM Page No.	Chassis	Tracks/ Slides
Altech	C•1006		√
Amco Engineering	C•1008	√	√
Bopla Enclosures	C•1016	√	
Buckeye	C•1017	√	
EG & G	C•1028	√	
Electro-Space Fabricators Inc.	C•1034	√	
Elma Electronics	C•1039	√	√
Emcor Products	C•1043	√	√
General Devices	C•1056	√	√
Hammond Mfg. Co. Ltd.	C•1058	√	√
Lansing Instrument Corp.	C•1063	√	
Par-Metal Prod.	C•1077		√
Polycase Products	C•1078	√	√
Powerbox Inc.	C•1079	√	
Precision Fabrication Technologies Inc.	C•1081	√	
Premier Metal Products	C•1090	√	√
Ritz /Relco	C•1092	√	√
Strongbox	C•1108	√	
TDJ Co. Inc.	C•1110		√
Techmar Corp.	C•1113	√	√
Tracewell Enclosures	C•1120	√	

Altech Corp.
120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
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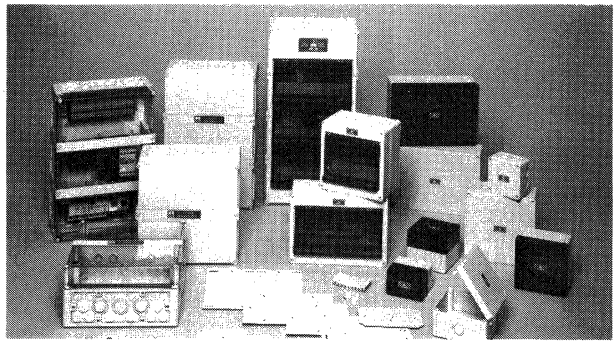
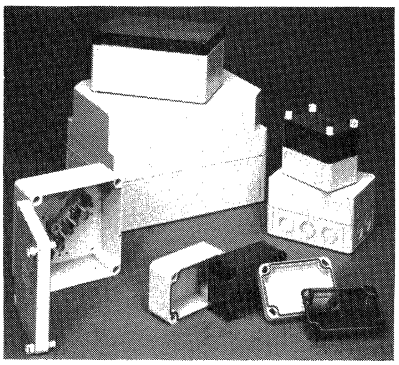
ENCLOSURES THAT PROTECT AND LOOK GOOD TOO!

Altech/Spelsberg enclosures provide needed protection in a functional and creative way while enhancing the value of your product with their appealing designs. Innovative housing for electrical/electronic/pneumatic components; terminal blocks and assemblies; meters, switches, sensors; and DIN rail mount circuit breakers and devices. Choose from our wide selection of sizes and styles.

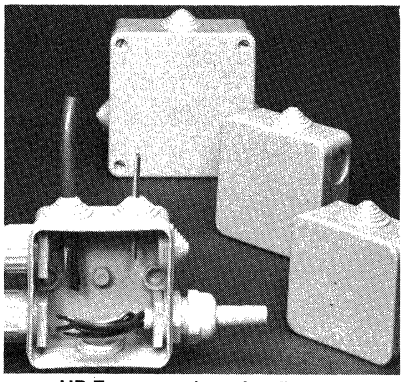
- Dust and Moisture Proof
- Non-Corroding, Chemical and Impact Resistant
- International Approvals
- Fully Gasketed with Polyurethane Seals
- Precision Molded Polystyrene, Polycarbonate, or Glass Reinforced Polycarbonate
- Available with Transparent or Gray Covers
- NEMA 4X
- Smooth or Knockout Sidewalls
- Selection of Cover Heights and Styles
- Special Colors Upon Request
- Easily Customized
- Complete Line of Accessories Available



Altech's Family of Nonmetallic Enclosures



TK Variety Enclosures



HP Economy Junction Boxes

TK Variety—Polycarbonate, smooth sides without knockouts, NEMA 4X/IP66

Type	Cover Type	Dimensions Inches	Type	Cover Type	Dimensions Inches
PC77-6-o	grey	2.56 sq×2.24	PC1313-7-o	grey	5.12 sq×2.95
PC77-8-o	grey	2.56 sq×3.19	PC1313-10-o	grey	5.12 sq×3.90
PC77-6-to	transparent	2.56 sq×2.24	PC1313-7-to	transparent	5.12 sq×2.95
PC77-8-to	transparent	2.56 sq×3.19	PC1313-10-to	transparent	5.12 sq×3.90
PC97-6-o	grey	3.70×2.56×2.24	PC1811-9-o	grey	7.09×4.33×3.54
PC97-8-o	grey	3.70×2.56×3.19	PC1811-11-o	grey	7.09×4.33×4.37
PC97-6-to	transparent	3.70×2.56×2.24	PC1811-9-to	transparent	7.09×4.33×3.54
PC97-8-to	transparent	3.70×2.56×3.19	PC1811-11-to	transparent	7.09×4.33×4.37
PC99-6-o	grey	3.70 sq×2.24	PC1818-9-o	grey	7.17×7.09×3.54
PC99-8-o	grey	3.70 sq×3.19	PC1818-11-o	grey	7.17×7.09×4.37
PC99-6-to	transparent	3.70 sq×2.24	PC1818-9-to	transparent	7.17×7.09×3.54
PC99-8-to	transparent	3.70 sq×3.19	PC1818-11-to	transparent	7.17×7.09×4.37
PC1111-7-o	grey	4.33 sq×2.60	PC2518-9-o	grey	10.0×7.09×3.54
PC1111-9-o	grey	4.33 sq×3.54	PC2518-11-o	grey	10.0×7.09×4.37
PC1111-7-to	transparent	4.33 sq×2.60	PC2518-9-to	transparent	10.0×7.09×3.54
PC1111-9-to	transparent	4.33 sq×3.54	PC2518-11-to	transparent	10.0×7.09×4.37
PC1309-6-o	grey	5.12×3.70×2.24	PC3625-11-o	grey	14.21×10×4.37
PC1309-8-o	grey	5.12×3.70×3.19	PC3625-16-o	grey	14.21×10×6.50
PC1309-6-to	transparent	5.12×3.70×2.24	PC3625-11-to	transparent	14.21×10×4.37
PC1309-8-to	transparent	5.12×3.70×3.19	PC3625-16-to	transparent	14.21×10×6.50

TK Variety—Polystyrene, with knockouts, NEMA 4X/IP66

Type	Cover Type	Side Knockout	Dimensions Inches	Type	Cover Type	Side Knockout	Dimensions Inches
PS77-6	Grey	4, Pg 16	2.56 sq×2.24	PS1313-7	Grey	7, Pg 21/16	5.12 sq×2.95
PS77-8	Grey	4, Pg 16	2.56 sq×3.19	PS1313-10	Grey	7, Pg 21/16	5.12 sq×3.90
PS97-6	Grey	6, Pg 16	3.70×2.56×2.24	PS1811-9	Grey	12[1]	7.09×4.33×3.54
PS97-8	Grey	6, Pg 16	3.70×2.56×3.19	PS1811-11	Grey	12[1]	7.09×4.33×4.37
PS99-6	Grey	7, Pg 16	3.70 sq×2.24	PS1818-9	Grey	12[2]	7.17×7.09×3.54
PS99-8	Grey	7, Pg 16	3.70 sq×3.19	PS1818-11	Grey	12[2]	7.17×7.09×4.37
PS1111-7	Grey	7, Pg 21/16	4.33 sq×2.60	PS2518-9	Grey	16[3]	10.0×7.09×3.54
PS1111-9	Grey	7, Pg 21/16	4.33 sq×3.54	PS2518-11	Grey	16[3]	10.0×7.09×4.37
PS1309-6	Grey	10, Pg 16/11	5.12×3.70×2.24	PS3625-11	Grey	26[4]	14.21×10×4.37
PS1309-8	Grey	10, Pg 16/11	5.12×3.70×3.19	PS3625-16	Grey	26[4]	14.21×10×6.50

1.) 4, Pg 21/16, 16, Pg 16; 2.) 8, Pg 21/16, 4, Pg 29/21; 3.) 12, Pg 21/16, 4, Pg 29/21; 4.) 32, Pg 16, 4, Pg 21/16, 6, Pg 29/21

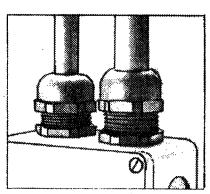
HP Economy Junction Boxes

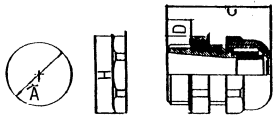
Semi-rigid Polypropylene
With universal entry selas
NEMA 12/13 IP54

Type	Dimensions (Inches)
HP 70	2.95 sq×1.66
HP 80	3.35 sq×1.66
HP 90	3.55 sq×1.77
HP 100	4.45 sq×2.29

Connector Assemblies

Includes connector, ring seal and locknut. **Material:** polyamide, glass-filled reinforced. Liquid-tight, strain-relief connector asemblies for use with enclosures





Type	Cable Dia. Range (In.)	Thread	Hole Dia. (In.) A	C	D	H
227-037	0.16-0.32	NPT⅜"	0.69	1.46	.59	0.95
227-050	0.24-0.47	NPT½"	0.85	1.57	.51	1.14
227-075	0.51-0.71	NPT¾"	1.06	1.69	.51	1.54
227-100	0.71-0.98	NPT1"	1.32	2.24	.75	1.81

Mounting Plate Kits

Complete with mounting screws and spacers. **Material:** gray laminated composite, .10" thick. (TK Enclosures are equipped with provisions to mount MP Plates.)

Type	Enclosure Series	Size (In.)	Type	Enclosure Series	Size (In.)
MP77	TK77	1.77×1.77	MP1313	TK1313	4.33×4.33
MP97	TK97	2.92×1.77	MP1811	TK1811	5.91×3.54
MP99	TK99	2.92×2.92	MP1818	TK1818	5.91×5.91
MP1111	TK1111	3.54×3.54	MP2518	TK2518	8.66×5.91
MP1309	TK1309	2.92×4.33	MP3625	TK3625	13.08×8.66

We can only show a small sampling of our extensive enclosure product line here. Please request our catalog and samples.

SEE OUR SWITCHES IN SECTION 5100 B•1643/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1349/SEE OUR TERMINAL BLOCKS IN SECTION 2100 C•1164

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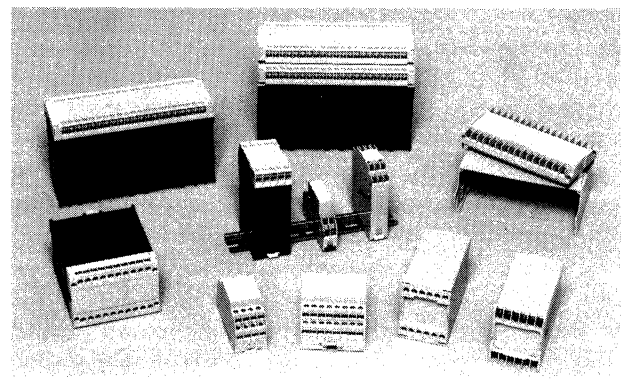
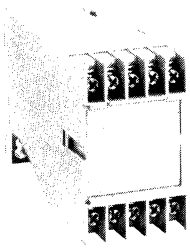
ELECTRONIC HOUSINGS DIN RAIL MOUNT

Advances in electronic and electrical technology have put increased demands on housings. Altech's contemporary, nonmetallic electronic enclosures are designed to help you package your devices for the world market. Compace in size, they are ideal for housing electrical, electronic, electromechanical devices including relays, timers, interfaces, controllers, printed circuit boards and more! Quick and easy front wiring. Snap onto standard DIN rail or panel mount.

- Complete With Terminals
- Touch Protection
- Copper/Tin Plated Solder Tabs
- Verrilium Copper Contacts
- UL94 VO Materials
- Up to 25A, 18-12 AWG
- Easily Customized, Imprinted
- International Acceptance
- Panel Mount Adapters Available



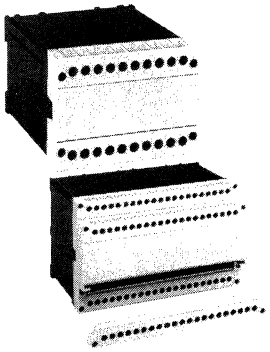


K70

Removable front panel for easy insertion and removal of printed circuit boards; integral printed circuit board guides. Some versions available with pluggable terminals, pressure plate connection. Available in 7 sizes.

- Material: Polycarbonate
- Standard Color: Gray
- Up to 25A (Pluggable - 10A)
- Terminal Covers Optional

Type	Max.# of Terminals	Connection To PCB*	Housing mm (in.) ** Width	Height	Depth
K70-22.5A	8	WJ,ST	22.5	75.0	97.0
K70-22.5B	12	WJ,ST	22.5	75.0	97.0
K70-32.5	6	WJ,ST	32.5	73.0	114.0
K70-45C	10	WJ,ST	45.0	75.0	112.0
K70-45D	20	WJ,ST	45.0	74.0	124.0
K70-55A	12	WJ,ST	55.0	73.0	114.0
K70-75A	16	WJ,ST,CS	75.0	73.0	114.0
K70-100A	20	WJ,ST	100.0	73.0	114.0
K70-100B	20	WJ,ST,CS	100.0	74.0	114.0
K70-150A	32	WJ,ST,CS	150.0	73.0	114.0



KO4700

Up to 4 removable terminal strips eliminate wiring mistakes and simplify board replacement. Captive clamping screws, pressure plate connections. Screw-driver guides.

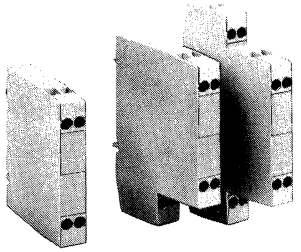
- Housing Material: Polycarbonate
- Cover Material: Glass Filled Polycarbonate
- Standard Housing Color: Black;
- Cover Color: Beige
- Up to 25A (Pluggable-10A)
- Terminal Covers Available

Type	Max.# of Terminals[1]	Connection To PCB*	Housing mm ** (in.) Width	H1	H2	D1	D2
K04718	20	WJ,CS,ST	100.0	73.2	—	118.2	—
K04719	32	WJ,CS,ST	152.0	73.2	—	118.2	—
K04720	42	WJ,CS,ST	200.0	73.2	—	118.2	—
K04721	66	WJ,CS	200.0	73.2	—	118.2	—
K04722A	42	WJ,CS,ST	200.0	123.0	—	118.2	—
K04722D	84	WJ,CS,ST	200.0	123.0	82.6	118.2	137.2
K04723-A	66	WJ,CS	200.0	123.0	—	118.2	—
K04723D	137	WJ,CS	200.0	123.0	82.6	118.2	137.2
K04762	10	ST	45.0	73.2	—	119.2	—
K04763	16	WJ,CS,ST	45.0	73.2	—	119.2	—

*Board Connection
WJ = Wire Jumper
CS = Contact Spring (for direct contact)
ST = Solder Tab
DSP = Dual Solder Pins

**Dimensions mm	in.	mm	in.	mm	in.	mm	in.
11.5	.45	45.0	1.77	74.0	2.91	114.0	4.49
17.5	.69	48.0	1.89	75.0	2.95	118.2	4.65
20.0	.79	55.0	2.17	82.6	3.25	119.2	4.69
22.5	.89	58.0	2.28	90.0	3.54	123.0	4.84
28.0	1.10	60.0	2.36	97.0	3.82	124.0	4.88
31.0	1.22	70.0	2.76	100.0	3.94	137.2	5.40
32.5	1.28	73.0	2.87	112.0	4.41	150.0	5.91
35.0	1.38	73.2	2.88			200.0	7.87

[1] Other terminal strip configurations available

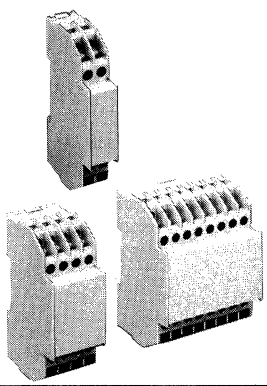


KO4070

Compact, supplied in easy to assemble kit. Removable snap-in screw-cage terminals with dual solder pins; machine solderable to board. Horizontal and vertical printed circuit board positions. Funnel shaped wire entries.

- Material: Polyamide
- Standard Color: Gray
- Up to 16A
- Available With Extended Pins

Type	Max.# of Terminals	Connection To PCB*	Housing mm (in.) ** Width	H1	H2	D1	D2
KO4071	4	DSP	11.5	60.0	—	60.0	—
KO4072	6	DSP	11.5	60.0	75.0	60.0	31.0
KO4073	8	DSP	11.5	60.0	90.0	60.0	31.0
KO4074	6	DSP	20.0	60.0	—	60.0	—
KO4075	9	DSP	20.0	60.0	75.0	60.0	31.0
KO4076	12	DSP	20.0	60.0	90.0	60.0	31.0
KO4077	8	DSP	28.0	60.0	—	60.0	—
KO4078	12	DSP	28.0	60.0	75.0	60.0	31.0
KO4079	16	DSP	28.0	60.0	90.0	60.0	31.0

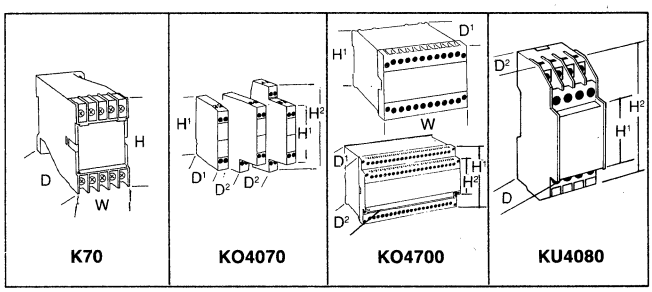


KU4080

Compact, supplied as easy to assemble kit consisting of 4 snap-in double level terminals, cover with integral printed circuit board guides, DIN rail mountable base. Up to 8 individual terminals can be machine soldered to each board. Horizontal and vertical board positions. Pressure plate connections. Ideal for applications where space is a constraint. Fit standard 45mm DIN cutout in larger enclosures like Altech's EK series.

- Material: Polycarbonate
- Standard Color: Gray
- Up to 16A

Type	Max.# of Terminals	Connection To PCB*	Housing mm (in.) ** Width	H1	H2	D1	D2
KU4087	8	WJ,ST	17.5	45.0	90.0	58.0	48.0
KU4088	16	WJ,ST	35.0	45.0	90.0	58.0	48.0
KU4089	32	WJ,ST	70.0	45.0	90.0	58.0	48.0



K70 KO4070 KO4700 KU4080

† For printed circuit board dimensions, contact factory

We can only show a small sampling of our extensive enclosure product line here. Please request our catalog and samples.

SEE OUR SWITCHES IN SECTION 5100 B•1643/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1349/SEE OUR TERMINAL BLOCKS IN SECTION 2100 C•1164

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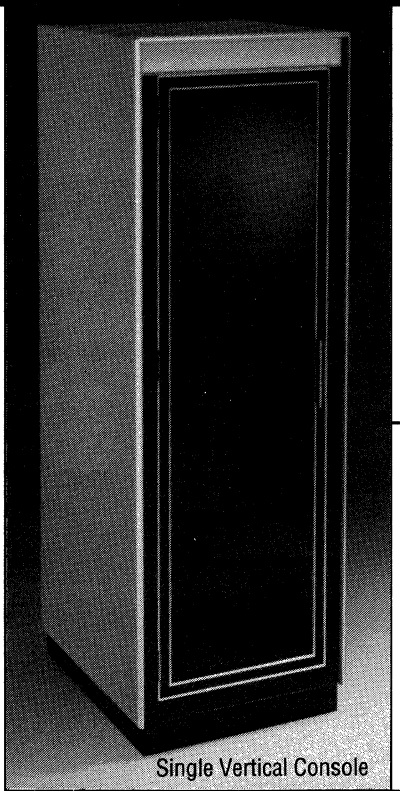
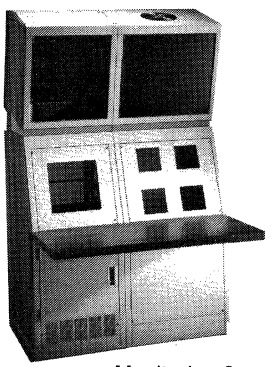
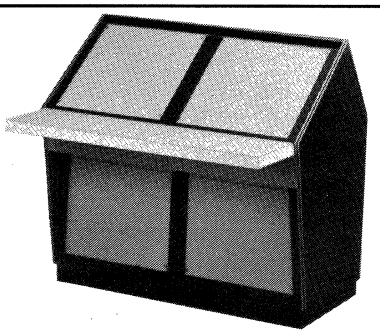


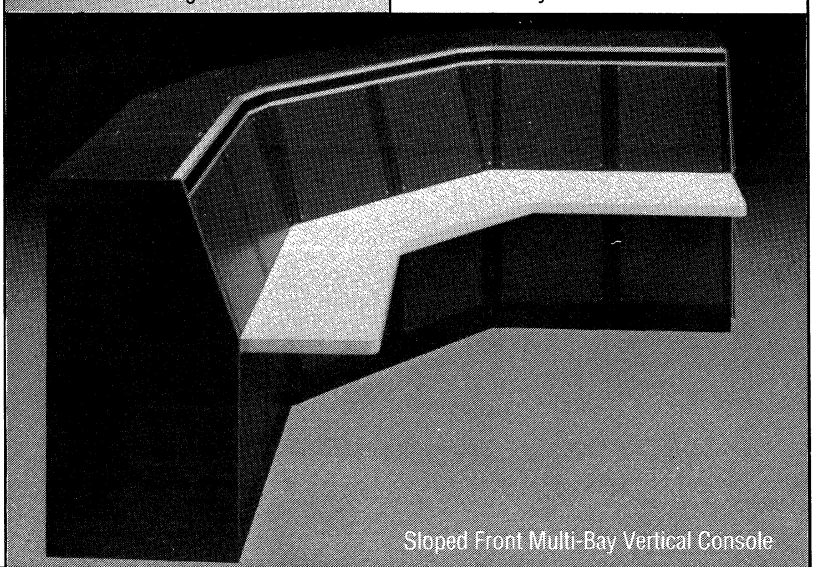
Single Vertical Console



Monitoring Console



Double-Bay Low Silhouette Console



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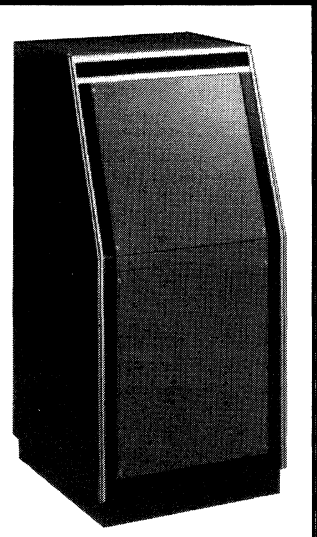
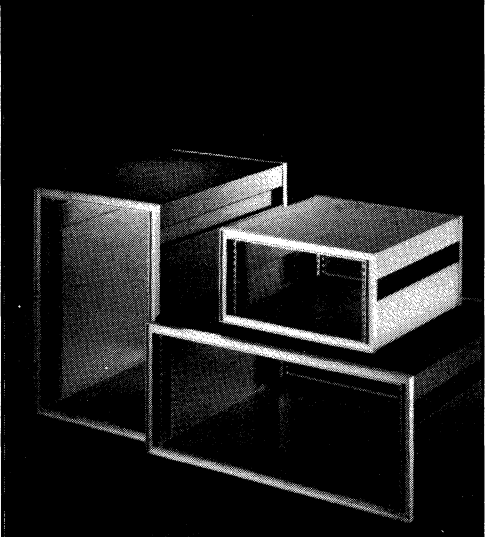


Sloped Front Consoles



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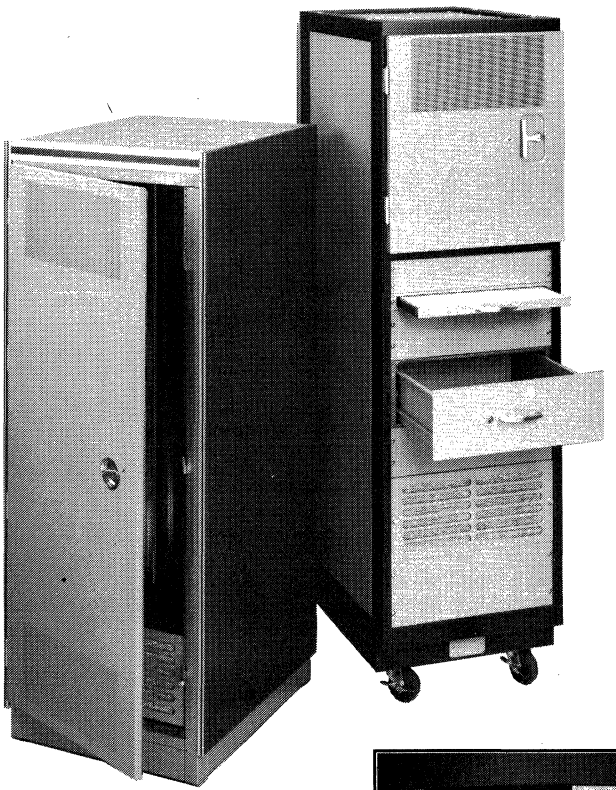

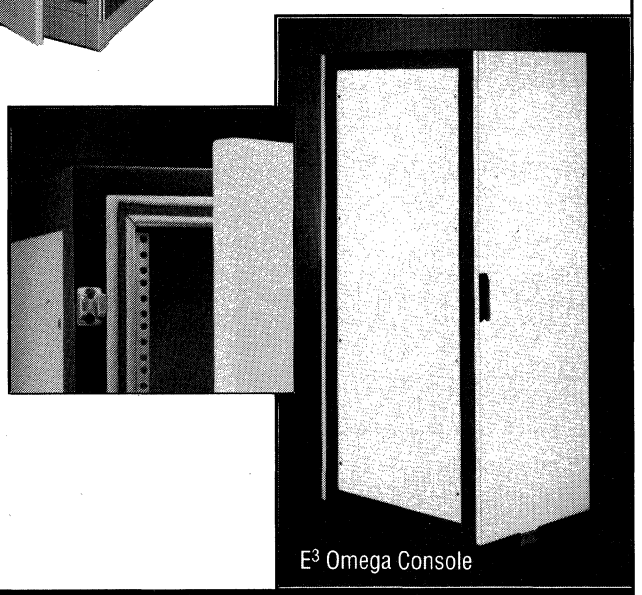

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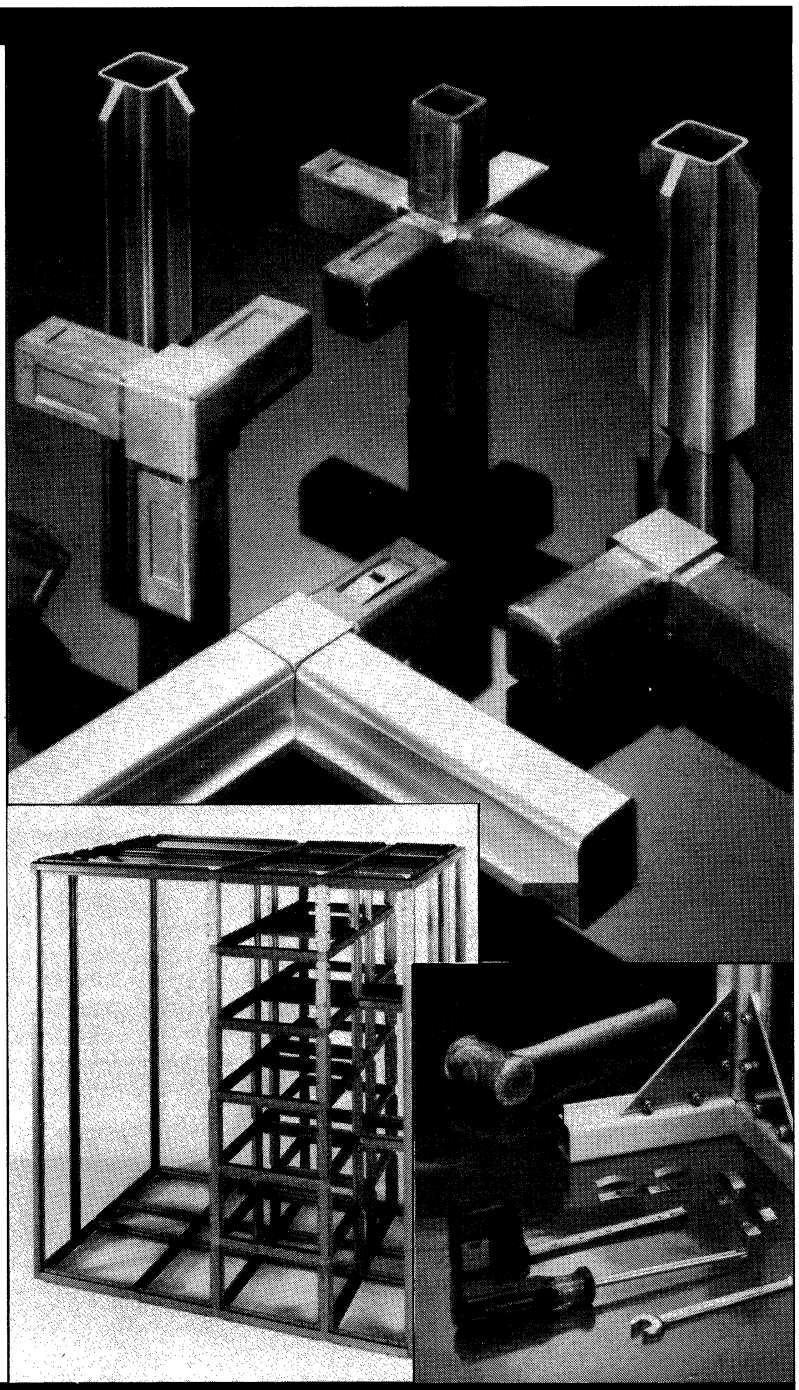

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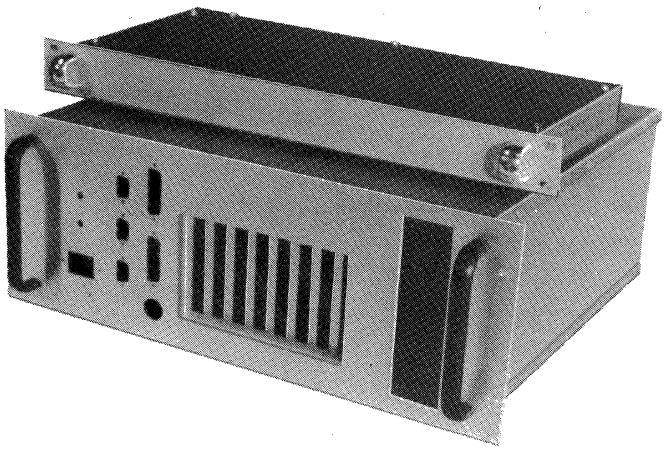
series 12 and 13 are all aluminum with .06" panel thickness and standard with black or clear anodized finish. An additional second front panel for mounting meters or switches is included for improving the flexibility and strength of the chassis.

The series 14 and 16 are semicustom all aluminum with standard ilodine finish, and available in any size and material thickness with optional custom hole punching, EMI/RFI shielding, anodization, color painting, and silk screening. Series 14 is extra heavy duty construction (.188" front and .09" side panels) with EMI/RFI shielding. Most semicustom enclosures will be delivered from 2 to 10 days.

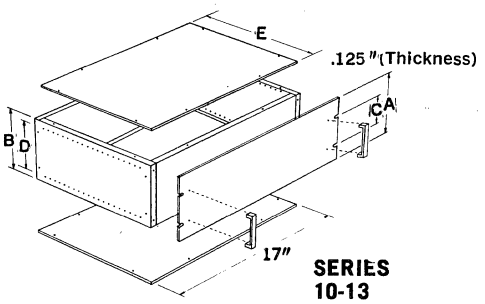
Series 15 is specially made rack-mount cases solely for PC-XT and PC-AT computers. Stock models include front slotted and rear slotted with 1 to 3 disk driver spaces. Custom modifications are available with reasonable prices. High quality UL listed power supply and 2nd fan are installed as options. Other rack-mount chassis for disk drivers and monitors can be altered to meet your specifications.

Other accessories include: Support rail/plate, 2nd front panels for meters or switches, aluminum blank panels with sizes from 1U to 6U high with all types of finish, and vent panels are also available from stock.

Call for free catalog, quantity discount or other products. Specs, and prices are subject to change without prior notice.



EIA STANDARD 19″ Rack Mount Chassis



SERIES 10-13

Description	Rack Unit	Dimension (Inch) A	B	C	D	E	Side Panel Thickness (inch)	Black Stock No.	Black Price	Metallic Stock No.	Metallic Price	Ship-Weight (lb)
Steel—Side, Top, and Bottom Panels Aluminum—Back and Front Panels	1	1.75	1.50	1.25	0.50	8.00	.045	10-19082	40.90	11-19082	38.95	6
	1	1.75	1.50	1.25	0.50	14.00	.045	10-19142	46.40	11-19142	45.25	9
	2	3.50	3.13	3.00	2.00	8.00	.045	10-19083	46.75	11-19083	45.95	8
	2	3.50	3.13	3.00	2.00	14.00	.045	10-19143	52.25	11-19143	51.50	9
	3	5.25	4.93	2.25	3.75	8.00	.045	10-19085	52.45	11-19085	51.95	9
	3	5.25	4.93	2.25	3.75	14.00	.045	10-19145	58.60	11-19145	57.95	10
	3	5.25	4.93	2.25	3.75	20.00	.045	10-19205	64.85	11-19205	63.95	14
	4	7.00	6.75	4.00	5.50	8.00	.045	10-19087	56.65	11-19087	55.95	10
	4	7.00	6.75	4.00	5.50	14.00	.045	10-19147	62.50	11-19147	61.95	12
	4	7.00	6.75	4.00	5.50	20.00	.045	10-19207	69.85	11-19207	68.40	15
All Aluminum Anodized All Surface	1	1.75	1.60	1.25	0.50	11.50	.06	12-19122	59.50	13-19122	58.10	5
	2	3.50	3.30	3.00	2.25	11.50	.06	12-19123	65.80	13-19123	64.20	6
	3	5.25	5.07	2.25	4.00	11.50	.06	12-19125	72.50	13-19125	71.00	7
	4	7.00	6.85	4.00	5.75	11.50	.06	12-19127	79.20	13-19127	77.90	8
	5	8.75	8.50	5.75	5.50	11.50	.06	12-19129	86.50	13-19129	84.10	10
	6	10.50	10.25	7.50	7.25	11.50	.06	12-19120	91.50	13-19120	89.90	12
Semicustom All Aluminum Alodine finish	1	1.72	1.40	1.25	—	10.00	.06/.09	16-19101	75.00	14-19101	84.00	4
	2	3.47	3.13	3.00	—	10.00	.06/.09	16-19102	79.00	14-19102	88.50	5
	3	5.23	4.90	2.25	—	17.00	.06/.09	16-19173	111.00	14-19173	125.00	6
	4	6.97	6.65	4.00	—	17.00	.06/.09	16-19174	116.50	14-19174	134.50	8
	5	8.72	8.40	5.75	—	22.00	.06/.09	16-19225	144.75	14-19225	157.75	11
	6	10.47	10.13	7.50	—	22.00	.06/.09	16-19226	150.00	14-19226	166.50	12
	7	12.23	11.90	9.25	—	22.00	.06/.09	16-19227	156.50	14-19227	175.00	13

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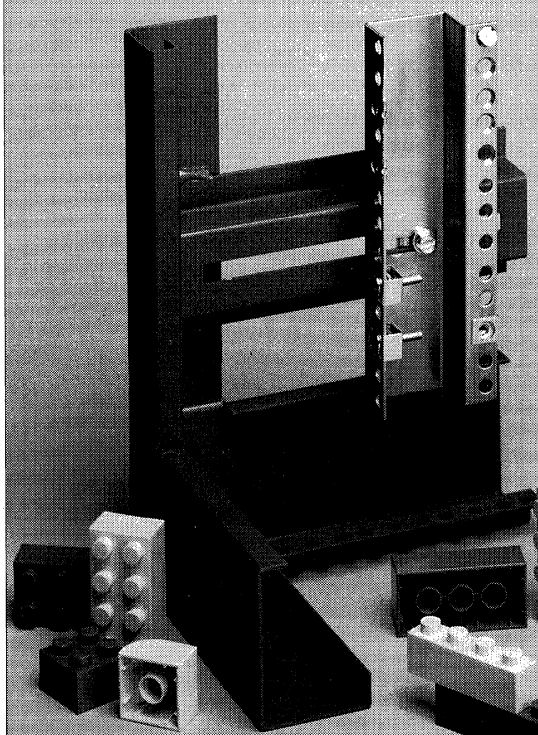

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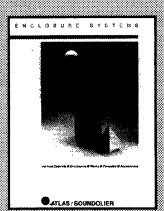

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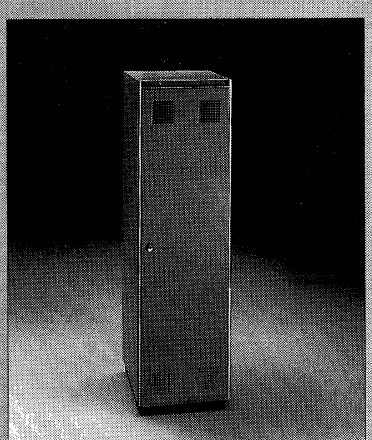
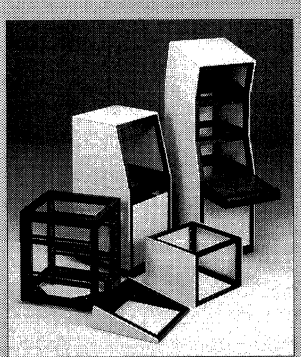
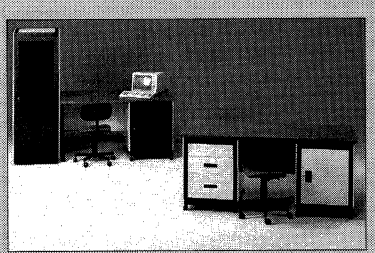


Series V Vertical Cabinets
Steel cabinets are available in seven heights (22-7/8" to 77-1/8"); two depths (25-1/2" and 30"); and three widths (19", 24", and 30"). Order frames and components separately or as assembled units.



Series VI Modular Consoles
Mix, match, or stack welded frame modules on a 22-7/8"H base adding panels, wedges, and other accessories. Order individually or as one of many standard factory-assembled configurations.



Series VII Modular Desks
Stations are available in "table-style" design or with one or two electronic base units. Desks have a 29-7/8"H work surface, 30"D base, and 19"W x 22-7/8"H panel opening.

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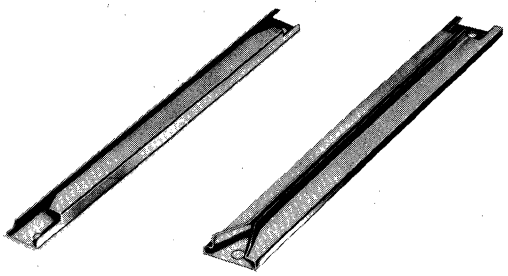
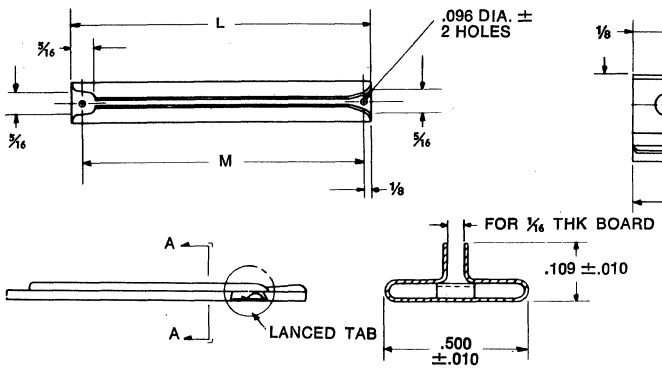


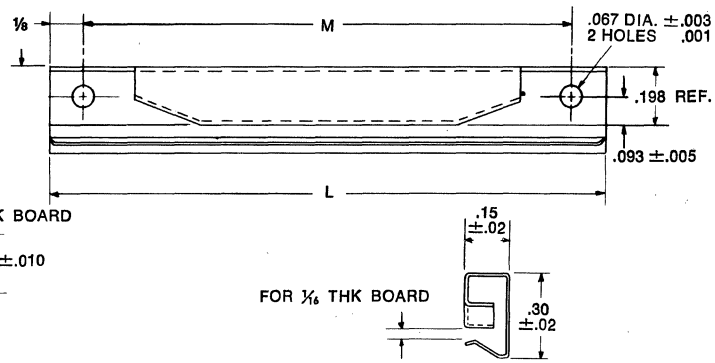
FEATURES

- High retention of printed circuit board under severe shock and vibration.
- Easily installed by welding or riveting.
- Quick and simple board insertion and withdrawal.
- Rigidly mounted printed-circuit board in racks and other types of assemblies.

MATERIAL: *beryllium copper, .010 thick, alloy 25, per QQ-C-533a, condition ¼ hard.

PLATING: .0003 thick cadmium per QQ-P-416a, type II, class 2.





*** 11903-300**

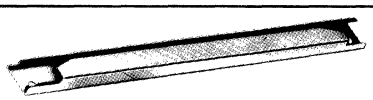
	L ±.02	M ±.005		L ±.02	M ±.005
2	2½	2.250	7	5	4.750
3	3	2.750	8	5½	5.250
4	3½	3.250	9	6	5.750
5	4	3.750	10	6½	6.250
6	4½	4.250	11	7	6.750

* Standard in beryllium copper and stainless steel.

*** 11909-300**

	L ±.02	M ±.005		L ±.02	M ±.005
1	2	1.750	6	4½	4.250
2	2½	2.250	7	5	4.750
3	3	2.750	8	5½	5.250
4	3½	3.250	9	6	5.750
5	4	3.750			

* Standard in beryllium copper and stainless steel.

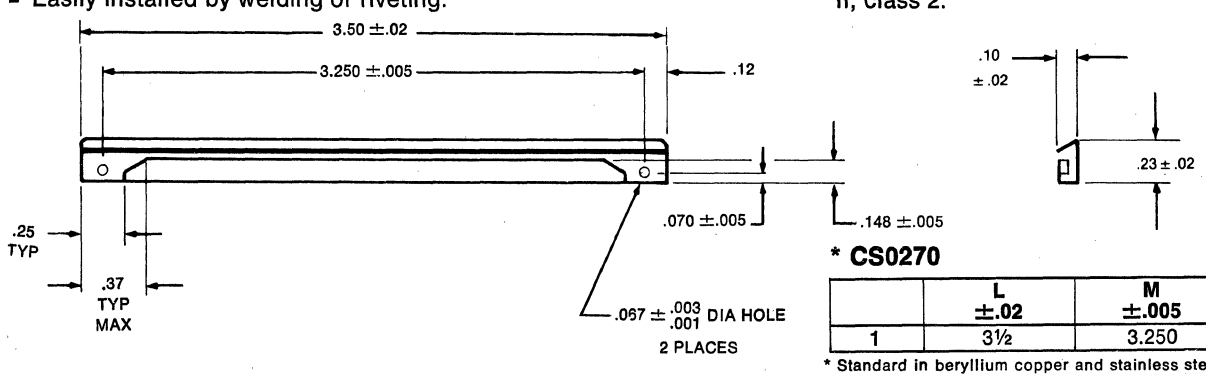


FEATURES

- High retention of printed circuit board under severe shock and vibration.
- Easily installed by welding or riveting.
- Quick and simple board insertion and withdrawal.
- Rigidly mounted printed circuit board in racks and other types of assembiles.

MATERIAL: *beryllium copper, .005 thick, alloy 25, per QQ-C-533a, condition ¼ hard.

PLATING: .0003 thick cadmium per QQ-P-416a, type II, class 2.



*** CS0270**

	L ±.02	M ±.005
1	3½	3.250

* Standard in beryllium copper and stainless steel.

- Card guides available for 1/32 and 3/32 thick printed circuit boards.
- Flared card guides also available.
- Refer to Atlee Cross Reference for additional card guides we manufacture.
- Card guides designed and manufactured to your specifications.

Please consult factory for additional card guide requirements.

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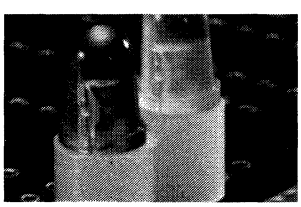
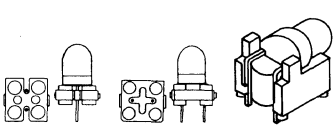


LIGHTED DISPLAY MOUNTS

- ☐ Vertical L.E.D. Mounts
- ☐ T-1 and T-1 3/4 90° L.E.D. Mounts
- ☐ T-1 3/4 L.E.D. Mounts
- ☐ L.E.D. Strip Mounts
- ☐ T-1 L.E.D. Mounts

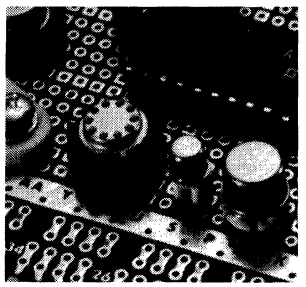
984 standards in heights from .030" through 1.250" in .005" increments.



Across In-line

12 (T-1 3/4) and 15 (T-1) STATION STRIP.

T-1 RIGHT ANGLE MOUNTS.



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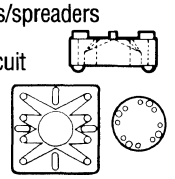
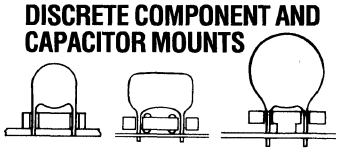
Over 3400 standard low cost styles and sizes from stock...

TO-18 mounts/spreaders
TO-5 mounts
Integrated circuit Mounts Spreaders Converters

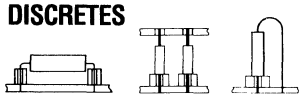


Many BIVAR parts meet MIL-M-38527C

DISCRETE COMPONENT AND CAPACITOR MOUNTS

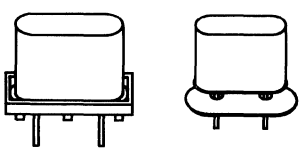


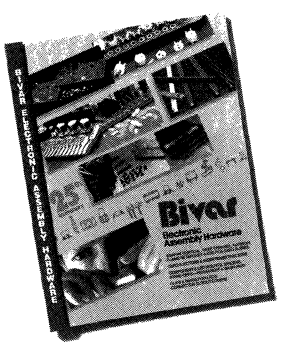
UNIVERSAL SPACERS FOR DISCRETES



Dual in-line mounts
TO-5/TO-18 covers and shields

CRYSTAL MOUNTS AND INSULATORS





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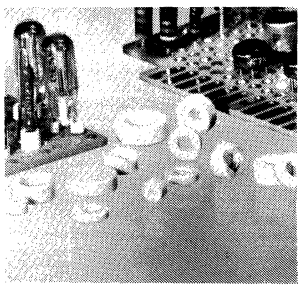
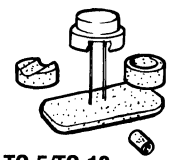


WASH-AWAY SPACERS

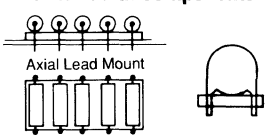
Over 500 standard sizes...
To improve positioning, protect leads during assembly, and reduce rework & rejects.

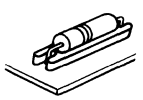


For DIPs, TO-5/TO-18 Transistors & Semiconductors...

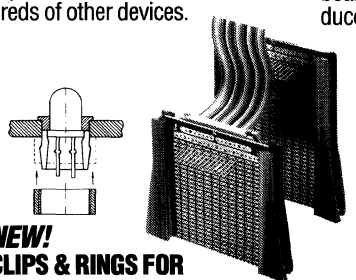
DIP Mount Transistors

Axial & Radial Components...

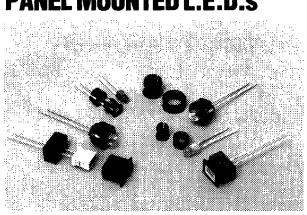




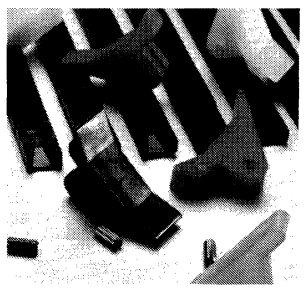
And a complete selection of general purpose & solid spacers for capacitors, cordwood & hundreds of other devices.



NEW!
CLIPS & RINGS FOR PANEL MOUNTED L.E.D.s

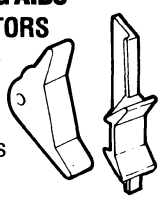


Ideal for T-1, T-1 3/4 & Rectangular L.E.Ds.
All available from stock.



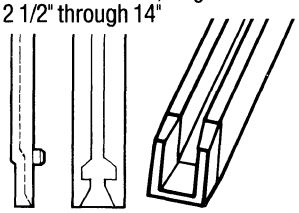
PRINTED CIRCUIT BOARD PACKAGING AIDS

CARD EJECTORS
18 standard & locking styles

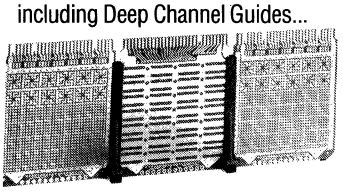


4 PCB Handles

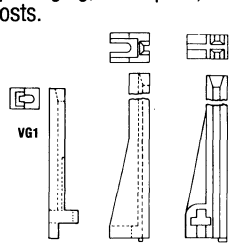
SNAP-IN CARD GUIDES
52 standard sizes; lengths from 2 1/2" through 14"



including Deep Channel Guides...



VERTICAL CARD GUIDES
for individual, paired, or tandem board packaging; save space, reduce costs.



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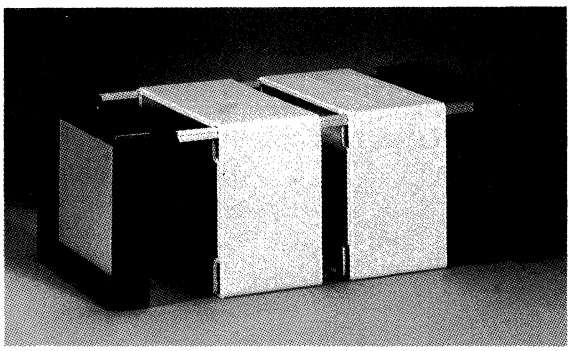

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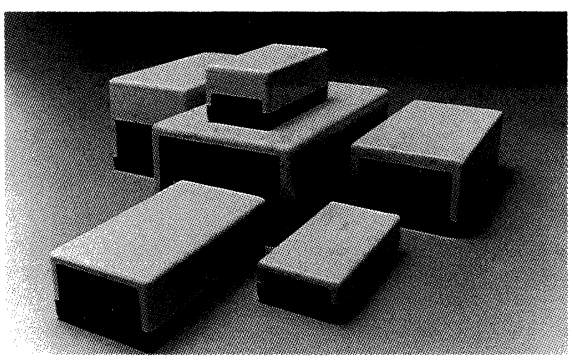
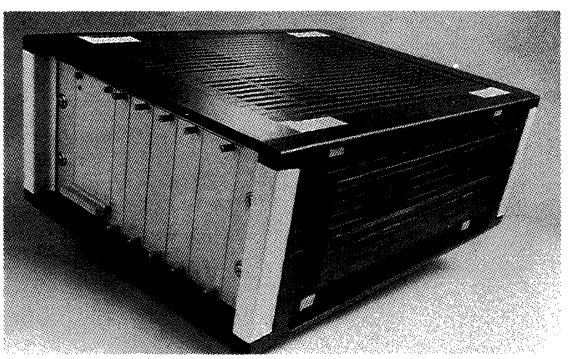
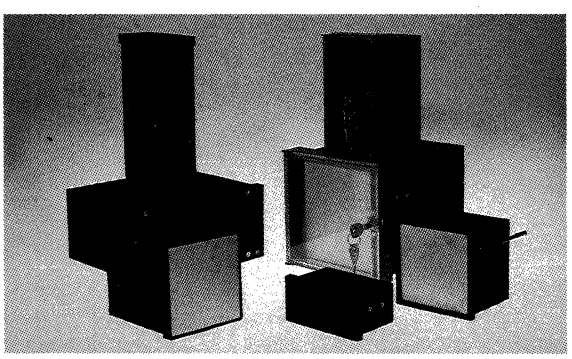


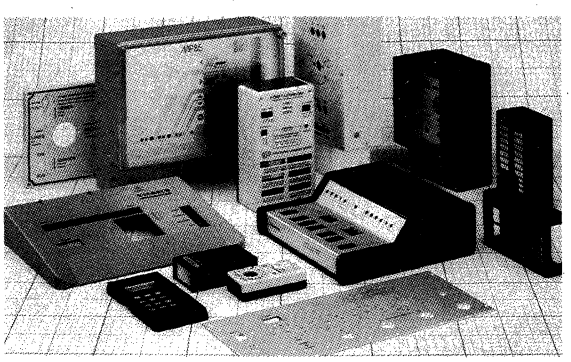
3. Small Instrument Cases



4. Portable Test Equipment Enclosures



5. Panel-mount Housings in DIN Sizes



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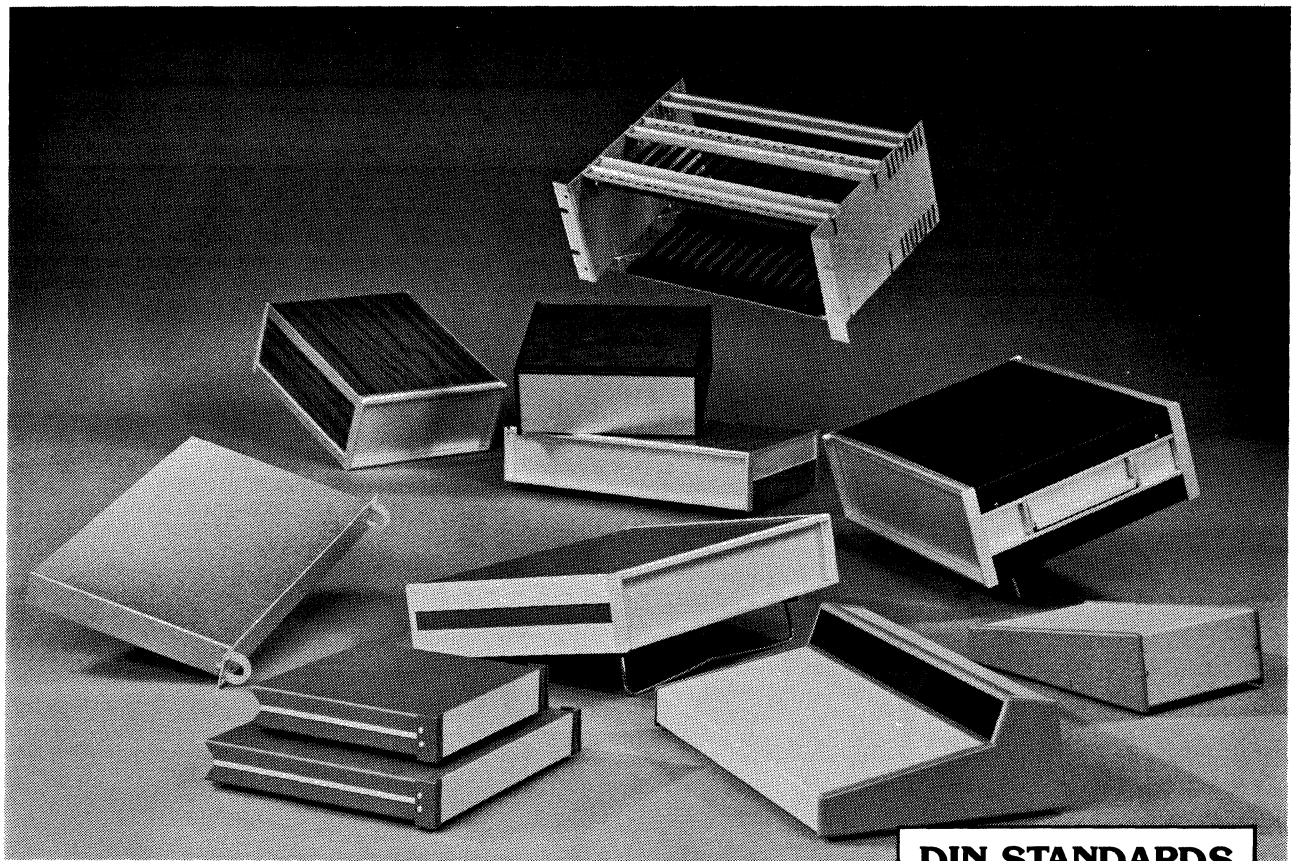

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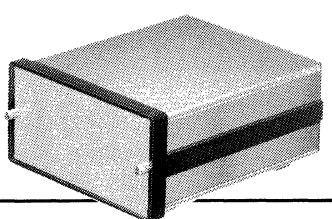

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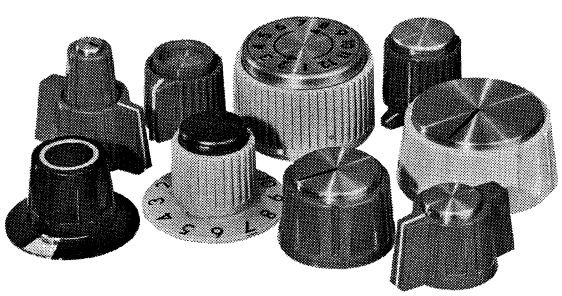
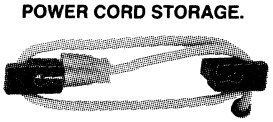


cord-wrap
POWER CORD STORAGE.



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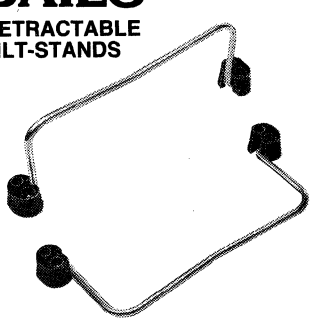
RETRACTABLE TILT-STANDS



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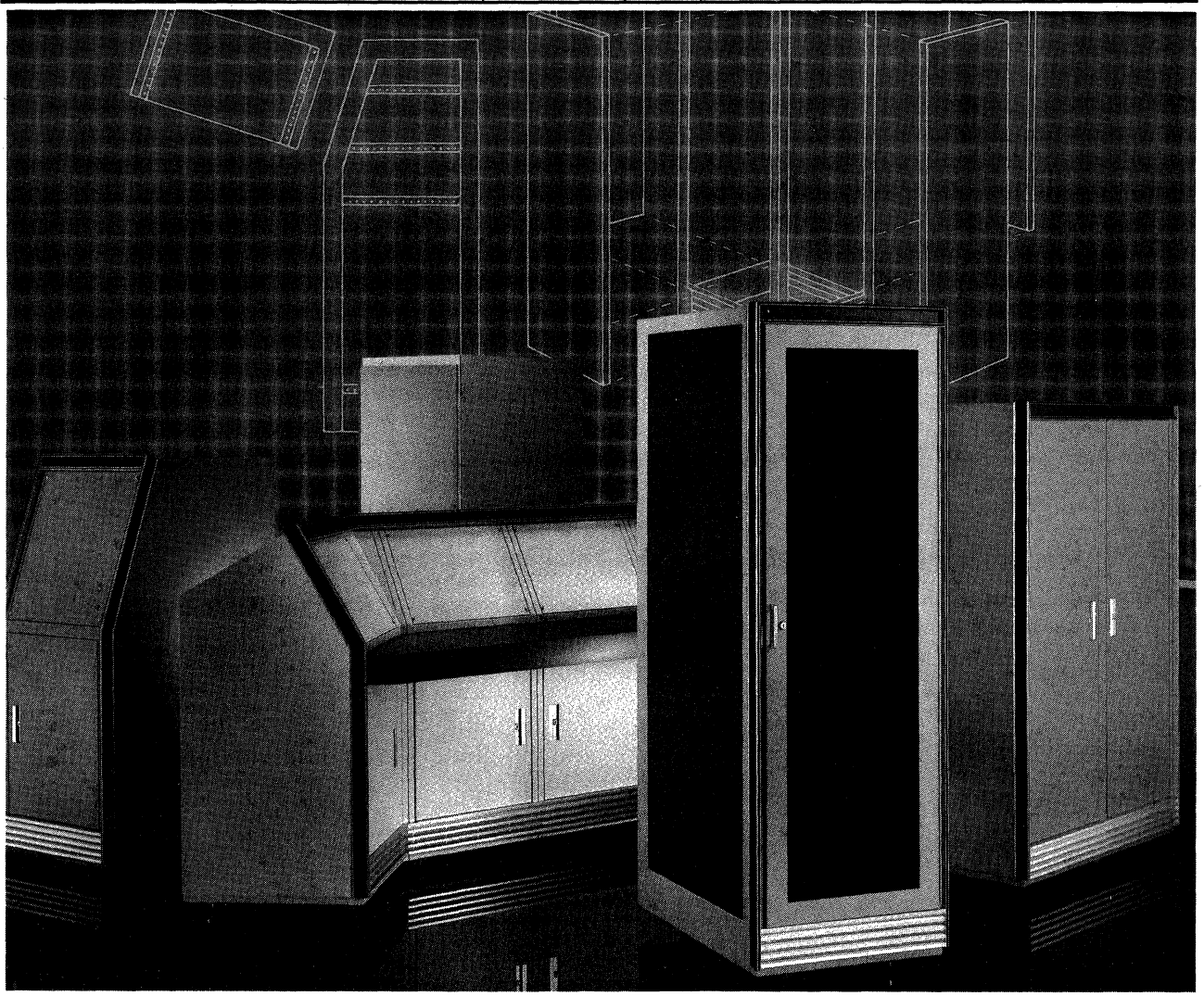

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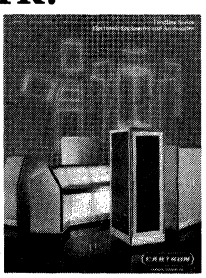

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- Removable bottom panel for computer floor access.
- Front and rear grills with cleanable air filters engineered to accept exclusive Cabtron blower system.
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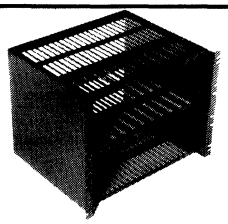
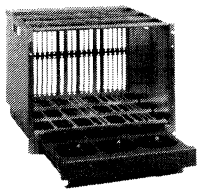
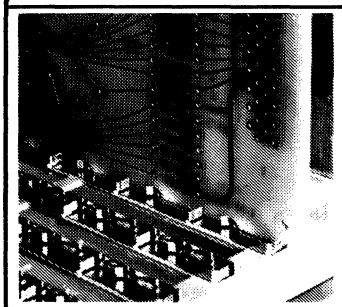


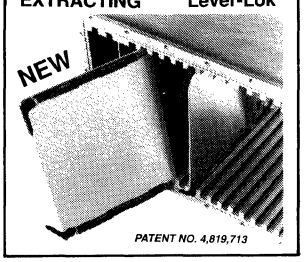


CARD CAGES

Custom designed and fabricated to meet customer requirements.
Also, Eurocages-VMEbus & MULTIBUS II compatible.

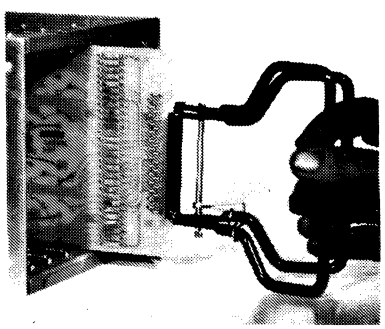


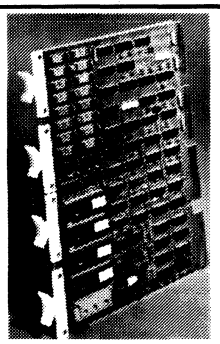
Series LE260
"EXTRACTING" Lever-Lok



CARD RETAINERS CARD-LOKS

Excellent thermal and electrical conductivity, plus protection against shock and vibration.



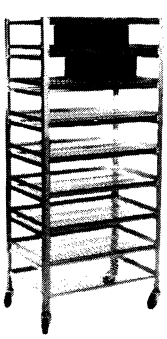


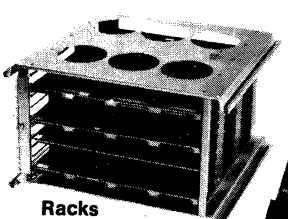
CARD PULLERS

For easy PC card extraction.

PCB HANDLING PRODUCTS

Trays, Racks and Carts for safe and efficient handling, transport, and storage of PC boards during all stages of production. Available with static resistant or conductive material.

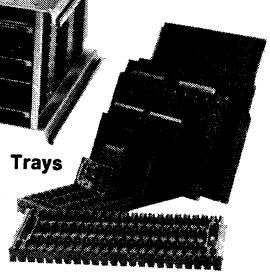


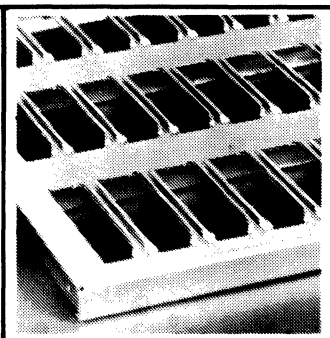


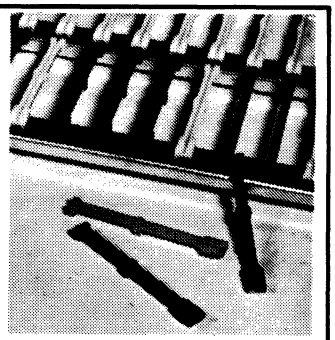
Racks

Carts

Trays



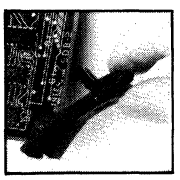


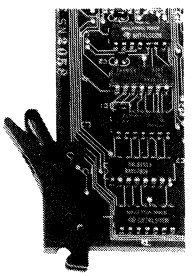


CARD GUIDES

Metal louver and nylon snap-in.

NEW





Series 107-70
Positive Locking
PC Inserter-Extractor

Patent No. 4,975,073

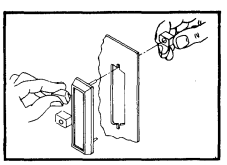
CARD INSERTERS & EXTRACTORS

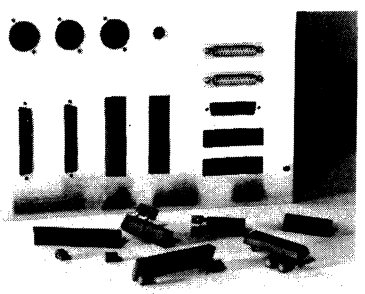
For easy insertion and extraction of cards.

- Available in colors for coding • Generous area for hot stamp marking.
- U.L. Approved • Available with pre-started assembly pins.

CONNECTOR ACCESSORIES

For "D"-subminiature rectangular connectors.

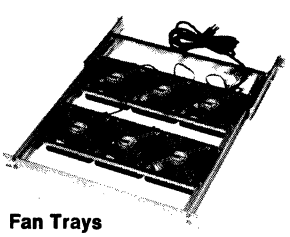




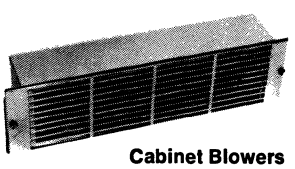
Cutout Covers

ELECTRONIC COOLING PRODUCTS

Fan Tray Assemblies offer standard mounting with multiple and adjustable fan locations. Cabinet Blowers for cooling of electronic rack equipment. For Special Applications Calmark will design an airmover to meet specific requirements.



Fan Trays



Cabinet Blowers

CALMARK® CORPORATION

Request our latest complete catalog
4915 Walnut Grove Ave., San Gabriel, Calif. 91776
(818) 287-0451, FAX (818) 287-7350

MINIGLOSSARY ENCAPSULATION

MATERIALS/HANDLING

Catalyst: A substance which changes the *rate* of chemical reaction. Very small quantities can cause fast change.

Conformal coating Sprayed or dipped. A thin conformal jacket which protects an assembly from moisture or other degrading environments.

Curing agent: See catalyst.

Hardener: See catalyst.

Hermetic: A permanent gas-tight seal.

RTV: Room Temperature Vulcanizing. Associated with silicone rubber sealants which vulcanize at room temperature.

Thermoplastic: Plastic materials which can be made to flow *repeatedly* with the application of heat.

Thermosetting: Plastics which once cured cannot be made to flow again.

Thixotropy: The property of a coating compound which has low viscosity when agitated, but which thickens when the agitation ceases.

Viscosity: Measured in units of *poise* or *centipoise*. The property of a liquid which resists internal flow. Low viscosity equates with thin and vice-versa.

PROCESSING

Casting: Parts or assemblies are placed in a mold. Encapsulating material is added and cured. Part is then removed from the mold.

Dip coating: Part or assembly is dipped into the encapsulating material. Final thickness is determined by number of dips, viscosity, rate of withdrawal, and temperature.

Embedding: Wherein an encapsulant substantially fills all voids in and about an assembly.

Impregnation: A process of encapsulation involving evacuating all air and then allowing the encapsulating material to flow in and fill all voids.

Molding: Similar to casting except this process usually implies multicavity molds and costly machines.

Potting: Wherein the part or assembly is immersed in an encapsulating material contained in a shell which becomes a permanent outer surface after curing.

DIELECTRIC

Arc resistance: An encapsulant's resistance to the formation of a conductive path or track. Measured in time.

Breakdown voltage: The voltage at which an encapsulant fails electrically.

Capacitance: The property of conductors and dielectrics which allows the storage of an electrical charge when the voltage is applied.

Corona: A luminous discharge of electricity due to air ionization when a certain voltage is reached. Can be internal or external. The formation of ozone can cause rapid deterioration of certain materials.

Dielectric: Insulator (Nonconductor.)

Dielectric constant: The property of a material that determines its ability to store electrostatic energy.

Dielectric strength: The ratio of dielectric breakdown to the thickness of insulating material.

Dissipation factor: The ratio of a dielectric material's energy losses.

Flashover: Point at which an electric discharge occurs around an edge or across a surface. Can result in a carbon track and permanent degradation.

Insulation resistance: (IR) An insulating material's total DC leakage.

Surface resistivity: The resistance of the surface of an insulating material to the flow of direct current.

Voltage endurance: Sometimes called corona resistance. The ability of a material to withstand the application of sustained high voltage.

Volume resistivity: The resistance of a material to direct current flow as a measure of volume. Expressed as ohm-centimeters.

COMPAC™

NEW PRODUCT!

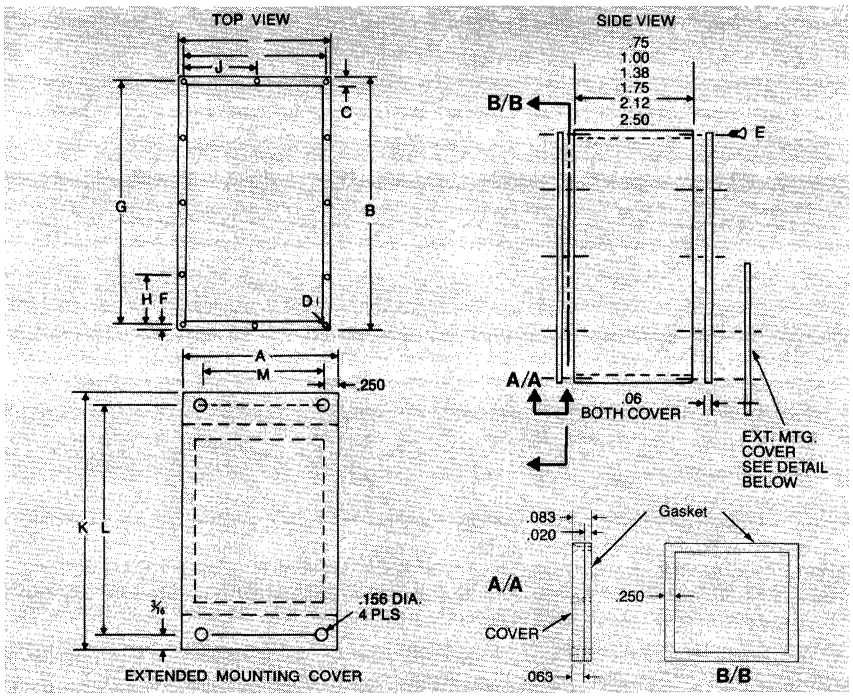
SRF SERIES

Compac's "New" SRF Series yields greatest shielding effectiveness thru 20GHz of ANY standard product on the market today

SRF Series Enclosures

- ☐ Sheilding at or above 80 dB
- ☐ Enclosures tested to 20GHz
- ☐ Provides atmospheric seals, gas tight seals attainable with higher clamping forces
- ☐ Independent access from either side
- ☐ Greater Interior Acreage

Construction Specs: Case—AL 6063T52 Covers—AL 5052-H32 finish chemical film per MIL C 5541 Class 1 A
Conformance to MIL 45208A



HOW TO ORDER:

S-51110—138—0 (N)

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12
250 - 2.50

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

	A	B	C	D*	E	F	G	H	I	J	K	L	M
S51080	1.00	1.00	.125	4	0-80	.070	.860	—	.860	—	1.75	1.375	.50
S51090	1.25	1.25	.125	4	0-80	.070	1.110	—	1.110	—	2.00	1.625	.75
S51095	1.25	2.50	.125	6	0-80	.070	2.360	1.180	1.110	—	3.25	2.875	.75
S51100	1.50	1.50	.125	6	0-80	.070	1.360	.680	1.360	—	2.25	1.875	1.00
S51110	1.50	2.00	.125	6	0-80	.070	1.860	.930	1.360	—	2.75	2.375	1.00
S51120	1.50	2.50	.125	6	0-80	.070	2.360	1.180	1.360	—	3.25	2.875	1.00
S51125	1.50	3.25	.125	6	0-80	.070	3.110	1.555	1.360	—	4.00	3.625	1.00
S51130	1.50	6.00	.125	10	0-80	.070	5.860	1.465	1.360	—	6.75	6.375	1.00
S51140	1.75	1.75	.125	6	0-80	.070	1.610	.805	1.610	—	2.50	2.125	1.25
S51150	1.75	3.00	.125	6	0-80	.070	2.860	1.430	1.610	—	3.75	3.375	1.25
S51160	2.00	2.00	.125	8	0-80	.070	1.860	.930	1.860	.930	2.75	2.375	1.50
S51170	2.00	3.00	.125	8	0-80	.070	2.860	1.430	1.860	.930	3.75	3.375	1.50
S51180	2.00	4.00	.125	10	0-80	.070	3.860	1.286	1.860	.930	4.75	4.375	1.50
S51190	2.00	5.00	.125	12	0-80	.070	4.860	1.215	1.860	.930	5.75	5.375	1.50
S51200	2.00	6.00	.125	12	0-80	.070	5.860	1.465	1.860	.930	6.75	6.375	1.50
S51205	2.50	2.50	.125	8	0-80	.070	2.360	1.180	2.360	1.180	3.75	2.875	2.00
S51210	3.00	3.00	.125	8	0-80	.070	2.860	1.430	2.860	1.430	3.75	3.375	2.50
S54030	3.00	4.00	.125	10	0-80	.070	3.860	1.287	2.860	1.430	4.750	4.375	2.50
S51235	4.00	4.00	.125	12	0-80	.070	3.860	1.287	3.860	1.287	4.750	4.375	3.50
S51220	3.00	5.00	.125	12	0-80	.070	4.860	1.215	2.860	1.430	5.75	5.375	2.50
S51225	3.00	5.00	.188	12	2-56	.094	4.812	1.203	2.812	1.406	5.75	5.375	2.50
S51230	3.00	6.00	.188	12	2-56	.094	5.812	1.453	2.812	1.406	6.75	6.375	2.50
S51250	5.00	6.00	.188	14	2-56	.094	5.812	1.453	4.812	1.604	6.75	6.375	4.50
S58010	8.00	10.00	.187	22	2-56	.095	9.810	1.653	7.810	1.562	10.750	10.375	7.500

*D = Number of cover screws

Specifications subject to change without notice

CUSTOM

As with all other of Compac's Series of enclosures; Compac will modify the SRF Series to meet your need; Whether it be drilling, tapping, milling, etc. of our standard sizes or lending of designs and method construction to your size requirements.

S-51110—138—0—(N)/MOD/XXX

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12
250 - 2.50

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

YOUR PRINT #

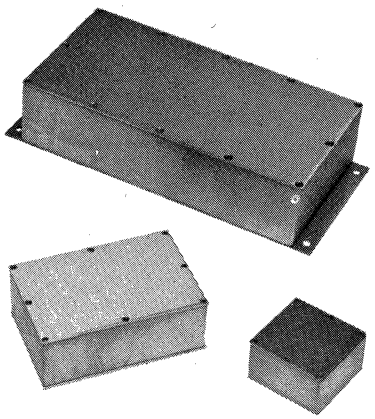
TO ORDER

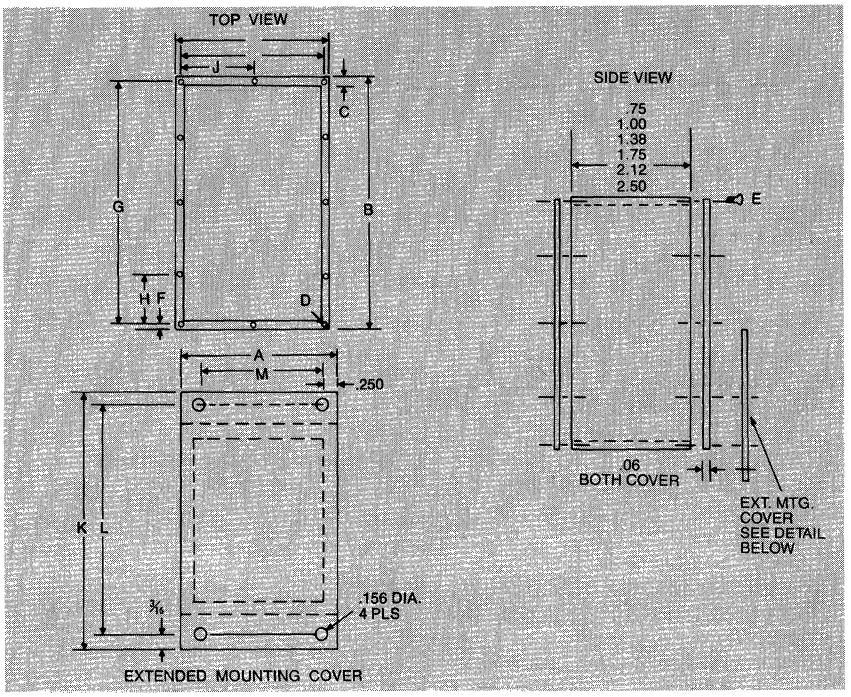
Select a case size from the SRF series, send a drawing and include: overall height, feed-thru location, type (plain Teflon or filter) connector location etc. Our expertise in shielded cases can give you a truly CUSTOM design, limited only by your requirements.

COMPAC
1320-13 LINCOLN AVENUE
HOLBROOK, NEW YORK 11741
TELEPHONE (516) 585-3400
FAX (516) 585-3534

COMPAC™

RFT SERIES





- ☐ Compac's RFT Series Enclosures have shielding capabilities to 60 dB at 3 GHz
- ☐ Independent access from either side
- ☐ Greater Interior Acreage Construction Specs: Case — AL 6063T52 Covers — AL 5052-H32 finish chemical film per MIL C 5541 Class 1 A Conformance to MIL 45208A

HOW TO ORDER:

R-51110 — 138 — 0 (N)

CASE PART NO.

CASE HEIGHT
075 - 0.75 175 - 1.75
100 - 1.00 212 - 2.12
138 - 1.38 250 - 2.50

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

	A	B	C	D*	E	F	G	H	I	J	K	L	M
R51080	1.00	1.00	.125	4	0-80	.070	.860	—	.860	—	1.75	1.375	.50
R51090	1.25	1.25	.125	4	0-80	.070	1.110	—	1.110	—	2.00	1.625	.75
R51095	1.25	2.50	.125	6	0-80	.070	2.360	1.180	1.110	—	3.25	2.875	.75
R51100	1.50	1.50	.125	6	0-80	.070	1.360	.680	1.360	—	2.25	1.875	1.00
R51110	1.50	2.00	.125	6	0-80	.070	1.860	.930	1.360	—	2.75	2.375	1.00
R51120	1.50	2.50	.125	6	0-80	.070	2.360	1.180	1.360	—	3.25	2.875	1.00
R51125	1.50	3.25	.125	6	0-80	.070	3.110	1.555	1.360	—	4.00	3.625	1.00
R51130	1.50	6.00	.125	10	0-80	.070	5.860	1.465	1.360	—	6.75	6.375	1.00
R51140	1.75	1.75	.125	6	0-80	.070	1.610	.805	1.610	—	2.50	2.125	1.25
R51150	1.75	3.00	.125	6	0-80	.070	2.860	1.430	1.610	—	3.75	3.375	1.25
R51160	2.00	2.00	.125	8	0-80	.070	1.860	.930	1.860	.930	2.75	2.375	1.50
R51170	2.00	3.00	.125	8	0-80	.070	2.860	1.430	1.860	.930	3.75	3.375	1.50
R51180	2.00	4.00	.125	10	0-80	.070	3.860	1.286	1.860	.930	4.75	4.375	1.50
R51190	2.00	5.00	.125	12	0-80	.070	4.860	1.215	1.860	.930	5.75	5.375	1.50
R51200	2.00	6.00	.125	12	0-80	.070	5.860	1.465	1.860	.930	6.75	6.375	1.50
R51205	2.50	2.50	.125	8	0-80	.070	2.360	1.180	2.360	1.180	3.25	2.875	2.00
R51210	3.00	3.00	.125	8	0-80	.070	2.860	1.430	2.860	1.430	3.75	3.375	2.50
R54030	3.00	4.00	.125	10	0-80	.070	3.860	1.287	2.860	1.430	4.750	4.375	2.50
R51235	4.00	4.00	.125	12	0-80	.070	3.860	1.287	3.860	1.287	4.750	4.375	3.50
R51220	3.00	5.00	.125	12	0-80	.070	4.860	1.215	2.860	1.430	5.75	5.375	2.50
R51225	3.00	5.00	.188	12	2-56	.094	4.812	1.203	2.812	1.406	5.75	5.375	2.50
R51230	3.00	6.00	.188	12	2-56	.094	5.812	1.453	2.812	1.406	6.75	6.375	2.50
R51250	5.00	6.00	.188	14	2-56	.094	5.812	1.453	4.812	1.604	6.75	6.375	
R58010	8.00	10.00	.187	22	2-56	.095	9.810	1.635	7.810	1.562	10.750	10.375	7.500

* D = Number of cover screws

Specifications subject to change without notice

CUSTOM
FROM COMPAC'S RFT SERIES

Compac will modify our RFT Series Enclosures to meet your needs.

- Drilling
- Tapping
- Milling
- "D" Punching
- Cut Outs for Subminiature Connections
- Silk Screening, Painting

Work is done from your prints or to your specifications.

For your convenience Compac has included on page 7 a request for quote with a rendering of a Compac Case to depict your modifications.

R51110 — 138 — 0 — (N)/MOD/XXX TO ORDER

CASE PART NO.

CASE HEIGHT
075 - 0.75 175 - 1.75
100 - 1.00 212 - 2.12
138 - 1.38 250 - 2.50

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

YOUR PRINT #

Select a case size from the RFT series, send a drawing and include: overall height, feedthru location, type (plain Teflon or filter) connector location etc. Our expertise in shielded cases can give you a truly CUSTOM design, limited only by your requirements.

COMPAC
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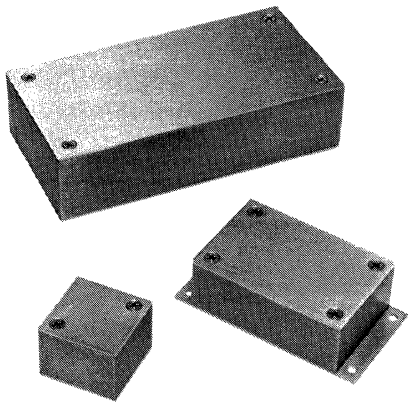
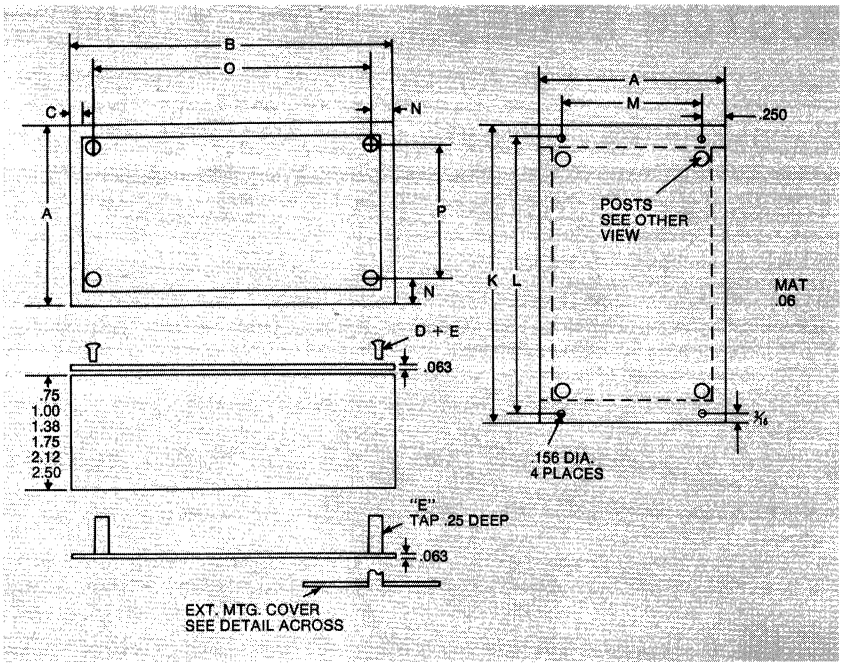
HOLBROOK, NEW YORK 11741
TELEPHONE (516) 585-3400
FAX (516) 585-3534

COMPAC™

BLANK SERIES





- ☐ Compac Blank Series Enclosures provide up to 100 dB shielding effectiveness at 100 MHz
- ☐ Easy access and assembly
- ☐ Off-the-shelf availability

CONSTRUCTION SPECS
Frames: 6063T52 Extruded Aluminum
Covers: 5052-H32-Aluminum
Standard Finishes
Irridite Chemifilm per MIL C 5541 CL 1 A Conformance to MIL Spec 45208A

HOW TO ORDER:

51110 — 138 — 0 — (N)

CASE PART NO.

CASE HEIGHT
075 - 0.75 175 - 1.75
100 - 1.00 212 - 2.12
138 - 1.38 250 - 2.50

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

	A	B	C	D	E	K	L	M	N	O	P
51080	1.00	1.00	.125	2	4-40	1.75	1.375	.50	.250	.50	.50
51090	1.25	1.25	.125	2	4-40	2.00	1.625	.75	.250	.75	.75
51095	1.25	2.50	.125	4	4-40	3.25	2.875	.75	.250	2.00	.75
51100	1.50	1.50	.125	2	4-40	2.25	1.875	1.00	.250	1.00	1.00
51110	1.50	2.00	.125	4	4-40	2.75	2.375	1.00	.250	1.50	1.00
51120	1.50	2.50	.125	4	6-32	3.25	2.875	1.00	.250	2.00	1.00
51125	1.50	3.25	.125	4	6-32	4.00	3.625	1.00	.250	2.75	1.00
51130	1.50	6.00	.125	4	6-32	6.75	6.375	1.00	.250	5.50	1.00
51140	1.75	1.75	.125	4	6-32	2.50	2.125	1.25	.250	1.25	1.25
51150	1.75	3.00	.125	4	6-32	3.75	3.375	1.25	.250	2.50	1.25
51160	2.00	2.00	.125	4	6-32	2.75	2.375	1.50	.250	1.50	1.50
51170	2.00	3.00	.125	4	6-32	3.75	3.375	1.50	.250	2.50	1.50
51180	2.00	4.00	.125	4	6-32	4.75	4.375	1.50	.250	3.50	1.50
51190	2.00	5.00	.125	4	6-32	5.75	5.375	1.50	.250	4.50	1.50
51200	2.00	6.00	.125	4	6-32	6.75	6.375	1.50	.250	5.50	1.50
51205	2.50	2.50	.125	4	6-32	3.25	2.875	2.00	.250	2.00	2.00
51210	3.00	3.00	.125	4	6-32	3.75	3.375	2.50	.250	2.50	2.50
54030	3.00	4.00	.125	4	6-32	4.750	4.375	2.500	.250	3.50	2.50
51235	4.00	4.00	.125	4	6-32	4.750	4.375	3.500	.250	3.50	3.50
51220	3.00	5.00	.125	4	6-32	5.75	5.375	2.50	.250	4.50	2.50
51225	3.00	5.00	.188	4	6-32	5.75	5.375	2.50	.310	4.38	2.38
51230	3.00	6.00	.188	4	6-32	6.75	6.375	2.50	.310	5.38	2.38
51250	5.00	6.00	.188	4	6-32	6.75	6.375	4.50	.310	5.38	4.38
58010	8.00	10.00	.187	4	6.32	10.75	10.375	7.500	.310	9.330	7.380

Specifications subject to change without notice

CUSTOM
FROM COMPAC'S BLANK SERIES

Compac will modify our Blank Series to meet your needs and specifications.

- Drilling
- Tapping
- Milling
- Punching
- Traps for Subminiature Connections
- Silk Screening/Painting

Work is done from your print to your specifications.

For your convenience Compac has included on page 7 a request for quote with a rendering of a Compac Case to depict your modifications.

51110 — 138 — 0 (N)/MOD/XXX

CASE PART NO.

CASE HEIGHT
075 - 0.75 175 - 1.75
100 - 1.00 212 - 2.12
138 - 1.38 250 - 2.50

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

YOUR PRINT #

TO ORDER

Select a case size from the BLANK Series, send a drawing and include: overall height, feedthru location, type (plain Teflon or filter) connector location, etc. Our expertise in shielded cases can give you a truly CUSTOM design, limited only by your requirements.

COMPAC
1320-13 LINCOLN AVENUE
HOLBROOK, NEW YORK 11741
TELEPHONE (516) 585-3400
FAX (516) 585-3534

COMPAC™

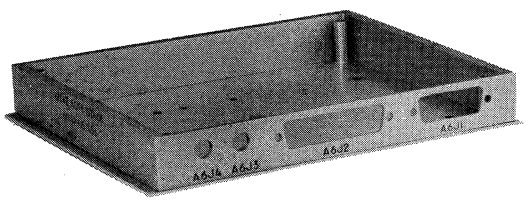
CUSTOM SERIES

SERVICES

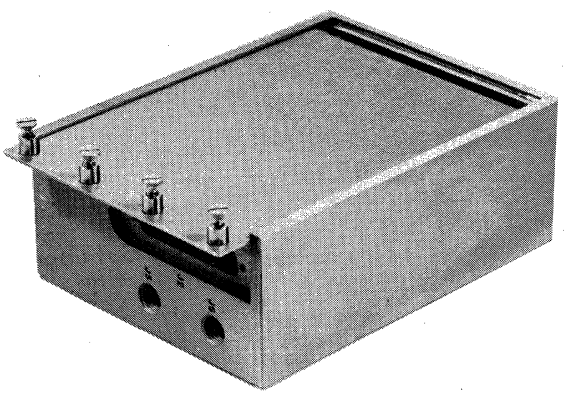
Milling — Enclosures, Channel, Grooves, as Required
Holes — Drilled or Punched
Material Thickness — To Your Specifications
Silk Screening or Painting
Construction Methods — Extrusion, Die Cast, Brazed, or Milled
Covers — To Your Specifications

ADVANTAGES OF A CUSTOM ENCLOSURE

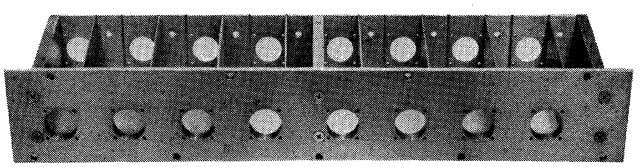
— Low Cost
— To your Exacting Specifications
— Short Lead Times
— Prototype to Production Quantity
— Finished Product Ready for Assembly
— With or Without Connectors & Filters



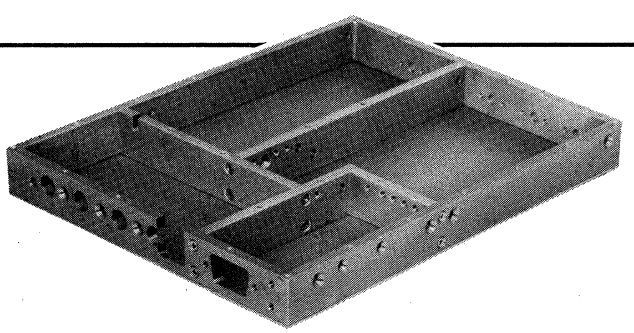
Custom Manufactured
Blank Series Construction, 5.00″ x 6.00″ x .75″ Flat and Parallel to .001″ with Custom Milling, Drilling, "D" Punching and Silk Screening



Custom Manufactured Utilizing Sliding Cover w/Captivated Screw for Convenient Access to Components



Custom Manufactured to Customer Spec's 19.00″ x 4.00″ x 6.00″



Custom Manufactured using RFT Construction 6.00″ x 8.00,″ x .75″, Show Custom Drilling, Milling, Counter Sinking, and Custom Partitions

Quantities from 1 pc thru production

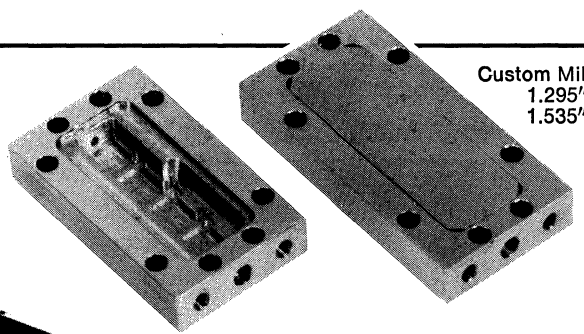
COMPAC
1320-13 LINCOLN AVENUE
HOLBROOK, NEW YORK 11741
TELEPHONE (516) 585-3400
FAX (516) 585-3534

COMPAC™

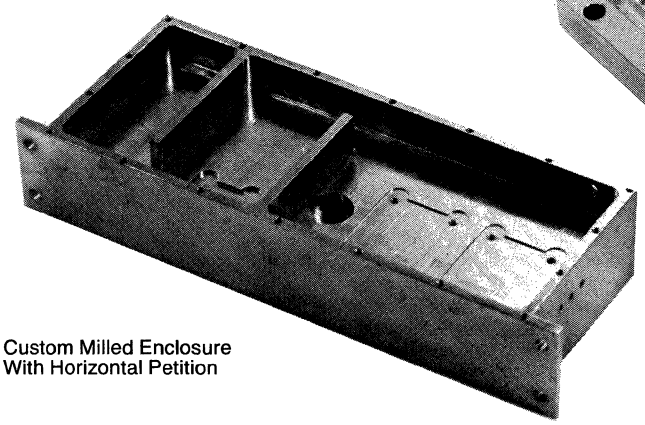
CUSTOM SERIES

Compac's unique product line can easily be tailored to meet your many custom specifications. But if our RFT, Blank or SRF Series do not fit your basic requirements, Compac can build a totally custom enclosure quickly and inexpensively. Compac's versatility converts your design into a finished product ready for assembly and installation. All you have to do is supply circuitry!

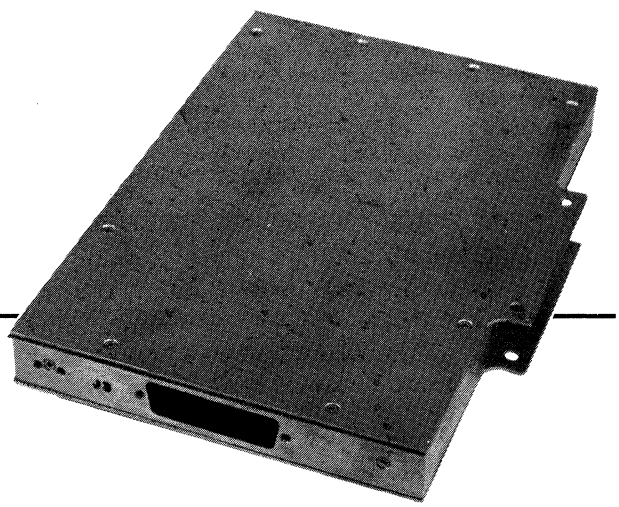
— Print or Detailed Drawings Required —



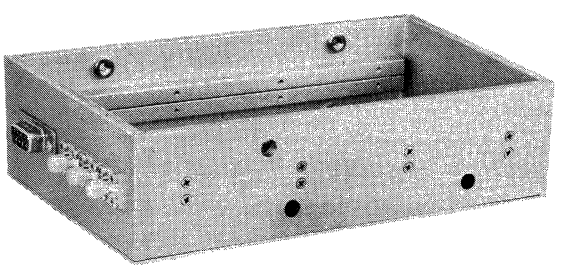
Custom Milled Enclosures,
1.295″ x .765″ x .225″
1.535″ x .765″ x .225″



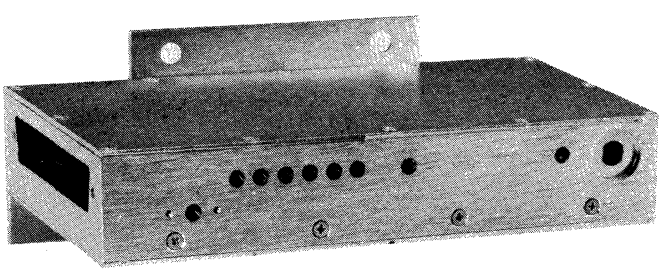
Custom Milled Enclosure
With Horizontal Petition



Custom Gasketed Enclosure with Electroless
Nickel Plating and Custom
Mounting Configuration



Custom Manufactured
Using RFT Type Construction, 4.00″ x 7.00″ x 2.00″
Showing Mounting Bars, Custom Drilling for
Hardware and Connectors



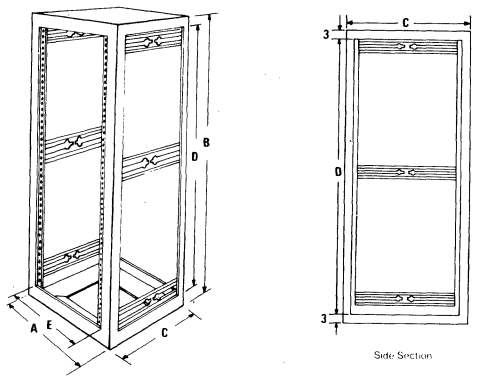
Manufactured from R51230-100-0(N)
Showing Custom Mounting Plate
Drilling, Milling and "D" Punching

COMPAC
1320-13 LINCOLN AVENUE
HOLBROOK, NEW YORK 11741
TELEPHONE (516) 585-3400
FAX (516) 585-3534

Not Limited To
Examples Shown; COMPAC
Can Build To Your Specifications

Electronic Enclosure Systems... By D.L. Custom

VERTICAL ENCLOSURES

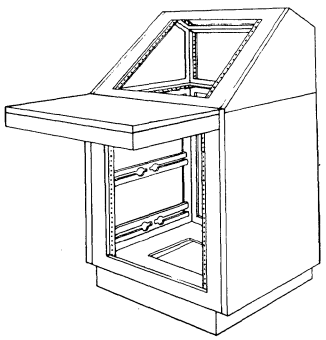


• 14 ga. CRS frame • 12 ga. CRS mounting angles • Fully seam welded • Corner posts recessed 1/2" to panel mounting angle • 10" x 10" cutout with cover plate in bottom • One pair of mounting angles • Four levellers mounted on frame • Open tops available—please specify

D.L. Vertical Enclosures offer modern, streamline styling, standard panel openings, accessibility, for multi-bay systems and a distinctive looking dress trim.

Our enclosures compliment our customer's product and offers protection while in transit and particularly while in use. Our high-strength-to-weight design is a unique feature we recommend you consider.

CONSOLES



MATERIALS:
- 14 ga. CRS turret
- 14 ga. pedestal
- Formica writing tops (pressure bonded to particle board)

CONSTRUCTION
- Seam welded (all welds ground smooth)

FINISH
- Textured or smooth baked on enamel.

The D.L. line of consoles may be used in a variety of arrangements. Standard door and panel options, either plain or louvered, are available; as well as a complete selection of standard or special colours, plus two-tone combinations.

Our engineering facilities are well staffed to service your problem areas and assist in standard assemblies. We welcome your inquiries.

Consider these features:
- Any turret shape can be designed to suit your individual packaging requirements.
- Multiple, semi-circular or special configurations are available.
- Ease of access to turret top and base.
- Turret top or base may be ordered separately.
- Choose from five standard D.L. Console face openings. Any opening can easily be standardized, based on the D.L. Console style.
- Each opening comes with mounting angles.

EMI-RFI SHIELD ENCLOSURES

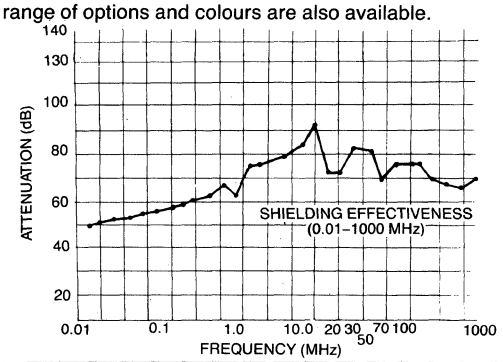
D.L. CUSTOMS E.M.I. R.F.I. Shielded Enclosures

Frame Construction:
- 14 ga. Frame fully seam welded
- Zinc plated for E.M.I. R.F.I. Shielding
- Locking front & rear door
- Sealed top & bottom panel
- 12 ga. Zinc plated mtg. rails (tapped 10/32)
- 16 ga. Doors & Side panels
- Recessed base

Also available 23" and 24" Rack mtg. Shielded Enclosures.

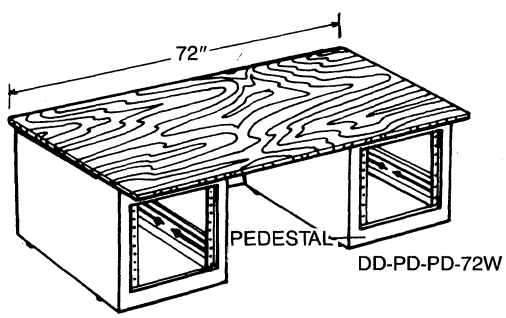
Shielding tests were conducted to Mil. standard 285.
A Nominal 65 D.B. Shielding effectiveness through the frequency range of 20MHz to 1000MHz with results as high as 85 D.B. at some levels. Full test results available.

A full range of options and colours are also available.

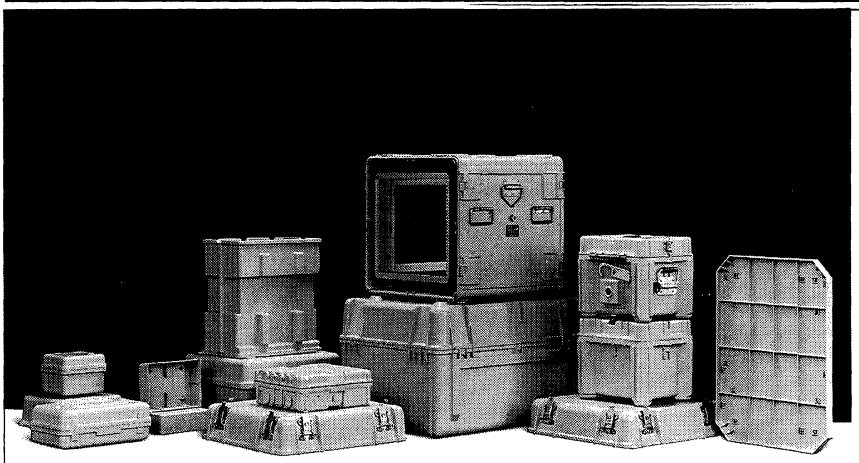


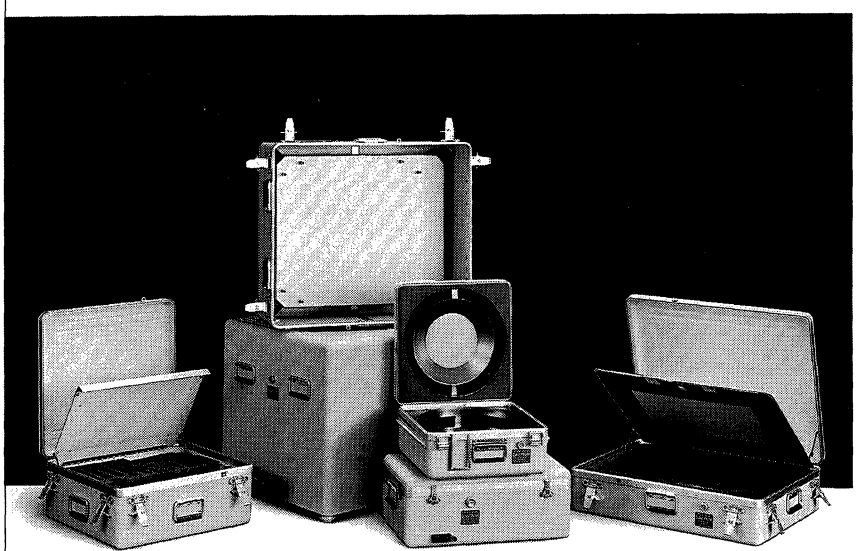
DATA DESK

Data desks are designed for computer room environment, where modern styling and functional requirements are a must. These desks are built rugged to take heavy electronic equipment placed on the work surface and the pedestal section allows for rack mounting of electronic equipment. Pedestals have the same capabilities as a vertical enclosure. Also drawer files may be added to enable the desk to be used as a conventional desk.



DLCustom
7250 Victoria Park Avenue,
Markham, Ontario. L3R 2M5
Telephone (416) 475-0275
FAX 416-475-0602





INNOVATIVE SOLUTIONS FOR YOUR TRANSPORTATION AND OPERATIONAL REQUIREMENTS

ECS Composites manufactures comprehensive families of enclosures, transit cases, EMI/RFI shielded products, conductive thermoplastic moldings, Thermo-stamped (TSC) Composite moldings, and proprietary end-user products.

In addition to standard designs, ECS offers a wide variety of options and custom product capabilities...meeting design challenges with innovative engineering solutions and sophisticated production techniques.

Proven in over 25 years of service, ECS' products meet or exceed the most demanding commercial and military requirements.

Write, call, or Fax for our new catalogue detailing Custom Molding Capabilities, 19" Enclosures, and Transit Cases.

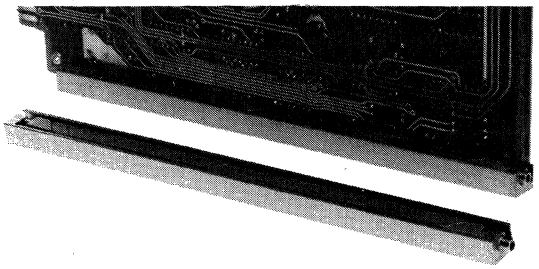
ECS COMPOSITES
3560 Rogue River Highway/P.O. Box 188
Grants Pass, OR 97526
(503) 476-8871
FAX 503-474-2479

EG&G BIRTCHER

- *Electronic Packaging Products*
- *Custom Metal Fabrication*
- *Printed Circuit Board Hardware*

LEADERSHIP IN PC BOARD RETAINER TECHNOLOGY

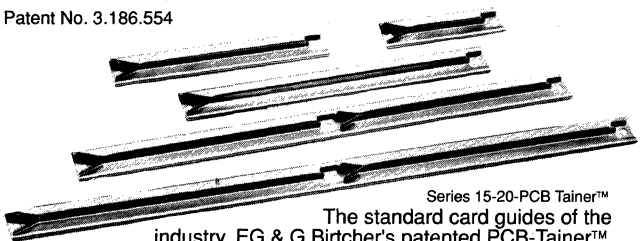
SERIES 340-WEDGE-TAINER™



EG&G BIRTCHER'S Series 340 Wedge-Tainer™ locking retainers are designed for heavy shock, vibration, and heat dissipation, in cold plate/heat sinking applications.

PCB-TAINER™ CARD GUIDES

Patent No. 3.186.554

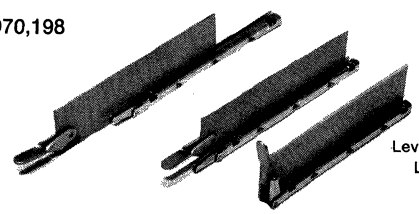


Series 15-20-PCB Tainer™

The standard card guides of the industry, EG & G Birtcher's patented PCB-Tainer™ card guides provide an economical way of securely fastening PC boards. EG & G Birtcher PCB-Tainer™ card guides come in standard or made-to-spec versions. They are made of cold rolled steel or beryllium copper for rivet, weld or adhesive bonding installation. They provide heat dissipation, electrical grounding, retention in shock and vibration applications.

LOK-TAINER® RETAINERS

Pat. No. 3,970,198



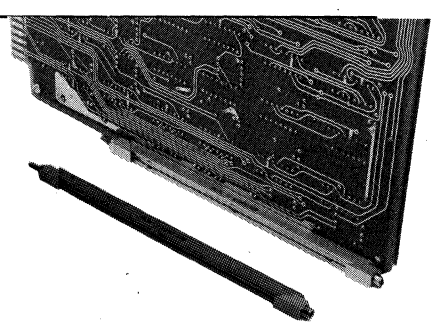
Series 24
Lever Actuated
Lok-Tainer®

Series 127
Screw Actuated Lok-Tainer ®

EG&G Birtcher patented screw and lever actuated Lok-Tainer® locking retainers are designed to provide high resistance to heavy shock and vibration while maintaining maximum contact for heat dissipation.

SERIES 40 WEDGE LOK™

Meets or exceeds the performance requirements of drawing 84103 Rev. E, Defense Electronics Supply Center, Dayton, OH 45444.

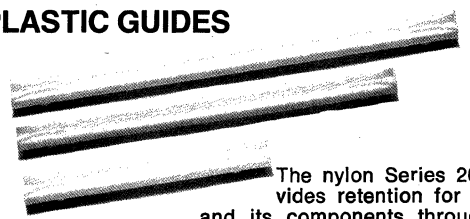


EXTRACTORS CARD HANDLES, AND INJECTOR/EXTRACTORS FOR PC BOARDS

Injectors/Extractors

Extractors provide for quick, damage free, removal of PC card. Injector/Extractors function in two different directions allowing the card to be easily inserted into the connector as well as providing quick removal.

PLASTIC GUIDES

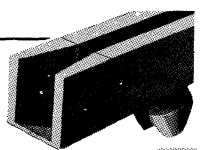


Series 26
Plastic Guides

The nylon Series 26 Guide provides retention for the PC card and its components through a unique gripping action. It is self-lubricating, non conductive with superior strength and durability.

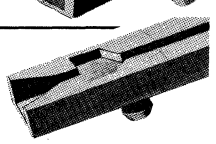
DEEP CHANNEL GUIDES

Nylon Type 6/6
For 1/16" and 1/8" P.C.B.'s



SPACE SAVER GUIDES

Nylon Type 6/6
For 1/16" P.C.B.'s



WEDGE-LOK™ LOCKING RETAINERS

For high-rel performance in commercial, industrial or military applications, secure PC boards with Wedge-Lok™ locking card retainers. LOW COST STANDARD VERSIONS ARE AVAILABLE FROM STOCK.

SERIES 41 WEDGE-LOK™ RETAINERS

LOW PROFILE VERSION OF 40 SERIES

SELF-ALIGNING FIVE-PIECE WEDGE-LOK™ RETAINERS

Pat. No. 4,823,951

EG&G Birtcher offers self-aligning Wedge-Lok™ Series, 40-5 and 42-5 designed for heavy shock, vibration and heat dissipation, in cold plate/heat sinking applications. Features zero entry force for insertion and removal of PC boards. Other standard and custom styles available. Visual indicator for locked and unlocked position available as an option.

LEADERSHIP IN DESIGN SOLUTIONS TO YOUR PCB SHOCK, VIBRATION AND THERMAL PROBLEMS

EG&G BIRTCHER 4505 NORTH ARDEN DRIVE • P.O.BOX 5268,EL MONTE,CALIFORNIA 91734-1268 • (818) 142-2572 • FAX(818)442-8127

EG&G BIRTCHER

- *Electronic Packaging Products*
- *Custom Metal Fabrication*
- *Printed Circuit Board Hardware*

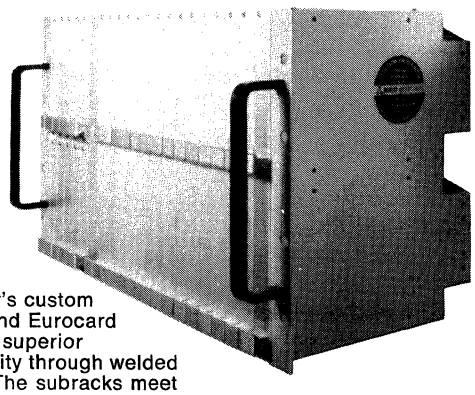
LEADERSHIP IN PC BOARD RETAINER TECHNOLOGY

EG&G Birtcher is a manufacturer of high quality custom and standard products for the electronics industry. We are the leading manufacturer of precision retentive and locking card guides and custom sheet metal racks, chassis and enclosures. We fabricate custom extruded aluminum heat sinks and thermally conductive mil grade enclosures.

QUALITY ASSURANCE

The EG&G Birtcher quality assurance program is in compliance with MIL-I-45208A and MIL-STD-45662. Inspection personnel are trained in Statistical Process Control (SPC). Expertly trained personnel inspect all phases of work to maintain EG&G Birtcher's high quality standards. Receiving, in-process and final inspection are all part of our rigorous quality assurance program.

CUSTOM 6U VME SUBRACK



EG&G Birtcher's custom rugged VME and Eurocard subracks offer superior structural rigidity through welded construction. The subracks meet documented VME Product Specifications per the VMEbus Manual, Revisions C.1. Euro-subracks meet specifications per IEC 297-3/3A and DIN 41494, Parts 1 and 5.

SHEET METAL CAPABILITIES

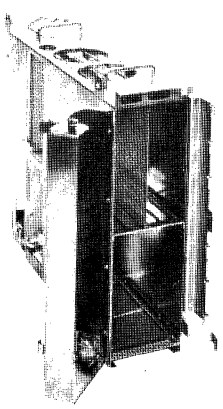
Available to all EG&G Birtcher customers are the combined resources of the Birtcher facilities and broad spectrum of technical and manufacturing knowledge.

Our fully equipped 60,000 square-foot plant with its top-of-the-line equipment enables us to fill almost any customer requirement including design, shearing, piercing, bending, milling, welding, chemical finishing and painting, silk screening and assembly of hardware.

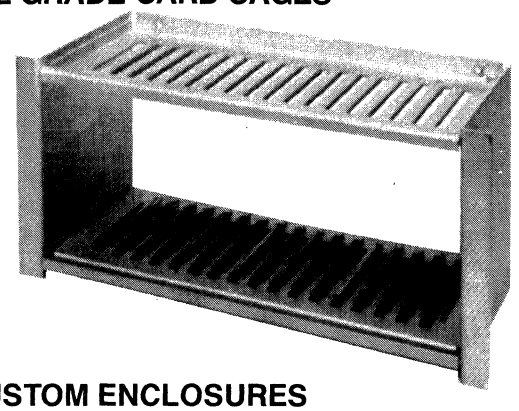
CUSTOM FABRICATION

POWER SUPPLY CHASSIS

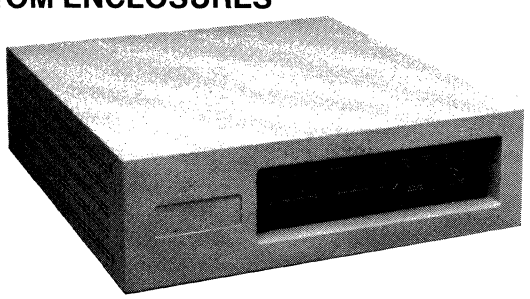
This custom power supply chassis is fabricated from cold rolled steel and perforated sheet metal, complete with formed metal guides, weld studs, self clinching fasteners, grommets, spring clips, hinges and a zinc-plated finish. The chassis is manufactured at a rate of 400 per week utilizing sophisticated numerically controlled punch presses and forming machinery plus welding, stamping, machining and plating.

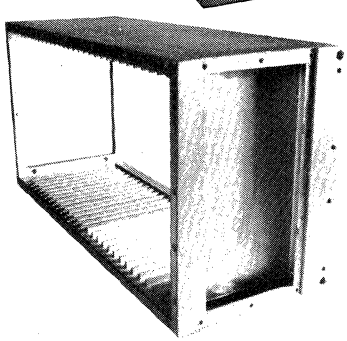


MIL-GRADE CARD CAGES



CUSTOM ENCLOSURES

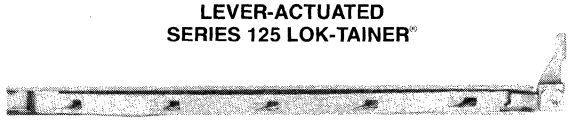




This custom milled and brazed aluminum chassis with five-piece, self-aligning Wedge-Lok™ retainers is an example of the type of Hi-Rel products produced by EG&G Birtcher.

LEVER-ACTUATED HIGH PERFORMANCE SERIES 125 LOK-TAINER®

LEVER-ACTUATED SERIES 125 LOK-TAINER®



PATENT PENDING **RIGHT HAND MODEL SHOWN**

FEATURES

- No Tools Required To Lock Or Unlock PC Board
- Unique Cam Detent Prevents Unlocking During Shock and Vibration
- Visual Locking Indicator With Failsafe Design
- Constant Pressure Insures Uniform Heat Transfer
- Field Repairable
- Low Thermal Resistance (<2°C/Watt/In)

APPLICATIONS

- Shipboard-Airborne-Space
- Designed To Meet Requirements Of MIL-STD-901 And MIL-STD-810
- SEM-D&E
- 1/4, 1/2, 3/4, And Full ATR Modules
- Line Replaceable Modules (LRM)

LEADERSHIP IN DESIGN SOLUTIONS TO YOUR PCB SHOCK, VIBRATION AND THERMAL PROBLEMS

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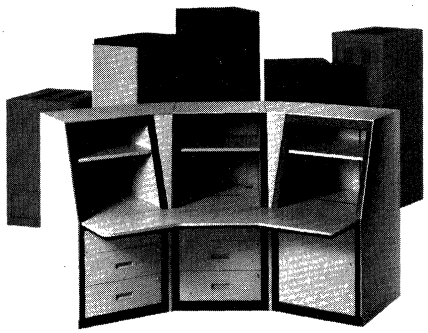
WYLE LABORATORIES **ELECTRONIC ENCLOSURES**
The Value-Engineered Enclosure Line

The Single Source



STANDARD ENCLOSURES:

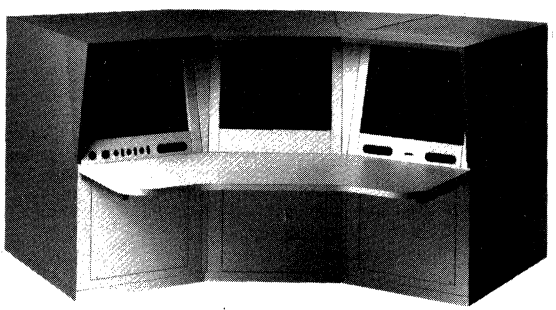
CUSTOM DESIGN VALUE FOR OFF-THE-SHELF PRICES

- Upright & Sloped-Front Floor-Standing & Bench Cabinets
- 19, 24 & 30-inch Panel Widths
- 24 & 30 inch depths
- Up to 84" Vertical Panel Opening
- Open or Closed Sides
- Modular design for single or multiple bays

POPULAR SIZES IN STOCK!

Accessory Equipment

- Decorative Options
- Mechanical Hardware
- Base & Caster Options
- Doors & Panels
- Drawers, Shelves, Desk
- Blowers & Air Plenums
- Electrical Hardware
- Pie Sections



MODIFIED ENCLOSURES

The Value-Engineered Solution:
Cost-Effective modification of standard products to fit your exact specifications.

- Control Consoles
- Multiple Bay Standards
- Mobile Equipment/Carts
- Tables/Work Benches

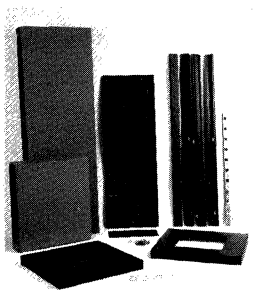
Value–Added Services

- Component Integration
- Accessory Installation
- Turn-key Systems
- Direct-to-End-User Shipment

BOLT-TOGETHER ENCLOSURES

Value-Engineered For
- Fewer Parts
- Quick Assembly
- Increased Strength
- Significant Savings on Shipping

Available from Stock



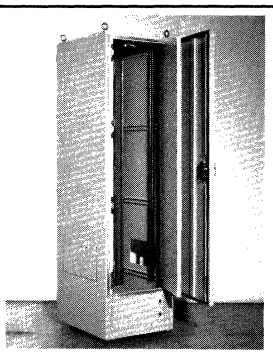
ORDERING INFORMATION

Part Number	*Horizontal Panel Opening*	*Vertical Panel Opening*	*Depth*
KDC 19-45-30	*19*	*45.5*	*30*
KDC 24-45-30	*24*	*45.5*	*30*
KDC 19-70-30	*19*	*70*	*30*
KDC 24-70-30	*24*	*70*	*30*
KDC 19-77-30	*19*	*77*	*30*
KDC 24-77-30	*24*	*77*	*30*

Electronic Enclosures Quality Now Available in a Bolt-Together

RFI/EMI Shielded Cabinets

- Commercial Level "50"
  Suitable for most FCC and VDE requirements
- Military Level "70"
  Cost effective solution to all but most rigorous requirements.
- High Security Level "90"
- Tempest Level "105"
  State of the Art Performance



The Leader in Shielded Enclosure Technology for over 30 Years

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For All Your Cabinetry Needs

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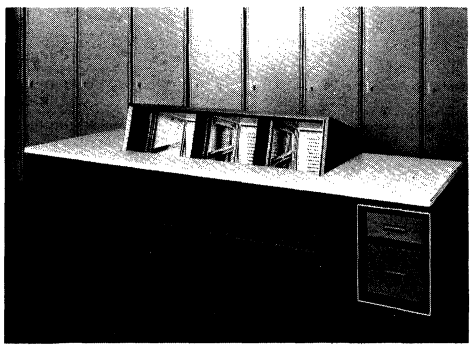
The Value-Engineering Enclosure Line

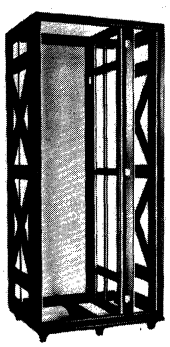
CUSTOM ENCLOSURES:

CUSTOMER/WYLE DESIGNED ENCLOSURES FOR SPECIAL APPLICATIONS

- Custom Cabinets & Consoles
- Weather Proof and Heavy-Duty Structures to NEMA Specs
- Electronic Materials Processing Cabinetry
- Commercial & Military Flightline Trailers

Engineering Design
- Seismic
- Shock & Vibration
- Environmental
- Thermal Management
- Noise Emission
- Human Factors





Seismically Qualified Electronic Cabinetry

Wyle is America's Largest Supplier of Seismic Cabinets

Single Source Availability
- Design
- Manufacture
- Analysis
- Test
- Certification
- Qualification

Worldwide Applications
- Nuclear Power Generating Plants
- Critical Communications Centers

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48 HOUR QUICK-SHIP

The most common sizes available when you need them:

NOW

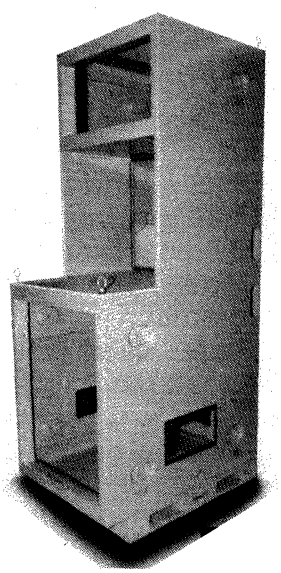
STANDARD FEATURES

- *Quality steel welded construction*
- *Full height vented rear door with key lock*
- *Textured baked enamel finish*
- *2 pair EIA standard adjustable tapped mounting angles*
- *Available with closed or open sides*
- *16" square cable cut-out in base*
- *Top panel has fan cut-out*
- *115v. 15 amp, outlet strip, 6' cord*
- *Decorative aluminum trim*

Aluminum Fabrication

- Quality Control per MIL-I-45208A and FED-STD. 368-A
- Welding Certified to MILSTD 1595A
- Shipboard Applications
- EMI/RFI Shielding
- Shock and Vibration analysis and certification

Ask about our NEW extruded frame design



AVAILABILITY:

VPO*	WIDTH	DEPTH
45 1/2"	19"	24"
70"	19 or 24	24 or 30
77"	19 or 24	24 or 30

*Vertical Panel Opening

Preferred Choice for Telcom Applications

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Custom design value for off-the-shelf prices.

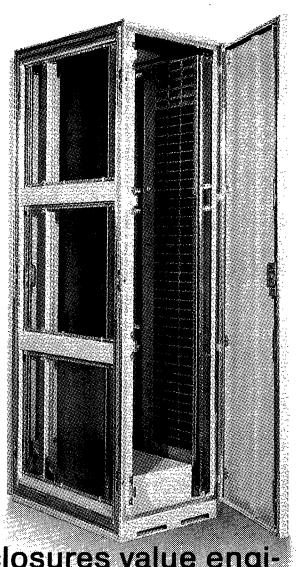
For thirty years Wyle Laboratories Electronic Enclosures has been designing electronic cabinetry specifically for the needs of each customer. And the cost has always been about the same as the off-the-shelf products other companies offer.

Today this kind of special attention is called "value engineering." For years we've just called it "giving the customer more for his money."

At Wyle Laboratories Electronic Enclosures, we still make the highest quality electronic equipment enclosures available. We provide more customized applications than any other manufacturer. Our standard product line is the industry standard. And we're known for quick response to customer requirements.

We also lead the industry in RFI/EMI shielding technology. We provide levels of shielding for FCC compliance to military and high security TEMPEST applications to give our customers cost effective solutions.

We've been putting value engineering into practice for 30 years. Let Wyle Laboratories Electronic Enclosures value engineer your next electronic enclosures solution.



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THE VALUE ENGINEERED ENCLOSURE LINE

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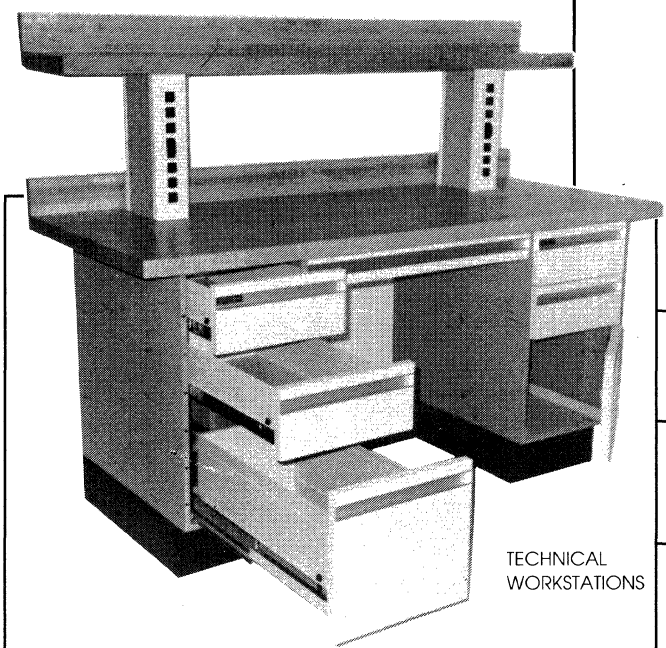
CAD WORKSTATION FURNITURE



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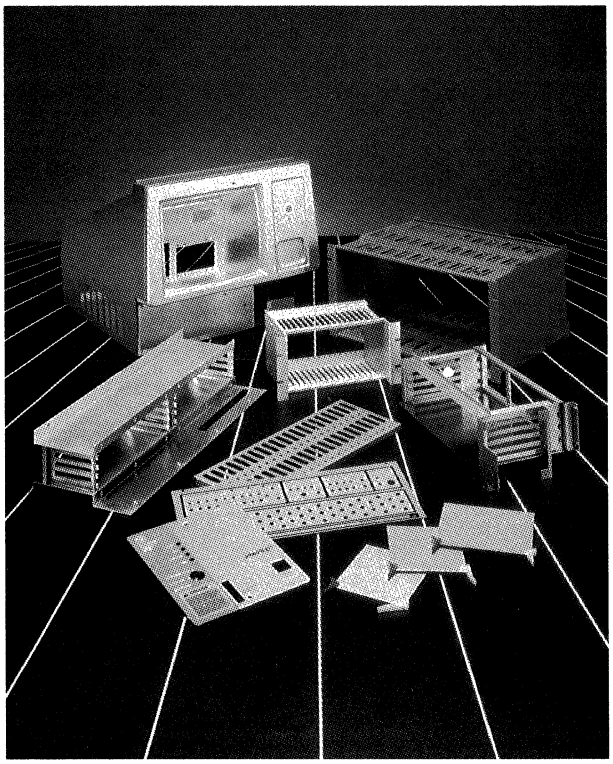
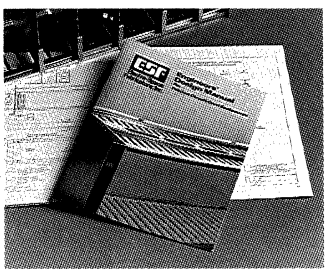
Electro-Space Fabricators, Inc.

Free Value Analysis of Your Card Enclosure



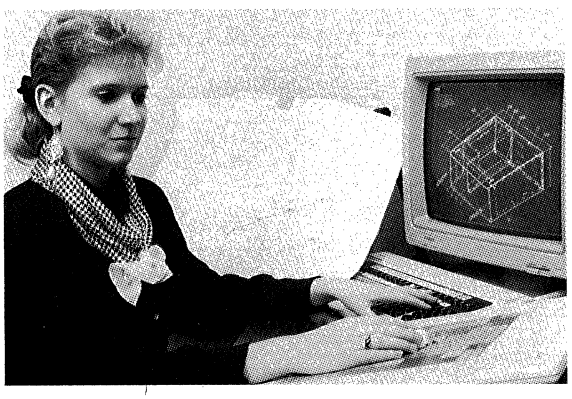
Improved card rack design begins with in-depth value analysis. And that's a free service of the Electro-Space design group ... aimed at delivering greater strength and better tolerances at lower unit cost. Our packaging techniques place no limitations on size, card spacing, special holes and hardware, connector or backplane mounting.

If your rack requirements are 50 or 100, 500 or 5000, why not draw upon our expertise? Our present customers have done so and enjoyed significant savings, both in unit cost and on their production lines. Send us your sketches, prints or sample rack at no obligation. Or call and ask for one of our qualified design engineers.



The Engineer's Design Manual is a compilation of the latest technology and most commonly asked questions concerning card enclosure design. Send for your free copy today.

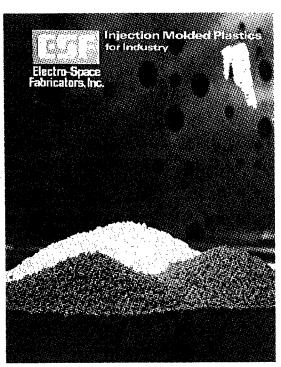
Custom Design Service



- Complete computer-aided design and manufacturing for customized needs
- Latest design technologies
- Quick turnaround on drawings
- Advanced CAD/CAM system shortens lead times in design, speeds up manufacturing schedules
- NC programming
- Efficient file exchange system
- Results in greater structural integrity at lower unit costs

Plastic Injection Molding

ESF's high-tech, high performance injection-molding machines are computer-controlled for fast-cycle molding capabilities and close dimensional tolerances necessary for the highest part-to-part reproducibility. Our plastic technology extends into machining, ultrasonic welding and hardware insertion, EMI/RFI shielding, painting, hot stamping and silkscreening.



- **Statistical Process Control**
  Quality programs can be implemented to your specific requirements
- **UL approved.**
  Recognized under the Component Program of Underwriters Laboratories Inc.

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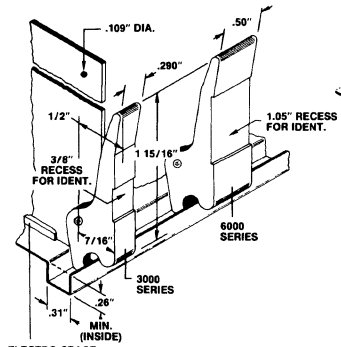
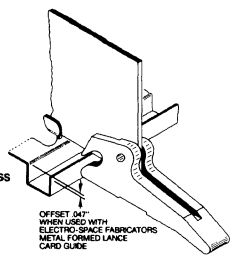
Card Enclosure Accessories

Injector/Ejectors

Unique devices function in two directions ... utilizing both surfaces of a single blade. Design eliminates the need for very close tolerances. The front of PC card should be flush with front of guide plate to insure proper insertion and extraction of card.





Part No.	Card Size	Color	Material
NE-3001-W NE-3001-B	1/16" 1/16"	White Black	Type 6/6 Nylon ASTM D4066 PA111/131 UL94V-2
NE-3003-W NE-3003-B	1/8" 1/8"	White Black	
NE-3001-NGV NE-3001-BGV	1/16" 1/16"	Natural (Tan) Black	30% Glass Filled Type 6/6 Nylon ASTM D4066
NE-6001-NGV NE-6001-BGV	1/16" 1/16"	Natural (Tan) Black	PA 100 G32 F24 UL94V-0

6000 series also features

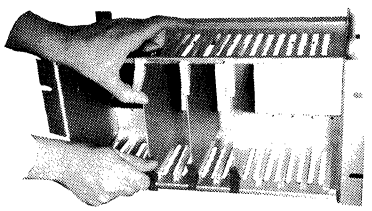
- Bar code recessed identification area for industry standard labeling
- Extra width delivers extra strength for large cards requiring greater insertion/ extraction forces
- Flame-retardant applications ... molded of 30% glass-filled nylon UL 94V-0 material.

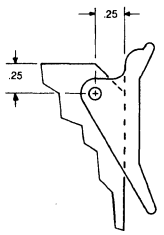
Notes:

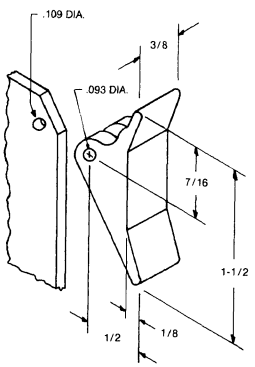
1. Includes stainless steel press-fit mounting pin
2. Special colors available

Ejectors

Improved lever action and greater strength for quick, damage-free extraction. The front of PC card should be flush with front of guide plate to insure proper extraction of card.







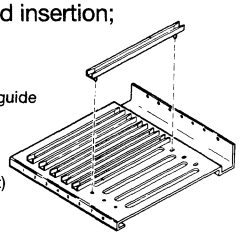
Part No.	Card	Slot	Color
EJ-2001-W	1/16"	.072	White
EJ-2001-R			Red
EJ-2003-W	1/8"	.135	White
EJ-2003-R			Red

Notes:

1. Includes stainless steel mounting pin
2. Type 6/6 Nylon ASTM D4066 PA 111 UL94V-2
3. Special colors available

Nylon Guides

Smooth, effortless slide for board insertion; unique bow feature.



NOTE:

1. 1/64 Radius — All edges except bottom of guide and inside of .070 slot.
2. Molded of Type 6/6 nylon (UL94V-2) and flame-retardant nylon (UL94V-0)
3. Color — White (Special colors upon request)

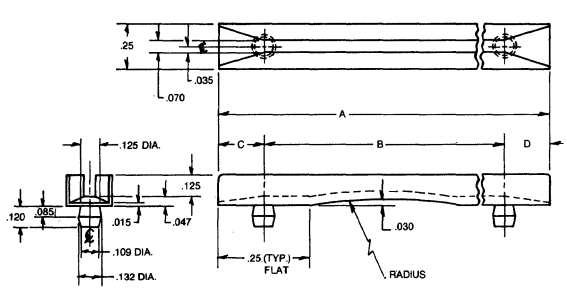
MOUNTING HOLES:

.125 dia. hole (front)
.120 x .218 slot (rear)
material range .048 to .080

INSTALLATION:

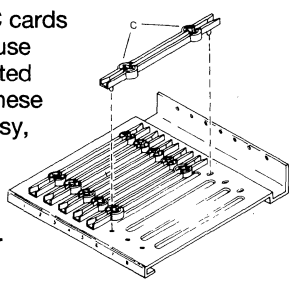
Sharp impact, snap-in.
No special tools or hardware required.

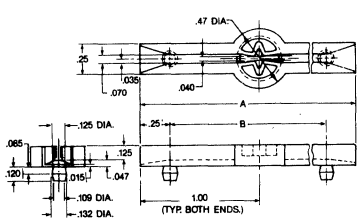
A-42870	A	B	C	D	Material
-1W	4.00	3.50	.25	.25	White Type 6/6 Nylon ASTM D4066 PA111/131 UL94V-2
-2W	6.00	5.50	.25	.25	
-3W	8.50	8.00	.25	.25	
-4W	3.00	2.50	.25	.25	
-1BV	4.00	3.50	.25	.25	Black Nylon Flame Retardant UL94V-0
-2BV	6.00	5.50	.25	.25	
-3BV	8.50	8.00	.25	.25	
-4BV	3.00	2.50	.25	.25	
-5BV	5.00	3.50	.75	.75	
-9BV	9.00	8.00	.75	.25	



Anti-Vibration Nylon Guides

Unique design prevents PC cards from vibrating through the use of two or more buffers located along the guides' length. These low-cost guides provide easy, snap-in insertion at the top and bottom of cards, eliminating the need for special tools and hardware.





MOUNTING HOLES:

.125 dia. hole (front)
.120 x .218 slot (rear)
Material range .048 to .080

INSTALLATION:

Sharp impact, snap-in, no special tools or hardware required.

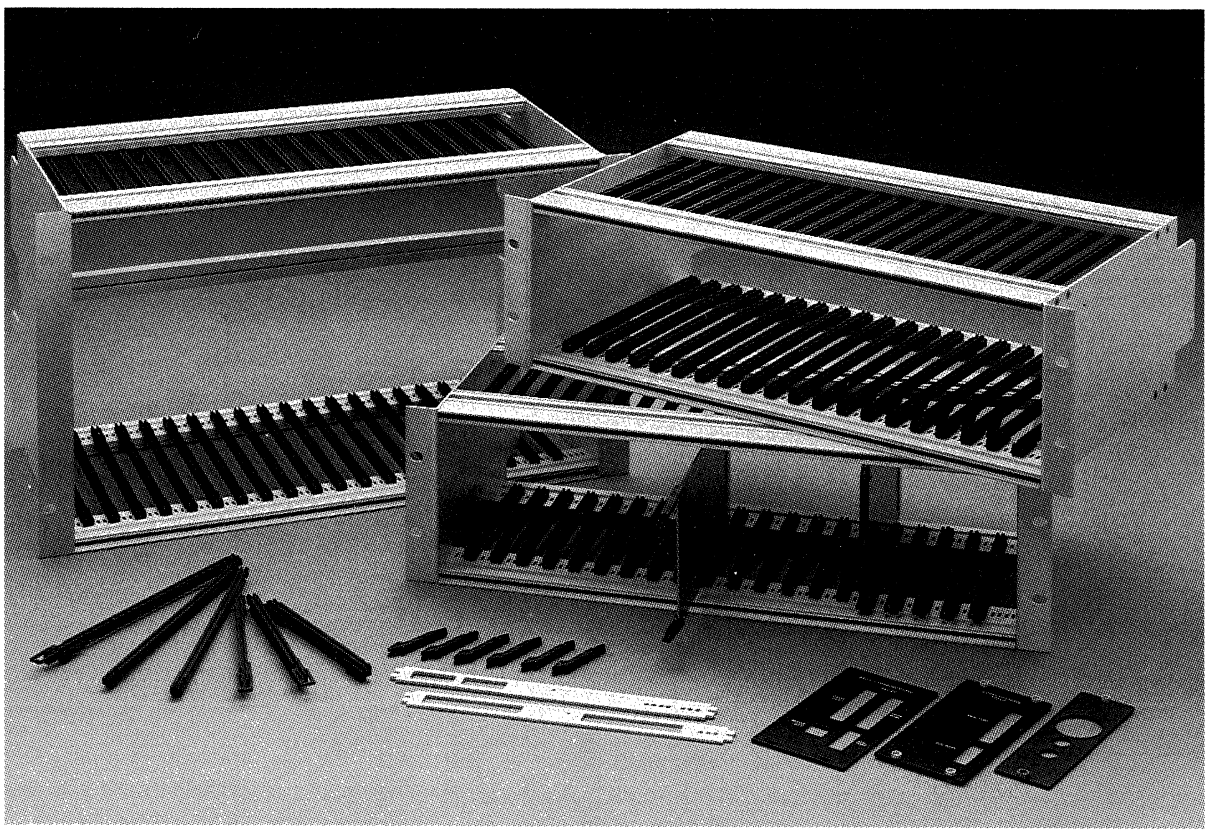
Notes:

1. Type 6/6 Nylon ASTM D4066 PA111 UL94V-2
2. Type 2 has an additional buffer at center of guide length
3. Color white — special colors available

V-82883	A	B	C (# of Buffers)
-1W	4.00	3.50	2
-2W	6.00	5.50	3

Electro-Space Fabricators, Inc.

EURO Packaging Systems



Get higher quality, lower cost and faster turnaround... ESF, the nation's leading card enclosure manufacturer, now offers improved EURO Packaging Systems.

Expect rugged, reliable sub-racks... for demanding environments, either completely assembled or unassembled.

Select from a large inventory... standard EURO sub-racks and accessories for 3U, 6U, 9U and 12U sizes.

Order quickly and efficiently... six easy steps on our new order form help you determine card depths, backplane insulator needs, mounting bar and card guide styles, card positions and assembly requirements.

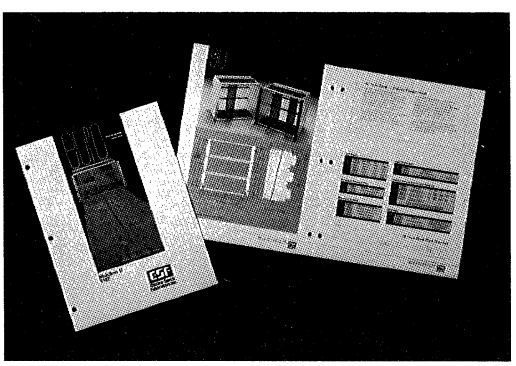
Specify your own design... complete customizing capability without unnecessary expense or loss of time. Full computer-aided design service available.

Free Eurocard brochure ... includes easy-to-order form.

Specifications
ESF's standard Eurocard racks are made of rugged aluminum extrusions for vibration resistance. The following materials and finishes meet the highest specifications requirements for electronic equipment:

Aluminum Extrusions		**Finish**	
Sub-Rack Rails	6105 T5	Aluminum	Clear iridite MIL-C-5541C
Mounting Ears	6061 T6	Steel	Zinc Plate QQ-Z-325
Side Plates	5052 H32	**Plastic Parts**	Flame-Retardant Material UL94V-0
Front Panels	6061 T6	**Hardware**	Stainless Steel (unless otherwise specified)

Specifications subject to change without notice.



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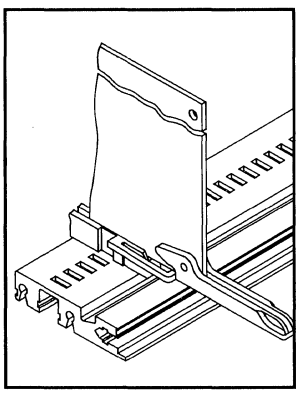
Electro-Space Fabricators, Inc. ESF

Eurocard Accessories

400 Injector/Ejector

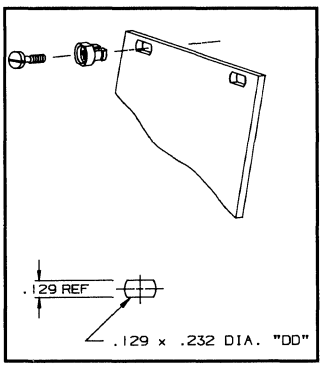
- Assure easy, damage-free insertion and extraction of 1/16" thick Eurocards.
- Used in conjunction with ESF 510 series guide which allows device to function in two directions for insertion and card removal.
- Unique locking dimple in handle grips card firmly in locked position.
- Functionally compatible with most other Eurocard enclosures.
- Molded of flame-retardant 30% glass-filled Type 6/6 black nylon (UL94V-0) to assure maximum rigidity and minimum deflection during operation.
- Includes .093 diameter stainless steel mounting pin.
- Two injector/ejectors recommended for larger boards to ensure straight-line removal.
- Part # 400-062BGV

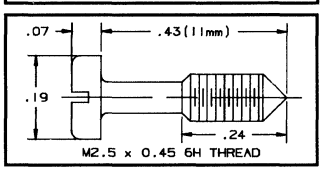


Eject Position

700 Collar Screw

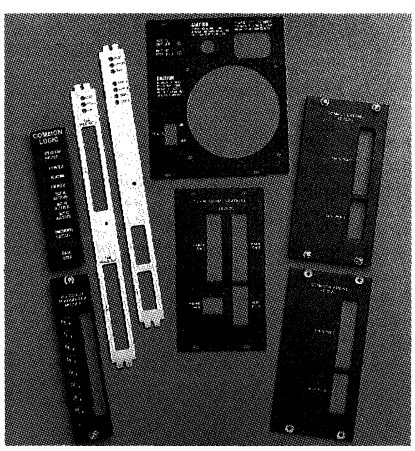
- M2.5 x 11mm
- Polished 302 stainless steel ensures non-stripping of threads.
- Used for fastening front panels to EURO sub-racks.
- Works in combination with ESF's 725 plastic retainer sleeve or 750 metal retainer sleeve.





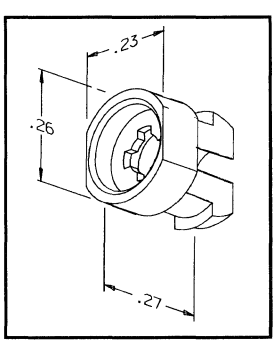
Front Panels

- Fully customized panels, complete for immediate use.
- Rapid turnaround and competitive pricing.
- Add special cut-outs, holes and hardware as needed.
- Specify desired finish — anodize, iridite or paint.
- Silkscreened — single or multi-colored
- Material — .100 aluminum 6061-T6 or customer specified.

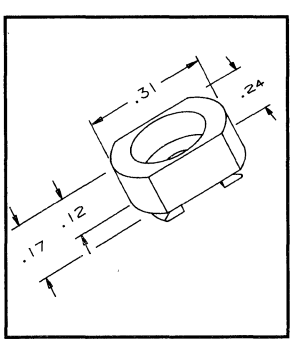


725 Plastic Sleeve and 750 Metal Sleeve

- Used with 700 panel screw for fastening front panels to EURO sub-rack horizontal rails.
- Metal sleeve is pressed into prepunched holes in panel for positive grounding to chassis.
- Plastic sleeve snaps into prepunched holes in front panel.
- Captivate 2.5mm screw.
- Metal sleeve finish — nickel-plated.
- Plastic sleeve material — tan ABS (UL94V-0); self-extinguishing.



725 Plastic Sleeve



750 Metal Sleeve

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
A/D acrylonitrile butadiene-styrene
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AFC audio frequency control
AFT automatic filter test
ALGOL algorithmic language
AM a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
ASIC application specific IC
ATE automatic test equipment
ATG automatic test generation
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility syste

C
CAD computer-aided design
CAE computer-aided engineering
CAM computer-aided manufacture
CAMAC computer-automated measurement and control
CAPP computer-aided process planning
CAT computer-aided test
CATV cable television or community antenna television
CCC (leaded) ceramic chip carriers
CCD computer-controlled display
CERMET ceramic metal element
CIE computer-integrated engineering
CIM computer-integrated manufacturing
CLCC ceramic leadless chip carriers
CMOS complementary metal-oxide semiconductor
Comm. communications
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DBMS data base management system
DC direct current
DFT design for testability
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DRAM dynamic RAM
DTL diode transistor logic

E
EDA electronic design automation
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EIA Electronic Industries Association
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM erasable programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide FET
CMIP commn management information protocol
GPIB general purpose interface bus
GPS global positioning system

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement, and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IAB Internet Activities Board
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared
ISDN integrated services digital network
ISO International Standards Organization

J
JEDEC Joint Electronic Device Engineering Council
JFET junction FET
JMOS junction MOS

K
kHz kilohertz (10^3 hertz)
KSR keyboard send /receive

L
LAN local area network
LC (filters) inductance/capacitance
LCC leaded chip carrier
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
µF microfarad
MHz megahertz
MIC microwave IC
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor FET
MOSIGT metal oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM national instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator
OSI open systems interconnection

P
PAL programmable array logic
PC printed circuit
PCB printed circuit board
PCM pulse code modulation
PCS plastic clad silica
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLCC plastic leaded chip carrier
PLL phased lock loop
PPI plan position indicator
PROM programmable ROM
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon-controlled switch
SDA source & detector assemblies
SGMP simple gateway monitoring protocol
SIDAC bidirectional voltage-triggered switch
SIMM single in-line memory module
SIP single in-line package
SMD surface mount device
SMT surface mount technology
SNMP simpole network management protocol
SO small outline
SOIC small outline IC
SOT small outline transistor
SSI small scale integration
SSR solid-state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCE thermal coefficient of expansion
TXCO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V
VAC volts (of) alternating current
VAN value-added network
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency (30 kHz to 300 MHz)
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W
WPS word processing software

Y
YIG yttrium iron garnet

Z
ZIF zero insertion force

ELMA

ELMA Electronic Inc.

25 JAHRE ANNÉE YEARS ELMA Electronic

Elma's Modular Enclosures

A Member Of The Sulzer Group, 41440 Christy Street, Fremont, CA 94538 • (415) 656-3400

All ELMA products are available off-the-shelf and REASONABLY PRICED

General Information

ELMA enclosures are designed for ease of assembly, versatility, and durability. Their modular design offers virtually unlimited electronic packaging flexibility. Standard Eurocard (100 x 160 mm, 3.94 x 6.30 in.) and card sizes derived therefrom are easily accommodated. Compatible to VMEbus and MULTIBUS II board formats. With internal subdivisions, any card size can be used. In addition, all edge connectors currently in use can be fitted using supplementary assembly sections.

Material

Aluminum extrusions form the framework of all these **ELMA** cabinets. Front and rear panels are 2½ mm clear anodized aluminium sheets. Cover panels are either 1.5 mm colored, vinyl coated aluminum sheet (models 14, 32, 36) or 3 mm colored, vinyl coated alucobond (two sheets of aluminum separated by a polyethylene core).

Accessories and Colors

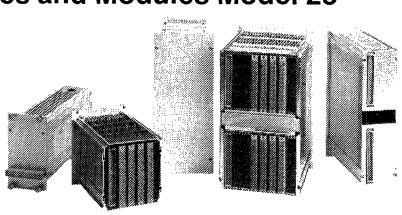
Front and rear panels are accessories on all models except 36, for which rear panels are included. Hinged and folding front panels may also be obtained in a variety of sizes for some models. Extruded front panels in various heights and widths can be used for plug-in modules. Aluminum handles are also available.

Cover panels are included on models 32 and 36. Standard colors are gray and blue (model 36.) Graphite black, and brilliant blue cover panels are available on special order. Perforated top and bottom panels may also be obtained.

Dimensional Units
1U = 1.75", 1T (HP) = 0.20"

The overall height of modules, card frames and plug-in cases and the acceptance height of cabinets is based on height units (U) per DIN Standard 41494. One U equals 1¾" or 44.45 mm. The 5.08 mm (2/10") horizontal pitch unit T is used for the acceptance width.

Cassettes and Modules Model 23



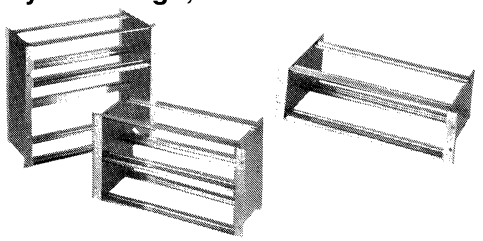
Application: Cassettes and Modules are designed to accept single or double Eurocards/VME cards with depths of 160 mm or 220 mm. These modules are also designed to house VXI C or D size cards in addition these modules can be used to house any components. Both cassettes and modules are plug in units. The PC board carrying the plug connector is firmly attached to the side extrusions.

Heights: 5.25″, 10.50″ (3U,6U)

Widths: 1.4" (7T), 2" (10T), 2.8" (14T), 4.2" (21T), 5.6" (28T), 8.4" (42T)

For card depths: 6.30″, 8.66″ (16 mm, 220 mm).

Economy Card Cage, Model 11



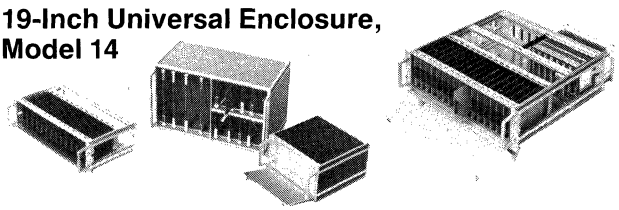
Application: The Model 11 is designed to accommodate single (3u), double (6u), and triple high (9u) Eurocards with depths of 160 mm, 220 mm, 280 mm, 340 mm and 400 mm. It can also accept card heights of 4.4″, 4.5″ and 9.65″. It is fully compatible to VMEbus, MULTIBUS II and Sun Systems.

Height: 5.25" (3u), 10.50 (6u), 12.25" (7u), 14.00" (8u), 15.75" (9u)

Widths: 8.4″, 16.8″.

Depths: 8.50″, 10.87″, 13.23″, 15.61″, 17.98″.

19-Inch Universal Enclosure, Model 14



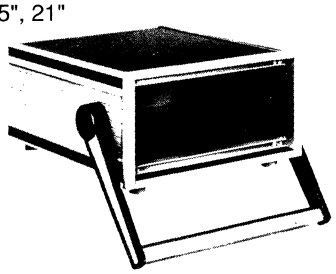
Application: Model 14 Enclosures feature extrusion construction with scratch resistant top and bottom cover plates. The are available in rack-mount ad desktop configurations from 1.75" (1u) to 21" (12u) in height and from 9" to 26" deep. These enclosures can be used to house any electronic components as well as VME Systems. Accepts card sizes of 3u, 6u, 9u, 4.4″, 4.5″, 9.65″ and card depths of up to 400 mm.

Heights: 3.50″, 5.25″, 7.00″, 8.75″, 10.50″, 15.75″.

Widths: 8.4" (42T), 12.6" (63T), 16.2" (81T), 16.8" (84T)

Depths: 9.17", 11.53", 16.25", 21"

DIN Instrument Case, Model 36
(also panel-mount)



Features: front panel recessed by 10.5 mm (.41″)

Application: for control and regulating instruments, switches, etc. Panel mounting and tabletop case, available with angled feet: case dimensions and recess in accordance with standard governing built-in switchboard appliances (DIN standard 43 700).

Heights: 2.84″, 3.78″, 5.59″.

Widths: 3.78″, 5.67″, 7.56″, 11.34″, 15.12″, 17.01″.

Depths: 4.62″, 5.27″, 6.98″, 7.63″, 9.34″, 9.99″, 11.70″, 12.35″.

See Section 2400 (Panel Hardware-Bezels, Dials, Knobs, etc.), see section 5100 (Switches) for additional products!

Packaging Enclosure Systems

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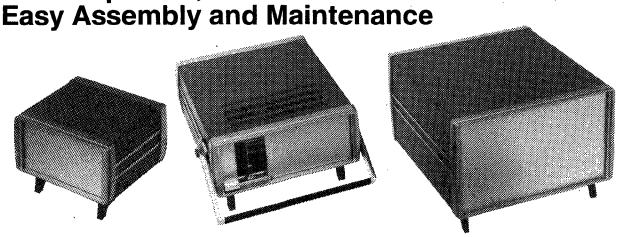
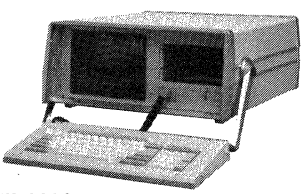
Desk Top Case, Model 32
Easy Assembly and Maintenance



Two sectional supports running full depth carry all inserts. These special supports permit versatile mounting with only simple assembly gear. The actual enclosure, which consists of front and rear frames and a top and base plate, has no supporting function. These parts are mounted on the mentioned supports using only four screws after the components have been inserted, wired-up and functional tests carried out. Therefore, no damage can be done to the cover plates during assembly. The cover plates are of scratch-resistant Sinaplast and are available in neutral umbra-brown. Unfinished aluminum plates for customer painting can also be furnished.

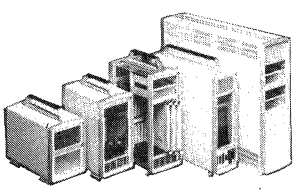
Heights: 5.25", 10.50", 3.50", 7.00".
Widths: 8.43", 12.62", 16.82".
Depths: 9.02", 12.17", 15.31", 18.46".

Portable Detached Keyboard Unit Model 32



Features:
- Optimal flexibility
- Easy removal of keyboard from case
- Designed for numerous applications
- Sturdy construction for rugged field service use
- Accepts mountings per DIN 41494
- Mounting kits for 9″ CRT monitors available
- Standard or custom front panel design
- Accepts standard PC, PC-XT, PC-AT keyboards

Tower Type 32 Modular



Application: The construction of these towers are identical to that of basic model 32. The special feet that are attached to the depth section allow the case to be used in the vertical tower position. The tower handle makes it convenient for portable application.

These towers have the heights of 8.4", 12.6" and 17" which makes them easily portable like an attache case. Typical applications include VMEbus (3-12 slots), VXI, MULTIbus II, etc.

Heights: 8.4", 12.6", 17"
Widths: 3.5" (2U), 5.25 (3U), 7" (4U), 10.5" (6U)
Depths: 10.23", 13.38", 16.53", 19.68"

Cabinets Model 47, 48

Various models and colors available

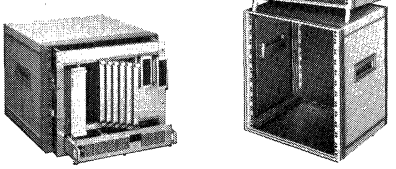
Height: 3, 4, 5, 6, 9, 10, 12, 14, 15, 20, 26, 32, 36, 39, 41, 46 U.

Acceptance Depth: 235, 289, 355, 379, 469, 470, 475, 495, 600, 670, 800 mm.

Widths: 19"

Accessories: Telescoping rails, castors, bases, leveling feet, lifting eyes, grounding sets, slide/guide rails, coupling sets, drawers, pull-out trays, top covers with fan, slide-in fan trays, sealing kits, etc.

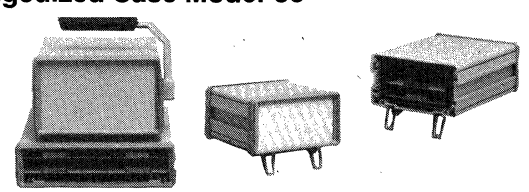
Type 38 - 19" Enclosure



The Enclosure accommodates 19" subracks, card cages as well as accepts 19" Plug-in units designed according to DIN 41494. It can be used as a table top model or as a stand-alone cabinet.

Heights: 3u, 4u, 7u, 8u, 9u, 10u, 12u and 15u
Widths: 19"
Depths: 12.59", 16.53", 20.47", 24.40"

Ruggedized Case Model 33



This all aluminum instrument case consists of U-shaped extrusion which defines the width and height of the case. As the whole case is an extrusion, this compact case is highly stable and rugged. Mounting grooves in the bottom and on the sides allow parts to be mounted directly, without any extra hardware. The sealed aluminum construction guarantees good screening, shielding and meets class IP54/NEMA standards.

Heights: 2.72″, 3.37″, 4.06″
Widths: 6.12″, 8.27″, 10.10″
Depths: 5.67″, 8.03″, 10.39″, 12.76″

See Section 2400 (Panel Hardware-Bezels, Dials, Knobs, etc.), see section 5100 (Switches) for additional products!

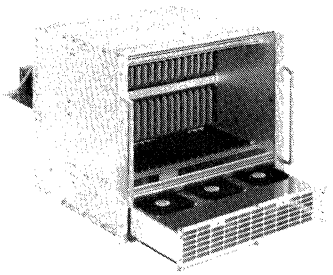
ELMA Electronic Inc.
41440 Christy Street • Fremont, CA 94538 • Phone: 415-656-3400 • FAX: 415-656-3783

MODULAR VMEbus SYSTEM ENCLOSURES

Consistent High Quality For Over 25 Years

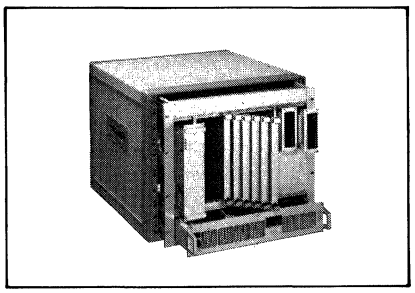
ELMA Electronic, founded in 1962 near Zurich, Switzerland, has become a world wide leader in electronic enclosures and components, with facilities or representation in 22 countries. ELMA is a member of the Sulzer Group which has annual sales of over 4 billion dollars and over 33,000 employees. ELMA systems are designed to meet the highest standards of precision and dependability. This product line offers both standard and custom solutions for a wide variety of bus standards including **VME, VXI, SUNbus, Multibus II, PC, AMS, SMP, Future bus** and many more. In addition, ELMA system enclosures are designed to meet most of the international standards including UL, CSA, TUV, FCC, VDE and IEC. ELMA's unique modular approach satisfies a wide range of applications with off-the-shelf parts, eliminating expensive and time consuming custom work. ELMA covers your requirements, starting from individual components up to fully wired and tested 'ready-to-run' systems.

SYSTEM 12



ELMA System 12 enclosures are fully shielded and designed to be in compliance with UL, FCC and other International standards. Products include both rackmount and desktop enclosures in sizes from 2U to 15U. A full range of depths and slot capacity are available. Designed to accept VME, VXI, Multibus II, SUN and PCbus boards.

Shown at the right is a 21 slot, 9U system which features a removable fan tray and hinged power supply for easy access. A 1U clearance on top accommodates any cable requirements.

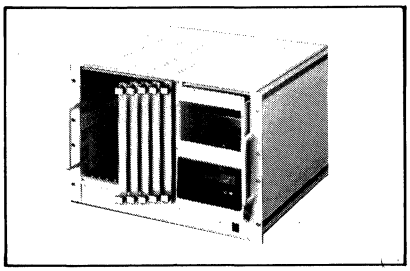


For an aesthetically pleasing appearance, our Type 38/12 enclosure is an excellent choice. Available in 3U to 15U heights and depths to 620mm.

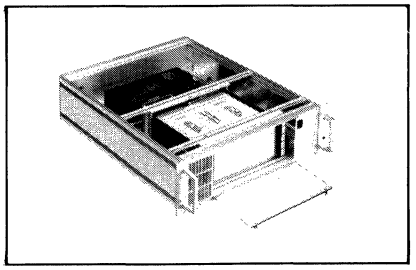
SYSTEM 14

System 14 (Universal) enclosures feature extrusion construction with scratch-resistant top and bottom cover plates. They are available in rack-mount and desktop configurations from 1U to 12U in height and from 9 to 26″ deep. Boards can easily be recessed in this model. Designed to accept VME, VXI, Multibus II, SUN and PCbus boards.

Suitable for desktop or rack mount applications, the system is completely wired and tested with 7 slot P1 and P2 backplanes. Includes 250 watt switching power supply. Accommodates two 5¼″ drives.



7U × up to 21-slot VME compatible system features 1U fan tray with three fans to insure proper cooling. Suitable for desktop and rack mount applications. Accommodates various drive module combinations. Includes power supply from 300 to 1000 watts.

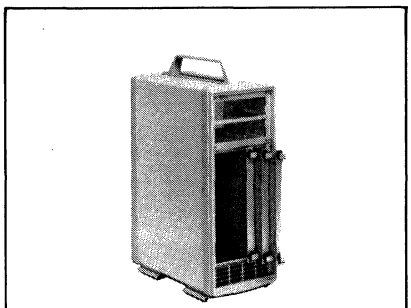


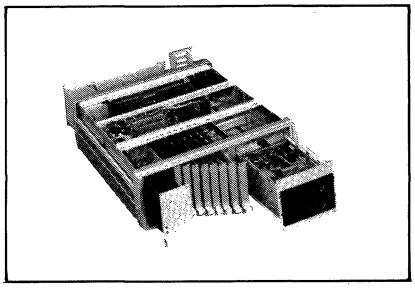
3U × 5-slot enclosure features recessed cards for clean front, better shielding and hidden routing of cables back to I/O. For rack mount or desktop applications. Front can be a panel or a hinged door. Also available in 2U × 3-slot and 4U × 7-slot systems.

SYSTEM 32

The Type 32 ELMA system enclosures are designed for desktop, portable or tower use. This lightweight all-aluminum construction comes in 2U, 3U, 4U, 6U and 13U heights/widths (1U = 1.75″). Depths are from 10 inches to 26 inches. Cover panels are scratch-resistant vinyl clad with a choice of several colors. This system can accept VME, Multibus II, PCbus and SUN boards up to 12 slots.

Shown at the right is a 4U × 7-slot Tower/desktop VME system. It includes a fan module and 250 watt switching power supply. The system is wired and tested with 7-slot J1 and J2 backplanes.





With a depth of 20 inches, this system can handle a variety of configurations. It is suitable for mounting boards and drives from front or rear. It is available in 5 or 7 slot configuration.

SYSTEM ENCLOSURE REFERENCE GUIDE

TYPE	SLOTS	VERTICAL ENCLOSURE HEIGHT 1U = 1.75″	CONFIG-URATION	CARD MOUNT 3U	6U	9U
14,32	2-3	2U	R D T	H	H	H
12,14,32	2-5	3U	R D T	V	H	H
12,14,32	2-7	4U	R D T	V	H	H
14	2-9	5U	R D	V	H	H
14,32	2-12	6U	R D T	V	V/H	H
12,14	2-21	7U	R D	V	V	H
12,14	2-21	8U	R D	V	V	H
12,14	2-21	9U	R D	V	V	V
12,14	2-21	10U	R D	V	V	V
14	2-21	11U	R D	V	V	V
14	2-21	12U	R D	V	V	V
12,14	Dual chassis Up to 42U		R D	V	V	V

SYMBOLS: Card Mount: H = Horizontal V = Vertical Configuration: R = Rack mount D = Desktop T = Tower Board/Card depth can be up to 400mm.

610 East Tenth Street
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- Cablewave Hardware
- Decibel Products

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- Atlas
- Bogen
- Quam
- Shure
- Switchcraft
- University

BATTERIES
- Duracell
- Eveready
- Kodak

CABINETS
- BUD
- Calif. Chassis

CAPACITORS
- R.G. Allen
- E.F. Johnson
- Mallory
- Sprague

CIRCUIT BREAKERS
- Heinemann
- Potter Brumfield
- Waber Electric

CONNECTORS
- AMP
- Amphenol
- Cablewave
- E.F. Johnson
- Kulka
- Manhattan
- Paladin
- Panduit
- Pomona
- Superior
- Switchcraft

COUNTERS
- Hecon
- Kessler-Ellis
- Redington
- Stemco

FIBER OPTICS
- AMP
- Amphenol
- Belden Cable
- Madison

FILTERS
- Curtis
- J.W. Miller
- Mallory
- Stancor

FUSES
- Bussmann
- Littelfuse
- U.S.D.

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- 3-M
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- AMP
- Ico Rally
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- Kulka Smith
- OK Tools
- Panduit
- Vector

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- Chicago Minature
- IDI
- IEE
- Ledu
- Luxo
- Leecraft
- Mag-Lite
- Stanley

OUTLET STRIPS
- Waber

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- Bourns
- Clarostat
- Ohmite

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- Dormeyer
- Microtran
- Sola
- Stancor
- Superior
- Triad
- Tripp-lite
- UTC
- Waber

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- Allied Controls
- American Zettler
- Aromat
- C.P. Clare
- Crydom
- Coto
- Gordos
- Guardian
- ITT
- Line Electric
- Magnecraft
- Master Electronics
- Midtex
- Omron
- Potter & Brumfield
- Sigma
- Struthers-Dunn
- Theta-J

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- R.G. Allen
- Bourns
- Clarostat
- Mallory
- Ohmite

SEMICONDUCTORS
- Semi Inc.
- Semitronics

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- Arrow Hart
- AMP
- C & K
- Cherry Electric
- G.C.
- McGill
- Omron
- Oslo
- Otto
- Switchcraft
- Unimax

TERMINAL BLOCKS
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- Buchanan
- Curtis
- Electrovert
- Magnum
- RDI
- Siemen
- USD
- Vernitron-Beau
- Weidmuller

TEST EQUIPMENT
- Fluke
- Simpson Electric
- Triplett

TIMERS
- Agastat
- Amperite
- Industrial Timer
- Magnecraft
- Master Electronics
- Midtex
- Omron
- Potter & Brumfield
- SSAC

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- Blazer
- Ersin
- Kester
- OK Machine & Tool
- Paladin
- Portasol
- Ungar
- Weller
- Xcelite
- Helper Winch

TRANSFORMERS
- Dormeyer
- Jeffersons
- Microtran
- Sola
- Stancor
- Thordarson
- Triad
- U.T.C.

TUBES
- Eimac
- G.E.
- National
- Raytheon
- R.C.A.
- Varian (Klystrons)

TUBING
- Alpha
- Electrovert
- Heli-Tube
- Panduit

WIRE & CABLE
- Alpha
- Belden
- Cablewave
- Carol
- Iboco
- Madison
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BUD

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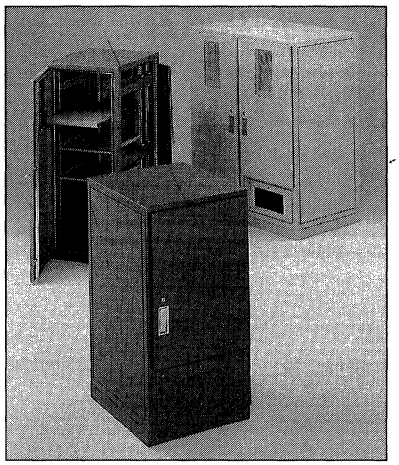
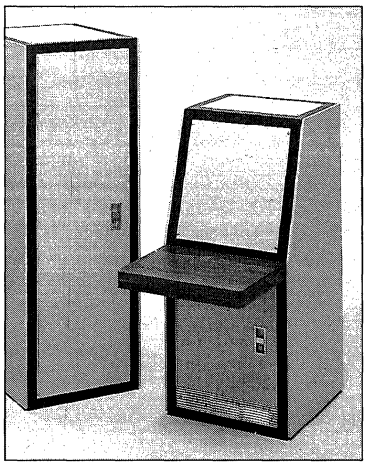
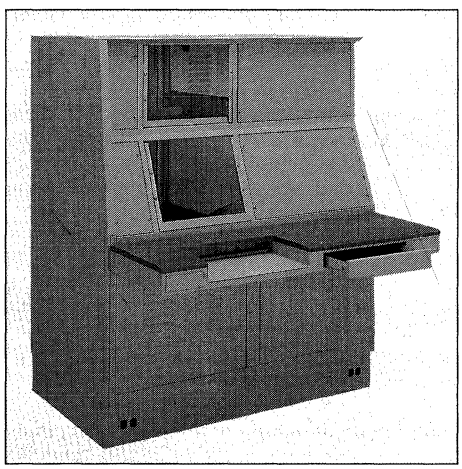
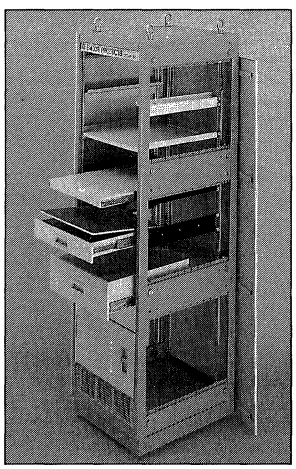
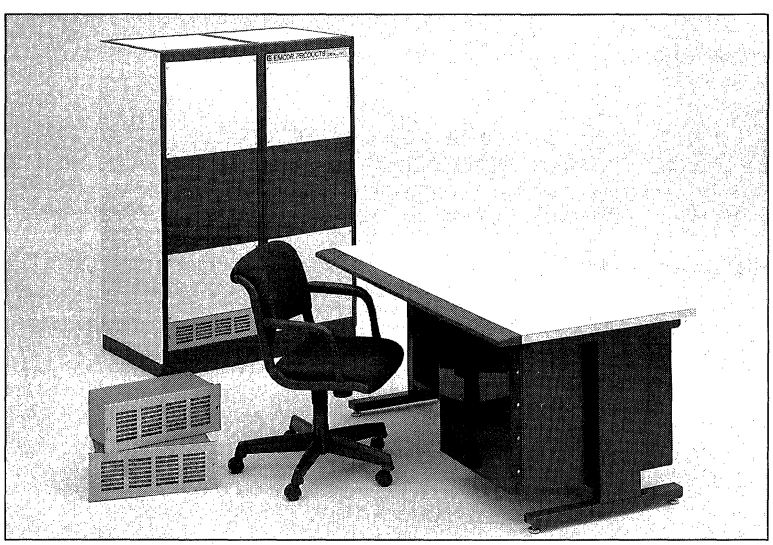
It's your choice of sizes, configurations, colors, shielding and accessories.











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Create the right impression for your product with an Emcor enclosure. Choose from 6 distinct product lines and more than 9,000 items. Emcor is committed to giving you the best enclosure for your requirements, supplied just the way you want it and delivered when you need it. For those in a hurry, Instant Emcor offers a 5-day shipment program.

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Emcor offers two levels of shielding solutions: the FCC level EMI/RFI enclosures are designed for commercial applications and our Tempest-style enclosures meet the more demanding attenuation levels often required by the military. Both levels are tested to MIL STD 285.

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Our Compudesk® line of computer support furniture offers two distinctive desk styles totaling over 500 different configurations and is compatible with our standard enclosure line. Also available are stand-alone auxiliary electronic pedestals and printer stands.

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1600 - 4th Ave. N.W.
Rochester, MN 55901
Phone 507-289-3371
FAX # 507-287-3405

EMCOR®

After years of putting your electronics in our cabinets, you can now look at our cabinets electronically

Now you can get the Equipto Electronics catalog on a free floppy diskette. It includes all the modular electronic cabinets and computer furniture featured in our 304-page print version. And it runs on any IBM© compatible PC.

That makes it easier than ever to use Equipto Electronics as a design resource. With the help of on-screen prompts you can, in effect, design your enclosure from thousands of options. You can even select enclosures especially engineered to provide maximum shielding effectiveness in meeting EMI/RFI, FCC, Military, TEMPEST and EMP requirements. Then, just print out the data and Fax it to us. We'll respond with your quote, usually within 48 hours.

Of course, all the extra services that Equipto customers count on—including customer service reps, engineering consultation or Express Line 5-Day Shipping—are readily available to computer catalog users. In fact, about the only thing that has changed about the Equipto Electronics catalog is that now you can thumb through it electronically.

It all adds up to commitment. A commitment by Equipto Electronics Corporation to provide the combination of quality products and quality service that helps you create the right enclosure for your project.

For your FREE copy of the Equipto Electronics diskette catalog—phone, FAX or write us today.

Equipto Electronics Corporation
351 Woodlawn Avenue
Aurora, Illinois 60506-9988
Phone (708) 897-4691
Fax (708) 897-5314

Committed to Excellence Since 1960

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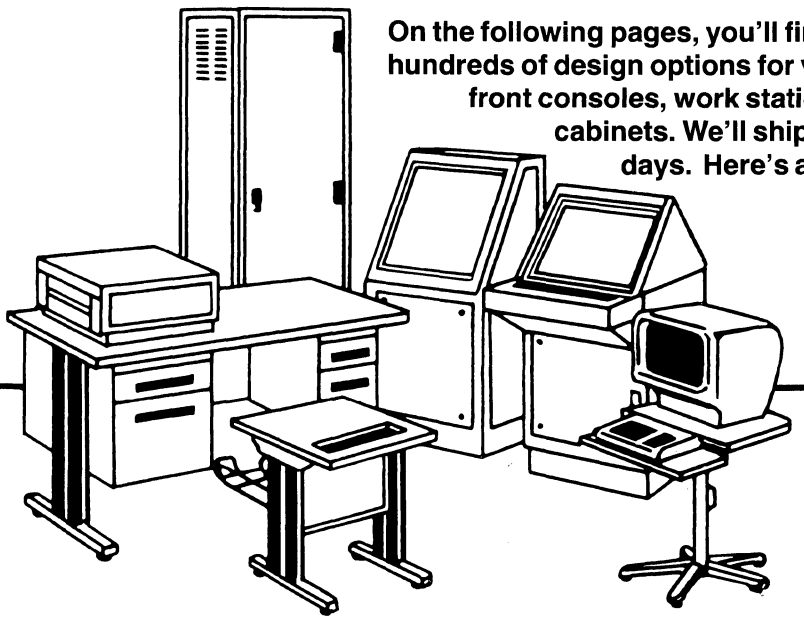
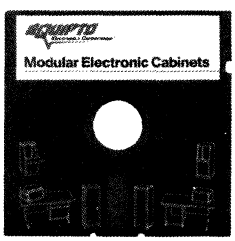
Modular Electronic Cabinets and Computer Furniture

Choose any cabinet or work station from the following 4 pages and we'll ship it in 5 working days!

EXPRESS LINE
5 Day Service



On the following pages, you'll find choices that give you hundreds of design options for vertical cabinets, slope front consoles, work stations and instrument cabinets. We'll ship any of them in five working days. Here's all you need to do.



Phone for FREE IBM PC compatible Electronic Enclosure Design Program

1. Select the product you want
- ☐ Vertical Rack
- ☐ Slope Front Console
- ☐ Work Station
- ☐ Instrument Cabinet

2. Select the size and configuration desired. Diagrams and specification charts are provided with each product offered as guides.

3. Select accessories.

4. Select your colors. The following standard colors are available on any of our products. Custom colors are also available at no extra charge.

Standard colors are available in textured only. Two-tone color combinations available at no extra charge.

Antique White	Light Blue
Dove Grey	Sky Blue
Light Grey	Royal Blue
Charcoal Grey	Dark Blue
Satin Black	Beige
Russet	Dark Brown

Standard colors for laminated tops:
Eggshell Walnut
Teak

5. Call, FAX or mail your order to Equipto Electronics Corporation.

6. Need assistance? Call us and an

experienced customer service representative will answer your questions. Or, if needed, one of our design engineers can consult with you by phone or FAX, at no charge, on any size order.

7. Custom designs and special modifications are available upon request. Call for quotations and lead times.

As extensive as the selection is, it's only a representation of the thousands of choices to be found on a single page of our full line 304-page Equipto Electronics catalog. If you would like a copy, simply phone or FAX and we will be happy to provide it. We can also send our Engineering Design Kit that includes our catalog, an Easy Order/Quote Form, technical and pricing information and actual samples of corner assemblies and hardware for construction comparison.

Have questions about EMI/RFI FCC, Military, TEMPEST or EMP requirements? Our EMI/RFI Technical Guide answers the most common ones. Or telephone one of our design engineers for FREE consultation.

Phone now (708) 897-4691
Or FAX (708) 897-5314

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Committed to Excellence Since 1960
EQUIPTO Electronics Corporation®

Heavy Duty Vertical Racks

EXPRESS LINE 5 Day Service

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EQUIPTO Electronics Corporation®

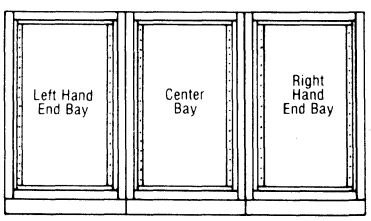
19" Wide Panels 24", 29" & 36" Deep

Heavy Duty Vertical Racks may be purchased in single or multi-bay combinations. Each bay is shipped assembled and comes complete with a frame with four panel mounting angles, frame base, side panels (as required), full length rear left hand door with lock and a top panel.

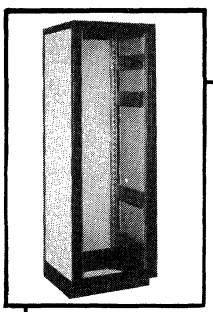
You may order your unit with ventilating louvers in which case it comes standard with louvered top and bottom side panels and rear left hand doors and fully louvered top panel.

The standard finish is textured baking enamel in a color of your choice from page **C**•1041.

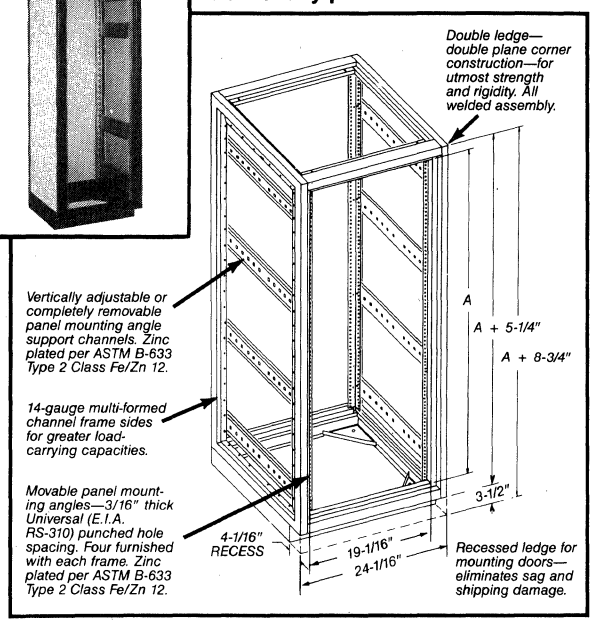
Multi-bay assemblies are shipped in individual cartons and include all necessary joining hardware.



This is a typical assembly of three cabinets

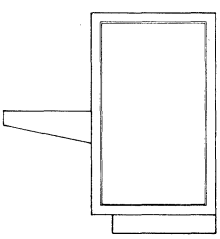


Commitment to quality... the hidden features that make EQUIPTO the industry pacesetter...



24" DEEP 19" Wide Vertical Rack Cabinets

SIZE OF FRONT & REAR PANEL OPENINGS Height "A"	PLAIN PANELS				LOUVERED PANELS			
	SINGLE BAY (2 side panels)	END BAY LEFT HAND (1 side panel)	CENTER BAY (No side panels)	END BAY RIGHT HAND (1 side panel)	SINGLE BAY (2 side panels)	END BAY LEFT HAND (1 side panel)	CENTER BAY (No side panels)	END BAY RIGHT HAND (1 side panel)
56⅛	XVS-156-24P	XVL-156-24P	XVC-156-24P	XVR-156-24P	XVS-156-24L	XVL-156-24L	XVC-156-24L	XVR-156-24L
63⅛	XVS-163-24P	XVL-163-24P	XVC-163-24P	XVR-163-24P	XVS-163-24L	XVL-163-24L	XVC-163-24L	XVR-163-24L
70⅛	XVS-170-24P	XVL-170-24P	XVC-170-24P	XVR-170-24P	XVS-170-24L	XVL-170-24L	XVC-170-24L	XVR-170-24L
77⅛	XVS-177-24P	XVL-177-24P	XVC-177-24P	XVR-177-24P	XVS-177-24L	XVL-177-24L	XVC-177-24L	XVR-177-24L
84⅛	XVS-184-24P	XVL-184-24P	XVC-184-24P	XVR-184-24P	XVS-184-24L	XVL-184-24L	XVC-184-24L	XVR-184-24L



To order laminated shelves *see page C•1049*

29" DEEP 19" Wide Vertical Rack Cabinets

SIZE OF FRONT & REAR PANEL OPENINGS Height "A"	PLAIN PANELS				LOUVERED PANELS			
	SINGLE BAY (2 side panels)	END BAY LEFT HAND (1 side panel)	CENTER BAY (No side panels)	END BAY RIGHT HAND (1 side panel)	SINGLE BAY (2 side panels)	END BAY LEFT HAND (1 side panel)	CENTER BAY (No side panels)	END BAY RIGHT HAND (1 side panel)
56⅛	XVS-156-29P	XVL-156-29P	XVC-156-29P	XVR-156-29P	XVS-156-29L	XVL-156-29L	XVC-156-29L	XVR-156-29L
63⅛	XVS-163-29P	XVL-163-29P	XVC-163-29P	XVR-163-29P	XVS-163-29L	XVL-163-29L	XVC-163-29L	XVR-163-29L
70⅛	XVS-170-29P	XVL-170-29P	XVC-170-29P	XVR-170-29P	XVS-170-29L	XVL-170-29L	XVC-170-29L	XVR-170-29L
77⅛	XVS-177-29P	XVL-177-29P	XVC-177-29P	XVR-177-29P	XVS-177-29L	XVL-177-29L	XVC-177-29L	XVR-177-29L
84⅛	XVS-184-29P	XVL-184-29P	XVC-184-29P	XVR-184-29P	XVS-184-29L	XVL-184-29L	XVC-184-29L	XVR-184-29L

When casters are specified, dual wheel mar-proof casters are standard and have a rating of 200 pounds each. A flush caster base will be supplied in place of a recessed base when casters are ordered. 4 required for each bay.

If casters are required, add the suffix-C to the assembly number.
Example: XVS-156-24P-C

36" DEEP 19" Wide Vertical Rack Cabinets

SIZE OF FRONT & REAR PANEL OPENINGS Height "A"	PLAIN PANELS				LOUVERED PANELS			
	SINGLE BAY (2 side panels)	END BAY LEFT HAND (1 side panel)	CENTER BAY (No side panels)	END BAY RIGHT HAND (1 side panel)	SINGLE BAY (2 side panels)	END BAY LEFT HAND (1 side panel)	CENTER BAY (No side panels)	END BAY RIGHT HAND (1 side panel)
56⅛	XVS-156-36P	XVL-156-36P	XVC-156-36P	XVR-156-36P	XVS-156-36L	XVL-156-36L	XVC-156-36L	XVR-156-36L
63⅛	XVS-163-36P	XVL-163-36P	XVC-163-36P	XVR-163-36P	XVS-163-36L	XVL-163-36L	XVC-163-36L	XVR-163-36L
70⅛	XVS-170-36P	XVL-170-36P	XVC-170-36P	XVR-170-36P	XVS-170-36L	XVL-170-36L	XVC-170-36L	XVR-170-36L
77⅛	XVS-177-36P	XVL-177-36P	XVC-177-36P	XVR-177-36P	XVS-177-36L	XVL-177-36L	XVC-177-36L	XVR-177-36L
84⅛	XVS-184-36P	XVL-184-36P	XVC-184-36P	XVR-184-36P	XVS-184-36L	XVL-184-36L	XVC-184-36L	XVR-184-36L

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Challenger® Vertical Racks

EXPRESS LINE 5 Day Service

Committed to Excellence Since 1960
EQUIPTO Electronics Corporation®

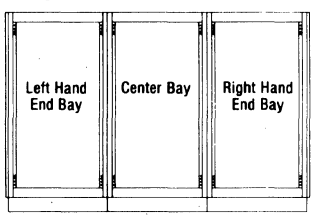
19" Wide Panels 25½" & 30¾" Deep

Challenger Vertical Racks may be purchased in single or multi-bay combinations. Each bay is shipped assembled and comes complete with a frame with four panel mounting angles, frame base, universal side panels (as required), full length face mounted left hand rear door and top panel.

You may order your unit with ventilating louvers in which case it comes standard with louvered top and bottom side panels and left hand rear door and top panel.

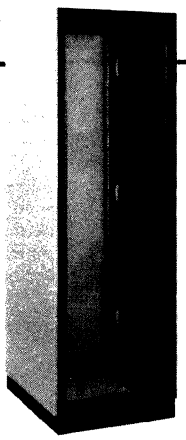
The standard finish is textured baking enamel in a color of your choice from those stated on page **C•1045**

Multi-bay assemblies are shipped in individual cartons and include all necessary joining hardware.



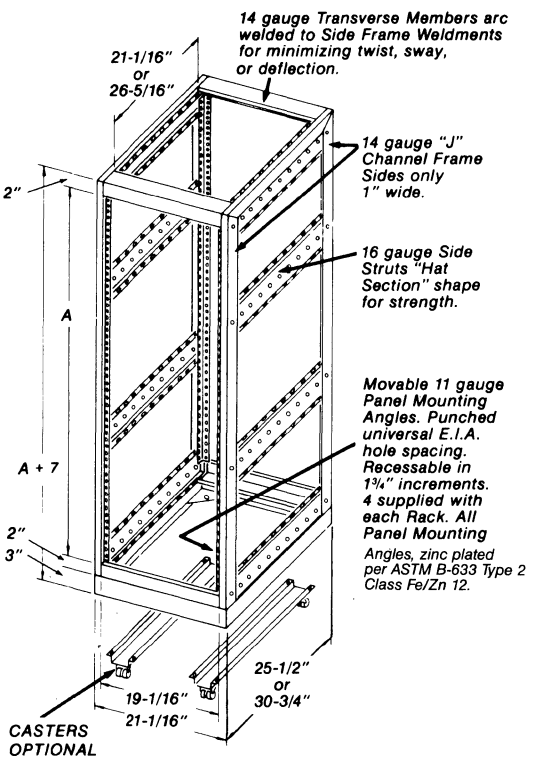
This is a typical assembly of three cabinets

*If casters are required add the suffix -C to the assembly number.
Example: XV-S221-3P-C



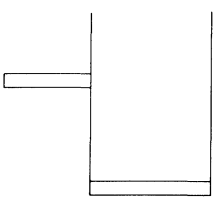
NOTE:
Universal side panels are externally removable with a slide-lift motion with provisions for fastening internally. Two side panels add 1¼" to overall width of cabinet.

POSITIVE DOOR LATCHING IS STANDARD. *There are no rubber, plastic or magnetic parts used which could prevent U.L. or OSHA acceptance. Also, metal-to-metal provides grounding that other methods do not.*



25½" DEEP 19" Wide Vertical Rack Cabinets

SIZE OF FRONT & REAR PANEL OPENINGS Height "A"	PLAIN PANELS				LOUVERED PANELS			
	SINGLE BAY	END BAY LEFT HAND	CENTER BAY NO SIDE PANELS	END BAY RIGHT HAND	SINGLE BAY	END BAY LEFT HAND	CENTER BAY NO SIDE PANELS	END BAY RIGHT HAND
22⅞	XV-S221-3P	XV-L221-3P	XV-C221-3P	XV-R221-3P	XV-S221-3L	XV-L221-3L	XV-C221-3L	XV-R221-3L
35⅛	XV-S351-3P	XV-L351-3P	XV-C351-3P	XV-R351-3P	XV-S351-3L	XV-L351-3L	XV-C351-3L	XV-R351-3L
52⅝	XV-S521-3P	XV-L521-3P	XV-C521-3P	XV-R521-3P	XV-S521-3L	XV-L521-3L	XV-C521-3L	XV-R521-3L
61⅜	XV-S611-3P	XV-L611-3P	XV-C611-3P	XV-R611-3P	XV-S611-3L	XV-L611-3L	XV-C611-3L	XV-R611-3L
70⅛	XV-S701-3P	XV-L701-3P	XV-C701-3P	XV-R701-3P	XV-S701-3L	XV-L701-3L	XV-C701-3L	XV-R701-3L
78⅞	XV-S781-3P	XV-L781-3P	XV-C781-3P	XV-R781-3P	XV-S781-3L	XV-L781-3L	XV-C781-3L	XV-R781-3L



*To order laminated shelves see page **C•1049***

30¾" DEEP 19" Wide Vertical Rack Cabinets

SIZE OF FRONT & REAR PANEL OPENINGS Height "A"	PLAIN PANELS				LOUVERED PANELS			
	SINGLE BAY	END BAY LEFT HAND	CENTER BAY NO SIDE PANELS	END BAY RIGHT HAND	SINGLE BAY	END BAY LEFT HAND	CENTER BAY NO SIDE PANELS	END BAY RIGHT HAND
22⅞	XV-S221-4P	XV-L221-4P	XV-C221-4P	XV-R221-4P	XV-S221-4L	XV-L221-4L	XV-C221-4L	XV-R221-4L
35⅛	XV-S351-4P	XV-L351-4P	XV-C351-4P	XV-R351-4P	XV-S351-4L	XV-L351-4L	XV-C351-4L	XV-R351-4L
52⅝	XV-S521-4P	XV-L521-4P	XV-C521-4P	XV-R521-4P	XV-S521-4L	XV-L521-4L	XV-C521-4L	XV-R521-4L
61⅜	XV-S611-4P	XV-L611-4P	XV-C611-4P	XV-R611-4P	XV-S611-4L	XV-L611-4L	XV-C611-4L	XV-R611-4L
70⅛	XV-S701-4P	XV-L701-4P	XV-C701-4P	XV-R701-4P	XV-S701-4L	XV-L701-4L	XV-C701-4L	XV-R701-4L
78⅞	XV-S781-4P	XV-L781-4P	XV-C781-4P	XV-R781-4P	XV-S781-4L	XV-L781-4L	XV-C781-4L	XV-R781-4L

Phone for FREE IBM PC compatible Electronic Enclosure Design Program

When ordered, dual wheel mar-proof casters are standard and rated at 200 pounds each. 4 required for each bay.

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Challenger®
15° Sloped Front Consoles

EXPRESS LINE 5 Day Service

Committed to Excellence Since 1960
EQUIPTO Electronics Corporation®

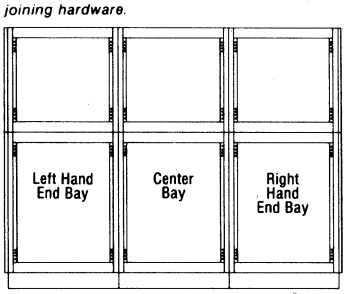
25½" & 30¾" Deep

Challenger Slope Front Consoles may be purchased in single or multi-bay combinations. The slope of the front panel is 15° from the vertical. Each bay is shipped assembled and comes complete with a frame with six panel mounting angles, frame base, universal side panels (as required), full length face mounted left hand rear door, and top panel.

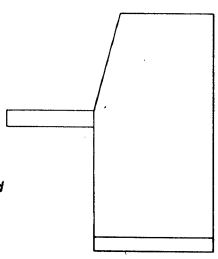
You may order your unit with ventilating louvers in which case it comes standard with louvers at bottom of the side panels, louvered top and bottom left hand rear door, and louvered top panel.

The standard finish is textured baking enamel in a color of your choice from those stated on page **C•1045**

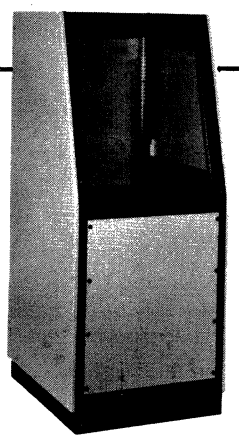
Multi-bay assemblies are shipped in individual cartons and include all necessary joining hardware.

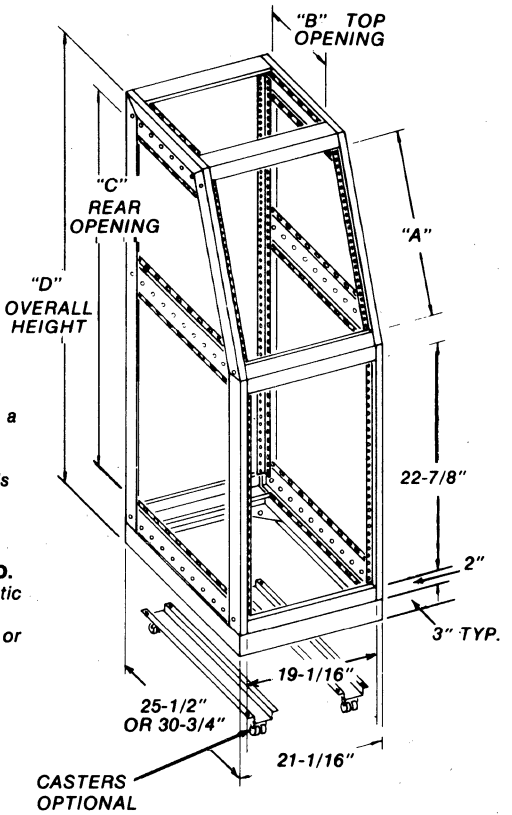


This is a typical assembly of three cabinets



To order laminated console shelves see page C•1049





NOTE:
Universal side panels are externally removable with a slide-lift motion with provisions for fastening internally. Two side panels add 1¼" to overall width of cabinet.

POSITIVE DOOR LATCHING IS STANDARD. *There are no rubber, plastic or magnetic parts used which could prevent U.L. or OSHA acceptance. Also, metal-to-metal provides grounding that other methods do not.*

19" WIDE PANEL SPACE				
DEPTH	A	B	C	D
25½	17⅝	15 13/16	43⅞	50⅞
30¾	17⅝	21 1/16	43⅞	50⅞
25½	21⅛	14 1/16	47⅜	54⅜
30¾	21⅛	19 5/16	47⅜	54⅜

*If casters are required add the suffix -C to the assembly number.
Example: XS-S171-3P-C

Phone for FREE IBM PC compatible Electronic Enclosure Design Program

25½" & 30¾" DEEP 19" Wide 15° Sloped Front Consoles

DEPTH	HEIGHT OF SLOPED OPENING "A"	PLAIN PANELS				LOUVERED PANELS			
		SINGLE BAY	END BAY LEFT HAND	CENTER BAY NO SIDE PANELS	END BAY RIGHT HAND	SINGLE BAY	END BAY LEFT HAND	CENTER BAY NO SIDE PANELS	END BAY RIGHT HAND
25½"	17⅝ 21⅛	XS-S171-3P XS-S211-3P	XS-L171-3P XS-L211-3P	XS-C171-3P XS-C211-3P	XS-R171-3P XS-R211-3P	XS-S171-3L XS-S211-3L	XS-L171-3L XS-L211-3L	XS-C171-3L XS-C211-3L	XS-R171-3L XS-R211-3L
30¾"	17⅝ 21⅛	XS-S171-4P XS-S211-4P	XS-L171-4P XS-L211-4P	XS-C171-4P XS-C211-4P	XS-R171-4P XS-R211-4P	XS-S171-4L XS-S211-4L	XS-L171-4L XS-L211-4L	XS-C171-4L XS-C211-4L	XS-R171-4L XS-R211-4L

When ordered, dual wheel mar-proof casters are standard and rated at 200 pounds each. 4 required for each bay.

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Laminated Shelves/ Instrument Cabinets

EXPRESS LINE 5 Day Service

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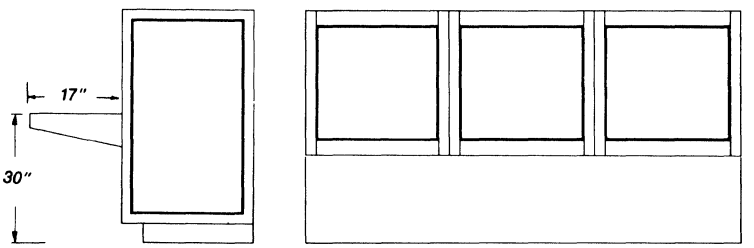
Laminated Shelves for Heavy Duty Racks

Laminated Plastic Console Shelves are available in single, double or triple width units, for single or multiple cabinet assemblies. The support arms, frame adaptor panels, and lower front knee space panel are painted to match cabinet colors.

Laminated Plastic Shelves are constructed of ¾" thick particle board with a solid eggshell laminated plastic sheet bonded to the top, front and sides. These Console Shelves are attached to the cabinet frame with rugged 14 gauge steel support arms. They are bolted directly to the 3/16" thick Panel Mounting Angles for positive support. The support arms do not project into the interior of the cabinet frame to interfere with equipment location or installation. The assembly includes knee space panel to enclose panel opening under the shelf. The Laminated Plastic Shelves and mounting arms are shipped with all mounting hardware included.

Can be assembled to all H.D. Vertical Racks shown on page **C•1042**



Vertical Rack Cabinets

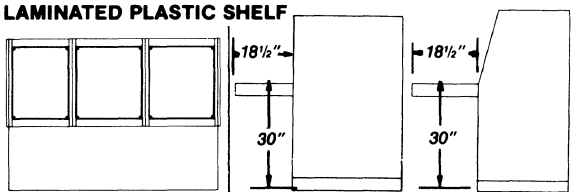
Triple-Width Laminated Plastic Console Shelf attached to three bay cabinet assembly

LAMINATED PLASTIC CONSOLE SHELVES—FOR H.D. VERTICAL RACK		
FOR A SINGLE FRAME ONLY	FOR TWO FRAMES JOINED SIDE BY SIDE	FOR THREE FRAMES JOINED SIDE BY SIDE
Width of Panel Space 19"	Width of Panel Space 19"	Width of Panel Space 19"
XW1-V19-017	XW2-V19-017	XW3-V19-017

Laminated Shelves for Challenger Racks & Consoles

Challenger Console Shelves constructed of white Laminated Plastic are supported with a mounting arm and bracket system. The one piece white laminated plastic top surface and the laminated plastic sides and front edge make an easily maintained, attractive work area. Made of particle board with laminated plastic sheet bonded to the top and edge surfaces. The mounting parts and lower front knee panel are painted to match cabinet colors and are shipped installed in the cabinet; the Laminated Plastic Shelves and Mounting Arms are shipped separately with all mounting hardware included.

LAMINATED PLASTIC SHELF



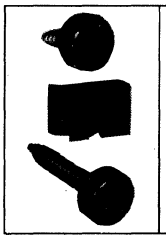
Triple-Width Laminated Plastic console shelf attached to three bay cabinet assembly

Can be assembled to all. Challenger cabinets shown on pages **C•1047 & C•1048**

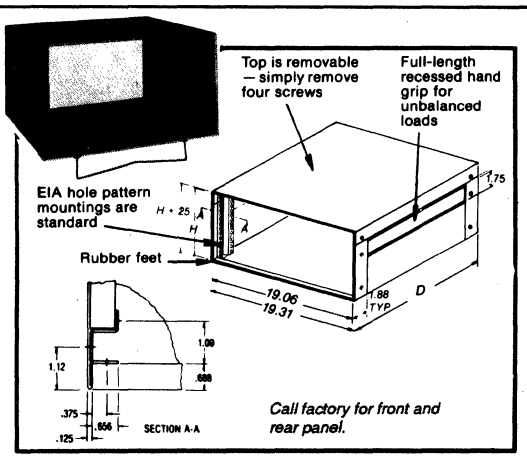
WORK/WRITING SHELVES—LAMINATED PLASTIC FOR CHALLENGER ASSEMBLIES				
FOR CABINET FRAMES WITH A 19" WIDE PANEL SPACE				
TYPE OF CABINET	OVERALL DEPTH OF FRAMES	FOR A SINGLE FRAME ONLY PART NO.	FOR TWO FRAMES JOINED SIDE BY SIDE PART NO.	FOR THREE FRAMES JOINED SIDE BY SIDE PART NO.
Vertical Rack	25½ 30¾	XW-1V25-18 XW-1V30-18	XW-2V25-18 XW-2V30-18	XW-3V25-18 XW-3V30-18
Sloped Console	25½ 30¾	XW-1S25-18 XW-1S30-18	XW-2S25-18 XW-2S30-18	XW-3S25-18 XW-3S30-18

Instrument Cabinets

Instrument cabinets are constructed of 16 ga. steel and come with 4 panel mounting angles, zinc plated. Standard finish is textured baking enamel in a color of your choice from color chart on page **C•1045**



Mar-Proof Screws for mounting 1/8" flat or 5/8" formed instrument panels Phillips head, sheet metal screws, with recessed Mar-Proof black nylon washers, and Speed Nut® part 80-0414-03 are used to fasten instrument panels to punched panel mounting angles. Screw 80-0101-05 108 x 1⅛" is used with 5/8" formed panels; screw 80-0102-05 108 x 5/8" is used with 1/8" panels. Screws are nickel plated.



Call factory for front and rear panel.

19" Wide Instrument Cabinets

Vert. Panel Opening "H"	19.06 PANEL OPENING WIDTH	
	"D" = 18.5	"D" = 22.0
5.34	SC-1918-05	SC-1922-05
7.09	SC-1918-07	SC-1922-07
8.84	SC-1918-08	SC-1922-08
10.59	SC-1918-10	SC-1922-10
12.34	SC-1918-12	SC-1922-12
14.09	SC-1918-14	SC-1922-14
15.84	SC-1918-15	SC-1922-15
17.59	SC-1918-17	SC-1922-17
19.34	SC-1918-19	SC-1922-19
21.09	SC-1918-21	SC-1922-21

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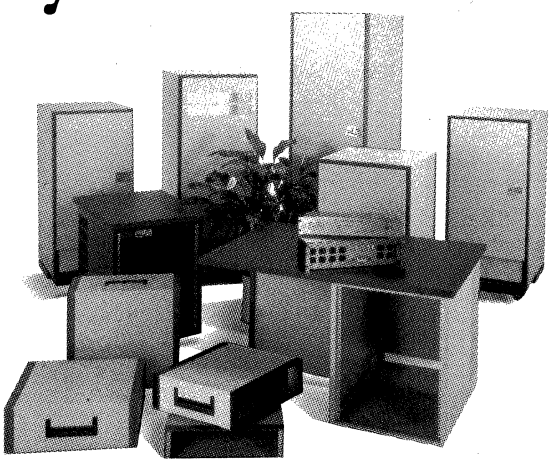

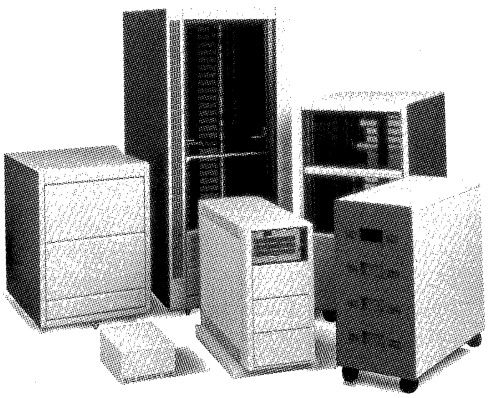

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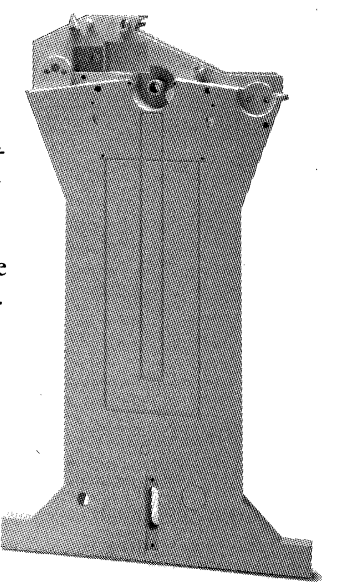

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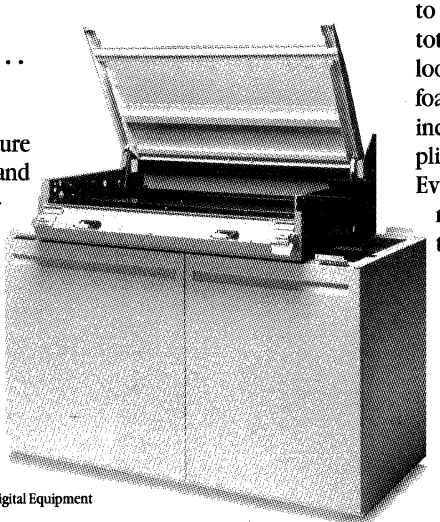
Everest can manufacture from your drawings and assist you with engineering and budget solutions. Our custom products division operates under the World Class Just In Time Program.



*DEC – Registered trademark of Digital Equipment Corporation
**Sun – Registered trademark of Sun Microsystems, Inc.

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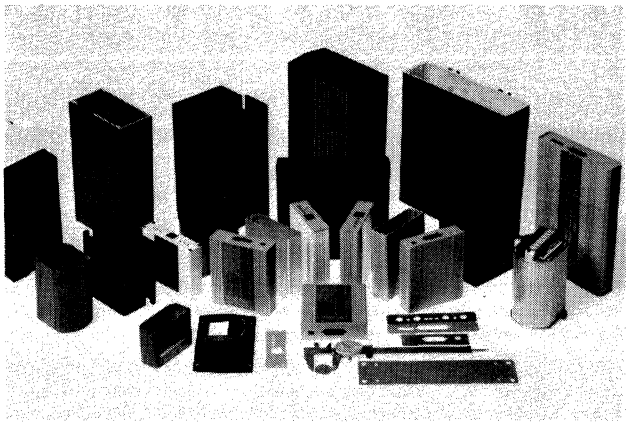
EXTRUDED ALUMINUM STANDARD & CUSTOM ENCLOSURES

MODEMS

COMPUTER PERIPHERALS

MEDICAL ELECTRONICS

ELECTRONIC INSTRUMENTS



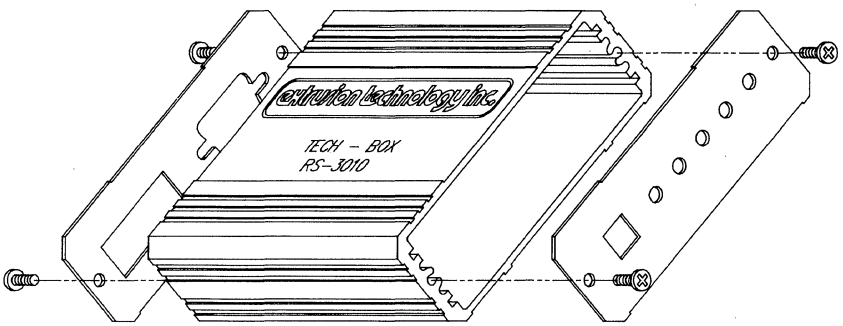
INSTRUMENT CASES

BAR CODING MODULES

HAND HELD CONTROLLERS

RUGGED CONNECTORS

COMPLETELY FABRICATED SYSTEM



RS-3010 "Tech Box" (Patent Pending)

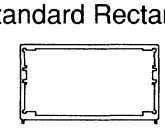
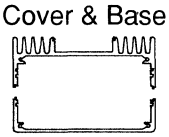
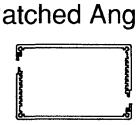
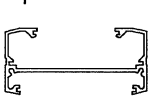
"TECH-BOX" — SPECIFICATIONS

MODEL	OUTSIDE WIDTH	OUTSIDE HEIGHT	CARD WIDTH	CARD SPACE BELOW	CARD SPACE TOP	CARD SLOTS	LABEL WIDTH	SCREW HOLES
RS–3010	3.275"	1.120"	3.00"	.125"	.750"	2	1.50"	2
RS–5010	5.275"	1.120"	5.00"	.125"	.750"	2	2.50"	2
RS–4025	4.245"	2.720"	4.00"	.213"	2.210"	11	2.00"	4
RS–6520	6.762"	2.280"	6.50"	.363"	1.560"	7	2.50"	4

ADVANTAGES OF EXTRUDED ENCLOSURES

- Cut to Any Desired Length
- Circuit Cards Slide into Slots
- Panels Included—Custom Configuration
- Variety of Finishes & Fasteners
- No Extrusion Tooling/Die Charges
- Integral RFI/EMI Shielding
- Attractive & Lightweight
- Grooves for Rubber Feet
- Detents for Applying Label
- Ship From Stock

WE ALSO OFFER CUSTOM SHAPE PROFILES TO YOUR OWN SPECIFICATIONS

Standard Rectangle	Cover & Base	Matched Angles	Open Ended
			

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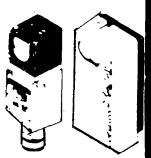
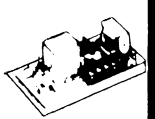
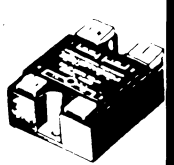

PHOTOELECTRICS

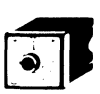
RELAYS


LIQUID LEVEL CONTROLS


SOLID STATE RELAYS

TERMINAL BLOCKS

TEMPERATURE CONTROLS


TIMERS

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Curtis

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Allied Controls
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Syracuse Electronics

TERMINAL BLOCKS
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Curtis
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Magnum
Marco
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Underwriters Safety
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TRANSFORMERS
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Alpha
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Electrovert
Havey Hubbell
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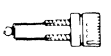
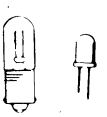
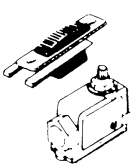
Pomona


CIRCUIT BREAKERS FUSES & FUSEHOLDERS

KNOBS


LAMPS & LEDS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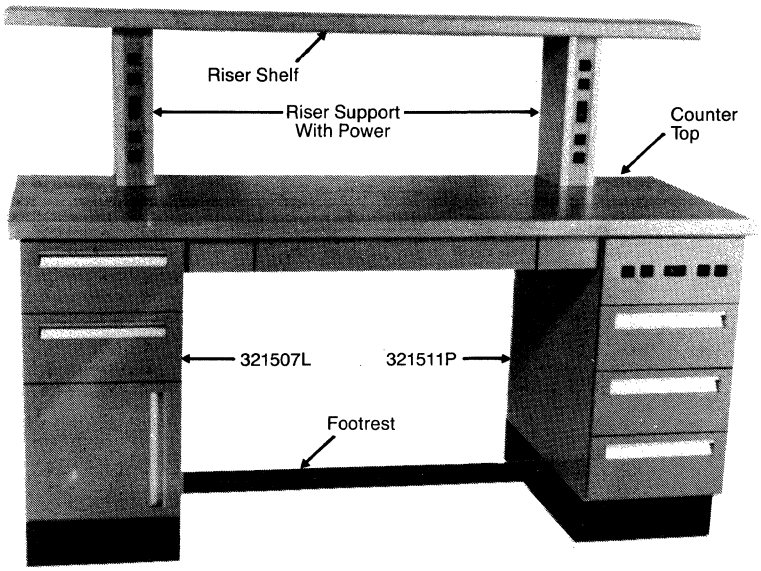
3 Angle-Tech® Electronic Workbenches offer the quality, durability, beauty, and functional efficiency you desire to bring pride to the tech area.



The AT8AM
Angle-Tech Electronic Workbench

4 Angle-Tech® combines quality materials, creative engineering, experienced manufacturing personnel, and factory trained sales and design force for an unbeatable end result.

5 Drawer suspension is comprised of two-member ball bearing slides, allowing 80% clear access to the drawer body. File drawers project beyond the pedestal for maximum access to contents. All drawers and doors have bumpers for quiet operation. All pulls recessed for safety and convenience.

6 Fabricated steel parts and assemblies are pre-treated in a five-stage spray cleaner and bonderizing unit, heat dried, then fully immersed in an electrodeposition water-based epoxy resin paint and baked to obtain a uniform base coat. A finished coat of baked-on electro-static applied alkyd base enamel paint in standard Angle-Tech® colors or special colors is applied to exterior surfaces. Standard underbase color is black.

The AT8AM Angle-Tech Electronic Workbench - One of a Multitude of Configurations Available

Whether your need is for a single workstation or a complete multi-room facility, we are capable of meeting your needs. Our staff is unsurpassed in its ability to answer your questions and assist you with a layout and design to meet your specific needs. To find out more about our quality product and dedication to service, please call or write to receive our catalog and specifications.

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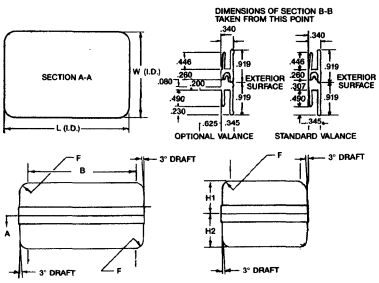
INDUSTRY STANDARD CASES

HEAVY DUTY TRANSIT CASES

MODEL	W	L	H1	H2	AVAIL. FOR W & H
GH0508RP-1	5	8	2-1/8 to 2-1/2	2-1/8 to 3-1/2	
GH0608RP-1	6-7/8	8-7/8	3-1/4 to 5-3/4	3-1/4 to 5-3/4	
GH0710RP-3	7-1/8	10-3/4	2-3/8 to 5-1/2	2-3/8 to 5-1/2	
GH0710RP-2	7-3/16	10-1/2	2-1/4 to 4 6 to 8	2-1/4 to 4 6 to 8	
GH0713RP-1	7-1/16	13	2-1/4 to4 4-1/2 to 6	2-1/4 to 4 4-1/2 to 6	
GH0715RP-2	7-3/16	15-1/16	2-1/8 to 3-1/4 4 to 5-1/8	2-1/8 to 3-1/4 4 to 5-1/8	
GH0716RP-1	7-5/16	16-13/16	1-12/ to 1-7/8 4-1/2 to 6-3/4	1-12/ to 1-7/8 4-1/2 to 6-3/4	
GH0718RP-1	7	18-1/16	2-1/4 to 4 4-1/2 to 6	2-1/4 to 4 4-1/2 to 6	
GH0818RP-1	8-3/4	18-7/8	4-3/8 to7	4-3/8 to7	
GH0912RP-1	9	12-1/2	4 to 5	4 to 5	
GH0933RP-1	9-5/8	33-5/8	4-1/2 to 6-1/2	4-1/2 to 6-1/2	
GH1012RP-1	10-3/8	12-7/8	2 to 4, 5-1/2 to 7	2 to 4, 5-1/2 to 7	
GH1016RP-2	10-5/8	16-9/16	2-3/4 to 4	2-3/4 to 4	
GH1120RP-2	11-1/2	20-11/16	3 to 5-3/8	3 to 5-3/8	
GH1128RP-2	11-3/4	28-3/4	2-1/2 to 4-1/2	2-1/2 to 4-1/2	
GH1217RP-2	12-7/16	17-7/16	2-1/4 to 3-1/2	2-1/4 to 3-1/2	
GH1218RP-2	12-15/16	18-1/8	2-1/4 to 3-11/16 4 to 6	2-1/4 to 3-11/16 4 to 6	
GH1219RP-2	12-1/16	19-13/16	2 to 4	2 to 4	
GH1220RP-2	12-7/16	20-7/16	2-1/2 to 5-1/4 9 to 12	2-1/2 to 5-1/4 9 to 12	
GH1313RP-1	13-5/6	13-7/8	4-3/8 to 5-1/4	4-3/8 to 5-1/4	
GH1314RP-2	14-7/16	13-7/8	3-1/8 to 4 6-1/4 to 6-3/4	3-1/8 to 4 4-1/4 to 6-3/4	
GH1317RP-2	13-3/4	17	3-1/4 to 4	3-1/4 to 4	
GH1319RP-1	13	19-3/8	3-7/8 to 5	3-7/8 to 5	
GH1330RP-2	13-7/8	30-7/8	4 to 6-7/16	4 to 6-7/16	X
GH1419RP-2	14	19-7/16	3-1/4 to 3-3/4 4-1/4 to6 7-5/8 to 9-1/2	3-1/4 to 3-3/4 4-1/4 to6 7-5/8 to 9-1/2	

MODEL	W	L	H1	H2	AVAIL. FOR W & H
GH1420RP-2	14	20	4-3/16 to 5-1/2	4-3/16 to 5-1/2	
GH1421RP-2	14-1/8	21-1/2	3-3/4 to 5-3/4 2-1/4 to 3-1/2	3-3/4 to 5-3/4 2-1/4 to 3-1/2	
GH1423RP-2	14-7/16	23-34/	3-1/8 to 5-1/2 4-3/16 to 6-5/16	3-1/8 to 5-1/2 4-3/16 to 6-5/16	X
GH1435RP-2	14	35	3 to 6	3 to 6	X
GH1617RP-2	16-1/2	17-3/4	3-1/8 to 4-3/8 6-1/8 to 8	3-1/8 to 4-3/8 6-1/8 to 8	
GH1622RP-2	16-1/2	22-3/8	3-1/2 to 4 4-1/2 to 5-3/4 6-1/4 to 8-5/16	3-1/2 to 4 4-1/2 to 5-3/4 6-1/4 to 8-5/16	
GH1624RP-2	16-3/8	24-3/4	3-3/4 to 5-1/2 6 to 8-1/2	3-3/4 to 5-1/2 6 to 8-1/2	X
GH1626RP-2	16-3/8	26	3-3/4 to 5	3-3/4 to 5	X
GH1727RP-2	17-13/16	27-3/4	3-3/4 to 4-3/8 5-1/2 to 7	3-3/4 to 4-3/8 5-1/2 to 7	X
GH1749RP-2	17	49-1/2	4 to 6	4 to 6	X
GH1752RP-2	17-9/16	52-3/4	3 to 5	3 to 5	X
GH1823RP-2	18-1/8	23-7/8	3-3/4 to 5-3/8 5-1/2 to 7-1/2 10 to 13-1/4	3-3/4 to 5-3/8 5-1/2 to 7-1/2 10 to 13-1/4	X
GH2020RP-2	20-13/16	20-13/16	4-1/2 to 5	4-1/2 to 5	X
GH2031RP-2	20	31	5-1/2 to 7-1/2	5-1/2 to 7-1/2	X
GH2122RP-2	21-3/16	22-5/8	2 to 3	2 to 3	
GH2126RP-2	21-1/2	26-1/2	2-1/4 to 4	2-1/4 to 4	
GH2238RP-2	22	38-13/16	4 to 6-1/2	4 to 6-1/2	X
GH2325RP-2	23	25	5-1/4 to 7-3/16	5-1/4 to 7-3/16	X
GH2424RP-2	24-3/4	24-3/4	4 to 6	3 to 6	X
GH2433RP-2	24-1/2	33-1/2	2-1/2 to 3-1/8	2-1/2 to 3-1/8	
GH2440RP-2	24-3/4	40-3/4	3-1/4 to 4-1/2	3-1/4 to 4-1/2	
GH2448RP-2	24-3/4	48-3/4	3 to 5	3 to 5	X
GH2530RP-2	25-1/8	30-1/8	5-1/4 to 7	5-1/4 to 7	X
GH2841RP-2	28	41	5 to 7	5 to 7	X
GH2929RP-2	29	29	10 to 13	10 to 13	X
GH4048RP-2	40-3/4	48-3/4	2-1/2 to 4-1/2	2-1/2 to 4-1/2	

Gemini's standard line of **HEAVY DUTY TRANSIT CASES** are constructed from high density polyethylene, and extremely tough and resilient material ideally suited to the abuses transit cases are subjected to. The heavy wall (.100" nominal) shells and heavy duty 1.838" wide #6063 T52 aluminum valance combine to form a container capable of transporting delicate portable instruments under the most adverse conditions. Available with recessed wheels and folding handle.



HEAVY DUTY CARRYING CASE

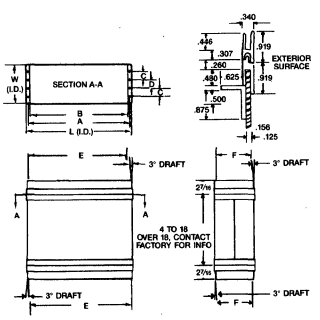
MODEL	W	L	H1	H2
GH0511R-1	5-7/8	11-3/8	3 to 3-3/4 7-1/4 to 8	3 to 3/4 7-1/4 to 8
GH0617R-1	6-1/8	17-1/8	2-5/8 to 2-15/16	2-5/8 to 2-15/16
GH0710R-1	7-1/2	10	3-1/8 to 3-3/8 4-3/16 to 5-3/8	3-1/8 to 3-3/8 4-3/16 to 5-3/8
GH0813R-2	8-5/8	13-7/8	2-3/4 to 3-1/4 5-1/2 to 6-1/2	2-3/4 to 3-1/4 5-1/2 to 6-1/2
GH0814R-2	8-11/16	14	4 to 5-1/16	4 to 5-1/16
GH0830R-1	8-13/16	30-11/16	1-1/4 to 2-3/4	1-1/4 to 2-3/4
GH0909R-1	9-7/8	9-7/8	2-11/16 to 3-9/16	2-11/16 to 3-9/16
GH0912R-1	9-1/16	12-1/16	1-1/2 to 1-3/4 3-1/4 to 3-3/4	1-1/2 to 1-3/4 7 to 13/16
GH0914R-1	9-1/4	14	2-1/2 to 2-3/4, 3-1/2 to 6, 6-7/16 to 7-3/8	2-1/2 to 2-3/4, 3-1/2 to 6, 6-7/16 to 7-3/8
GH0916R-2	9-3/4	16-13/16	1-3/4 to 2-11/16 7-3/4 to 10-3/4	1-3/4 to 2-11/16 7-3/4 to 10-3/4
GH0918R-1	9	18-15/16	2-1/2 to 3-1/2 8-13/16 to 9-9/16	2-1/2 to 3-1/2 8-13/16 to 9-9/16
GH0918R-2	8-1/8	18-1/8	1-3/4 to 4 4 to 7	1-3/4 to 4 4 to7
GH0922R-1	9-5/8	22-11/16	2 to 3-1/16	2 to 3-1/16 6-5/8 to 10-1/2
GH0942R-1	9	42-5/8	1-1/4 to 2	1-1/4 to 2
GH1013R-1	10	13-1/8	2-3/4 to 3-1/2	2-3/4 to 3-1/2
GH1016R-1	10	16-1/16	1-3/4 to 2 7-1/4 to 9-3/8	1-3/4 to 2 7-1/4 to 9-3/8
GH1021R-1	10-1/4	21-15/16	4-3/8 to 5-1/4	4-3/8 to 5-1/4
GH1113R-1	11	13	2-1/4 to 2-3/4 1-5/8 to 2-3/16	2-1/4 to 2-3/4 1-5/8 to 2-3/16
GH1116R-2	11	16-1/2	2-5/8 to 3-15/16, 4 to 6	2-5/8 to 3-15/16, 4 to 6
GH1117R-2	11-5/8	17-1/2	2 to 3-1/4 3-1/2 to 4-3/4	2 to 3-1/4 3-1/2 to 4-3/4
GH1119R-1	11-5/16	19-5/8	2-3/16 to 2-5/8	2-3/16 to 2-5/8
GH1121R-2	11-7/16	20-15/16	3-1/16 to 4-1/16 6-5/8 to 8-13/16	3-1/16 to 4-1/16 6-5/8 to 8-13/16

MODEL	W	L	H1	H2
GH1123R-2	11-11/16	23-3/4	1-1/4 to 2-1/4	1-1/4 to 2-1/4
GH1137R-2	11-7/8	37-3/4	1-1/4 to 2-1/4	1-1/4 to 2-1/4
GH1212R-2	12	12	3-9/16 to 4-1/4	3-9/16 to 4-1/4
FH1217R-3	12-3/4	17-3/4	2 to 3-1/2	2 to 3-1/2
GH1220R-2	12-7/16	20-5/16	3-1/8 to 4	3-1/8 to 4
GH1316R-1	13-13/16	16-13/16	2-5/16 to 3-1/8 3-5/8 to 6-1/4	2-5/16 to 3-1/8 3-5/8 to 6-1/4
GH1318R-2	13	18	3-3/4 to 5-1/4	3-3/4 to 5-1/4
GH1319R-2	13-13/16	19-3/4	2-3/4 to 3-5/8 7-1/4 to 8-1/8	2-3/4 to 3-5/8 7-1/4 to 8-1/8
GH1319R-2	13-7/8	19-5/8	3 to 3/4 4-3/4 to 6 1-1/2 to 2-3/4	3 to 3-3/4 4-3/4 to 6 1-1/2 to 2-3/4
GH1322R-2	13-1/4	22-3/4	3 to 5	3 to 5
GH1417M-1	14-7/8	17-3/4	3-3/4 to 5-3/16	3-3/4 to 5-3/16
GH1419R-2	14-1/4	19-15/16	1-1/4 to 1-9/16 11-1/8 to 13-7/16	1-1/4 to 1-9/16 11-1/8 to 13-7/16
GH1523R-2	15-1/8	23-7/16	2-5/8 to 4-5/8 3-9/16 to 5-13/16	2-5/8 to 4-5/8 3-9/16 to 5-13/16
GH1528R-2	15-1/4	28-1/16	2-5/8 to 4-3/4 6-7/8 to 9-1/16	2-5/8 to 4-3/4 6-7/8 to 9-1/16
GH1631R-2	16	31	4-3/8 to 6-7/8	4-3/8 to 6-7/8
GH1721R-2	17	21	3-1/8 to 5-1/8	3-1/8 to 5-1/8
GH1733R-2	17-13/16	33-3/4	2-1/8 to 2-9/16	2-1/8 to 2-9/16
GH1820R-2	18	20	2 to 3-1/2	2 to 3-1/2
GH1825R-2	18	25-3/4	1-13/16 to 2-13/16 5-1/4 to 6-9/16	1-13/16 to 2-13/16 5-1/4 to 6-9/16
GH1828R-2	18-1/16	28-3/16	3-3/4 to 4-1/2 6-3/4 to 7-1/2	3-3/4 to 4-1/2 6-3/4 to 7-1/2
GH1924R-1	19	24	1-3/4 to 2-3/8 5-1/4 to 6-1/4	1-3/4 to 2-3/8 5-1/4 to 6-1/4
GH2121R-2	21-1/4	21-1/4	5-5/16 to 6-11/16	5-5/16 to 6-11/16
GH2131R-2	21	31	3 to 5	3 to5
GH2639R-2	26-13/16	39-3/16	1-1/4 to 2-13/16 4-11/16 to 5-7/16	4-11/16 to 5-7/16

Gemini's standard line of **HEAVY DUTY CARRYING CASES** are constructed from rugged A.B.S. and feature a heavy wall aluminum valance to provide an extremely rugged case with contemporary lines for transporting delicate portable instruments under the most demanding conditions.

Standard Features include:

- .100" to .150" nominal wall black A.B.S. shells
- variable case depth
- heavy wall 1.838" wide #6063 T52 aluminum valance with dust seal
- choice of handle, latch, hinge and bumpers



HEAVY DUTY RACK MOUNT CASE

MODEL	EIA STANDARD PANEL	INSIDE DIMENSION W	L	C	D
GH0514M	-	5-5/16	14-3/16	-	-
GH0519M	5.219 x 19	5.5/16	19-1/4	2.1/4	-
GH0714M	-	6-15/16	13-11/16	-	-
GH0719M	6.969 x 19	7-1/16	19-1/4	4	-
GH0919M	8.719 x 19	8-13/16	19-1/4	5-3/4	-
GH1119M	10.469 x 19	10-9/16	19-1/4	2-1/4	3
GH1219M	12.219 x 19	12-5/16	19-1/4	3-1/2	2-1/4

Gemini specializes in custom designed cases for industry. We have the capability to design a case specifically for your product and follow through from prototypes to production. If you are currently purchasing a standard case from another manufacturer, we may be able to duplicate that case at a lower cost. We welcome the opportunity to quote your case requirements and to work with you on design.

REUSABLE SHIPPING CONTAINERS Engineered Protection

MODEL	INSIDE DIMENSIONS H1	H2
GT2122RP-RM	5	12
GT1320RP-RM	3	9-1/2
GT1418RP-RM	4	5

RUGGED RACK

MODEL	WIDTH	LENGTH	END CAPS	SECTION CENTER
GH0719RRM	7-1/16	19-1/16	3-3/8 to 3-5/8	12-1/4 to 13-1/4
GH0919RRM	8-31/32	19-1/16	3-1/8 to 4-1/4	16-1/2 to 19

The above sizes are only a partial list, contact GEMINI for a complete catalog. **CALL TOLL FREE: 1-800-533-3631**

GEMINI INCORPORATED

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Cannon Falls, MN 55009-0018
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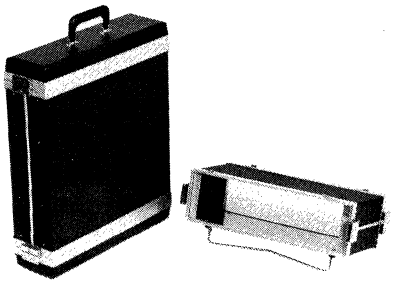
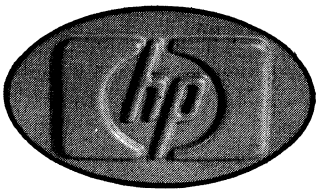
FAX (507) 263-5987

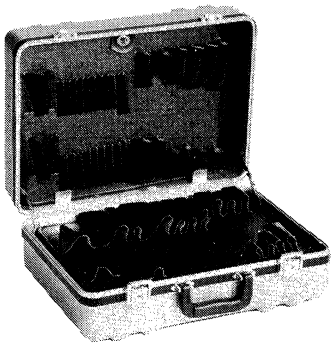
INDUSTRY STANDARD CASES



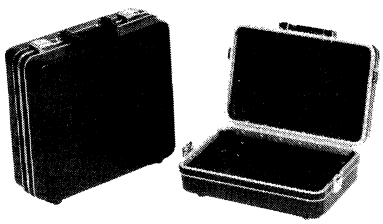
EIA RACK MOUNT CASE



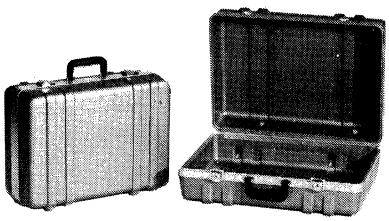
MOLDED LOGOS



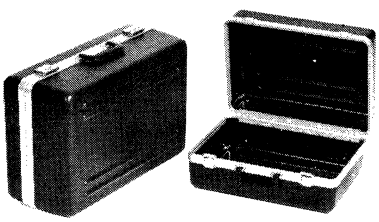
TOOL CASE



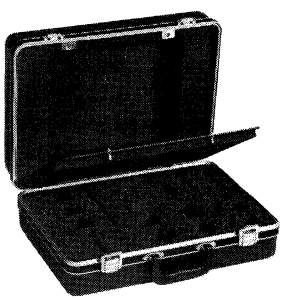
ATTACHE STYLE CASE



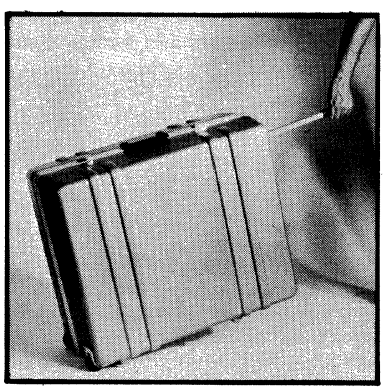
TRANSIT CASE



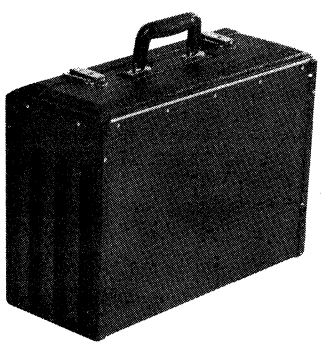
HEAVY DUTY CARRYING CASE



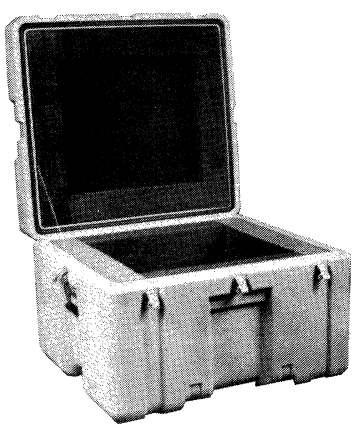
DOORS/HINGED DIVIDERS
DIE-CUT FOAM INSERTS



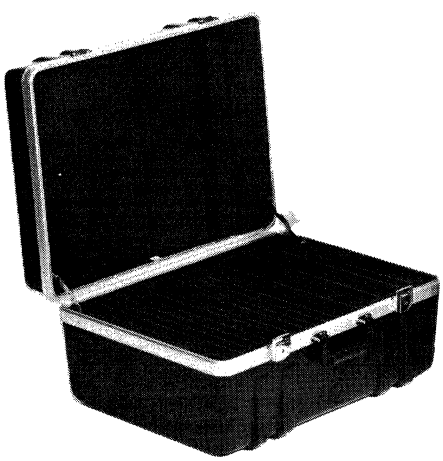
WHEEL CASE



CATALOG CASE



REUSABLE SHIPPING CONTAINER



CIRCUIT BOARD CASE

Contact factory for:

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Special hardware selections available • Special colors • Flame retardant material • Special brackets • Door/dividers/ formed inserts • ATA Style - Rotational molded • EMI/RFI shielding • Foam filled • Foam die cut • Foam molded • Printed circuit board racks • MIL Spec - Metal cases

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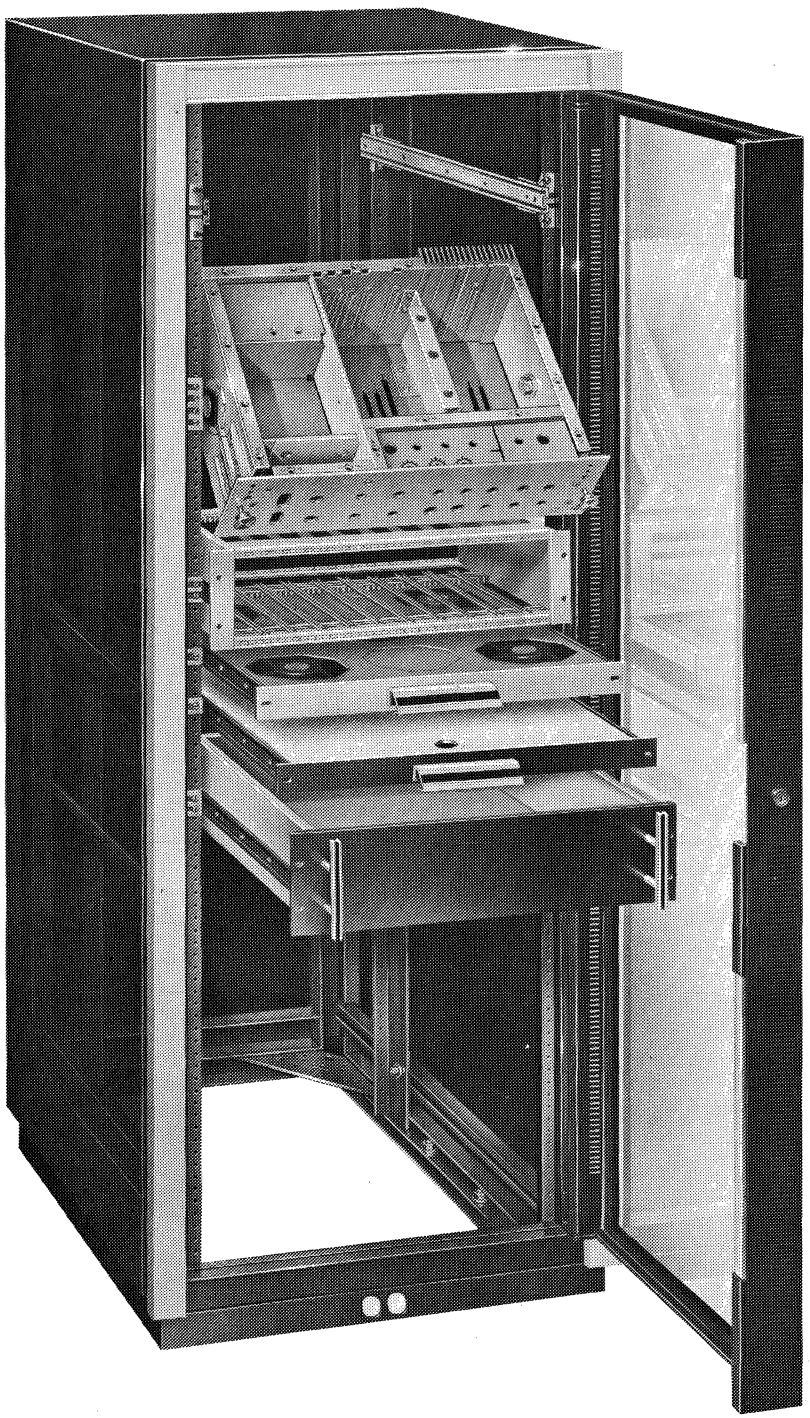

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AURORA

Exciting new design from top to bottom!

- **2U, 4U, and 6U Height Options**
- **Table-Top, Rack-Mount, or Pedestal**
- **3 to 12 VME slots**
- **Monolithic J1/J2 Backplanes**
- **Front Card Loading**
- **Peripheral/Non-Peripheral Options**
- **Quality 4-Output Power Supplies**
- **Aluminum Construction—Modular Light, and Strong**
- **EMI/RFI Tight Metal-to-Metal Contact All Around**
- **Excellent Plenum-Controlled Direct-Flow Cooling**
- **Easily Customized**
- **Easy To Access**
- **Very Quiet Operation**

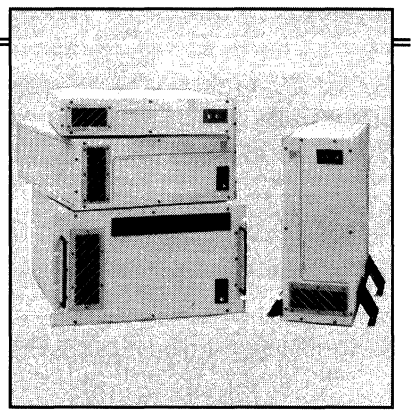
Enclosure Weights:

AV203	12 lbs	AV609	28 lbs
AV405	17 lbs	AV612	22 lbs
AV407	16 lbs		

Power Supply:
Aurora enclosures feature high-quality 4-output switching power supplies.

Backplanes:
Aurora backplanes are 10-layer, monolithic J1/J2.

Peripheral Options Include:
Peripheral Mounting
Front Panel Cutout
Power Harness



PHOENIX

Super for large systems

- **12, and 20 VME Slots**
- **Direct-flow Cooling**
- **Rack-Mount or Table-Top**
- **Peripheral Options**
- **Aluminum Construction**
- **500-, 750-, and 1000-Watt Power Supplies**
- **EMI/RFI Tight**

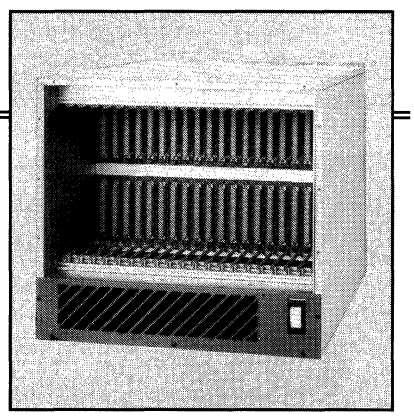
Enclosure Weights:

PV912	37 lbs
PV920	40 lbs

Power Supply:
Phoenix enclosures feature high-quality switching power supplies.

Backplanes:
Phoenix backplanes are monolithic J1/J2. Zero cross talk, high-performance

Peripheral Options Include:
Peripheral Mounting
Power Harness



PHAROS

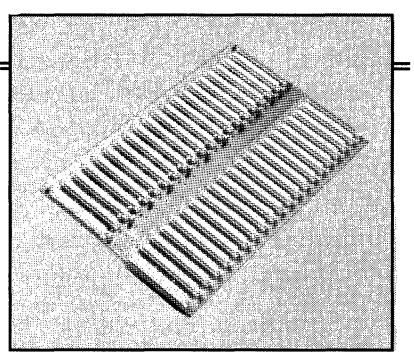
Zero cross talk, full-featured, super high-performance, VME backplanes

- **Full VME Specification Compliance**
- **10-Layer, Stripline Construction**
- **Inboard Termination**
- **Optimized Power Distribution with Minimized Ground Shifts**
- **Noise Immunity in Low/High Frequency Domains**
- **Fully Balanced and Symmetrical Signal Line Design**
- **3 to 21 Slots, Monolithic J1/J2**

VMEBus Specifications Compatibility
VITA VMEbus specification, Rev. C
IEEE 1014
IEC 821
IEEE 1101

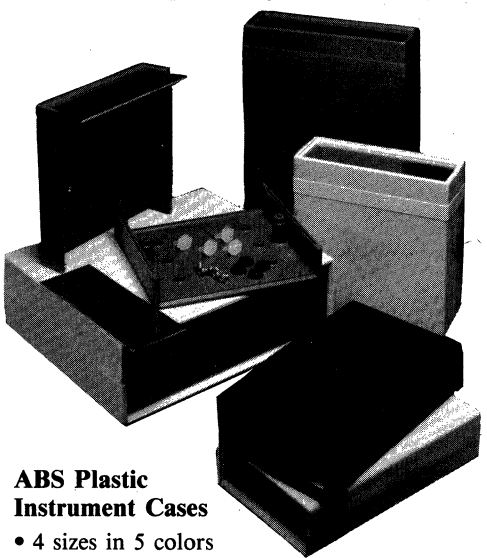
Technical Characteristics:

- Introducing a ten-layer stripline construction
- Two pads-only outer layers reduce cost and improve impedance control
- Three coaxial signal layers
- Five reference planes with 2 oz. of copper each
- One power/ground couplet with .0005" spacing for a better distributive capacitance effect
- Three ground planes for minimizing backplane inductance
- Heavy reference planes for ±12V
- Two extra ground planes on J2 section
- Inboard terminations permit maximum usage of backplane slots
- Options of power taps and fast-on terminal points
- Front and rear capability of jumpering daisy-chain signals
- Tightly controlled characteristic impedance of 75.0 ohms, optimized for each signal layer
- Tightly controlled effective impedance that exceeds minimum specifications for the board when fully loaded with connectors
- Special "trace buried into the ground" routing technique that zeros cross talk between each signal line
- Schottky clamping diodes on critical signal lines
- Optimized power distribution
- Reverse DIN shrouds for each slot of the J2 section on the backplane
- Two symmetrical pick-up positions for AC FAIL, SYSTEM RESET, SYSTEM FAIL, +5VSTBY, and GND
- Minimized voltage drop and ground shifts as part of the design process for a low noise margin
- Four rows of heavy current pickup contacts well distributed throughout the board
- Power supply attachments at the top, middle, and bottom edges of the backplane
- Noise immunity in low-, medium-, and high-frequency domains
- A fully balanced and symmetrical signal line design
- An optimized, specially controlled, high-technology manufacturing process
- J1/J2/J3 monolithic backplane option with custom routing



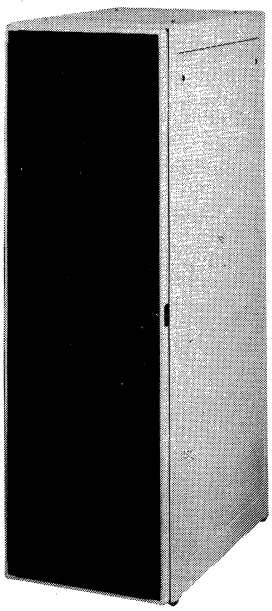
Call Today
800-628-4095

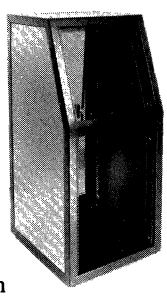
The Hammond Alternative For Small Cases and Rack Packaging



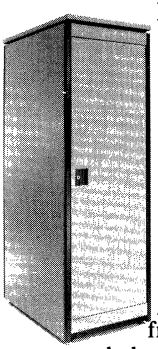
ABS Plastic Instrument Cases
- 4 sizes in 5 colors
- Flame retardant ABS plastic
- Integral P.C. mounting slots
- Two piece construction

Electronic Rack Systems
- Quick access side panels
- Standard leveling feet
- Heavy duty construction
- Adjustable bottom panels
- Built-in castor mount
- Attractive ID trim
- Plexiglass door



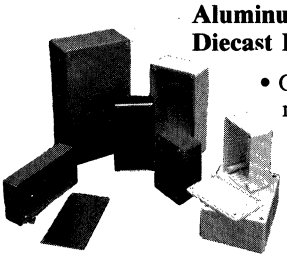


Console Racks
- 19″ or 24″ rack mount panel width
- 49″ overall height
- 24.5″ or 31.5″ deep
- Available in a wide range of colors
- Accessories include rack mount desks, front and rear doors and a wide range of universal accessories

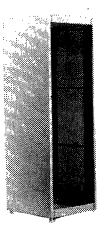


Modular System Racks
- 12 heights 21″ to 84″
- 19″ or 24″ panel widths
- 3 depths 17.5″, 24.5″ and 31.5″
- Available in a wide range of colors
- Accessories include ganging kits, wedge kits, front and rear doors, rack mount desks, tops, gang tops and a wide range of universal accessories

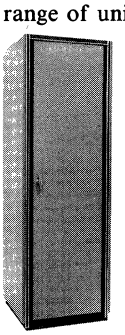
Plastic and Aluminum Diecast Boxes



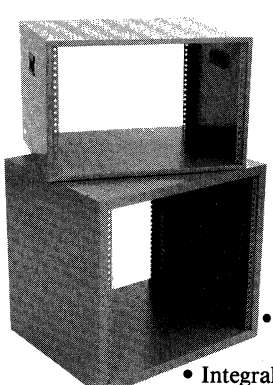
- Over 50 models to choose from
- ABS plastic cases
- Aluminum diecast cases
- ABS Plastic consoles
- EMI/RFI shielded plastic or metal cases
- Water tight metal cases
- Available in a wide variety of colors and finishes
- Custom punching and screening



Knockdown Economy Racks
- 4 piece construction
- 8 heights in two depths
- Accept most universal 19″ accessories
- Available in a wide range of colors

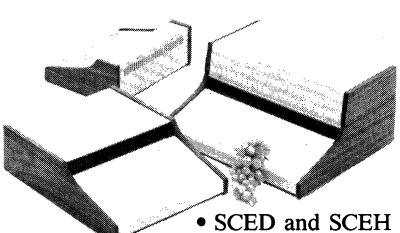


Heavy Duty Racks
- 19″ or 24″ panel widths
- 5 heights 49″ to 85″
- 3 depths 17.5″, 24.5″ or 31.5″
- Available in a wide range of colors
- Accessories include rack mount desks, ganging kits, variety of doors and side panels and a full range of universal accessories



19″ Panel Mount Rack Cases
- Panel heights 3.25″ to 28.0″
- Depths 13.5″ and 17.5″
- Available in a wide range of colors
- Many Universal 19″ Accessories
- Integral front and rear panel rails use 10-32 clipnuts for panel mounting

Desktop Cases and Consoles
- Hundreds of models in a wide range of colors and materials



- SCED and SCEH consoles shown here feature real walnut wood sides

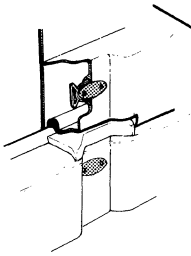
HAMMOND MANUFACTURING™
1690 Walden Ave.
Buffalo, New York, 14225–4971
Phone: (716) 894-5710
Fax: (716) 894-1156

393 No. Main St., P.O. Box 201, South Deerfield, MA 01373 U.S.A.
Tel: 413-665-2163 Fax: 413-665-8061

HARDIGG INDUSTRIES, INC.
PROTECTION BY DESIGN

Hardigg Industries: America's Largest Manufacturer Of Rugged Roto-Molded Shipping Containers

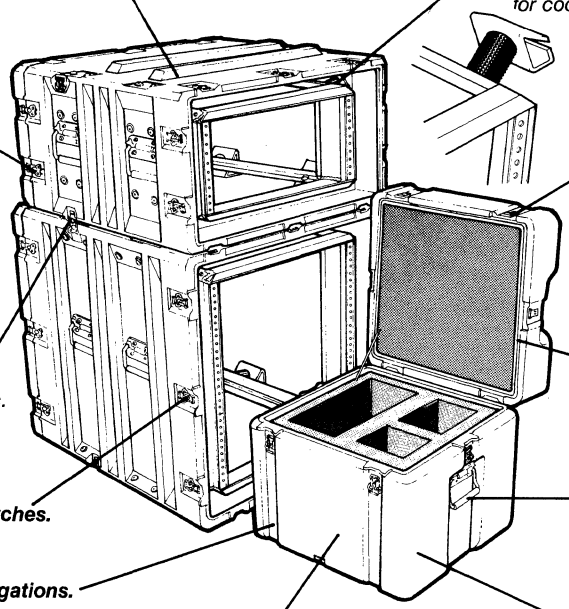
Molded-in metal insert for catch and hinge attachment points.
Hardware replacement will not penetrate container shell. Metal insert spreads load from hardware to container wall.



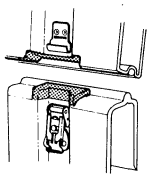
U.S. Patent No. 4,741,972

Molded-in male/female stacking ribs.
Secure stacking.

Elastomeric shock mounts.
Provide controlled shock and vibration levels. Sway space allows good air flow for cooling.



Positive anti-shear locks.
Prevents lid separation from base on impact. Minimizes stress on hardware. U.S. Patent No. 4,284,202



Optional coupling catches.
Positive interlock of stacked containers.

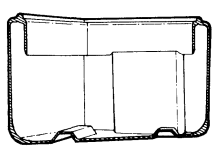
Molded-in tongue-in-groove gasketed parting line.
Resilient polyethylene shell returns to original configuration after impact.

Low-profile cam-action wing-turn catches.
High strength and lightweight.

Recessed hardware.
Fully protected from damage.

Molded-in corrugations.
High stacking strength and hardware protection.

Rotational molding.
Corners and edges are 10% to 20% thicker than flat walls, providing strength where you need it most. One piece stress-free molded lid and base.



Uniform color throughout wall.
Color unaffected by abrasions.

No matter what type of equipment you are shipping, Hardigg can protect it. With over 200 standard roto-molded container sizes, we can quickly create custom cushioned containers to meet your specs.

Hardigg Containers Have Delivered Over 2,000,000 Shipments Worldwide – Damage Free!

Your equipment will perform as accurately after shipment as it did before... if it's protected by a Hardigg container system.

We manufacture Hardigg containers from a resilient polyethylene resin using a rotational-molding process. This method naturally creates reinforced corners and edges (10% to 20% thicker) while eliminating excess weight from the flat surfaces. The result is an impact-absorbing container with maximum impact strength and minimum weight.

With 100+ Trips Per Container, We Outperform ATA Specs To Give You The Lowest Cost Per Trip.

Every Hardigg reusable container is built to last. Even our standard model is engineered with features that provide complete environmental protection. (Standard features listed above; optional features also available.)

Our containers:

- Shrug off 4 foot drops onto concrete.
- Seal out humidity, water, fungus, sand and dust.
- Perform at temperature extremes from −40°F to +140°F.

Over 200 Off-The-Shelf Roto-Molded Container Sizes. Over 10,000 Original Engineered Designs.

With 35 years experience, Hardigg has the equipment, facilities, and manufacturing expertise to create standard or custom cushioned container systems to protect your equipment. Our design and engineering team is ready to provide quick and cost-efficient transition from preliminary design to project completion.

For an easy solution to your toughest shipping problem, Call Hardigg.

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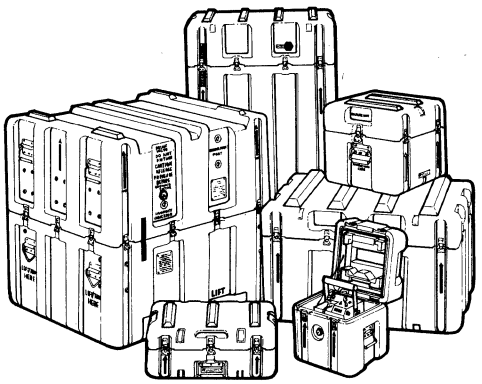
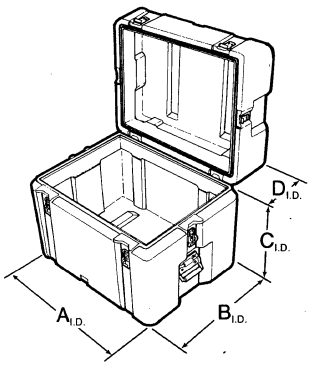
HARDIGG INDUSTRIES, INC.
PROTECTION BY DESIGN

Standard Container Specifications





Part No. Example:

AL 36 27 - 08 05

- **D = Lid Height** (I.D. top to bottom)
- **C = Base Height** (I.D. top to bottom)
- **B = Case Depth** (I.D. front to rear)
- **A = Case Width** (I.D. left to right)
- **Parting Line Width** (AL = 1.5 inches, BL = 2.0 inches, CL = 1.0 inch)

Note: All Dimensions on this page are in inches (nominal).

25 NEW SIZES NOT SHOWN BELOW! CALL FOR INFORMATION

Hardigg Container Part No.	Inner Dimensions L	W	H	** Lbs.
AL1010-0904	10	10	13	9.8
AL1010-0905	10	10	14	10.6
AL1010-1404	10	10	18	11.5
AL1010-1405	10	10	19	12.4
AL1109-0303	11	9	6	5.7
AL1212-0404	12	12	8	10.6
AL1212-0405	12	12	9	10.8
AL1212-1504	12	12	19	14.7
AL1212-1505	12	12	20	14.9
AL1212-1904	12	12	23	16.8
AL1212-1905	12	12	24	17.0
AL1412-0403	14	12	7	11.7
AL1413-0505	14.5	13	10	13.9
AL1413-1005	14.5	13	15	16.5
AL1413-2105	14.5	13	26	19.4
AL1414-0705	14	14	12	14.6
AL1616-0404	16	16	8	12.3
AL1616-0405	16	16	9	13.7
AL1616-0412AC	16	16	16	17.0
AL1616-0504	16	16	9	13.9
AL1616-0505	16	16	10	15.3
AL1616-0512AC	16	16	17	18.5
AL1616-1004	16	16	14	16.2
AL1616-1005	16	16	15	17.6
AL1616-1012AC	16	16	22	20.8
AL1616-1204	16	16	15.7	16.7
AL1616-1205	16	16	16.7	18.0
AL1616-1212AC	16	16	23.7	21.3
AL1616-1804	16	16	22.5	20.6
AL1616-1805	16	16	23.5	22.0
AL1616-1812AC	16	16	30.5	25.3
CL1713-0403	17	13	7	9.6
CL1717-0909AC	17	17	18	18.8
AL1814-0504	18	14.5	9	14.4
AL1814-0505	18	14.5	10	15.6
AL1814-1504	18	14.5	19	19.3
AL1814-1505	18	14.5	20	20.5
AL1814-2204	18	14.5	26	23.4
AL1814-2205	18	14.5	27	24.6
AL1818-0603HL	18	18	9	17.9
CL2012-0903	20	12	12	19.1
AL2013-0403	20	13	7	14.4
AL2013-0903	20	13	12	16.8
AL2015-0503HL	20	15	8	18.9
AL2015-1503HL	20	15	18	24.7
AL2020-1305	20	20	18	25.7
AL2216-0805	22	16	13.5	20.9
AL2216-1205	22	16	17	22.9
AL2221-0604	22.5	21	10.5	24.0
AL2221-0605	22.5	21	11.5	24.8
AL2221-0614AC	22.5	21	20.5	26.8
AL2221-1204	22.5	21	16	26.8

Hardigg Container Part No.	Inner Dimensions L	W	H	** Lbs.
AL2221-1205	22.5	21	17	27.7
AL2221-1214AC	22.5	21	26	29.6
AL2221-1804	22.5	21	22.5	33.2
AL2221-1805	22.5	21	23.5	34.1
AL2221-1814AC	22.5	21	32.5	36.0
AL2221-2804	22.5	21	32.5	39.8
AL2221-2805	22.5	21	33.5	40.6
AL2221-2814AC	22.5	21	42.5	42.6
AL2318-1205	23	18	17	26.1
AL2318-1705	23	18	22	29.1
CL2406-0303	24	6	6	9.0
AL2414-0509AC	24.9	14.9	14	28.3
AL2423-0904	24	23	13	27.6
AL2423-0911AC	24	23	20	31.8
AL2423-1104	24	23	15	28.0
AL2423-1111AC	24	23	22	32.3
AL2617-0604	26	17	10	23.2
AL2617-1104	26	17	15	28.4
AL2624-0805	26	24	13	32.9
AL2624-0824AC	26	24	32	46.0
AL2624-1205	26	24	17	35.6
AL2624-1224AC	26	24	36	48.7
AL2624-1805	26	24	23	39.6
AL2624-1824AC	26	24	42	52.8
AL2624-2705	26	24	32.5	45.2
AL2624-2724AC	26	24	51.5	58.3
AL2727-0404	27	27	8	32.2
AL2727-0405	27	27	9	33.5
AL2727-0409AC	27	27	13	35.9
AL2727-0414AC	27	27	18	39.7
AL2727-0504	27	27	9	32.2
AL2727-0505	27	27	10	33.5
AL2727-0509AC	27	27	14	35.9
AL2727-0514AC	27	27	19	39.7
AL2727-0904	27	27	13	34.5
AL2727-0905	27	27	14	35.9
AL2727-0909AC	27	27	18	38.2
AL2727-0914AC	27	27	23	42.0
AL2727-1404	27	27	18	38.3
AL2727-1405	27	27	19	39.7
AL2727-1409AC	27	27	23	42.0
AL2727-1414AC	27	27	28	45.8
AL2727-2304	27	27	27	45.6
AL2727-2305	27	27	28	46.9
AL2727-2309AC	27	27	32	49.3
AL2727-2314AC	27	27	37	53.1
AL2727-2704	27	27	31	48.0
AL2727-2705	27	27	32	49.4
AL2727-2709AC	27	27	36	51.7
AL2727-2714AC	27	27	41	55.5
AL2818-0805	28	18	13	27.1
AL2825-1205	28.5	25	17	38.8
AL2825-1212AC	28.5	25	24	45.6
AL2825-1605	28.5	25	21.5	40.3
AL2825-1612AC	28.5	25	28.5	47.0
AL2909-0605	29	9	11.5	16.7

HL — Handles on lid
FT — Molded-In forklift provisions
AC — All catches. No hinges. This is a recommendation, hinges can be provided.
**Weights are approximate and subject to revision. Lighter weights are available.

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HARDIGG INDUSTRIES, INC.
PROTECTION BY DESIGN

Standard Container Specifications, con't.

25 NEW SIZES NOT SHOWN BELOW! CALL FOR INFORMATION

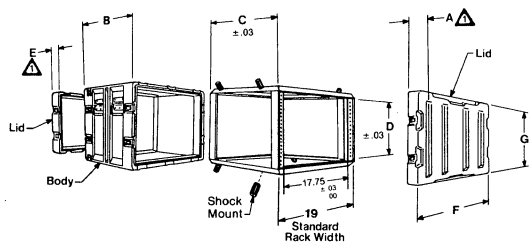
Hardigg Container Part No.	Inner Dimensions L	W	H	** Lbs.
AL2914-0905	29	14.5	14	23.7
AL2924-0904	29	24	13	36.1
AL3018-0403	30	18	7	21.2
AL3018-0405	30	18	9	21.5
AL3018-0409AC	30	18	13.5	27.7
AL3018-0803	30	18	11	25.7
AL3018-0805	30	18	13	26.0
AL3018-0809AC	30	18	17.5	32.2
AL3018-0903	30	18	12.5	27.6
AL3018-0905	30	18	14.5	27.8
AL3018-0909AC	30	18	19	34.0
AL3018-1503	30	18	18	30.5
AL3018-1505	30	18	20	30.8
AL3018-1509AC	30	18	24.5	37.0
AL3018-3603	30	18	39	43.8
AL3018-3605	30	18	41	44.0
AL3018-3609AC	30	18	45.5	50.3
AL3019-0709AC	30.9	19.9	16	40.6
AL3022-0705	30	22	12	38.2
AL3226-1404FT	32.5	26.5	18.5	53.3
AL3226-1413FT/AC	32.5	26.5	27.5	57.1
AL3226-1604	32.5	26.5	20	52.6
AL3226-1613AC	32.5	26.5	29	59.8
AL3232-1412AC	32.5	32.5	26.5	68.4
AL3418-1005	34	18	15	31.0
AL3424-0804	34	24	12	38.3
AL3424-0805	34	24	13	39.3
AL3424-1204	34	24	16	43.0
AL3424-1205	34	24	17	43.5
AL3428-1004	34	28	14	48.6
AL3428-1014AC	34	28	24.5	61.5
AL3428-1025AC	34	28	35	64.1
AL3434-2807	34	34	35	66.8

Hardigg Container Part No.	Inner Dimensions L	W	H	** Lbs.
AL3535-1605	35.7	35.7	21	68.0
AL3620-1704	36	20	21	43.2
AL3620-1705	36	20	22	44.9
AL3620-1710AC	36	20	27	51.4
AL3627-0805	36	27	13	44.6
AL3627-1505	36	27	20	50.7
AL3834-1617FT/AC	38	34	33.5	86.4
AL4021-0804	40	21	12	36.9
AL4021-0808AC	40	21	16	41.0
AL4024-1305	40	24	18	50.2
AL4028-1608	40	28	24	69.9
AL4028-2105	40	28	26	64.5
AL4532-1615AC	45	32	30.5	97.2
AL4714-0403	47	14	7	27.4
AL4714-0405	47	14	8	27.1
AL4714-0503	47	14	8	26.5
AL4714-0505	47	14	10	26.3
AL4824-1404AC	48	24	18	70.3
AL4824-1408AC	48	24	22	75.0
AL4915-1105	49	15	16	40.0
AL5040-1205AC	50	40	16	90.0
AL5424-2306FT/AC	54	24	29	104.3
AL5430-3006AC	54	30	36	114.0
AL5545-2305AC	55	45	28	145.3
AL5616-0604	56	16	10	47.1
AL5733-0916FT/AC	57	33	24.75	123.4
AL6815-1005	68	15	15	58.7
BL8024-3009AC	80	24	39	159.5
BL8232-0705AC	82	32	12	122.3
BL8232-0905AC	82	32	14	127.9
BL8240-1623FT/AC	82.5	40	38.5	229.2
BL9024-1113FT/AC	90.5	24	24.5	147.2
BL9836-1105AC	98	36	16.5	189.9

Double Entry Container Specifications

SHELL AND LID DIMENSIONS	RACK SIZE, LOAD RANGE	EIA UNITS DIM. "D"	RACK DEPTH "C"	CNTNR BODY "B"	LID I.D. "E"	LID O.D. "A"	CNTNR WIDTH "F"	CNTNR HEIGHT "G"	SHIPPING NET WEIGHT†
2412-02/24/02	M04/20-00/00*	4U 7.12	20.0	24.0	2.5	4.0	27.0	15.0	47.0
2414-02/24/02	M05/20–	5U 8.87	20.0	24.0	2.5	4.0	27.0	17.0	49.8
2414-02/27/02	M05/25–	5U 8.87	25.0	27.0	2.5	4.0	27.0	17.0	51.5
2416-02/24/02	M06/20–	6U 10.62	20.0	24.0	2.5	4.0	27.0	19.0	53.5
2416-02/27/02	M06/24–	6U 10.62	24.0	27.0	2.5	4.0	27.0	19.0	58.0
2418-02/20/02	M07/18–	7U 12.37	18.0	20.0	2.5	4.0	27.0	21.0	54.3
2418-02/27/02	M07/24–	7U 12.37	24.0	27.0	2.5	4.0	27.0	21.0	62.0
2421-02/27/02	M09/25–	9U 15.87	25.0	27.0	2.5	4.0	27.0	24.0	64.0
2425-02/27/02	M11/25–	11U 19.38	25.0	27.0	2.5	4.0	27.0	28.0	67.0
2430-02/27/02	M14/25–	14U 24.62	25.0	27.0	2.5	4.0	27.0	33.0	73.0
2442-02/27/02	M21/25–	21U 36.87	25.0	27.0	2.5	4.0	27.0	45.0	93.8
2652-02/25/02	M26/23–	26U 45.62	23.0	25.0	2.5	4.0	29.0	55.0	107.8

*Min/Max Load Specified By Customer. †Approximate Weight
Specifications are subject to change without notice.



⚠ 5" Inch Deep Lids Available (5.25" I.D. "E") (6.50 O.D. "A")

4U "D" — **Rack Depth "C"**
Shock Mounted — **Load Range of shock mount system 20–30 lbs.**
Rack Sizes, Load Range Example: M04/20-20/30

Hardigg Containers have been procured and/or tested under the following specifications:

MIL-C-4150	MIL-STD-794
MIL-T-21200	MIL-STD-648
MIL-T-28800	MIL-D-42048
MIL-STD-810D	FTMS-101

Hardware Options

Relief Valve (±0.5 PSID)	View Ports
Humidity Indicator	Desiccant Holder (Internal)
Identification Plate	Hardigg Markings
Purge Valve	ATA Markings
Locking Feature	(Other options available)

DESIGN FEATURES: See Hardigg Multi-Purpose Reusable Containers brochure and your Hardigg Dealer for more details.

PRICING: See your Hardigg Dealer.

Ask for a Technical Service Engineer to help measure your equipment and determine the right container shell size and interior system.

SYMBOLS USED BY INTERNATIONAL REGULATORY AGENCIES

These symbols appear on many electrical/electronic components distributed in the world market. They indicate that a country's standard-setting agency has approved the design of the component and/or a testing agency has approved the performance of the component in meeting the standard. This page lists only those countries that have a *symbol* to represent their authority.

Argentina (IRAM) Instituto Argentino de Racionalization de Materiales

Australia (SAA) Standards Association of Australia

Austria (ÖVE) Öesterreichischer Verband für Elektrotechnik

Belgium (CEB) Comité Electrotechnique Belge

Brazil (ABNT) Associação Brasileira de Normas Teonicas

Canada (CSA) Canadian Standards Association

Czechoslovakia Urad pro Normalizaci a Mereni (Office for Standards and Measurements)

Denmark (DEK) Dansk Elektroteknisk Komite (Danish Electrotechnical Committee)

Egypt (EOS) Egyptian Organization for Standardization and Quality Control

Finland (SETI) Electrical Inspectorate

France (UTE) Union Technique de l'Électricité

Germany, Democratic Republic of (East) (ASMW) Amt für Standardi-sierung Messwesen und Warenprufung (Office for Standardization, Metrology and Quality Control)

Germany, Federal Republic of (West) (DKE) Deutsche Electrotechnische Kommission im DIN und VDE (German Electrotechnical Commission of DIN and VDE)

Greece (ELOT) The Hellenic Organization of Standardization

Hong Kong Hong Kong Standards & Testing Centre

Hungary (MSZH) Magyar Szabvanyugi Hivatal (Hungarian Office for Standardization)

India (ISI) Indian Standards Institute "Manak Bhavan"

Indonesia Badan Kerjasama Standardisasi LIPI-YDNI (LIPI-YDNI Joint Standardization Committee)

Iran Institute of Standards and Industrial Research of Iran

Ireland (IIRS) Institute for Industrial Research and Standards

Israel (SII) Standards Institution of Israel

Italy (CEI) Comitato Elettrotecnico Italiano (Italian Electrotechnical Committee)

Japan (JISC) Japanese Industrial Standards Committee Agency of Industrial Science and Technology

Korea, Republic of (South) Industrial Advance Administration

Mexico (DGN) Dirección General de Normas Secretaria de Patrimonio y Fomento Industrial Puente de Tecamachalco

Netherlands (NEC) Nederlands Elektrotechnisch Comite

New Zealand (SANZ) Standards Association of New Zealand

Norway (NEK) Norsk Elektroteknisk Komite (Norwegian Electrotechnical Committee)

Pakistan Pakistan Standards Institution

Poland Polski Komitet Normalizacji Miar i Jakosci (Polish Committee for Standardization, Measures and Quality Control)

Portugal (CEP) Comissão Electrotécnica Portuguesa

Romania Institutul Roman de Standardizare (Romanian Standards Institute)

Singapore Singapore Institute of Standards and Industrial Research

South Africa (SABS) South African Bureau of Standards

Spain (IRANOR) Instituto Nacional de Racionalización y Normalización

Sweden (SEK) Svenska Elektriska Kommissionen (Swedish Electrotechnical Commission)

Switzerland (SEV) Schweizerischer Elektrotechnischer Verein Postfach

Turkey (TSE) Turk Standardlari Enstitusu (Turkish Standards Institution)

United Kingdom (BSI) British Standards Institution

United States Underwriters Laboratories Inc. Recognized Component Mark

United States Underwriters Laboratories Inc.

Venezuela CODELECTRA en Conjunto con COVENIN Avda. Ppal.

Yugoslavia Federal Institute of Standardization

LANSING

GrayBox™	Dimensions (inches)			Model Number
	Height	Width	Depth	
B Series (screw-on covers) Clear Anodized Aluminum Finish	One Rack Unit 1.72	Half Rack 8.37	8.00	B1H08-001A
			10.00	B1H10-001A
			12.00	B1H12-001A
			14.00	B1H14-001A
			16.00	B1H16-001A
			18.00	B1H18-001A
			20.00	B1H20-001A
			22.00	B1H22-001A
		Full Rack 16.73	8.00	B1F08-001A
			10.00	B1F10-001A
			12.00	B1F12-001A
			14.00	B1F14-001A
			16.00	B1F16-001A
			18.00	B1F18-001A
			20.00	B1F20-001A
			22.00	B1F22-001A
	Two Rack Units 3.47	Half Rack 8.37	8.00	B2H08-001A
			10.00	B2H10-001A
			12.00	B2H12-001A
			14.00	B2H14-001A
			16.00	B2H16-001A
			18.00	B2H18-001A
			20.00	B2H20-001A
			22.00	B2H22-001A
		Full Rack 16.73	8.00	B2F08-001A
			10.00	B2F10-001A
			12.00	B2F12-001A
			14.00	B2F14-001A
			16.00	B2F16-001A
			18.00	B2F18-001A
			20.00	B2F20-001A
			22.00	B2F22-001A
	Three Rack Units 5.22	Half Rack 8.37	8.00	B3H08-001A
			10.00	B3H10-001A
			12.00	B3H12-001A
			14.00	B3H14-001A
			16.00	B3H16-001A
			18.00	B3H18-001A
			20.00	B3H20-001A
			22.00	B3H22-001A
		Full Rack 16.73	8.00	B3F08-001A
			10.00	B3F10-001A
			12.00	B3F12-001A
			14.00	B3F14-001A
			16.00	B3F16-001A
			18.00	B3F18-001A
			20.00	B3F20-001A
			22.00	B3F22-001A
P Series (slide-in top cover) Clear Anodized Aluminum Finish	One Rack Unit 1.72	Half Rack 8.37	8.00	P1H08-0T1A
			10.00	P1H10-0T1A
			12.00	P1H12-0T1A
			14.00	P1H14-0T1A
			16.00	P1H16-0T1A
		Full Rack 16.73	8.00	P1F08-0T1A
			10.00	P1F10-0T1A
			12.00	P1F12-0T1A
			14.00	P1F14-0T1A
			16.00	P1F16-0T1A

RACK MOUNTING KITS			
	1.72	With Handle	K1RMH-001A
		Without Handle	K1RMX-001A
	3.47	With Handle	K2RMH-001A
		Without Handle	K2RMX-001A
	5.22	With Handle	K3RMH-001A
		Without Handle	K3RMX-001A

MicroPak™	Dimensions (inches)			Model Number
	Width	Height	Depth	
Q Series	4.17	1.52	5.45	Q1X50
			6.45	Q1X60
		2.52	5.45	Q2X50
			6.45	Q2X60
T Series	5.57	1.52	5.45	T1X50
			6.45	T1X60
			7.45	T1X70
			8.95	T1X85
		2.52	5.45	T2X50
			6.45	T2X60
			7.45	T2X70
			8.95	T2X85
W Series	7.29	1.52	9.45	W1X90
		2.52	9.45	W2X90
S Series	5.75	1.52	8.38	S1X70
			9.93	S1X85

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Premium Enclosures for Electronic Instruments

Careful engineering and quality construction give your product or prototype a solid, precision-manufactured look and feel.

Yet the simple, understated designs are readily customized by you or us, so that your choice of configuration, panel fabrication, finish, color, and graphics determines your product's unique personality. For immediate delivery, a comprehensive range of standard, in-stock sizes (left) are available with blank panels.

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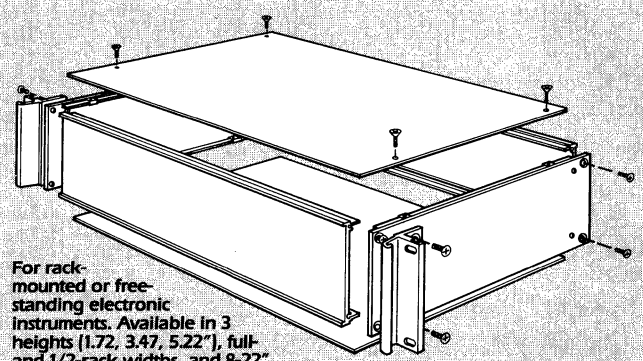
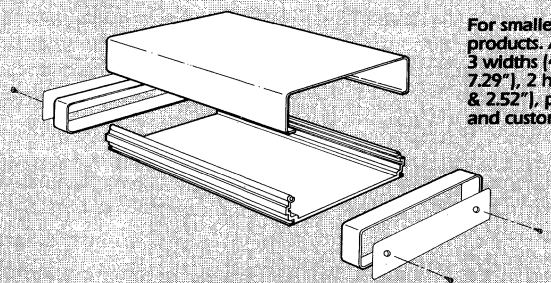
GrayBox™ Enclosures



For rack-mounted or free-standing electronic instruments. Available in 3 heights (1.72, 3.47, 5.22"), full- and 1/2-rack widths, and 8-22" depths. Custom widths and depths are also available.

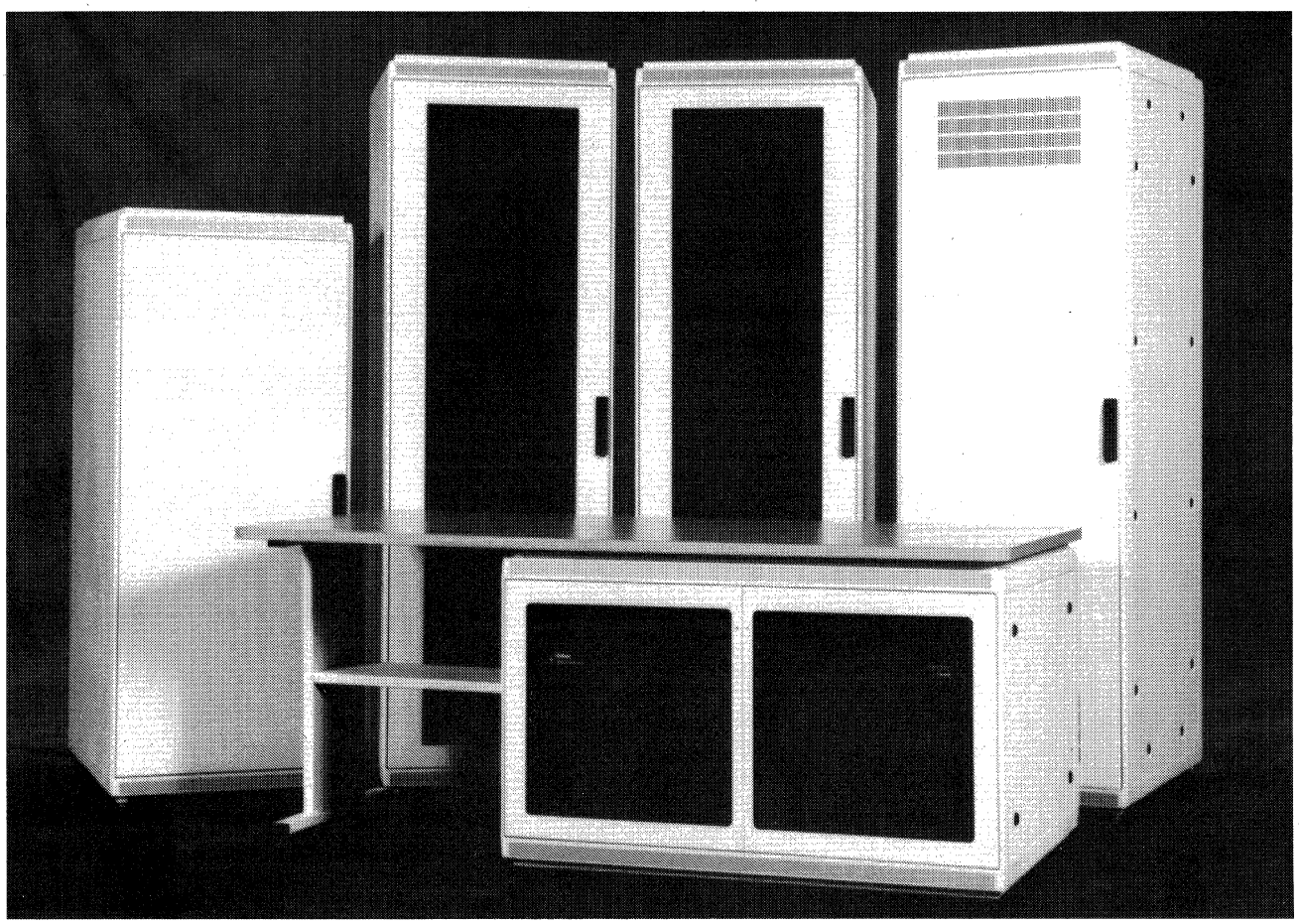
MicroPak™ Enclosures



For smaller electronic products. Available in 3 widths (4.17, 5.57, 7.29"), 2 heights (1.52 & 2.52"), plus stock and custom depths.

Optima® EPS **EMI/RFI Shielded Cabinets**

Your system should look as good as it performs.

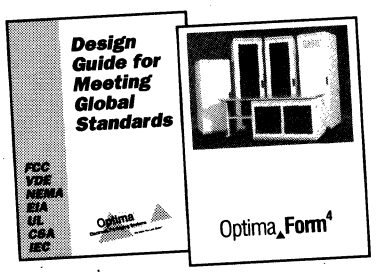


There is a new standard for style and performance: Optima Form⁴.

New Optima Form⁴ offers you a high performance, flexible packaging system to meet tough global EMC standards without sacrificing style.

Patented Form⁴ features custom-engineered, shielded interfaces and advanced door closure techniques to yield independent RFI test levels in excess of 100dB from 10KHz to 1MHz.

Form⁴ also meets UL 508-Type 12 spec, which makes it an effective barrier against dust and moisture. Its extruded aluminum frame is welded to provide a high strength-to-weight ratio.



Call now for your copy of this important Design Guide and Optima Form⁴ brochure.

Both 19" and 24" technology equipment are accommodated. Choose from a wide variety of accessories, sizes and colors.

For more about Form⁴ call Optima at (404) 496-4025 or Fax (404) 496-4041

Optima EPS, 2166 Mountain Industrial Blvd., Tucker, GA 30084-5088.

FCC VDE NEMA EIA UL CSA IEC

Form⁴ meets U.S. and international EMC, safety, environmental and dimensional standards.

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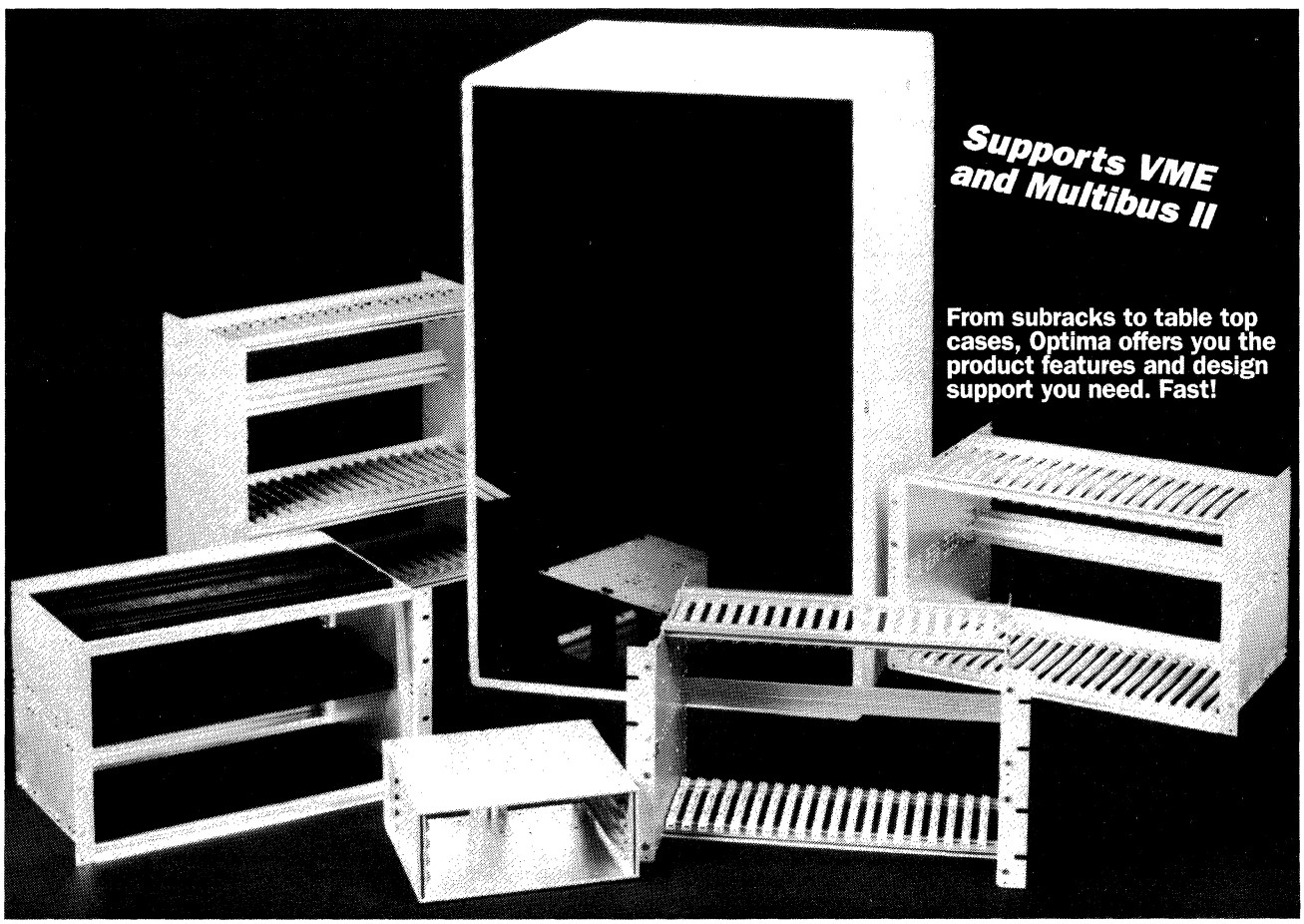
Eurocard Packaging Optima® EPS

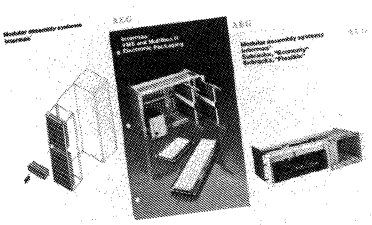
AEG Intermas® Eurocard packaging. Now from Optima.



You'll get quick delivery on a Eurocard packaging system tailored to your needs.

Optima has an off-the-shelf AEG Intermas packaging system for your application and budget. We can also modify any component to your specifications. Choose from five feature-packed Eurocard systems:

- **Heavy-duty Type S:** for industrial, transport or power plant applications; features extra-strength side walls and profiled rails.
- **Universal Type U:** a popular system for prototyping and special applications requiring unique accessories.
- **Economy Type E:** our "value system" – this low-cost, high-quality system can satisfy most application requirements.



Call now for your free catalogs or technical assistance.

- **Flexible Type F:** same design as Economy Type E, but with user-adaptable side plates for flexibility.
- **Vibration-proof Type V:** rugged design for the most demanding applications and for use in extreme environments.

Standard Widths: 19", 19/2"
Depths: 160, 220, 280"
Heights: 3U, 6U, 9U, 12U

For more about Eurocard Packaging Systems by AEG Intermas® call Optima at (404) 496-4025 or Fax (404) 496-4041

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AEG Intermas®

and

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Partners in the Future of Electronic Packaging

AEG Intermas® – International Modular Assembly Systems – is exclusively distributed in North America by Optima.

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Optima® EPS **Vertical Cabinets**

Get the options you want with the professional look you need.

You'll get a wide selection of design options, plus features you expect in a quality cabinet.

Optima Quality Design Features:

- Exclusive extruded aluminum (alloy 6063-T5) frame designs make your system look more professional
- Side panels are independent of framework for easy assembly and equipment service
- Superior strength-to-weight ratio: design rated at 2,200 lb. static load
- Front and rear panel/chassis mounting rails (14 ga. CRS) with standard EIA spacing; also available as adjustable-recessed or heavy-duty (11 ga. CRS)
- Top panels available solid, ventilated or with exhaust fan provision
- Doors feature multi-point locking system with keylock; in solid, ventilated and acrylic
- Steel bases with caster brackets and leveling provision, also available with cable exit provision
- Proven paint adhesion and corrosion resistance via phosphate pre-treating and durable acrylic coating based on thermo setting, cross-linking resins
- Choose contemporary standard colors in smooth or textured finishes. Custom color-matching available
- Free design consultation and assembly

Standard Sizes

Widths:	19", 24"	
Depths:	24", 30", 36"	
Heights:	21"	(12U)
	28"	(16U)
	35"	(20U)
	42"	(24U)
	52.5"	(30U)
	61.25"	(35U)
	70"	(40U)
	77"	(44U)

Accessories

A broad line of universal options and accessories are available direct from Optima, including:

- Power distribution systems and outlet strips
- Cooling fans, fan packs, blowers, filters and grilles
- Doors, panels, drawers and shelves
- Hardware: handles, lifting eyes, slides, stabilizers, casters, multibay connector kits and more

For catalogs and more information call Optima at (404) 496-4025 or Fax (404) 496-4041

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Heavy-duty Welded Cabinets

For demanding applications and use in extreme environments we also offer the "Optima R Series" welded vertical cabinet. Please call for our catalog.

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EMI/RFI Shielded Cabinets

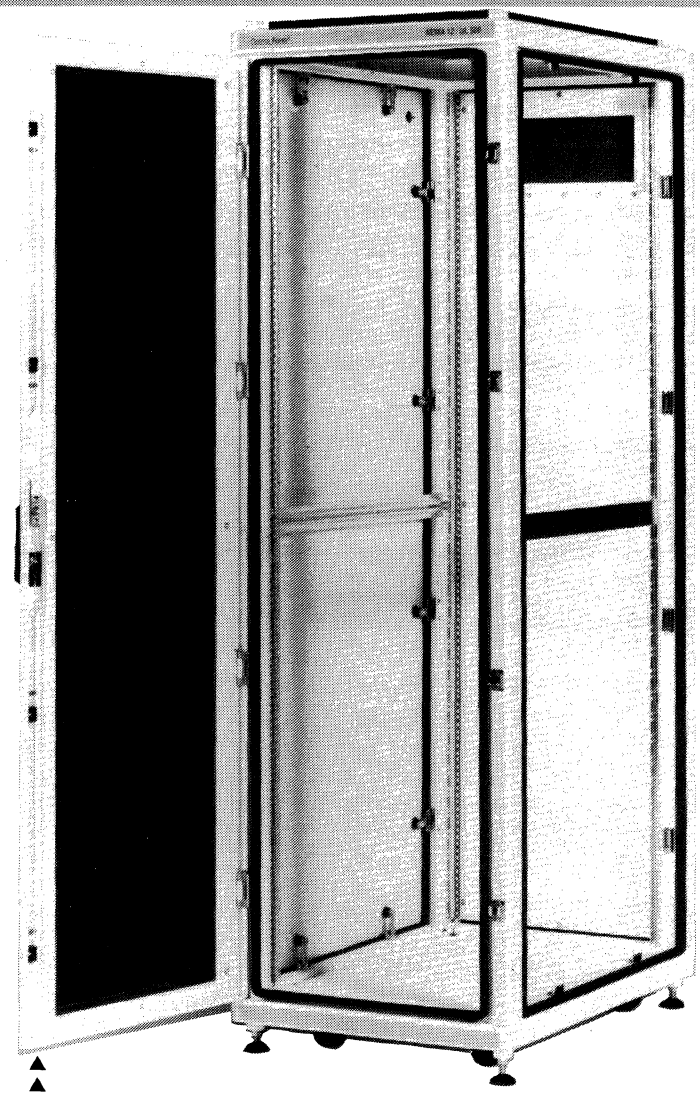
Optima® EPS

Exceed global EMC standards with Optima's advanced design.

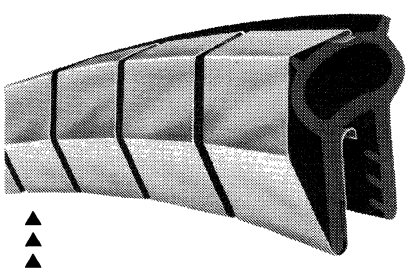
Get peak attenuation levels in excess of 100dB.

Optima EMC Performance Features:

- Welded interior corner joints provide strength and rigidity – eliminate RFI noise, dust, or moisture leaks.
- Even compression on all doors is assured with steel reinforcement and multi-point locking design
- Dual purpose EMC/UL 508 Type 12 gasketing protects sensitive electronics
- All hinges and locks are external to the continuous perimeter of gasketing
- Ventilated doors provide EMI/RFI protection at top, bottom or both
- Optional quick release sides feature multi-point fasteners distributed for even compression and quick access to cabinet interior

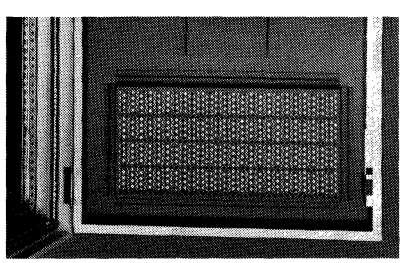


Demanding EMC applications require an enclosure design with the structural integrity to withstand harsh environments, plus the flexibility to meet custom design modifications.

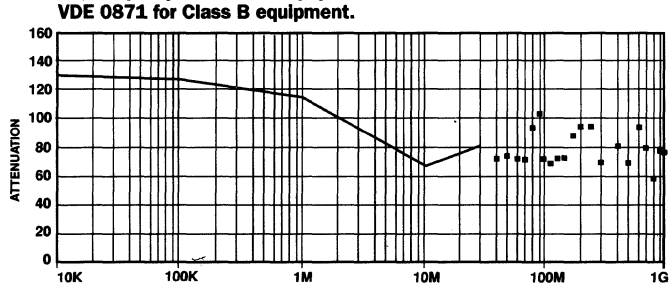


Optima's custom-engineered EMC gasket features independent spring-fingers of Beryllium Copper formed and fitted to the contour of a NEMA spec rubber gasket. Installation or on-site replacement is easy.

Proven BeCu gasketing is specifically ▶▶▶ design for each panel-frame interface to insure a continuous conductive path. Note: all Optima doors are designed to conceal gasketing when viewed from front.



RFI cabinet attenuation levels for Optima Form[4] model #701930RF measured in accordance with the F.C.C. Docket Part 15, Subpart j for Class A equipment and VDE 0871 for Class B equipment.



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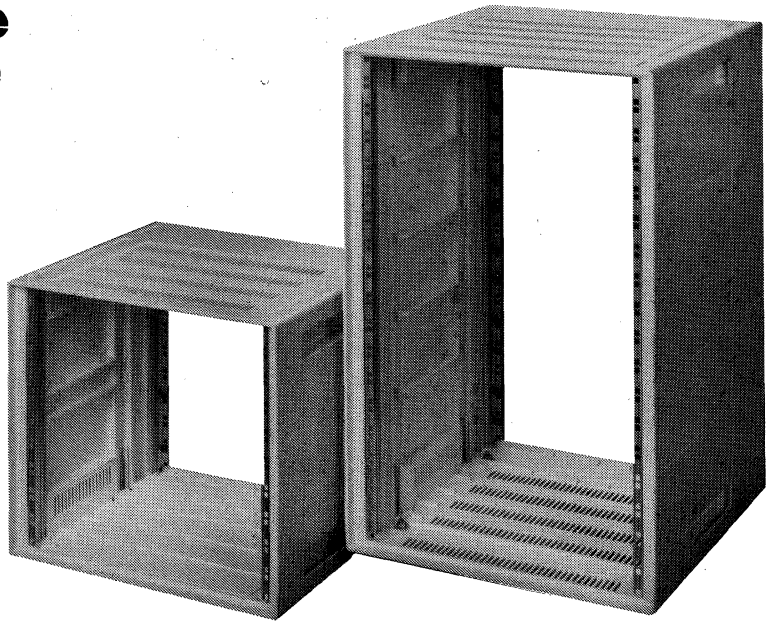
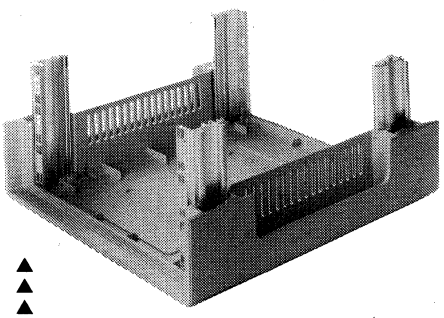
Light, expandable Optima cases are tough yet smart looking.



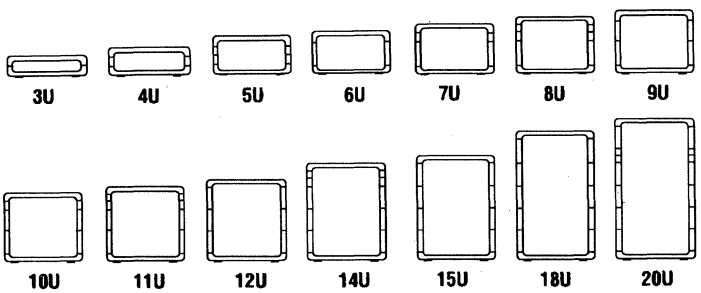
Optima Form[14] Cases

- accept 19" and 19"/2 subracks according to DIN 41 494
- accept AEG subracks (see Optima Eurocard packaging page in EEM)
- optional top and bottom vents; side vents are standard
- available with doors, vents, sliding tracks, and rubber feet with tilt legs
- built-in recessed handles
- available in gray (custom colors avaialble); unassembled, in kit form



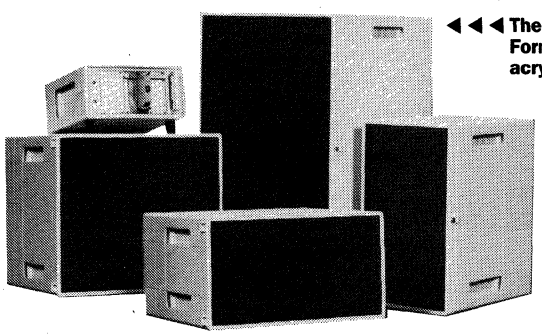
▲
▲
▲

Lightweight and strong: You can load up these sturdy Form[14] cases. Each features extruded aluminum equipment supports and your choice of tough Polystyrol (standard) or Noryl (optional) case shells.



Expandable Form[14] is available in 14 heights and DEPTHS OF 350, 450 and 550mm. Increase case height easily by adding pairs of side spacer strips in 1U and 3U increments, along with vertical supports.

For free catalogs or more information call Optima at (404) 496-4025 or Fax (404) 496-4041



◀◀◀ **The contemporary look of Optima Form14 with optional smoke gray acrylic, locking doors.**

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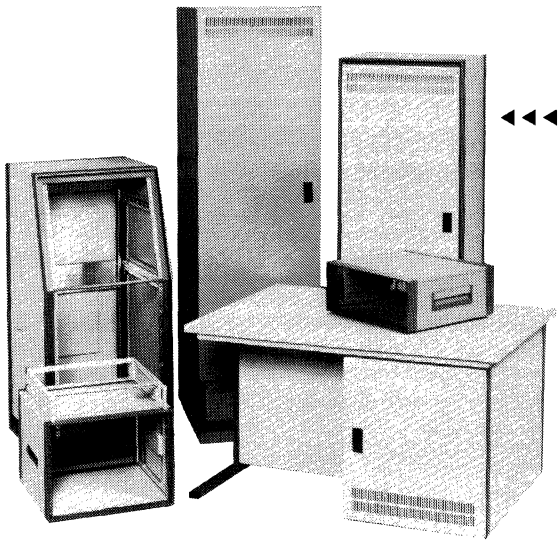
Optima® EPS

Why wait? Why inventory? Instant Optima ships in 3 days.

Standard or EMI/RFI shielded

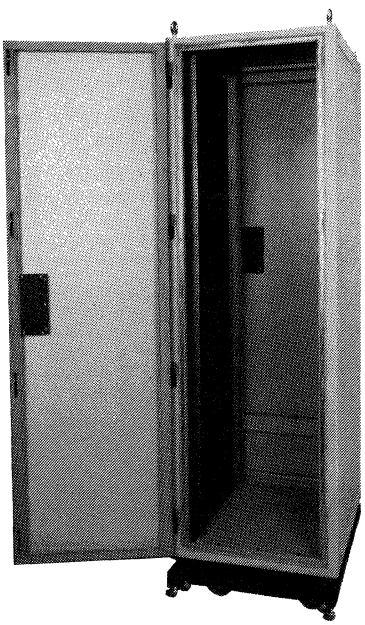
Get the configuration you want for prototyping or short-run needs:

- pre-assembled and boxed, ready for your electronics
- in popular sizes and colors in-stock
- with accessories for power, cooling and customizing your system



◀◀◀ **Vertical cabinets, instrument cases, desks, subrack assemblies and accessories shipped from Instant Optima in 3 days.**

MIL-SPEC ★★★★



Optima's modular construction adapts to your application and equipment mounting requirements. Custom designs also available. ▶▶▶

For Tempest level and EMC applications.

Optima Mil-Spec Cabinet System

The performance to meet tough government standards and the flexibility to meet your custom requirements for:

- EMI/RFI shielding
- shock and vibration
- chassis mounting and input/output
- shielded cooling systems
- structural strength and mobility

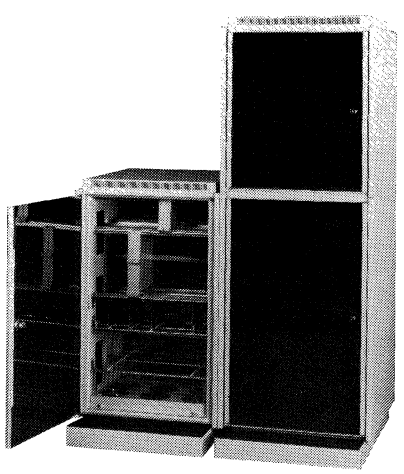
Call Optima for expert defense industry engineering support.

A custom look without the custom cost.

Stackable Optima MPS – design flexibility with a unique look

MPS performance features:

- sleek, modular construction with flexible component mounting options
- complete accessories for power, cooling and customizing your system
- EMI/RFI shielding available
- module heights: 13U, 19U, 25U; depths: 20, 24, 30"; widths: 19, 24"



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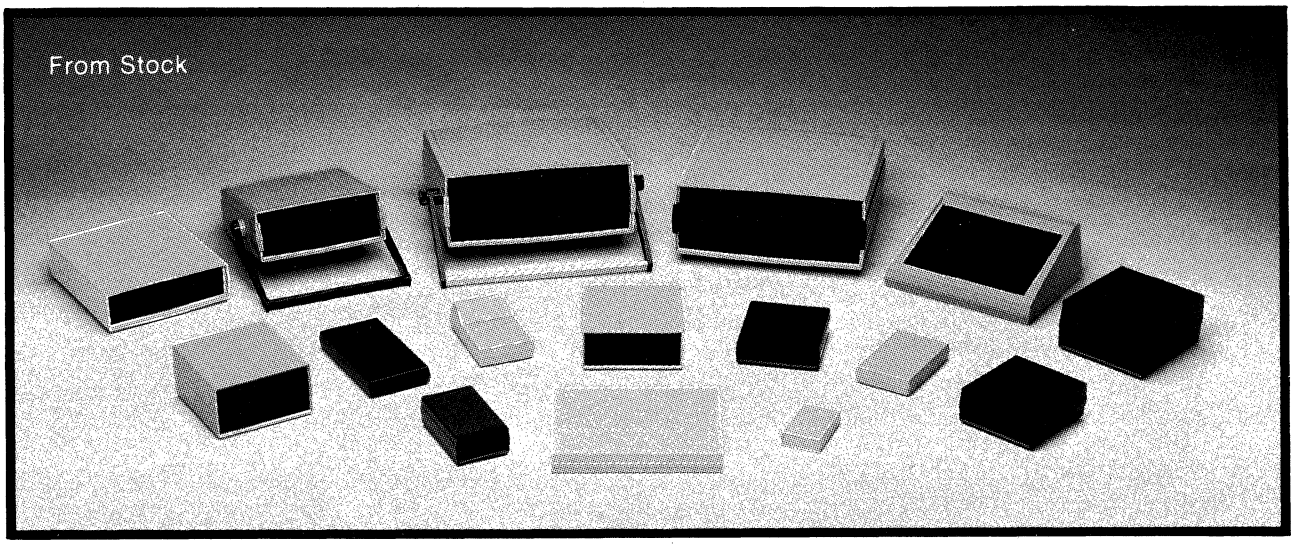
Electronic Enclosures...
designed to work for you.



Stock Enclosures • Modifications • Design Engineering Assistance • Custom Panels • Options and Accessories

- Easy to design into and easy to assemble
- Molded-through color means no chipping or scratching—and no need for refurbishing and painting during or after assembly
- Constructed of impact-resistant ABS—(flame-retardant grade to meet UL94V-0 standards, optional)
- Shielding against EMI/RFI available
- Standard colors: tan, gray, black, PC bone
- No tooling costs or set-up charges
- Molded-in mounting bosses, card guides, and panel grooves reduce assembly time and production costs
- Low-cost options and accessories available to meet end-user needs
- Available in kits and production quantities

Pac-Tec enclosures from stock, or modified "Your Way" by Pac-Tec's unique method of tool modification are available from your local stocking Distributors. For the name of your local distributor or additional information call:

PACTEC®
Division of LaFrance Corp.

Enterprise and Executive Avenues Philadelphia, PA 19153 Telephone (215) 365-8400 FAX: 215/365-4420 1-800-220-9800

Easy Reference Size Guide

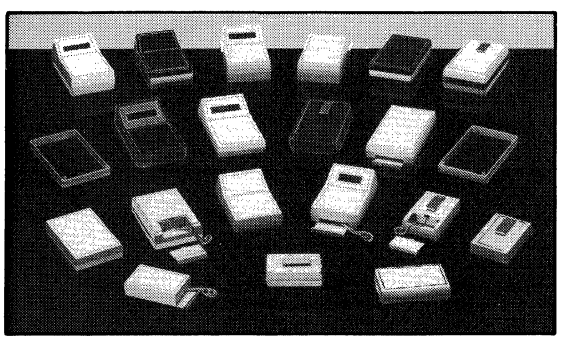
PacTec Standard Enclosures
Size Ranges Of Models Within Series
(Exterior Dimensions)

MODELS	MINIMUM DIMENSIONS			MAXIMUM DIMENSIONS			STANDARD COLORS			
	WIDTH	LENGTH	HEIGHT	WIDTH	LENGTH	HEIGHT	BLACK	GREY	TAN	P.C.BONE
H-Series	2.40"	3.80"	.90"	4.05"	7.55"	2.86"	X	X	X	X
CM-Series	3.33"	5.25"	1.75"	6.06"	6.25"	2.50"	X	X	X	X
CM69-Series*	6.33"	9.50"	1.38"	8.08"	6.25"	2.50"	X	X	X	X
CF-Series*	8.36"	9.11"	1.65"	8.36"	9.11"	3.65"	X	X	X	X
C-Series	8.50"	9.25"	2.44"	8.50"	9.25"	6.44"	X	X	X	X
CL-Series	12.50"	11.63"	3.51"	12.50"	11.63"	8.76"	X	X	X	X
KEU-Series	7.00"	5.00"	3.00"	10.00"	8.03"	4.20"	X	X	X	X
KE-Series	17.08"	8.68"	2.26"	20.08"	8.68"	2.26"	N/A	N/A	N/A	X
DE-Series	19.63"	15.50"	6.55"	19.63"	20.01"	7.22"	N/A	N/A	N/A	X
CRT-20							N/A	N/A	N/A	X

*CM69 and CF-Series may be ordered with mixed top and bottom colors.

NOTE All models are available as Prototype Kits or Production Units. Prototype Kits are individually packaged and include all parts and hardware necessary for assembly. Production Units include all parts and hardware necessary for assembly packaged in bulk with the exception of removable panels which are ordered separately.

H-Series



- The smallest enclosures in the PacTec line, "H" Series is ideal for keypads, programmable controllers, pocket pagers, computer interfaces and more.
- All models are available as prototype Kits or in Production units. Prototyping Kits are individually packaged and include all parts and hardware necessary for assembly. Production units include top and bottom covers and appropriate hardware, packaged in bulk. Removable panels for HM, HPS and HPLS production units may be ordered separately.
- Model HP is the base model, HPL is an elongated version, HM is a mini size. HPS and HPLS models have a sloped display area. The suffix "9VB" denotes an internal 9-volt battery compartment, suffix "XH" denotes the incorporation of an expander to increase overall height; the expander can be retrofitted to existing, corresponding models.

PRODUCTION MODELS (See Note)	AREA	WIDTH in	WIDTH mm	LENGTH in	LENGTH mm	HEIGHT in	HEIGHT mm
HM	outside	2.40	60,96	3.80	96,52	.90	22,86
	inside	2.19	55,63	3.52	89,41	.71	18,03
HM-9VB	outside	2.40	60,96	3.80	96,52	1.00	25,40
	inside	2.19	55,63	2.20	55,88	.85	21,59
HML	outside	2.75	69,85	4.60	116,84	.90	22,86
	inside	2.54	64,52	4.36	110,74	.75	19,05
HML-9VB	outside	2.75	69,85	4.60	116,84	1.00	25,40
	inside	2.54	64,52	2.96	75,18	.85	21,59
HP	outside	3.60	91,44	5.75	146,05	1.12	28,45
	inside	3.37	85,60	5.52	140,21	.92	23,37
HP-9VB	outside	3.60	91,44	5.75	146,05	1.29	32,77
	inside	3.37	85,60	3.97	100,58	1.08	27,43
HPL	outside	4.00	101,60	7.50	190,50	1.12	28,45
	inside	3.78	96,01	7.28	184,91	.92	23,37
HPL-9VB	outside	4.00	101,60	7.50	190,50	1.29	32,77
	inside	3.78	96,01	5.75	146,05	1.08	27,43
HPS	outside	3.60	91,44	5.75	146,05	1.92	48,77
	inside	3.37	85,60	5.52	140,21	.92	23,37
HPS-9VB	outside	3.60	91,44	5.75	146,05	2.09	53,09
	inside	3.37	85,60	3.97	100,58	1.08	27,18
HPLS	outside	4.00	101,60	7.50	190,50	2.09	53,09
	inside	3.78	96,01	7.28	184,91	.92	23,37
HLPS-9VB	outside	4.00	101,60	7.50	190,50	2.26	57,40
	inside	3.78	96,01	5.75	146,05	1.08	27,43
HP-XH	outside	3.63	92,2	5.78	146,81	1.52	38,61
	inside	3.37	85,6	5.52	140,21	1.32	33,53
HP-9VB-XH	outside	3.63	92,2	5.78	146,81	1.69	42,93
	inside	3.37	85,6	5.52	140,21	1.49	37,85
HPS-XH	outside	3.63	92,2	5.78	146,81	2.32	58,93
	inside	3.37	85,6	5.52	140,2	1.32	33,53
HPS-9VB-XH	outside	3.63	92,2	5.78	146,81	2.49	63,25
	inside	3.37	85,6	5.52	140,21	1.49	37,85
HPL-XH	outside	4.05	102,87	7.55	191,77	1.72	43,69
	inside	3.78	96,01	7.28	184,91	1.52	38,61
HPL-9VB-XH	outside	4.05	102,87	7.55	191,77	1.89	48,01
	inside	3.78	96,01	7.28	184,91	1.69	42,93
HPLS-XH	outside	4.05	102,87	7.55	191,77	2.69	68,33
	inside	3.78	96,01	7.28	184,91	1.52	38,61
HPLS-9VB-X	outside	4.05	102,87	7.55	191,77	2.86	72,64
	inside	3.78	96,01	7.28	184,91	1.69	42,93

***All models are available as Prototype Kits. Add the prefix K to order.**

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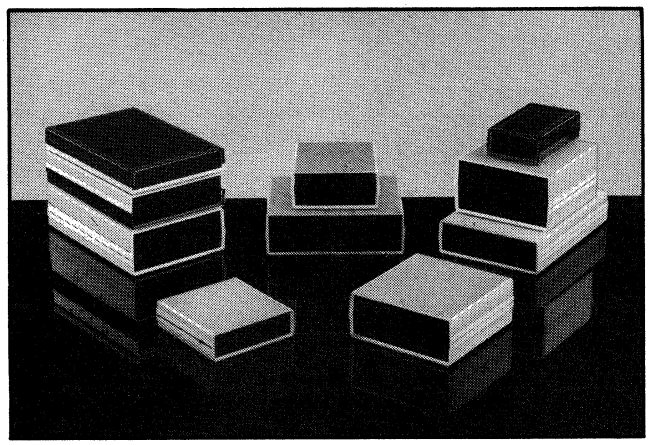
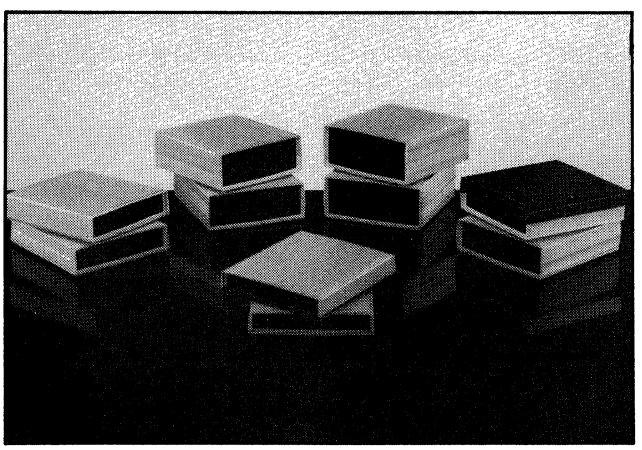


CM-Series

- CM Series is available in nine models and is especially suited for test instruments, computer peripherals and medical electronics packaging.
- All models are available as prototype Kits or Production units. Prototyping Kits are individually packaged and include all parts and hardware necessary for assembly. Production units include top and bottom covers and appropriate hardware, packaged in bulk. Removable front and rear panels may be ordered separately.
- CM69-120, CM69-180 and CM69-240 are available in the Designer Series. Top and bottom covers are interchangeable and may be ordered from stock in mixed, standard colors.

KIT MODELS	PRODUCTION MODELS
K-CM3-150	CM3-150
K-CM5-125	CM5-125
K-CM5-200	CM5-200
K-CM6-225	CM6-225
K-CM6-300	CM6-300
K-CM69-120	CM69-120
K-CM69-180	CM69-180
K-CM69-240	CM69-240
K-CM86-225	CM86-225

AREA	WIDTH		LENGTH		HEIGHT	
	in	mm	in	mm	in	mm
outside	3.33	84.6			1.75	4.45
inside	2.34	59.4			1.19	30.2
outside	5.08	129.0	5.25	133.4	1.50	38.1
inside	4.10	104.1	4.81	122.2	.95	24.1
outside	5.08	129.0			2.25	57.2
inside	4.10	104.1			1.70	43.18
outside	6.06	153.9			2.50	63.5
inside	4.85	123.0	6.25	158.8	1.95	49.3
outside	6.06	153.9	5.75	146.1	3.25	82.6
inside	4.85	123.0			2.70	68.6
outside	6.33	160.78	9.50	241.30	1.38	35.05
inside	5.12	130.1	8.94	227.08	.93	23.62
outside	6.33	160.78	9.50	241.30	1.99	50.55
inside	5.12	130.1	8.94	227.08	1.54	39.12
outside	6.33	160.78	9.50	241.30	2.59	65.79
inside	5.12	130.1	8.94	227.08	2.14	54.36
outside	8.08	205.2	6.25	158.8	2.50	63.5
inside	6.87	174.5	5.75	146.0	1.95	49.5



CF-Series

- CF Designer Series is available in five models and is especially suited for test instruments, computer peripherals, medical electronics packaging and more.
- All models are available as prototype Kits or Production units. Prototyping Kits are individually packaged and include all parts and hardware necessary for assembly. Production units include top and bottom covers and appropriate hardware, packaged in bulk. Removable front and rear panels may be ordered separately.
- CF Designer Series top and bottom covers are interchangeable and may be ordered from stock in mixed, standard colors.

KIT MODELS	PRODUCTION MODELS
KCF-125, *KCFB-125	CF-125, *CFB-125
KCF-175, *KCFB-175	CF-175, *CFB-175
KCF-225, *KCFB-225	CF-225, *CFB-225
KCF-275, *KCFB-275	CF-275, *CFB-275
KCF-325, *KCFB-325	CF-325, *CFB-325

***B: With Bail Tilt Stand**

AREA	WIDTH		LENGTH		HEIGHT	
	in	mm	in	mm	in	mm
outside	8.360	212,34	9.110	231,39	1.650	41,91
inside	7.800	198,12	8.000	203,20	** 1.074	27,28
outside	8.360	212,34	9.110	231,39	2.150	54,61
inside	7.800	198,12	8.000	203,20	** 1.574	39,98
outside	8.360	212,34	9.110	231,39	2.650	67,31
inside	7.800	198,12	8.000	203,20	** 2.074	52,68
outside	8.360	212,34	9.110	231,39	3.150	80,01
inside	7.800	198,12	8.000	203,20	** 2.574	65,38
outside	8.360	212,34	9.110	231,39	3.650	92,71
inside	7.800	198,12	8.000	203,20	3.074	78,08

** Indicated models available with expanders to increase overall height .25" (6,35 mm). Add suffix "XH" when ordering

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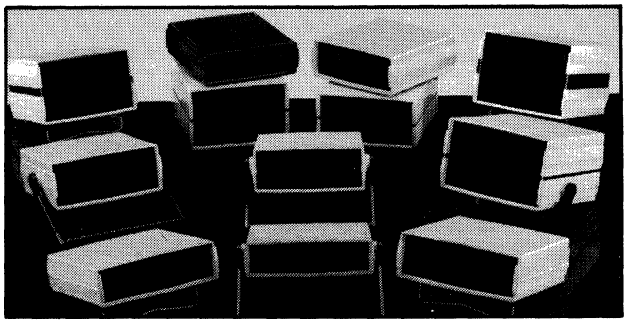
C-Series

- All "C" Series models are available as prototyping Kits or Production units.
- Kit K-C23 can be assembled into one of six, pre-selected heights ranging from 1.68" through 2.93" (nominal inside dim.) in increments of .250". Kits K-CS-400, K-CS-500 and K-CS-600 are fixed height units.

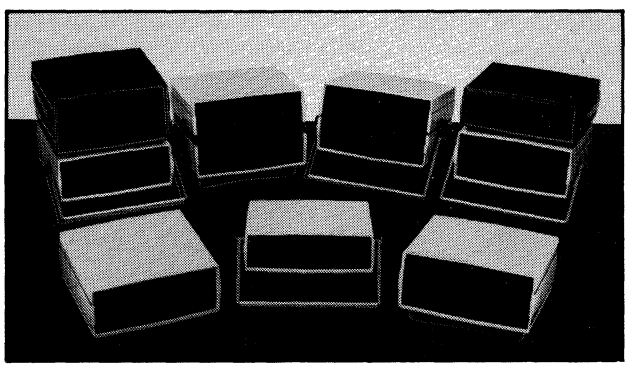


KIT MODELS			PRODUCTION MODELS		
BASIC KIT	KIT W/ HANDLE	KIT W/ TILT STAND	BASIC CASE	CASE W/ HANDLE	CASE W/ TILT STAND
K-C-23	K-CH-23	K-CB-23	C-200	CH-200	CB-200
			C-225	CH-225	CB-225
			C-250	CH-250	CB-250
			C-275	CH-275	CB-275
			C-300	CH-300	CB-300
K-C-23	K-CH-23	K-CB-23	C-325	CH-325	CB-325
K-CS-400	K-CHS-400	K-CBS-400	CS-400	CHS-400	CBS-400
K-CS-500	K-CHS-500	K-CBS-500	CS-500	CHS-500	CBS-500
K-CS-600	K-CHS-600	K-CBS-600	CS-600	CHS-600	CBS-600

AREA	WIDTH		LENGTH		HEIGHT	
	in	mm	in	mm	in	mm
outside	8.50	215,9	9.25	235,0	2.44	61,9
inside	7.80	198,1	8.00	203,2	1.68	42,7
outside	8.50	215,9	9.25	235,0	2.69	68,3
inside	7.80	198,1	8.00	203,2	1.93	49,0
outside	8.50	215,9	9.25	235,0	2.94	74,6
inside	7.80	198,1	8.00	203,2	2.18	55,4
outside	8.50	215,9	9.25	235,0	3.19	81,0
inside	7.80	198,1	8.00	203,2	2.43	61,7
outside	8.50	215,9	9.25	235,0	3.44	87,3
inside	7.80	198,1	8.00	203,2	2.68	68,1
outside	8.50	215,9	9.25	235,0	3.69	93,7
inside	7.80	198,1	8.00	203,2	2.93	74,4
outside	8.50	215,9	9.25	235,0	4.44	112,7
inside	7.80	198,1	8.00	203,2	3.68	93,5
outside	8.50	215,9	9.25	235,0	5.44	138,2
inside	7.80	198,1	8.00	203,2	4.68	118,9
outside	8.50	215,9	9.25	235,0	6.44	163,6
inside	7.80	198,1	8.00	203,2	5.68	144,3

CL-Series

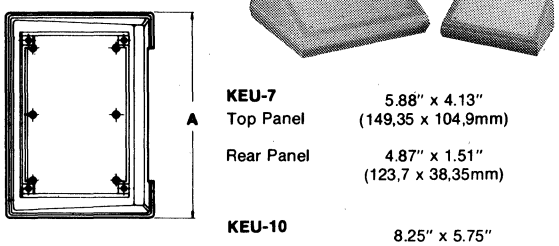
- All "CL" Series models are available as prototyping Kits or Production units.
- Kit K-CLLP-34 can be assembled into one of four, pre-selected heights ranging from 2.50" through 3.25" (nominal inside dim.) in increments of .250". Kit K-CL-45 can be assembled into one of six, pre-selected heights ranging from 3.50" through 4.75" (nominal inside dim.) in increments of .250". Kits K-CLS-625, K-CLS-725 and K-CLS-825 are fixed height units.



KIT MODELS			PRODUCTION MODELS		
BASIC KIT	KIT W/ HANDLE	KIT W/ TILT STAND	BASIC CASE	CASE W/ HANDLE	CASE W/ TILT STAND
K-CLLP-34	K-CLLPH-34	K-CLLPB-34	CLLP-300	CLLPH-300	CLLPB-300
			CLLP-325	CLLPH-325	CLLPB-325
			CLLP-350	CLLPH-350	CLLPB-350
K-CLLP-34	K-CLLPH-34	K-CLLPB-34	CLLP-375	CLLPH-375	CLLPB-375
K-CL-45	K-CLH-45	K-CLB-45	CL-400	CLH-400	CLB-400
			CL-425	CLH-425	CLB-425
			CL-450	CLH-450	CLB-450
			CL-475	CLH-475	CLB-475
			CL-500	CLH-500	CLB-500
K-CL-45	K-CLH-45	K-CLB-45	CL-525	CLH-525	CLB-525
K-CLS-625	K-CLHS-625	K-CLBS-625	CLS-625	CLHS-625	CLBS-625
K-CLS-725	K-CLHS-725	K-CLBS-725	CLS-725	CLHS-725	CLBS-725
K-CLS-825	K-CLHS-825	K-CLBS-825	CLS-825	CLHS-825	CLBS-825

AREA	WIDTH		LENGTH		HEIGHT	
	in	mm	in	mm	in	mm
outside	12.50	317,5	11.63	295,4	3.51	89,2
inside	11.77	299,0	10.40	264,2	2.50	63,5
outside	12.50	317,5	11.63	295,4	3.76	95,5
inside	11.77	299,0	10.40	264,2	2.75	69,9
outside	12.50	317,5	11.63	295,4	4.01	101,9
inside	11.77	299,0	10.40	264,2	3.00	76,2
outside	12.50	317,5	11.63	295,4	4.26	108,2
inside	11.77	299,0	10.40	264,2	3.25	82,6
outside	12.50	317,5	11.63	295,4	4.51	114,6
inside	11.77	299,0	10.40	264,2	3.50	88,9
outside	12.50	317,5	11.63	295,4	4.76	120,9
inside	11.77	299,0	10.40	264,2	3.75	95,3
outside	12.50	317,5	11.63	295,4	5.01	127,3
inside	11.77	299,0	10.40	264,2	4.00	101,6
outside	12.50	317,5	11.63	295,4	5.26	133,6
inside	11.77	299,0	10.40	264,2	4.25	108,0
outside	12.50	317,5	11.63	295,4	5.51	140,0
inside	11.77	299,0	10.40	264,2	4.50	114,3
outside	12.50	317,5	11.63	295,4	5.76	146,3
inside	11.77	299,0	10.40	264,2	4.75	120,7
outside	12.50	317,5	11.63	295,4	6.76	171,7
inside	11.77	299,0	10.40	264,2	5.75	146,1
outside	12.50	317,5	11.63	295,4	7.76	197,1
inside	11.77	299,0	10.40	264,2	6.75	171,5
outside	12.50	317,5	11.63	295,4	8.76	222,5
inside	11.77	299,0	10.40	264,2	7.75	196,9

KEU-Series

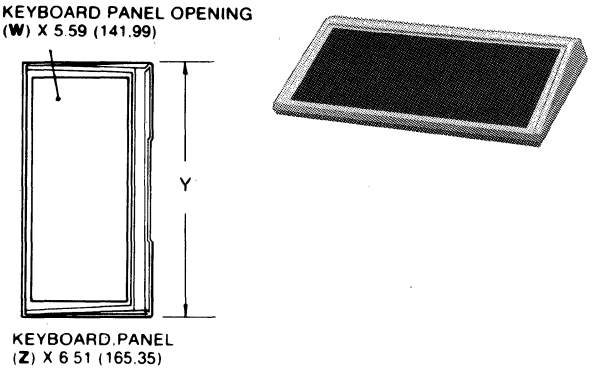


KEU-7
Top Panel 5.88" x 4.13" (149,35 x 104,9mm)
Rear Panel 4.87" x 1.51" (123,7 x 38,35mm)

KEU-10
Top Panel 8.25" x 5.75" (209,55 x 146,05mm)
Rear Panel 6.99" x 1.84" (177,55 x 46,74mm)

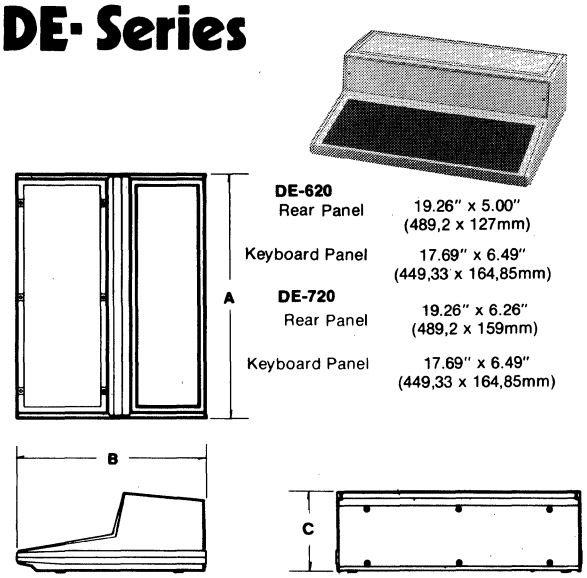
MODEL	A	B	C	D
KEU-7	7.00" (177,8mm)	5.00" (127mm)	3.10" (78,74mm)	2.90" (73,66mm)
KEU-10	10.00" (254mm)	8.03" (204mm)	4.20" (106,7mm)	4.00" (101,6mm)

KE-Series



MODEL	W	Y	Z
KE17	14.80 (375,92)	17.08 (433,83)	15.08 (383,03)
KE20	17.80 (452,12)	20.08 (510,03)	18.08 (459,23)

DE-Series

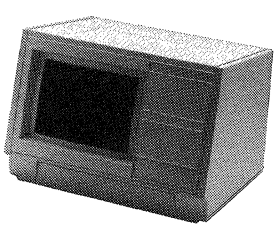


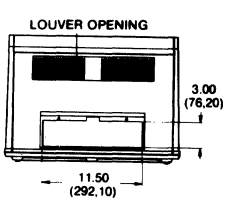
DE-620
Rear Panel 19.26" x 5.00" (489,2 x 127mm)
Keyboard Panel 17.69" x 6.49" (449,33 x 164,85mm)

DE-720
Rear Panel 19.26" x 6.26" (489,2 x 159mm)
Keyboard Panel 17.69" x 6.49" (449,33 x 164,85mm)

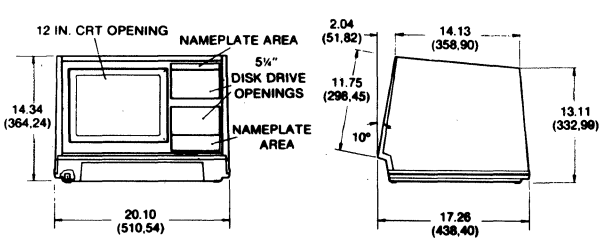
MODEL	A	B	C
DE-620	19.63" (498,60mm)	15.50" (393,70mm)	5.84" (148,34mm)
DE-720	19.63" (498,60mm)	20.01" (508,25mm)	7.10" (180,34mm)

CRT 20





REAR VIEW



FRONT VIEW SIDE VIEW

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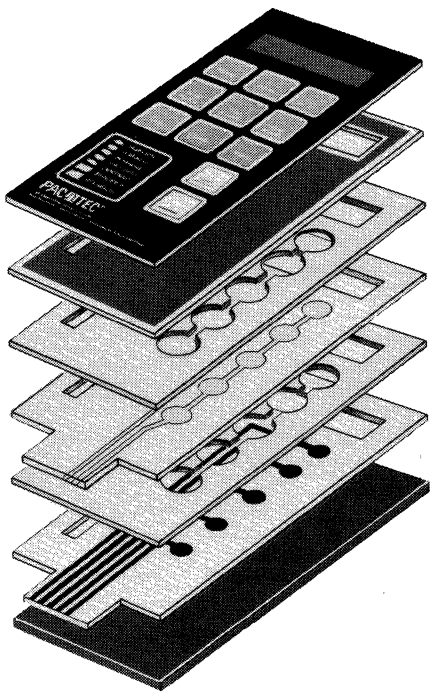
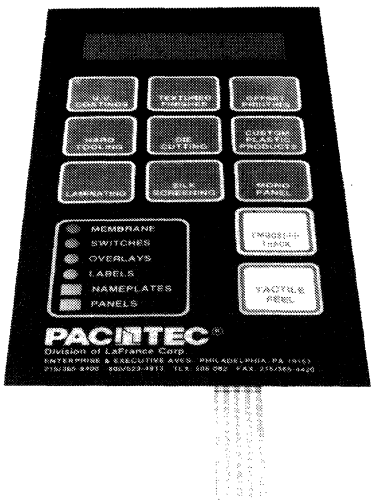
- Tactile feel
- Audible feedback
- Choice of interconnect: independant w/common or matrix
- Color matching to PMS, Federal Specification 595, Munsell or to color chip
- EMI/RFI shielding optional
- 100% testing



- **Graphics Panel**
- **EMI/RFI Shielding (Optional)**
- **Spacer**
- **Upper Switch Circuit**
- **Spacer**
- **Lower Switch Circuit**
- **Subpanel/Assembly Mounting**



The PacTec membrane switch assembly is completely sealed from the environment and highly impervious to chemical and solvent intrusion. Keypads may have embossed or debossed borders. Graphic panels may incorporate selective surface finishing. Final assembled thickness of the switch usually ranges from .022" to .026", including laminating adhesive layers.

SPECIFICATIONS

- **Contact Rating:** 20 milliamps at 30 VDC
- **Maximum Rating:** 100 milliamps with maximum power of 1.5 amps (50 VDC maximum)
- **Circuit Resistance:** less than 100 ohms (ON), 10 megohms (OFF)
- **Contact Resistance:**
  silver, less than 8 milliohms per square inch
  silver and graphite hybrid, less than 7 ohms per square inch
  graphite, less than 10 ohms per square inch
  stabilized nickel, less than 10 ohms per square inch
- **Open Circuit:** greater than 20 megohms
- **Life Expectancy:** 10+ million actuations
- **Activation Force:** 2-12 oz. nominal
- **Travel:** .009" to .014"
- **Bounce:** 1 to 10 milliseconds nominal
- **Operating Temperature:** -40° to +85° C
- **Moisture Transmission Rate:** 0
- **Electrostatic Interference Resistance:** optional, shielding may be incorporated
- **Tolerances:**
  hole diameter, + .01"
  steel rule die tooling, + .01"
  hard tooling, + .002"
- **Total Assembled Thickness:** .022" to .026"
- **Screen Printing Capability:** up to 365 mesh (steel)

PacTec Division Enterprise & Executive Avenues Philadelphia, PA 19153 Telephone (215) 365-8400 FAX: 215/365-4420 1-800-220-9800

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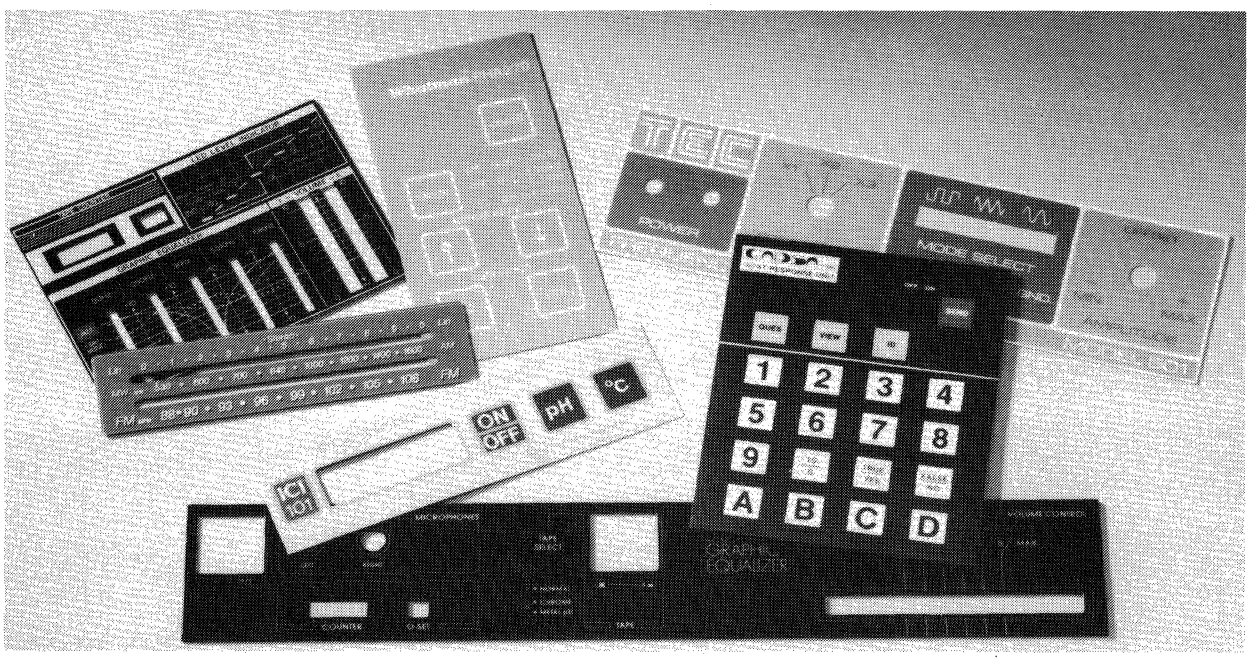
Division of LaFrance Corp.

Graph-Tec™ Panels

CUSTOM PRINTED OVERLAYS



Specialists in Control Panels, Nameplates, Overlays, Faceplates, Templates and Instruction Plates.

Design Assistance
The LaFrance design and engineering staffs bring together years of accumulated experience in mechanical, electronic and graphics design. Combined with totally in-house cost estimating, manufacturing and quality control a specialized team will help bring your project to a successful conclusion. Write or phone for details.

Materials of Manufacture

Polycarbonate	Polyvinylchloride
Polyester	Polystyrene

Color Matching

Standard PMS Colors	Munsell
Federal Specification 595	Custom Colors

Printing and Imprinting Methods
- SCREEN PRINTING up to 25"x30"x.003" to .060" thick.
- OFFSET PRINTING up to 25"x38"x.005" to .030" thick.
- TRANSFER PAD PRINTING with the ability to print on raised or depressed pads and curved surfaces.
- HOT STAMPING with a rainbow of brilliant colors including metallics.

Laminating Methods
- ROLLER LAMINATING to infinite length x 24"w x .003" and greater thicknesses.
- HIGH PRESSURE LAMINATING up to 25"x38"x .007" to .250" thick.

Finishing Options
- Press polishing by high pressure laminating, producing mirror, matte and satin finishes.
- Screen printed finishes include velvet, gloss, semi-gloss and matte, plus various selective textures.
- Embossing

Die Cutting
- Steel rule, up to 25"x38".
- Hard die punching.

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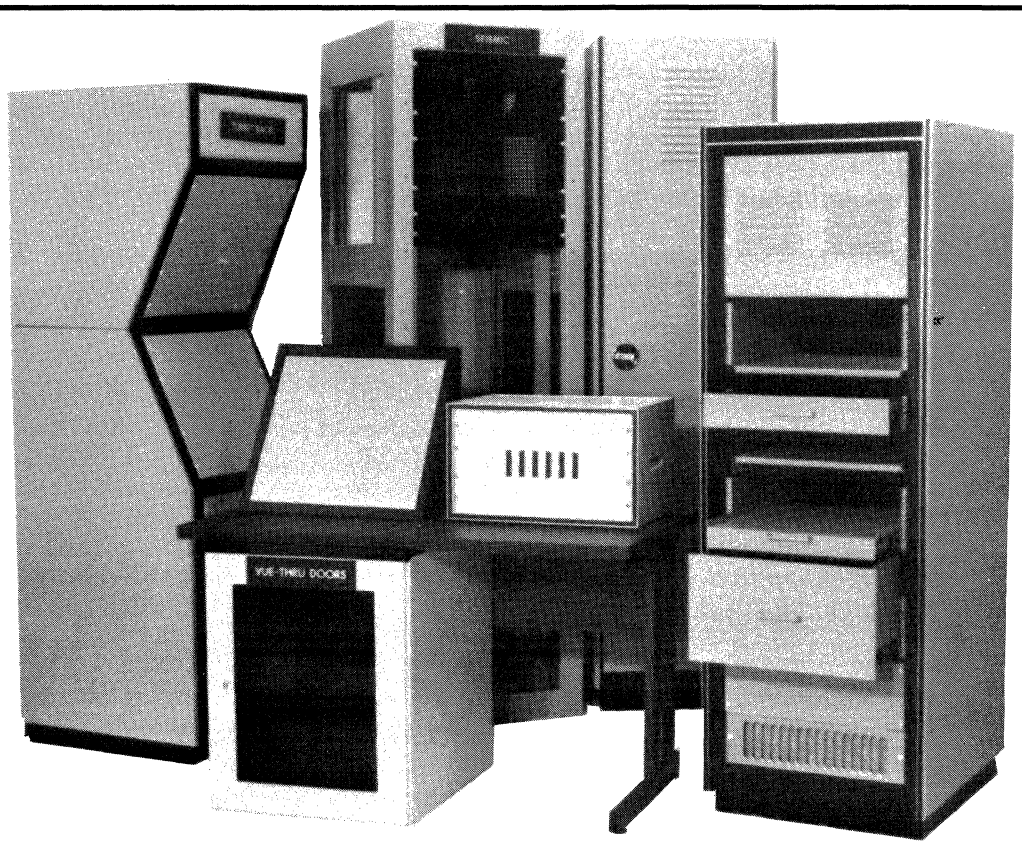

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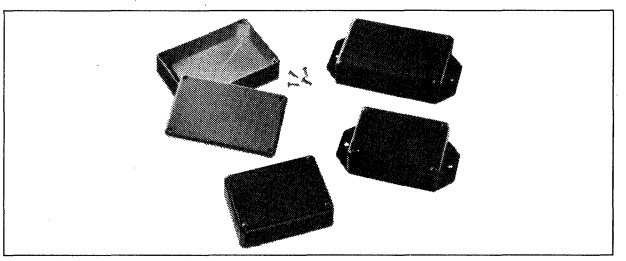
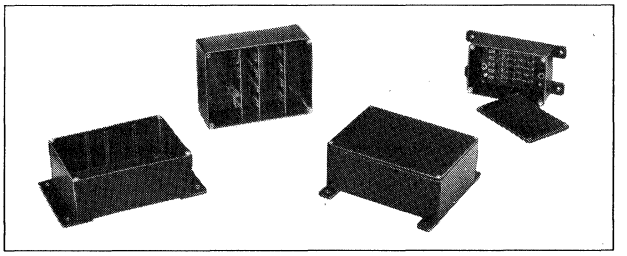
LOW PROFILE ENCLOSURES

- 5 sizes/2 styles-plain or mounting feet
- Sizes from 3.25×2.375×1 inches to 5.5×3.75×1.25 inches (L×W×H)
- Screw-on covers included
- Textured finish
- Flame retardant ABS (U/L 94V-0)



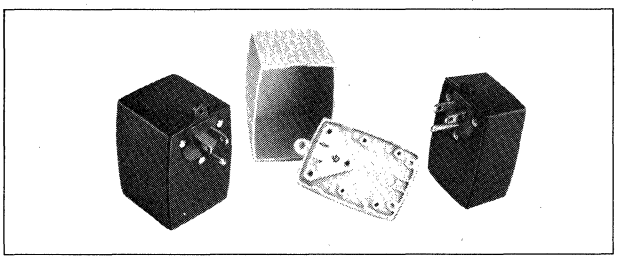
GENERAL PURPOSE

- 4 sizes/2 styles-plain or mounting feet
- Sizes from 4.5×3.0×1.75 inches to 7.5×4.5×2.25 inches (L×W×H)
- Screw-on covers included
- Flame retardant ABS (U/L 94V-0)



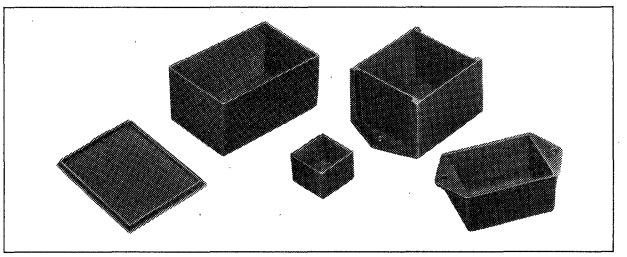
PLUG-IN MODULES

- U/L recognized component
- 2 or 3 pole grounded base
- 4 sizes
- Sizes from 2.0×2.0×1.75 inches to 2.0×3.0×2.25 inches (L×W×H)
- Flame retardant ABS (U/L 94V-0)



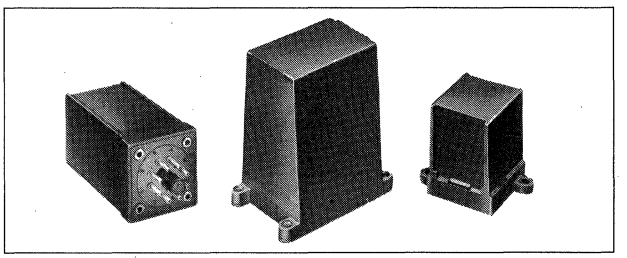
ENCAPSULATION BOXES & COVERS

- 5 sizes/3 styles-plain, top or bottom mounting feet
- Sizes from 1.0×1.0×.75 inches to 3.0×3.0×1.5 inches (L×W×H)
- Covers in all sizes
- Flame retardant ABS (U/L 94V-0)



TYPE 15 & 23

- Flame retardant NYLON or POLYPROPYLENE (U/L 94V-2)
- 6 standard bases
- Internal slots for PC boards
- Sizes from 1.625×1.625×2.0 inches to 2.125×2.625×3.5 inches (L×W×H)



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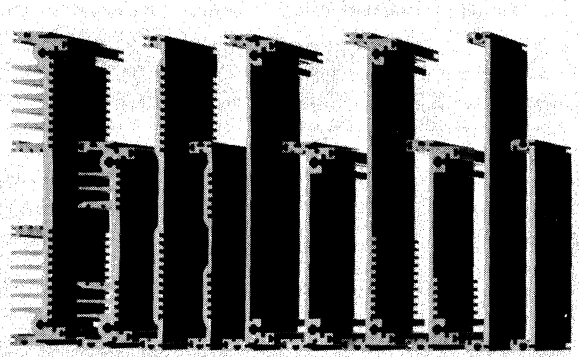
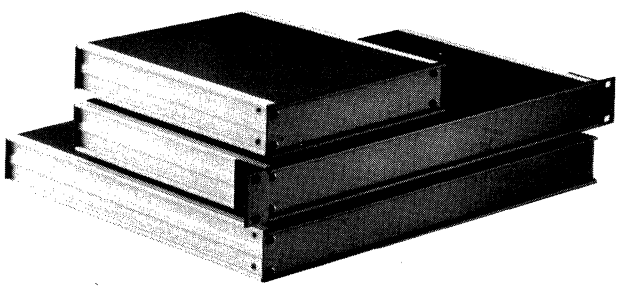


C C A A BB BB B B E E

I H L D22 G T D44 F44 EE E44

FEATURING:



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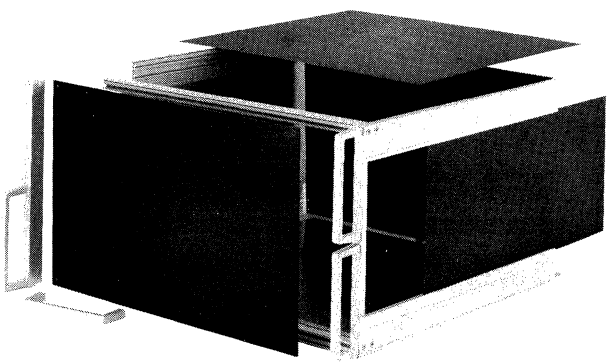
The 1–3/4" (1U) Tall Case Series



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In Sizes 3 1/2" (2U) To 14" (8U) Tall.
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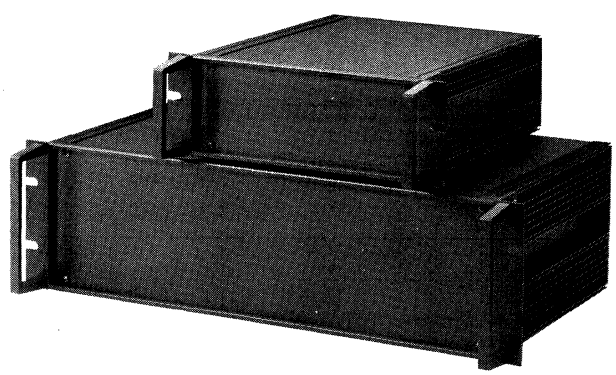

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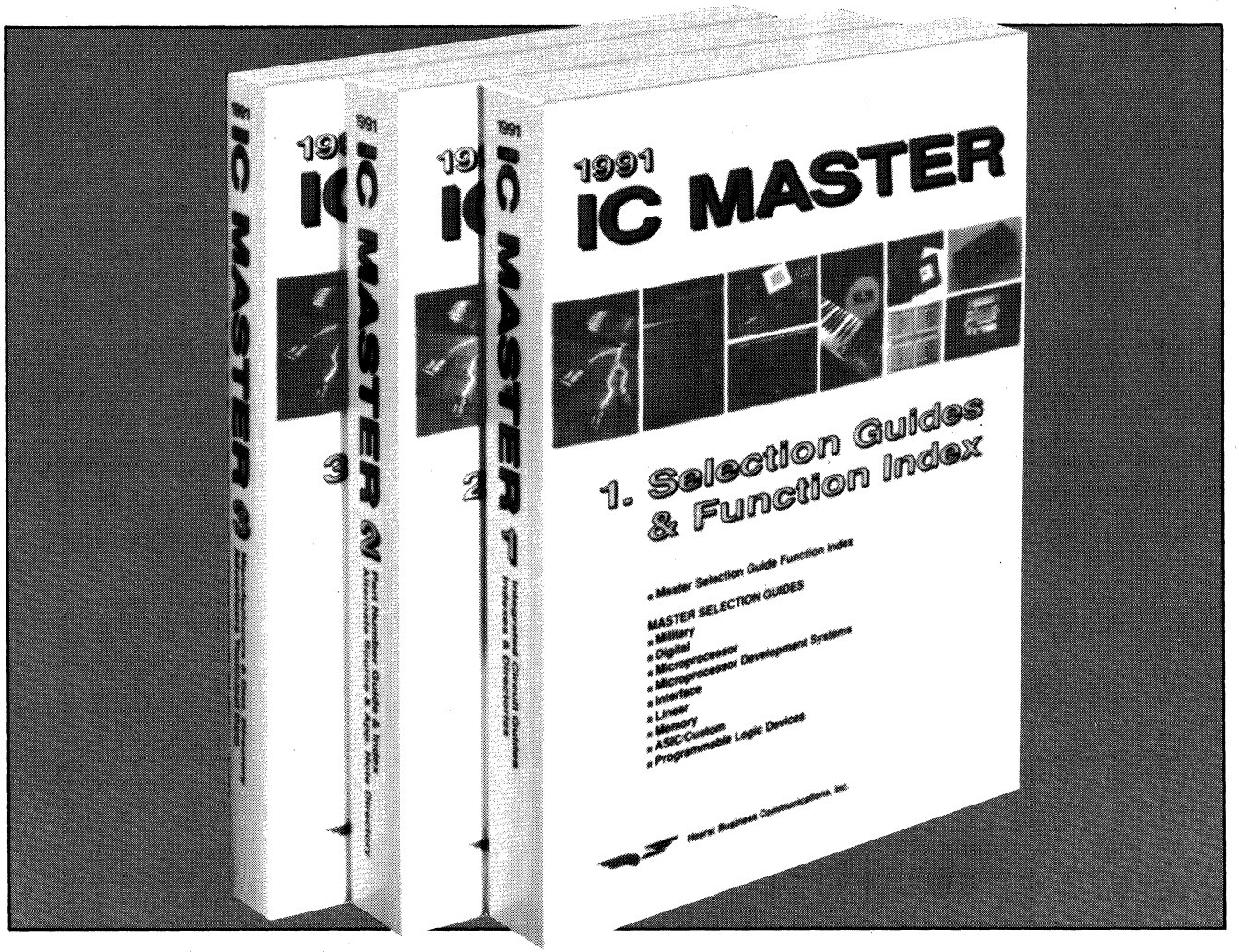

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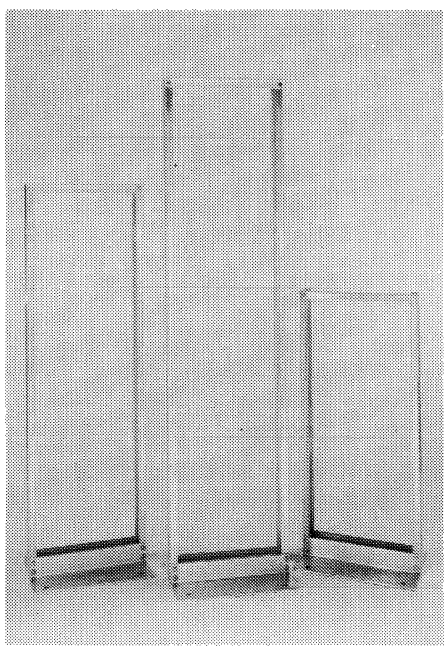
PFT MODULAR NETWORKING FRAMES

Now available from PFT - Modular Networking Frames that are UPS shippable! These all aluminum open frame racks are available in 19" and 24" rack mount widths with standard heights of 78", 70", 61" and 42". Each unit is drilled and tapped with universal EIA hole spacing. Refer to dimensional chart for detailed specifications.

PFT Modular Networking Frames are ideal for mounting electronic and test equipment, patch panels, shelves, data communication and telecommunication products as well as other cabling and rack mount products.

PFT Modular Networking Frames offer an economical alternative to your rack mount needs at a fraction of the cost of a fully enclosed vertical enclosure. These frames are ideal when a fully enclosed cabinet is not required.

All PFT Modular Networking Frames are shipped knocked down for a significant freight savings. Assembly is easily accomplished in a matter of minutes using standard socket or adjustable wrenches. Frames are designed to bolt to the floor for extra stability.



NEW

PFT Special Features:

- Heavy duty aluminum extrusion construction utilizing 6105-T6 aluminum alloy
- 10—32 dia. tapped holes on front and rear flanges
- EIA hole spacing full height of vertical uprights
- Available in smooth black oven baked or standard mil finish
- Designed for multi-bay configurations
- UPS shippable for economical freight costs
- Designed to accommodate a variety of PFT accessories
- Pre-threaded holes allow for quick and easy assembly

Each PFT Modular Networking Frame Consists of:

- 2 fully tapped vertical uprights
- 2 mounting bases (front and rear)
- top angle
- assembly hardware

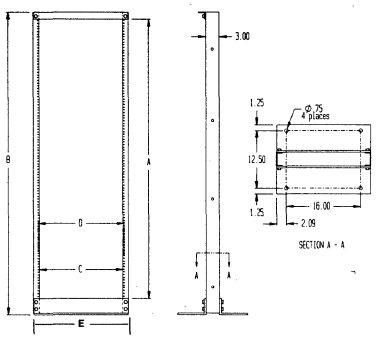
IN STOCK FOR IMMEDIATE DELIVERY

For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

PFT MODULAR NETWORKING FRAMES

TECHNICAL DATA

DIMENSIONAL AND COLOR CHART



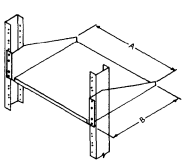
PFT #	A Vertical Opening	B Overall Height	C Inside Width	D Hole-To-Hole Centers	E Overall Width	Rack Units	Finish
MNF1978A	78.125	84.00	17.81	18.31	20.18	45 U	Black
MNF1978U	78.125	84.00	17.81	18.31	20.18	45 U	Mil
MNF1970A	70.125	75.25	17.81	18.31	20.18	40 U	Black
MNF1970U	70.125	75.25	17.81	18.31	20.18	40 U	Mil
MNF1961A	61.375	66.50	17.81	18.31	20.18	35 U	Black
MNF1961U	61.375	66.50	17.81	18.31	20.18	35 U	Mil
MNF1942A	42.125	47.25	17.81	18.31	20.18	24 U	Black
MNF1942U	42.125	47.25	17.81	18.31	20.18	24 U	Mil
MNF2478A	78.125	84.00	22.81	23.31	25.18	45 U	Black
MNF2478U	78.125	84.00	22.81	23.31	25.18	45 U	Mil
MNF2470A	70.125	75.25	22.81	23.31	25.18	40 U	Black
MNF2470U	70.125	75.25	22.81	23.31	25.18	40 U	Mil
MNF2461A	61.375	66.50	22.81	23.31	25.18	35 U	Black
MNF2461U	61.375	66.50	22.81	23.31	25.18	35 U	Mil
MNF2442A	42.125	47.25	22.81	23.31	25.18	24 U	Black
MNF2442U	42.125	47.25	22.81	23.31	25.18	24 U	Mil

ALL DIMENSIONS IN INCHES

ACCESSORIES

Cantilevered Equipment Shelf

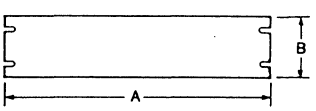
Heavy duty construction designed to hold a variety of non rack mountable equipment. Shelves are available for 19" and 24" wide networking frames. Shelf depth is 14". Other special features are:



- 16 gauge steel
- Rated for 50 lb. load capacity
- Smooth black finish
- Mounting hardware included
- In stock for immediate delivery
- UPS shippable

PFT #	A	B	FINISH
CS1914SA	19	14	Black
CS2414SA	24	14	Black

ALL DIMENSIONS IN INCHES



Flat Filler Panels

A variety of filler panels are available to fill any spaces between equipment or shelves. All filler panels are available with a textured ash white or black finish. Other special features are:

- .125" thick aluminum
- Mounting hardware included
- In stock for immediate delivery

19" Wide Filler Panels

PFT #	A WIDTH	B HEIGHT	FINISH
FL1901A	19	1.75	Black
FL1901H	19	1.75	Ash White
FL1903A	19	3.50	Black
FL1903H	19	3.50	Ash White
FL1905A	19	5.25	Black
FL1905H	19	5.25	Ash White
FL1907A	19	7.00	Black
FL1907H	19	7.00	Ash White
FL1908A	19	8.75	Black
FL1908H	19	8.75	Ash White
FL1910A	19	10.50	Black
FL1910H	19	10.50	Ash White

ALL DIMENSIONS IN INCHES

24" Wide Filler Panels

PFT #	A WIDTH	B HEIGHT	FINISH
FL2401A	24	1.75	Black
FL2401H	24	1.75	Ash White
FL2403A	24	3.50	Black
FL2403H	24	3.50	Ash White
FL2405A	24	5.25	Black
FL2405H	24	5.25	Ash White
FL2407A	24	7.00	Black
FL2407H	24	7.00	Ash White
FL2408A	24	8.75	Black
FL2408H	24	8.75	Ash White
FL2410A	24	10.50	Black
FL2410H	24	10.50	Ash White

ALL DIMENSIONS IN INCHES

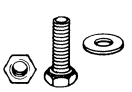
Cup Head Screws

- 10 / 32 cup head screws
- Nickel plated with a nylon washer
- Twenty per kit

PFT#-CHS 1032F. 10/32 x $^{5}/_{8}$" long
PFT#-CHS 1032K. 10/32 x $1^{1}/_{8}$" long.

Multi-Bay Joining Kit

Used to join modular relay racks together to form double bays, triple bays, etc.
PFT#-JK05



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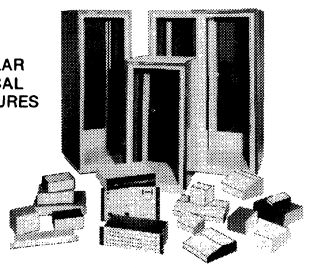
PFT MODULAR ENCLOSURES

MODULAR VERTICAL ENCLOSURES



Mod-u-line Modified Mod-u-box

PFT MODULAR ENCLOSURES

A complete and compatible family of value engineered cabinets and vertical rack enclosures which meet the highest standards of quality, versatility and ease of use at a surprisingly modest price.

All four lines: Mod-u-desk, Modular Vertical Enclosures, Mod-u-line and Mod-u-box are specifically designed to complement each other and other standard electronics industry products.

Material - All PFT enclosures are manufactured from heavy gauge aluminum or cold rolled steel.

Finish - Beautiful oven-baked smooth and textured paints available in a selection of colors.

Design - Ease of assembly and replaceability of all parts are built-in features.

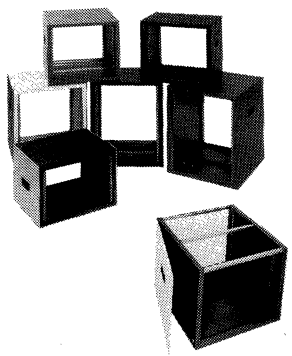
Price - Value engineering means top performance for bottom dollar.

Mod-u-desk®

Designed to provide optimum flexibility and adaptability, **PFT Modular Desk Rack Enclosures** are premium quality knock down cabinet racks in the EIA standard 19" rack mount width. PFT's knock down enclosures allow shipment at reduced cost **without sacrificing structural integrity.** A **Mod-u-desk** rack enclosure can be assembled in minutes.

FEATURES

- **Construction** - Mod-u-desk cabinets are all aluminum constructed except for internal crossbars and mounting rails which are constructed from 16 gauge steel finished in a zinc plate with a gold chromate coating. Top, bottom and interior side panels are fabricated from .060" aluminum with exterior dress sides .125" aluminum. All panels have exterior surfaces textured to enhance durability while optimizing the units' cosmetic appearance.
- **Equipment mounting** is easily accomplished by utilizing clip nuts, standard with each unit, enabling quick, economical installation of equipment. All mounting rails have two sets of .281" diameter holes in the EIA pattern.
- **Adjustable** mounting rails can be located throughout the depth of the cabinet in 1 inch increments to allow you to match the internal mounting dimension to fit your needs.
- **Finish color** is textured polyurethane or water base to harmonize with standard electronics industry equipment. Select from the wide variety of standard PFT colors.
- **Accessories for Modular Desk Rack Cabinets** compatible with competitors' racks are available. Filler panels, fans and many other accessories are available.
- **Shipping costs** and warehouse space requirements are significantly reduced as a result of the knock down construction.



HOW TO ORDER

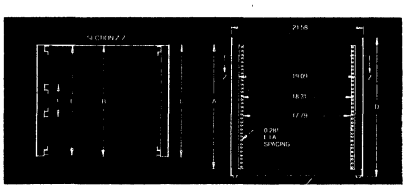
Mod-u-desk rack cabinets are simple to order. All Mod-u-desk cabinet part numbers begin with MDR to identify the part as a Mod-u-desk Rack and will consist of a total of 12 characters.

The letters MDR are followed by six digits representing the size of the cabinet. The first two digits represent the standard EIA width of 19". The next two digits identify the height, where you have a choice of 12", 15", 19" or 22". The next two digits identify the depth where you have a choice of either a 17" or 23" depth. At this point, you should have a 9 digit part number which looks similar to this example: MDR191523. This represents a Mod-u-desk Rack cabinet for 19" rack mount equipment, 15" in height and 23" deep.

The tenth character identifies what type of venting you desire. You have four choices. Place **P** if you desire your unit **P**lain (units with no venting). Place a **T** in this position if you desire venting in the **T**op panel, a **B** if you desire venting in the **B**ottom and a **V** if you want your unit **V**ented both top and bottom.

The last two characters represent the color scheme you desire (refer to the color chart below). The eleventh digit represents the color you desire the top, bottom and interior side panels. The last digit, the twelfth, represents the color you desire the exterior side panels (it is common for customers to desire their entire unit one color in which case you put the same color code in the last two characters).

Once you have selected your options, you will end up with a twelve character part number similar to this example: MDR191523VGC. This represents a Mod-u-desk rack cabinet for 19" rack equipment, 15" high, 23" deep with both the top and bottom panels vented. The top, bottom and interior side panels will be light grey and the exterior side panels charcoal.



V = The Designation for Venting
Use "P" to receive plain units (no venting)
Use "T" to receive top panel only vented
Use "B" to receive bottom panel only vented
Use "V" to receive top and bottom panels vented

PFT Standard venting consists of 2 - 3.375" strips of .125"x .375" obround holes on .250" centers.

PART NUMBER	A VERTICAL OPENING	B INTERNAL DEPTH	C OVERALL DEPTH	D OVERALL HEIGHT	E MAXIMUM RAIL SPACING	F MINIMUM RAIL SPACING
MDR 191217 VYZ	12.38	17.25	17.50	14.62	17.00	5.00
MDR 191517 VYZ	15.88	17.25	17.50	18.12	17.00	5.00
MDR 191917 VYZ	19.38	17.25	17.50	21.62	17.00	5.00
MDR 192217 VYZ	22.38	17.25	17.50	25.12	17.00	5.00
MDR 191223 VYZ	12.38	23.25	23.50	14.62	23.00	11.00
MDR 191523 VYZ	15.88	23.25	23.50	18.12	23.00	11.00
MDR 191923 VYZ	19.38	23.25	23.50	21.62	23.00	11.00
MDR 192223 VYZ	22.88	23.25	23.50	25.12	23.00	11.00

COLOR CHART

CODE	DESCRIPTION	FED STD #
R	Royal Blue	595A-25045
H	Ash White	595A-26622
W	Off White	595A-27722
B	Sky Blue	595A-25109
A	Black	595A-27038
C	Charcoal	595A-26081
G	Light Grey	595A-26493
T	Tan	595A-23448

Use the color chart to designate the color of your unit. Select the color desired for the top, bottom and interior side panels and place its code in the "Y" location. Select the color desired for the exterior side panels and place its code in the "Z" location.

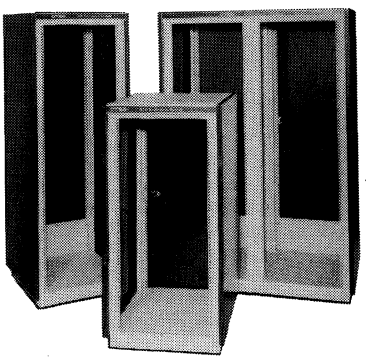
For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

PFT MODULAR ENCLOSURES

MODULAR VERTICAL ENCLOSURES

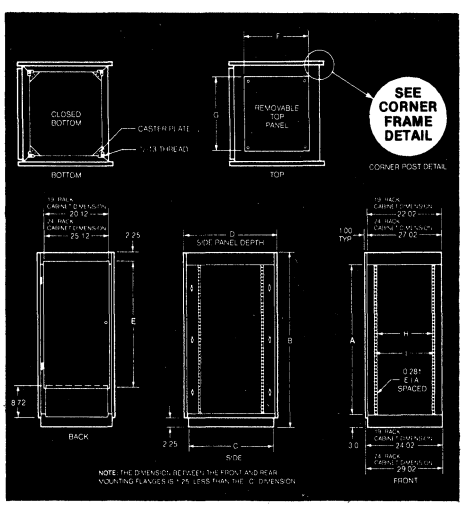
"Tough as welded" with the cost savings and versatility of knock down enclosures.

FEATURES:



- **Construction** - Heavy duty steel construction ensures durability. Corner Posts - 13 gauge C.R.S. Top and bottom assemblies - 14 gauge C.R.S. All other components - 18 gauge C.R.S. All metal forming, welding and painting is done in PFT manufacturing facilities.
- **Ease of Assembly** - PFT's self-registration design enables quick and routine assembly. One person can assemble these vertical enclosures in minutes. Unique tab and slot engineering ensures all parts accurately self-align.
- **Knock Down Units Reduce Shipping Costs** - PFT Modular Enclosures save up to 66% in shipping costs - savings which are passed on to you.
- **Modular Construction Reduces Parts Replacement Costs** - Never replace an entire enclosure again. All PFT cabinet parts, including frame components, are removable, interchangeable and replaceable.
- **Colors and Finish** - Enclosures are finished with oven-baked, EPA - approved paint. Rear door and side panels have a textured Royal Blue finish. All other components are textured in Ash White. This color combination harmonizes with standard electronics industry products. Other colors are available as modifications.
- **Multi-Bay Add-Ons** - Modular enclosures are designed to bolt together easily and securely to form multi-bay configurations in any quantity. A variety of special multi-bay accessories is available. Turn two pages under **VERTICAL ENCLOSURE ACCESSORIES** for a complete list.
- **Full Line of Accessories** - A full line of accessories to add versatility and to enhance the performance of your vertical enclosures are available. The line includes: plexiglass doors, casters, blower unit, door locks, drawers and more. Turn two pages under the **VERTICAL ENCLOSURE ACCESSORIES** heading for a complete list. Note: 17" wide Mod-u-line with rack side panels fits 19" vertical enclosures.
- **Modifications** - PFT will make in-plant modifications to your specifications.

To use the chart below, identify the size of the cabinet you wish to order with the 6 digits in the left hand column. The first 4 digits are from the top and bottom pack you wish to order and the last 2 digits are from the corner post pack you wish to order.



CABINET SIZE

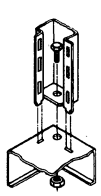
WIDTH	DEPTH	HEIGHT	VERTICAL OPENING A	OVERALL HEIGHT B	INSIDE DEPTH C	SIDE PANEL DEPTH D	SHORT DOOR HEIGHT E	TOP PANEL DEPTH F	TOP PANEL WIDTH G	INSIDE CORNER POST OPENING H	FRONT OPENING HOLE CENTERS I
19	25	42	42.125	48.125	25.25	27.25	34.88	20.95	19.00	17.81	18.31
19	30	42	42.125	48.125	31.25	33.25	34.88	26.95	19.00	17.81	18.31
24	25	42	42.125	48.125	25.25	27.25	34.88	20.95	24.00	22.81	23.31
24	30	42	42.125	48.125	31.25	33.25	34.88	26.95	24.00	22.81	23.31
19	25	61	61.375	67.375	25.25	27.25	54.13	20.95	19.00	17.81	18.31
19	30	61	61.375	67.375	31.25	33.25	54.13	26.95	19.00	17.81	18.31
24	25	61	61.375	67.375	25.25	27.25	54.13	20.95	24.00	22.81	23.31
24	30	61	61.375	67.375	31.25	33.25	54.13	26.95	24.00	22.81	23.31
19	25	70	70.125	76.125	25.25	27.25	62.88	20.95	19.00	17.81	18.31
19	30	70	70.125	76.125	31.25	33.25	62.88	26.95	19.00	17.81	18.31
24	25	70	70.125	76.125	25.25	27.25	62.88	20.95	24.00	22.81	23.31
24	30	70	70.125	76.125	31.25	33.25	62.88	26.95	24.00	22.81	23.31
19	25	77	77.125	83.125	25.25	27.25	69.88	20.95	19.00	17.81	18.31
19	30	77	77.125	83.125	31.25	33.25	69.88	26.95	19.00	17.81	18.31
24	25	77	77.125	83.125	25.25	27.25	69.88	20.95	24.00	22.81	23.31
24	30	77	77.125	83.125	31.25	33.25	69.88	26.95	24.00	22.81	23.31

All Dimensions in inches

COLOR CHART

CODE	DESCRIPTION	FED STD #
R	Royal Blue	595A-25045
H	Ash White	595A-26622
W	Off White	595A-27722
B	Sky Blue	595A-25109
A	Black	595A-27038
C	Charcoal	595A-26081
G	Light Grey	595A-26493
T	Tan	595A-23448

UNIQUE CORNER POST DESIGN



CORNER FRAME DETAIL

PFT combines two unique design features to provide strength and rigidity previously associated only with more expensive welded units. Interlocking tab and slot construction in the corner joints eliminates torsional movement of the corner posts. Secondly, a heavy gauge mounting plate is welded, slightly recessed, into the top and bottom of each corner post. Thus, when the corner bolt is tightened, the cabinet base (or top) flexes slightly, ensuring that the joint is always preloaded in tension, providing additional rigidity.

For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

PFT MODULAR ENCLOSURES

HOW TO ORDER MODULAR VERTICAL ENCLOSURES

Modular Vertical Enclosures are simple to order. When ordering, you have 3 considerations to make: what size and style of frame you desire, what size and style side panels and doors and what accessories are needed for your unit.

STEP 1

SELECTING AND ORDERING A FRAME

Every frame will be ordered in two segments; the first will be a top and bottom pack which determines the rack mounting width and depth, the second a corner post pack which determines the vertical opening of your cabinet.

Top and Bottom Packs - Each top and bottom pack will consist of a 12 character part number. The first five characters are always MVETB which designates that you are ordering a **M**odular **V**ertical **E**nclosure **T**op and **B**ottom Pack.

The next 4 characters will designate the width and depth of the cabinet you will be ordering. PFT offers 19" or 24" EIA standard widths and 25" or 30" depths. Select the width and depth you desire. You will now have a part number which should resemble this example: MVETB1930. In this example you would be ordering a top and bottom that meets EIA standards for 19" wide cabinets and will be 30" deep. (See dimensional charts for more detailed information).

The next character identifies the style of cabinet top you desire. You may select a louvered, open or solid top. If you require a louvered top, place an "L" in the next character, use an "O" for open or an "S" for solid.

In the next character you can select a solid or open bottom. Use an "S" to designate a solid bottom or an "O" to designate a bottom with an opening (a cutout for cabling, filtering, air access, etc.).

Note - Cutouts have an opening dimension of 14"x14" for all open bottom bases regardless of base size.

The last character is to designate the color. Use the color chart on previos page. When you are finished you will end up with a 12 character part number which resembles this example: MVETB1925LSH. In this example, you would be selecting a top and bottom for a 19" wide by 25" deep cabinet with a louvered top and a solid bottom in PFT's ash white.

Corner post packs - Each corner post pack will consist of a 9 character part number. The first five characters are always MVECP which designates that you are ordering a **M**odular **V**ertical **E**nclosure **C**orner **P**ost Pack.

The next 2 characters will designate the height of the cabinet you will be ordering. PFT offers 42", 61", 70" and 77" heights. Select the height you desire. You will now have a part number which should resemble this example: MVECP61. In this example you would be ordering corner posts for a 61" tall cabinet. (See the dimensional chart for detailed information).

In the next character you should place a "P" which will designate our standard corner post configuration. (Other designations are for modified or special order corner posts).

The last character is to designate the color.

Note - The color you select for the corner post should be the same as the one you selected for the top and bottom pack. When you are finished you will end up with a 9 character part number which resembles this example: MVECP61PH. This example would provide you with corner posts to make a 61" tall cabinet in PFT's ash white.

STEP 2

SELECTING SIDE PANELS AND DOORS

To dress your frame into an enclosed cabinet you will need to select the side panels and/or doors you desire. You have 3 considerations in enclosing your cabinet: side panels, front door and rear door.

Side Panel Packs - Each side panel will consist of an 11 character part number. The first 5 characters are always MVESP which designates that you are ordering a **M**odular **V**ertical **E**nclosure **S**ide **P**anel Pack (2 side panels per pack).

The next 4 characters will designate the height and depth of the cabinet on which the side panels fit. For example, if you are ordering side panels for a 42" tall and 25" deep cabinet, your part number will consist of MVESP4225. PFT offers cabinets in heights of 42", 61", 70" and 77" and depths of 25" and 30".

Next designate whether you desire a plain (P) or louvered (L) side panel. The last character will designate the color using the color chart provided.

When you are finished you will end up with a part number like this example: MVESP7030PR. This part number identifies side panels for a 70" tall and 30" deep cabinet, plain in nature and royal blue in color.

Rear and Front Door Packs - Doors for Modular Vertical Cabinets are designed to mount on either the front or rear. You have three basic choices in door packs: 1) Long Steel Door 2) A Short Door package or 3) Plexiglass Door. Decide what type of door you desire on the front and rear of the cabinet then follow the instructions below to assure you order the door that meets your particular needs.

Note - All Steel Doors mount on the left hand side of the frame only. PlexiGlass Doors mount on either the left hand or right hand side of the frame.

Long Steel Door - The long steel door will consist of an 11 character part number. The first five characters are always MVELD which designates that you are ordering a **M**odular **V**ertical **E**nclosure **L**ong **D**oor Pack.

The next 4 characters designate the width and height of the cabinet for which the door you are ordering will fit. For example, if you desire to order a door for a 19" wide, 61" tall cabinet, your part number would consist of MVELD1961. PFT offers cabinets in standard 19" or 24" widths and heights of 42", 61", 70" and 77".

The next character designates whether you want your door to be plain (P) or louvered (L) and the last character the color. Use the color chart provided.

You should end up with an 11 character part number which looks like this: MVELD1942LR. This part number represents a long door for a 19" wide, 42" tall cabinet, louvered in PFT's royal blue color.

Note - Generally you will want your rear door and your side panels the same color. If you are ordering both, be sure to check that you are using the same color code.

Short Door Packs - The short steel door is typically used as a rear door and will consist of a 12 character part number. The first five characters are always MVESD which designates that you are ordering a **M**odular **V**ertical **E**nclosure **S**hort **D**oor Pack.

The next 4 characters will designate the width and height of the cabinet for which the door you are ordering will fit. For example, if you desire to order a door for a 24" wide, 61" tall cabinet, your part number would consist of MVESD2461. PFT offers cabinets in standard 19" or 24" widths and heights of 42", 61", 70" and 77".

The next character designates whether you want your door to be plain (P) or louvered (L).

Every short door package comes with an access panel which fits the bottom portion of the cabinet (approximately 8.72"). This panel can be removed or modified to allow for a fan assembly or cable access below the door mounting. The next character (the 11th) specifies the color you desire the door.

NOTE - The last character represents the color of the access panel. Typically, the access panel is the same color as the frame you order. Use the color chart provided.

You should end up with a 12 character part number which looks like this: MVESD1942PRH. This part number represents a short door for a 19" wide, 42" tall cabinet, plain in PFT's royal blue with an access panel in PFT's ash white.

Plexiglass Door Packs - Plexiglass door packs consist of an 8 character part number. The first two characters are always PD which designates a **P**lexiglass **D**oor Pack.

The next 4 characters designate the width and height of the frame you need the door to fit. For example, if you need a Plexiglass door for a 24" wide and 61" tall cabinet, then you would designate your need by specifying the part number PD2461. PFT offers Plexiglass doors which fit either 19" or 24" wide frames in heights of 42", 61", 70" or 77".

The next character designates whether you want a **L**ocking (use a **L**) or **N**on-Locking (use a **N**) feature.

The last character designates whether you want your Plexiglass door with **S**moked Plexiglass Panel (use a **S**) or **C**lear Plexiglass Panel (use a **C**).

You should end up with an 8 character part number which looks like this: PD2470LC. This part number represents a Plexiglass Door for a 24" wide and 70" tall cabinet with a locking feature using Clear Plexiglass.

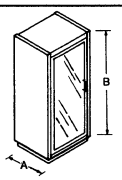
STEP 3

PFT offers a wide variety of accessories to enhance your modular vertical enclosure. See accessory pages for more details.

For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

PFT MODULAR ENCLOSURES

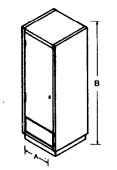
MODULAR VERTICAL ENCLOSURE ACCESSORIES



PLEXIDOORS

- Lift-off hinge design
- 3/16" thick acrylic plexiglass
- Full length magnetic strip
- Clear (C) or smoked (S) plexiglass
- Locking (L) or non-locking (N) styles
- Mounts on either side of frame
- Panel clearance of .88" is provided; VMR rail series should be used if a bezel or knob exceeding .88" exists on the rack mount equipment

PART NUMBER	"A" WIDTH	"B" HEIGHT
PD1942 Series	20.12"	43.63"
PD1961 Series	20.12"	62.88"
PD1970 Series	20.12"	71.63"
PD1977 Series	20.12"	78.63"
PD2442 Series	25.12"	43.63"
PD2461 Series	25.12"	62.88"
PD2470 Series	25.12"	71.63"
PD2477 Series	25.12"	78.63"

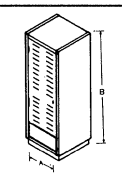


SHORT DOOR PACKS

SOLID SHORT DOORS

- 18 gauge cold rolled steel
- Lift-off hinge design
- Panel clearance 1.38" provided
- Solid door packs are short doors and include 8.72" access panel
- Door mounts to left corner post only
- Latch, adhesive-backed gasketing, 5/32 allen wrench, and all hardware provided in pack
- Textured royal blue finish in stock

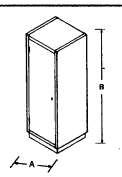
PART NUMBER	"A" WIDTH	"B" HEIGHT
MVESD1942 Series	20.12"	34.88"
MVESD1961 Series	20.12"	54.13"
MVESD1970 Series	20.12"	62.88"
MVESD1977 Series	20.12"	69.88"
MVESD2442 Series	25.12"	34.88"
MVESD2461 Series	25.12"	54.13"
MVESD2470 Series	25.12"	62.88"
MVESD2477 Series	25.12"	69.88"



LOUVERED SHORT DOORS

- 18 gauge cold rolled steel
- Louver size is .625"x4.50"; opening .250"
- Lift-off hinge design
- Panel clearance 1.38" provided
- Door mounts to left corner post only
- Louvered door packs are short doors and include 8.72" access panel
- Latch, adhesive-backed gasketing, 5/32 allen wrench, and all hardware provided in pack
- Textured royal blue finish in stock

PART NUMBER	"A" WIDTH	"B" HEIGHT
MVESD1942 Series	20.12"	34.88"
MVESD1961 Series	20.12"	54.13"
MVESD1970 Series	20.12"	62.88"
MVESD1977 Series	20.12"	69.88"
MVESD2442 Series	25.12"	34.88"
MVESD2461 Series	25.12"	54.13"
MVESD2470 Series	25.12"	62.88"
MVESD2477 Series	25.12"	69.88"

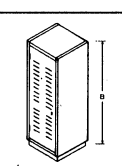


LONG DOOR PACKS

SOLID LONG DOORS

- 18 gauge cold rolled steel
- Lift-off hinge design
- Panel clearance 1.38" provided
- Door mounts to left corner post only
- Can be used as a front or rear door
- Latch, adhesive-backed gasketing, 5/32 allen wrench, and all hardware provided in pack
- Textured royal blue finish in stock

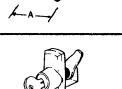
PART NUMBER	"A" WIDTH	"B" HEIGHT
MVELD1942 Series	20.12"	43.63"
MVELD1961 Series	20.12"	62.88"
MVELD1970 Series	20.12"	71.63"
MVELD1977 Series	20.12"	78.63"
MVELD2442 Series	25.12"	43.63"
MVELD2461 Series	25.12"	62.88"
MVELD2470 Series	25.12"	71.63"
MVELD2477 Series	25.12"	78.63"



LOUVERED LONG DOORS

- 18 gauge cold rolled steel
- Louver size .625"x4.50"; opening is .250"
- Lift-off hinge design
- Panel clearance 1.38" provided
- Door mounts to left corner post only
- Can be used as a front or rear door
- Latch, adhesive-backed gasketing, 5/32 allen wrench, and all hardware provided in pack
- Textured royal blue finish in stock

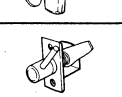
PART NUMBER	"A" WIDTH	"B" HEIGHT
MVELD1942 Series	20.12"	43.63"
MVELD1961 Series	20.12"	62.88"
MVELD1970 Series	20.12"	71.63"
MVELD1977 Series	20.12"	78.63"
MVELD2442 Series	25.12"	43.63"
MVELD2461 Series	25.12"	62.88"
MVELD2470 Series	25.12"	71.63"
MVELD2477 Series	25.12"	78.63"



LOCK ASSEMBLY

- Fits in all PFT long and short door series
- Chrome plated steel
- Latch can be adjusted to create vibration free environment

PART NUMBER
LK01



T-DOOR HANDLE

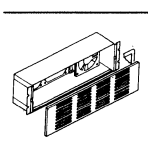
- Fits in all PFT long and short door series
- Zinc plated knurled handle

PART NUMBER
TDH01

FLAT FILLER PANELS

- .125" thick aluminum
- Textured ash white finish in stock

PART NUMBER	"A" WIDTH	"B" HEIGHT
FL1901H	19"	1.75"
FL1903H	19"	3.50"
FL1905H	19"	5.25"
FL1907H	19"	7.00"
FL1908H	19"	8.75"
FL1910H	19"	10.50"
FL2401H	24"	1.75"
FL2403H	24"	3.50"
FL2405H	24"	5.25"
FL2407H	24"	7.00"
FL2408H	24"	8.75"
FL2410H	24"	10.50"



315 CFM FAN ASSEMBLY

- Draws air into the equipment rack
- Consists of 3-105 CFM muffin fans
- Fans mounted into a painted housing
- Utilizes washable air filter
- 5.22"x19.00" stainless steel grill
- 6' long 115V power cord
- Rack mountable on front or rear of any 19" or 24" standard EIA rack. To mount in 24" rack use AB315 adapter bracket

PART NUMBER
FN315

For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

PFT MODULAR ENCLOSURES

MODULAR VERTICAL ENCLOSURE ACCESSORIES

ELECTRICAL OUTLET STRIPS

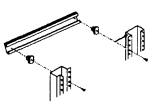
- Components all UL approved
- 15A, 125V receptacles
- 6' power cord
- Attach to MVE corner posts
- OS2408 has on/off switch

PART NUMBER	LENGTH	NUMBER OF OUTLETS
OS2408	24"	8
OS6006	60"	6

630 CFM FAN TRAY ASSEMBLY

- Uses 1.75" of panel space
- Designed for front mount racking into any standard 19" or 24" EIA rack. To mount in 24" rack use AB630 adapter bracket
- Exhausts air through the top of the MVE
- Specify louvered top panel if this fan tray assembly is desired
- 6' long 115V power cord
- Consists of 6-105 CFM muffin fans
- 18" actual depth/17" actual width

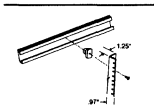
PART NUMBER
FN630



HORIZONTAL MOUNTING RAIL KIT

- 16 gauge cold rolled steel channels
- Used in conjunction with 90° tapped mounting rails, multi-formed rails, and vertical conversion rail kits
- Zinc plated with gold chromate finish
- Sold in pairs

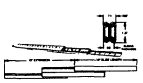
PART NUMBER	RAIL LENGTH	CABINET DEPTH
HMR25	20.25"	25"
HMR30	26.25"	30"



90° TAPPED MOUNTING RAIL KIT

- 12 gauge cold rolled steel
- Must be used in conjunction with horizontal mounting rail kits
- $^{10}/_{32}$ tapped holes
- Zinc plated with gold chromate finish
- Fully adjustable from front to rear of cabinet
- Sold in pairs

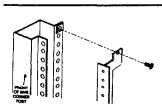
PART NUMBER	RAIL LENGTH	CABINET HEIGHT
VMR42	42.06"	42"
VMR61	61.31"	61"
VMR70	70.06"	70"
MVR77	77.06"	77"



BALL BEARING SLIDES

- Sold in pairs; hardware included in kit
- Front and rear mounting brackets included
- Slide length is 18"; slide travel is 19"

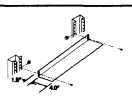
PART NUMBER
BBS01



VERTICAL CORNER TAPPED MOUNTING RAIL KIT

- 12 gauge cold rolled steel
- Zinc plated with gold chromate finish
- Rails attach to inside of MVE corner post
- Vertical tapped rails permit use of cup head screws without clipnuts or cage nuts
- 10/32 tapped holes
- Sold in pairs

PART NUMBER	RAIL LENGTH	CABINET HEIGHT
CTR42	42.06"	42"
CTR61	61.31"	61"
CTR70	70.06"	70"
CTR77	77.06"	77"



EQUIPMENT MOUNTING ANGLE KIT

- 11 gauge cold rolled steel
- Zinc plated with gold chromate finish
- Rated for 400 lb. load capacity
- Attach directly to MVE corner posts
- Sold in pairs

PART NUMBER	RAIL LENGTH	CABINET DEPTH
EMA25	20.25"	25"
EMA30	26.31"	30"

CASTERS

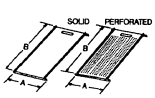
- 3.5" diameter
- Hard rubber wheels
- Each caster rated for 200 lbs. capacity
- Sold in sets of four

PART NUMBER
CA200

LEG LEVELERS

- Threaded, steel construction
- Nickel plated
- 3" tall

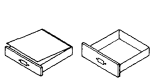
PART NUMBER
LL03S



EQUIPMENT SHELVES

- 16 gauge cold rolled steel
- Smooth ash white finish in stock
- Rated at 200 lbs. capacity
- Mounts to MVE cabinet corner posts
- Hardware included in pack
- Perforated shelves have three 5" wide bands of .250" diamond shaped perforations on .50" centers
- 1"x6" obround cable opening in rear

PART NUMBER	"A" WIDTH	"B" DEPTH
ES1925SH (Solid)	17.72"	24.50"
ES1930SH (Solid)	17.72"	30.50"
ES1925PH (Perf.)	17.72"	24.50"
ES1930PH (Perf.)	17.72"	30.50"
ES2425SH (Solid)	22.72"	24.50"
ES2430SH (Solid)	22.72"	30.50"
ES2425PH (Perf.)	22.72"	24.50"
ES2430PH (Perf.)	22.72"	30.50"



SLIDING DRAWERS

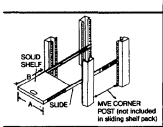
- 18 gauge cold rolled steel
- Smooth ash white finish in stock
- All front panels to standard 19" EIA specifications
- Rated for 200 lbs. capacity
- Brackets, slides and hardware included
- Writing shelf size is 16.25" wide by 15.00" deep

PART NUMBER	WITH WRITING SHELF	ACTUAL HEIGHT	ACTUAL WIDTH	ACTUAL DEPTH
SD1903WH	Yes	3.43"	15.67"	16.00"
SD1907OH	No	6.93"	15.67"	16.00"
SD1910OH	No	10.43"	15.67"	16.00"

IDENTIFICATION STRIP

- Royal blue formica to accent side panels
- Ideal for silkscreening
- Other standard colors available
- Strip fits into aluminum extrusion

PART NUMBER
ID01-For single bay
ID02-For double bay
ID03-For triple bay



SLIDING SHELVES

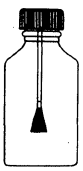
- 16 gauge cold rolled steel
- Smooth ash white finish in stock
- Rated for 85 lbs. capacity
- Slides have lock out feature
- Brackets, hardware, slides and shelf included in kit

PART NUMBER	"A" WIDTH	"B" DEPTH
SS1918SH	16.75"	18.00"
SS1922SH	16.75"	22.00"
SS2418SH	21.75"	18.00"
SS2422SH	21.75"	22.00"

For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

PFT MODULAR ENCLOSURES

MODULAR VERTICAL ENCLOSURE ACCESSORIES



TOUCH-UP PAINT
- One ounce bottle with applicator brush
- No mixing required
- Quick drying

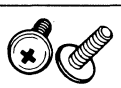
PART NUMBER	PAINT COLOR	FED. STD. #
TUBR	Royal Blue	595A-25045
TUBH	Ash White	595A-26622
TUBW	Off White	595A-27722
TUBB	Sky Blue	595A-25109
TUBA	Black	595A-27038
TUBC	Charcoal	595A-26081
TUBG	Light Grey	595A-26493
TUBT	Tan	595A-23448

CAGE NUTS
- 10/32 clip nut for heavy duty applications
- Twenty per kit
- Used in conjunction with .281" EIA holes on MVE cabinet corner posts

PART NUMBER
CAG1032

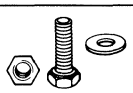
CLIP NUTS
- 10/32 U type clip nut
- Used in conjuction with CHS1032F and CHS1032K screws (see below)
- Used in conjunction with .281" EIA holes on MVE cabinet corner posts
- Twenty per kit

PART NUMBER
CLP1032



CUP HEAD SCREWS
- 10/32 cup head screws
- Nickel plated with a nylon washer
- Twenty per kit

PART NUMBER	SIZE
CHS1032F	10/32 x 5/8" long
CHS1032K	10/32 x 1 1/8" long



MULTI-BAY JOINING KIT
- Used to join equipment racks together to form double bays, triple bays, etc.

PART NUMBER
JK01

Mod-u-box® INSTRUMENT ENCLOSURES

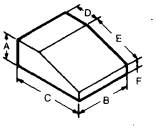
The Mod-u-box series presents a wide choice of small electronic cabinets. Distinctively styled, Mod-u-box offers rugged high quality construction at an exceptionally low price.

OUTSIDE DIMENSIONS, INCHES

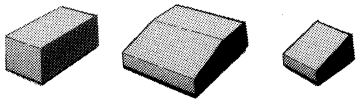
SIDE SHAPE	PART NO.	HEIGHT A	WIDTH B	DEPTH C	TOP D	SLOPE E	FRONT F
	MBL 4-6-10	3 13/16	5 13/16	9 13/16	NA	NA	NA
	MBS 3-4-6	2 1/4	4 1/4	6 13/16	NA	6 1/8	1 1/4
	MBS 3-7-6	3 1/8	6 3/4	5 1/8	NA	5 9/16	1 5/8
	MBS 4-10-10	3 1/2	10	10	8	3 9/16	1 1/16
	MBS 4-12-11	3 13/16	11 13/16	10 15/16	9 3/4	3 15/16	NA
	MBS 5-6-6	4 13/16	5 13/16	5 13/16	4 1/2	4 15/16	NA
	MBK 2-5-5	1 13/16	4 13/16	4 15/16	2 1/8	2 15/16	1 1/16
	MBK 2-7-6	2 5/16	6 1/2	5 13/16	2 15/16	3 1/4	3/8
	MBK 3-10-11	2 13/16	9 13/16	10 15/16	5	5 15/16	1 1/2
	MBK 3-13-11	2 13/16	12 13/16	10 15/16	5	5 15/16	1 1/2
	MBK 3-17-11	2 13/16	16 13/16	10 15/16	5	5 15/16	1 1/2
	MBK 3-20-11	2 13/16	19 13/16	10 15/16	5	5 15/16	1 1/2
	MBK 5-10-10	4 13/16	9 13/16	9 13/16	1 15/16	8 7/16	1 3/4
	MBK 6-12-10	5 1/4	11 13/16	9 15/16	3	7 1/2	2 13/16

HOW TO ORDER

Select appropriate PFT model number and specify color combination by adding color suffix, the wrapper color first followed by the insert color. For example, an **MBS-3-4-6** with a **BLACK** wrap-around base and an **OFF-WHITE** insert is ordered as follows: **"MBS 3-4-6 BLACK/OFF-WHITE".**



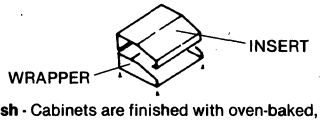
RECTANGLE KEYBOARD SLOPE FRONT



MBL MBK MBS

FEATURES:

- **Construction** - Made from aluminum for lightweight strength and ease of handling. Wrap around base is .090" aluminum; sloped or flat front insert is .062" aluminum.
- **Ease of Assembly** - Simple two piece design assembles or disassembles in minutes with just four screws. Allows easy access to your enclosed components. Individual replacement parts also may be ordered.



- **Colors & Finish** - Cabinets are finished with oven-baked, EPA-approved paint. Wrap-around base has a textured finish while front insert is smooth. Standard colors are:

Wrap-Around Base	Front Insert
*Blue	*Off-White
Charcoal	Light Grey
Black	Black
Tan	Tan

***Note - Blue** and **Off-White** cabinets in stock for immediate delivery. Call for current availability of other standard color combinations.

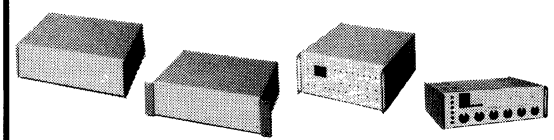
- **Modifications** - PFT will make in-plant modifications to your specifications. Popular modifications include: silkscreening, venting, cut-outs, etc. Steel cabinets are also available through a special order.

For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

PFT MODULAR ENCLOSURES

Mod-u-line® Chassis

Mod-u-line is a line of quality small cabinets, available in standard off-the-shelf sizes. "Value Engineered" to provide the optimum in versatility, strength and economy.



PLAIN RACK HANDLE MODIFIED

PART NUMBER	INSIDE DIMS., HEIGHT	WIDTH	DEPTH	RECOMMENDED CHASSIS PLATE
1 INCH HEIGHT				
MCLS 1-9-7	1 9/16	8 5/8	6 7/8	CP 9-7
MCLS 1-17-7	1 9/16	16 5/8 ★	6 7/8	CP 17-7
MCLS 1-17-9	1 9/16	16 5/8 ★	8 7/8	CP 17-9
2 INCH HEIGHT				
MCLS 2-8-9	2 7/16	8 3/16	8 7/8	CP 8-9
MCLS 2-17-9	2 7/16	16 5/8 ★	8 7/8	CP 17-9
MCLS 2-17-12	2 7/16	16 5/8 ★	11 7/8	CP17-12
3 INCH HEIGHT				
MCLS 3-7-7	3 5/16	6 5/8	6 7/8	CP 7-7
MCLS 3-9-7	3 5/16	8 5/8	6 7/8	CP 9-7
MCLS 3-9-9	3 5/16	8 5/8	8 7/8	CP 9-9
MCLS 3-12-7	3 5/16	11 5/8	6 7/8	CP 12-7
MCLS 3-12-9	3 5/16	11 5/8	8 7/8	CP 12-9
MCLS 3-12-12	3 5/16	11 5/8	11 7/8	CP 12-12
MCLS 3-17-7	3 5/16	16 5/8 ★	6 7/8	CP 17-7
MCLS 3-17-9	3 5/16	16 5/8 ★	8 7/8	CP 17-9
MCLS 3-17-12	3 5/16	16 5/8 ★	11 7/8	CP 17-12
MCLS 3-17-14	3 5/16	16 5/8 ★	13 7/8	CP 17-14
5 INCH HEIGHT				
MCLS 5-7-7	5 1/16	6 5/8	6 7/8	CP 7-7
MCLS 5-9-7	5 1/16	8 5/8	6 7/8	CP 9-7
MCLS 5-9-9	5 1/16	8 5/8	8 7/8	CP 9-9
MCLS 5-9-12	5 1/16	8 5/8	11 7/8	CP 9-12
MCLS 5-12-7	5 1/16	11 5/8	6 7/8	CP 12-7
MCLS 5-12-9	5 1/16	11 5/8	8 7/8	CP 12-9
MCLS 5-12-12	5 1/16	11 5/8	11 7/8	CP 12-12
MCLS 5-17-7	5 1/16	16 5/8 ★	6 7/8	CP 17-7
MCLS 5-17-9	5 1/16	16 5/8 ★	8 7/8	CP 17-9
MCLS 5-17-12	5 1/16	16 5/8 ★	11 7/8	CP 17-12
MCLS 5-17-14	5 1/16	16 5/8 ★	13 7/8	CP 17-14
7 INCH HEIGHT				
MCLS 7-9-12	6 13/16	8 5/8	11 7/8	CP 9-12
MCLS 7-12-9	6 13/16	11 5/8	8 7/8	CP 12-9
MCLS 7-12-12	6 13/16	11 5/8	11 7/8	CP 12-12
MCLS 7-17-9	6 13/16	16 5/8 ★	8 7/8	CP 17-9
MCLS 7-17-12	6 13/16	16 5/8 ★	11 7/8	CP 17-12
MCLS 7-17-14	6 13/16	16 5/8 ★	13 7/8	CP 17-14
8 INCH HEIGHT				
MCLS 8-17-12	8 9/16	16 5/8 ★	11 7/8	CP 17-12
MCLS 8-17-14	8 9/16	16 5/8 ★	13 7/8	CP 17-14
10 INCH HEIGHT				
MCLS 10-17-14	10 9/16	16 5/8 ★	13 7/8	CP 17-14

***Note** - This size Mod-u-line with rack side panels is a perfect fit for 19" wide Modular Vertical Enclosures.

HOW TO ORDER

A complete cabinet is ordered in three segments. 1) **Mod-u-line Cabinet Less Sides (MCLS)** includes: front, back, top and bottom panels plus interior rails. 2) Side Panels are ordered by style. **Side Panel Plain (SPP) Side Panel Rack (SPR), Side Panel Handle (SPH);** by size and color. Side panels are symmetrical - there are no righthand or lefthand panels. 3) Optional **Chassis Plate (CP)** is ordered individually according to table below. For example, a 3 9/16" x 16 5/8" x 11 7/8" cabinet with a **BLUE** exterior and **OFF-WHITE** front panel which has **BLUE RACK** side panels and a **16 5/8" x 11 7/8"** chassis plate is ordered as: **MCLS 3-17-12 BLUE/OFF-WHITE**, plus **SPR 3-12 BLUE, CP 17-12.**

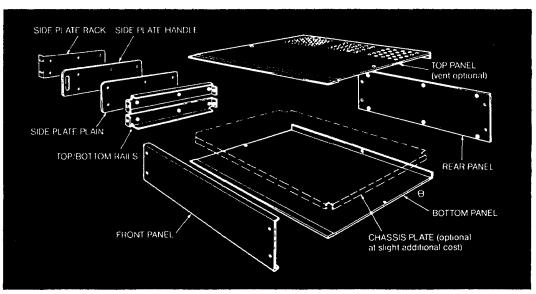
STANDARD VENTED TOP AND BOTTOM PANELS ORDERING INSTRUCTION - A 1" wide ventilation strip comprised of 1/8" holes on 1/4" centers may be ordered on either top **(VT)** or bottom **(VB)** panels or on both **(VTB)**, if desired. Example: An **MCLS 3-17-12-VTB TAN/WHITE** would be vented on both top and bottom panels.

FEATURES:

- **Construction** - Made from aluminum for lightweight strength and ease of handling. Side panels are .125" aluminum. All other components are .062" aluminum. Side panels and chassis plates are ordered separately.
- **Ease of Assembly** - Mod-u-line cabinets are designed to assemble in minutes. The top cover is easily removed for complete and immediate access to the inside.
- **Replacement Parts** - All components of Mod-u-line may be replaced in seconds with stock panels. This feature reduces damage or redesign costs by eliminating need to repaint or replace the entire unit.
- **Colors & Finish** - Cabinets are finished with oven-baked, EPA-approved paint. All exterior parts have a textured finish, except the front panel, which has a smooth finish. Standard colors are:

Top, Bottom & Rear Panels	Front Panel	Side Panels
*Blue	*Off-White	*Blue
Charcoal	Light Grey	Charcoal
Black	Black	Black
Tan	Tan	Tan

***Note** - **BLUE** and **OFF-WHITE** components in stock for immediate delivery. Call for current availability of other standard color combinations. Chassis plate and interior rails are gold alodined.



Mod-u-line Side Panels

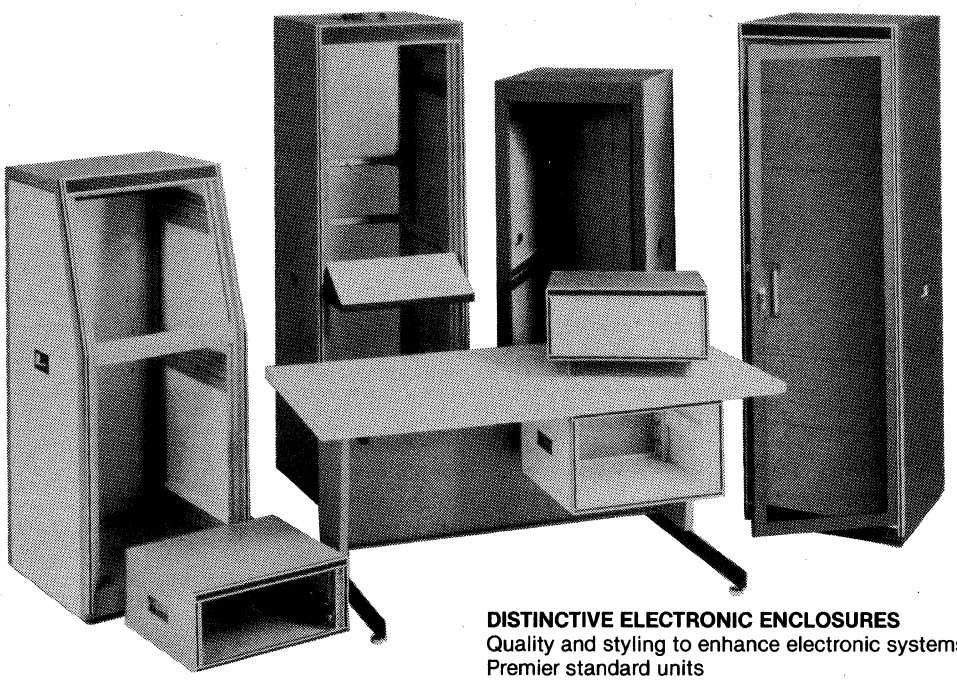
PLAIN SIDES SIZE INCHES HxD	PART NUMBER	RACK SIDES SIZE INCHES HxD	PART NUMBER	HANDLE SIDES SIZE INCHES HxD	PART NUMBER
1 x 7	SPP1-7	1 x 7	SPR1-7	—	—
1 x 9	SPP1-9	1 x 9	SPR1-9	—	—
2 x 9	SPP2-9	2 x 9	SPR2-9	—	—
2 x 12	SPP2-12	2 x 12	SPR2-12	—	—
3 x 7	SPP3-7	3 x 7	SPR3-7	3 x 7	SPH3-7
3 x 9	SPP3-9	3 x 9	SPR3-9	3 x 9	SPH3-9
3 x 12	SPP3-12	3 x 12	SPR3-12	3 x 12	SPH3-12
3 x 14	SPP3-14	3 x 14	SPR3-14	3 x 14	SPH3-14
5 x 7	SPP5-7	5 x 7	SPR5-7	5 x 7	SPH5-7
5 x 9	SPP5-9	5 x 9	SPR5-9	5 x 9	SPH5-9
5 x 12	SPP5-12	5 x 12	SPR5-12	5 x 12	SPH5-12
5 x 14	SPP5-14	5 x 14	SPR5-14	5 x 14	SPH5-14
7 x 9	SPP7-9	7 x 9	SPR7-9	7 x 9	SPH7-9
7 x 12	SPP7-12	7 x 12	SPR7-12	7 x 12	SPH7-12
7 x 14	SPP7-14	7 x 14	SPR7-14	7 x 14	SPH7-14
8 x 12	SPP8-12	8 x 12	SPR8-12	8 x 12	SPH8-12
8 x 14	SPP8-14	8 x 14	SPR8-14	8 x 14	SPH8-14
10 x 14	SPP10-14	10 x 14	SPR10-14	10 x 14	SPH10-14

Mod-u-line Chassis Plate

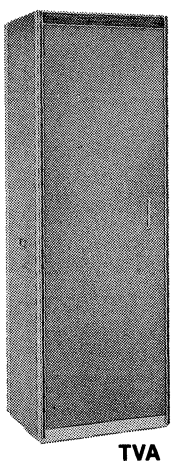
PART NO.	WIDTH INCHES	DEPTH INCHES	PART NO.	WIDTH INCHES	DEPTH INCHES	PART NO.	WIDTH INCHES	DEPTH INCHES
CP-77	6.63	5.12	CP-127	11.63	5.12	CP-177	16.63	5.12
CP-89	8.19	7.12	CP-129	11.63	7.12	CP-179	16.63	7.12
CP-97	8.63	5.12	CP-1212	11.63	10.12	CP-1712	16.63	10.12
CP-99	8.63	7.12	CP-1714	16.63	12.12			
CP-912	8.63	10.12						

For current pricing and availability, call your local PFT Distributor or call PFT toll free at 1-800-558-7297.

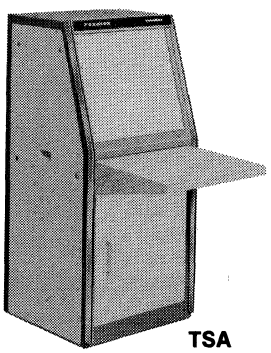
PREMIER CABINETS



DISTINCTIVE ELECTRONIC ENCLOSURES
Quality and styling to enhance electronic systems using Premier standard units

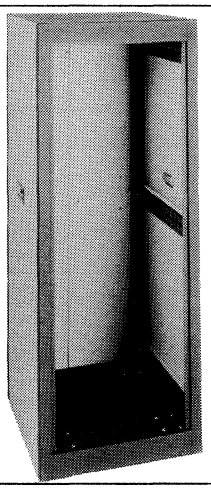


TVA



TSA

TRIMLINE SERIES
Welded modular units with extruded aluminum trim and decorative vinyl inlays. Available in 64 sizes.



SVA

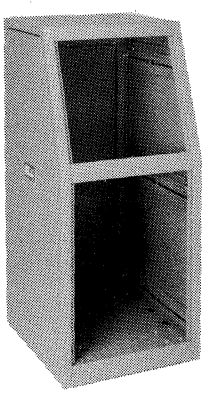
SPARTAN SERIES

19" and 24" (EIA) Standard Rack Widths

7 Panel Heights from 21" to 77"

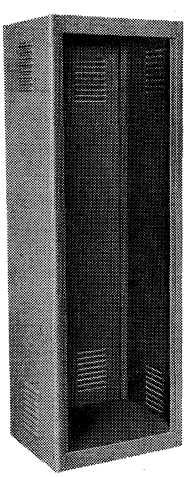
4 Depths from 18" to 30"

Available in 64 sizes



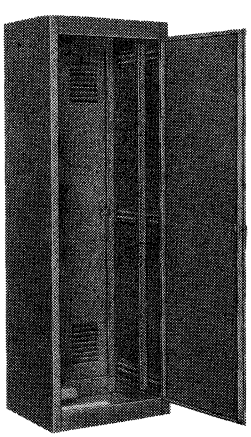
SSA

TYPICAL CONSOLE ASSEMBLY
Combinations of standard cabinets and accessories offer an endless variety of easily assembled systems for specialized applications.



R SERIES

RMX, FDX & R SERIES
Solid side skin cabinets for economical applications. RMX & FDX are welded units, R series are knock-down units.



FDX SERIES

CONSOLES & CASES

Premier Metal Products Co. has specialized in sheet metal fabrication of electronic enclosures and accessories for over 35 years.

Premier Enclosures offer maximum flexibility, adaptability and esthetic values. The extensive range of standard units in various widths, depths, heights and shapes available, offer the variety of combinations and configurations necessary for modern packaging systems.

Modified standard and special designs are manufactured on order. Our home office staff and field representatives are available for assistance in solving customer needs in the most efficient manner possible.

FULL LINE CATALOG AVAILABLE
(over 1500 items)

CATALOG CONTENTS

Trimline Series Modular Frames and Assemblies
Vertical & Sloped Front
Trim Options and Accessories
Wedge Frames for Consoles

Spartan Series Modular Frame & Assemblies
Vertical & Sloped Front

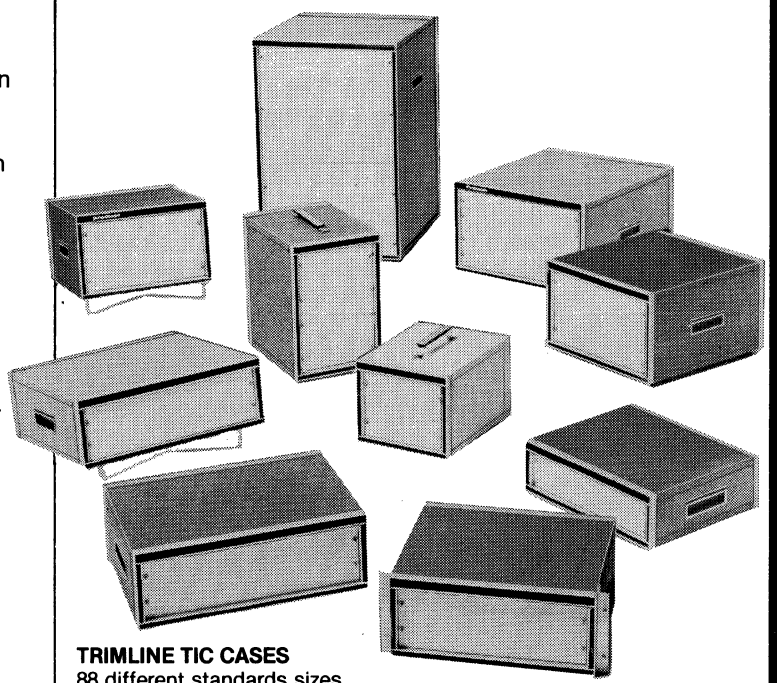
Trimline Instrument Cases & Accessories
EIA Standard Rack Panels
Chassis Slides, Blowers, Fans & Accessories

Solid Side Cabinet Racks, Welded & KD
Open Channel Type Relay Racks
Sloped Front Instrument Cabinets
Desk Cabinets & Racks
Modular Vertical & Sloped Front Cabinets & Accessories

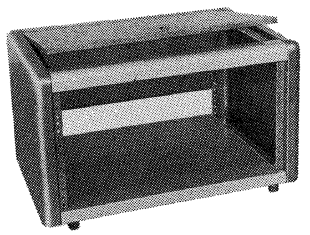
Turret Frames, Printed Circuit Card Frames & Guides, Shelves, Chassis Supports, Panel Handles, Outlet Strips, Casters, Cable Retractors, Misc. Hardware

Small cases, portable & utility, blank chassis and plates

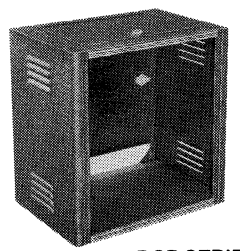
Modifications. Finish selector and color charts.



TRIMLINE TIC CASES
88 different standards sizes
11 panel heights, 3 depths, 3 widths.

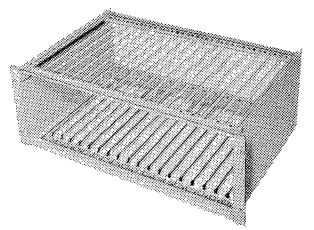


POR SERIES

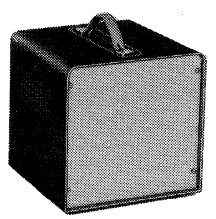


DCR SERIES

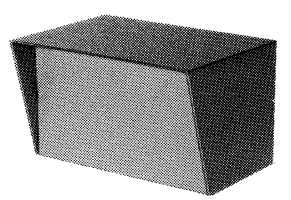
CSC SERIES



PCH SERIES



CC SERIES



SCC SERIES

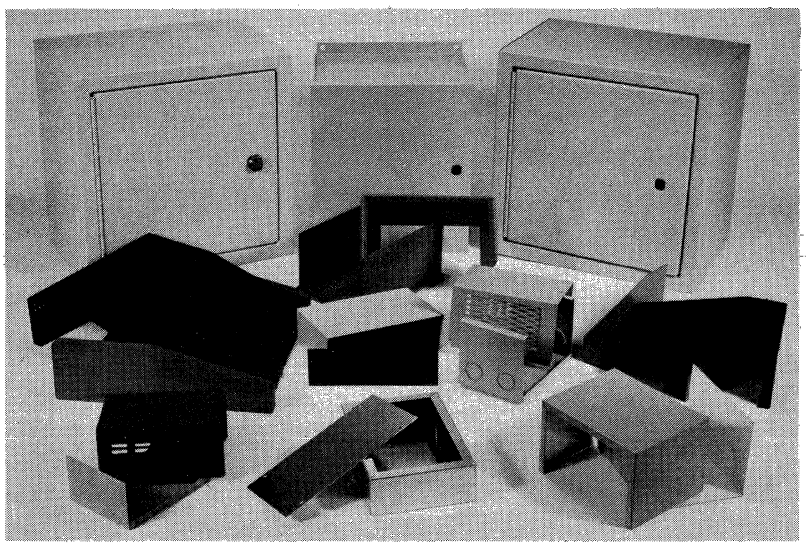
PREMIER METAL PRODUCTS COMPANY
381 CANAL PLACE, BRONX, NY 10451 (212) 993-9200 FAX: (212) 993-9211
16641 ORANGE WAY, FONTANA, CA 92335 (714) 829-3089 FAX: (714) 350-8618

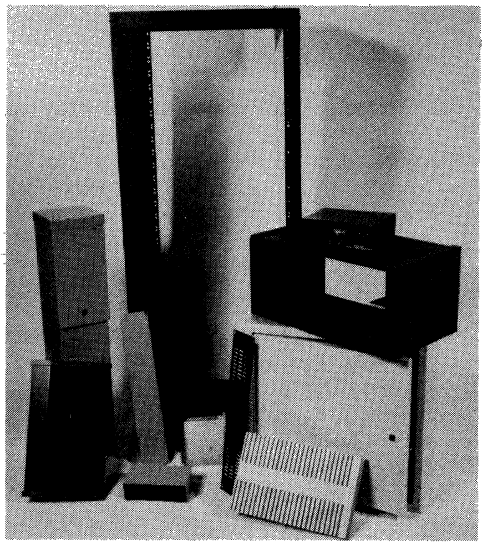
RITZ ELECTRONICS LIMITED
196 Queen St. N., New Dundee
Ontario, Canada NOB 2EO
Phone (519) 696-2616
FAX: 519-696-2670

US POWER/RELCO MIDWEST
Wichita, KS
(316) 722-6440

U.S. POWER CONVERTING CO.
Torrance, CA (213) 316-9984
FAX (213) 316-9050

OFF SHELF • OEM • CUSTOM • TURN KEY ELECTRONIC AND ELECTRICAL ENCLOSURES





PRODUCTS AND SERVICES OFF SHELF • OEM • CUSTOM

POWER SUPPLIES
Electronically Regulated
C.V.T. (Magnetically Regulated)
Lab and Educational
Open Frame/Slot
Closed Frame
Multi-Output
Variable-Voltage
Linear
Switchers
Battery Chargers
Off Shelf
OEM
Custom/Prototype

ELECTRONIC AND ELECTRICAL CABINETRY
Rack and Rack Panels
Industrial
General Purpose
Weather Proof
Locking
Ventilated
Hinged
Stainless Steel
Aluminum
Inner Panels
Pedestals

AUDIO AND DISPLAY CABINETRY
Speaker Baffles
Sound Columns
Car Radio Displays
Specialty Displays
Printer Stands
(Catalogue Available Upon Request)

SPECIALTY PRODUCTS
Computer Cabinetry
Power Center
Surge Protectors
Uninterruptable Power Supplies
Base Station Power Supplies
Wire Harness
Display Signs

PAINT AND SILK SCREENING FACILITIES

METAL AND ALUMINUM PREPARATION

PHOSPHATE COATING
changes the metal to a different chemical composition on its surface to ward off corrosion and help bond coating to the metal.

ALUMINUM ETCH
the surface of the aluminum is etched by a chemical reaction in order to roughen the surface for coating adhesion.

PAINTING

TYPES OF SPRAY
- Air
- Airless
- Hot Airless
- Electrostatic

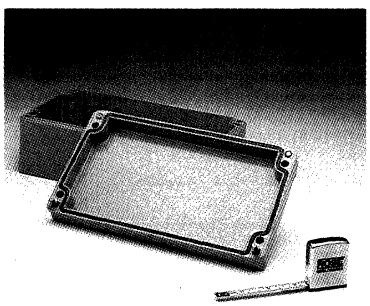
TYPES OF PAINT
- Baking Enamels
- Urethanes (1 and 2 part)
- Polyamides
- Lacquers
- Chromates
- Air Dry Enamels

SILK SCREENING

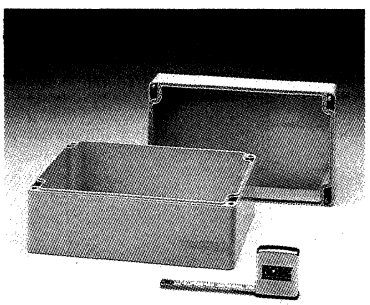
TYPES OF MATERIAL SCREENED
- Metals
- Aluminum
- Acrylics
- Vinyls

TYPES OF INK
- Baking epoxy for chemical resistance
- Air cure epoxy (2 part) for indoor use
- Lacquers
- Enamels
- Plasti-Vac for long term outdoor use on acrylics
- Metallic Inks

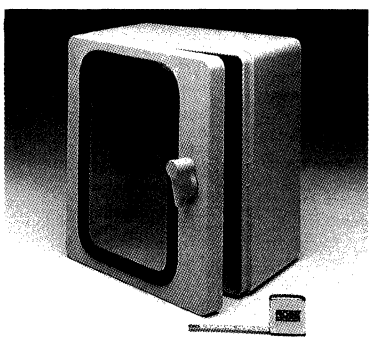
Maximum Protection, Maximum Selection



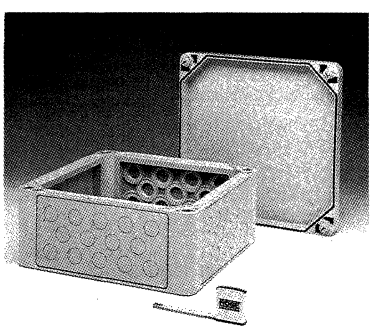
Aluminum Enclosures
- 34 different sizes from 2″×2″ to 2′×2′
- All models are cast aluminum
- Watertight
- EMI/RFI gaskets available



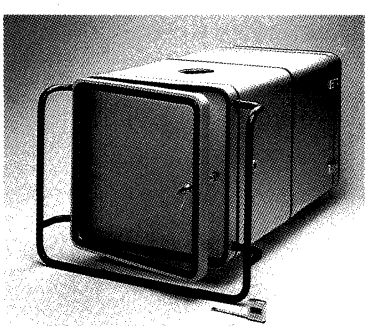
Non-Metallic Enclosures
- Fiberglass, polycarbonate or ABS
- Molded-in mounting bosses for PCBs
- Watertight
- Clear lids available on some models



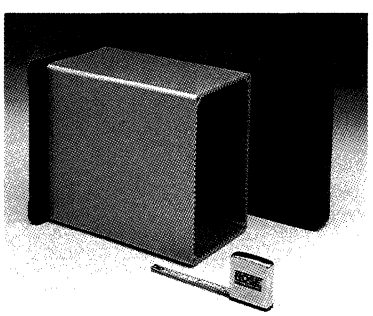
NEMA Type 4X Cabinets
- Fiberglass or ABS
- Clear or windowed doors
- Watertight
- 6 lock/latch styles



Modular Enclosures
- Fiberglass or ABS
- No assembly hardware required
- NEMA 4X and NEMA 1 versions
- Removable side walls



Machine Control Enclosures
- Rugged aluminum construction
- Dust-tight and watertight to NEMA 4X
- Offered in over 25 sizes ranging from 4″×9″ to 21″×32″



Build-A-Box
- Cut to length up to 9 feet
- Slotted for PCBs
- Watertight and dust-tight end caps
- All-aluminum construction

OFF-THE-SHELF DELIVERY

ROSE®
ENCLOSURES

CUSTOM MACHINING

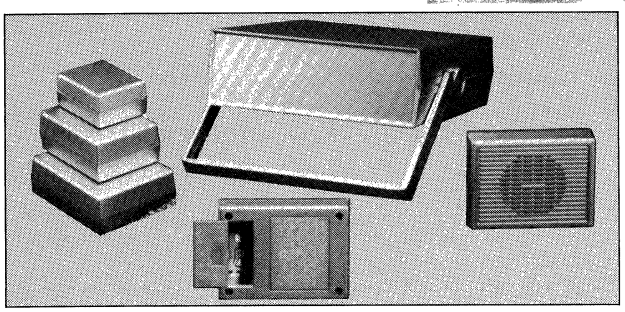
7330 Executive Way, Frederick, Maryland 21701
(301) 696-9800 FAX: (301) 696-9494

A PHOENIX MECANO COMPANY

S&S ASSOCIATES, INC
(800)426-3739 Fax (805)544-3109

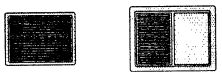
UNIBOX PACKAGING SYSTEM

unibox PACKAGING SYSTEM

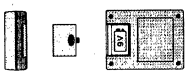


Unibox... The finest in plastic electronic enclosures. Available in an assortment of styles, sizes, and colors, the Unibox Packaging System is well suited to meet all your electronic enclosure requirements. Whether your application requires a standard off the shelf enclosure or complex design considerations, our Sales and Engineering Staff will assist you in every step of the way from prototyping through production. With a wide range of optional modifications available, we can economically transform your standard enclosure into a unique custom product. Unibox... We work beside our customers and stand behind our products.

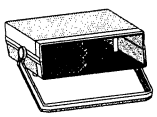
STANDARD ENCLOSURES
SERIES 100



SPEAKER GRILL ENCLOSURES
SERIES 180/190



9V BATTERY ENCLOSURES
SERIES 170



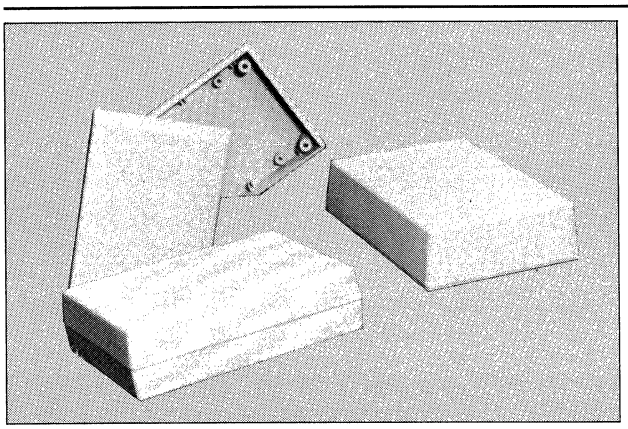
DESKTOP MODEL
SERIES 570

ACCESSORIES
SERIES 200

MEMBRANE SWITCHES
OVERLAYS

VALUE ADDED SERVICES

- Engineering/Technical Support & Services
- Machine Modifications
- Screen Printing/Hot Stamping
- Custom Mold Modifications
- Graphic Design Support & Services



UNIBOX SERIES 100 STANDARD ENCLOSURE

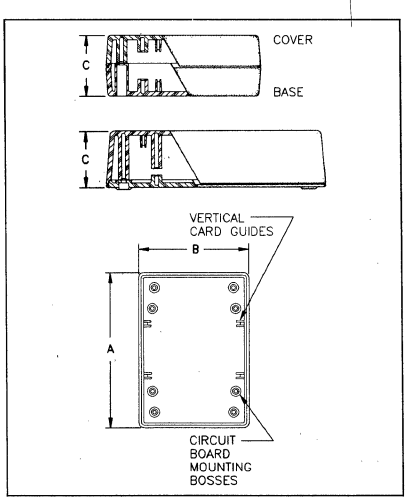
Unibox Standard enclosures are the heart of the Unibox Packaging System. Designed to stand alone or to be complimented by a variety of Unibox *Series 200* accessory items, the Unibox enclosure offers the professional approach to electronic packaging. Enclosures are molded of high impact ABS, and feature an attractive scratch resistant texture. Unlike their metal counterparts, Unibox plastic enclosures can be easily modified to simplify project construction. Unibox enclosures also feature vertical card guides and horizontal mounting bosses to accommodate Unibox *Series 300* circuit boards. Each unit is provided complete with assembly hardware.

TECHNICAL SPECIFICATIONS

Part No.	DIMENSIONS (INCHES) A	B	C	(Cover/Base)		CIRCUIT BOARD MOUNTS Horizontal	Vertical
STANDARD ENCLOSURES							
108	2.77	2.07	0.70	0.70	Flat	—	—
110	2.77	2.07	1.25	0.65	0.65	—	—
118	3.75	2.65	0.87	0.87	Flat	8 PLACES	2 POSITIONS
120	3.75	2.65	1.50	0.80	0.70	8 PLACES	—
127	4.37	3.25	0.87	0.87	Flat	8 PLACES	—
128	4.37	3.25	1.37	1.37	Flat	8 PLACES	—
130	4.37	3.25	1.50	0.80	0.70	8 PLACES	3 POSITIONS
133	4.37	3.25	2.00	1.30	0.70	8 PLACES	3 POSITIONS
137	5.30	4.00	0.87	0.87	Flat	12 PLACES	—
138	5.30	4.00	1.37	1.37	Flat	12 PLACES	—
140	5.30	4.00	1.50	0.80	0.70	12 PLACES	4 POSITIONS
142	5.30	4.00	1.85	0.80	1.05	6 PLACES	4 POSITIONS
144	5.30	4.00	2.00	1.30	0.70	12 PLACES	4 POSITIONS
146	5.30	4.00	2.37	1.29	1.05	12 PLACES	4 POSITIONS

Colors: White, Gray, Blue, Bone, Black

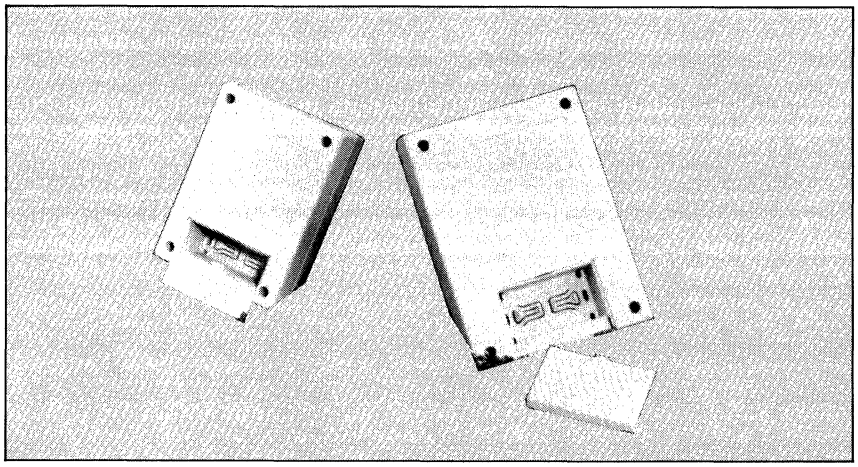
Detailed drawings available



S&S ASSOCIATES, INC
(800)426-3739 Fax (805)544-3109

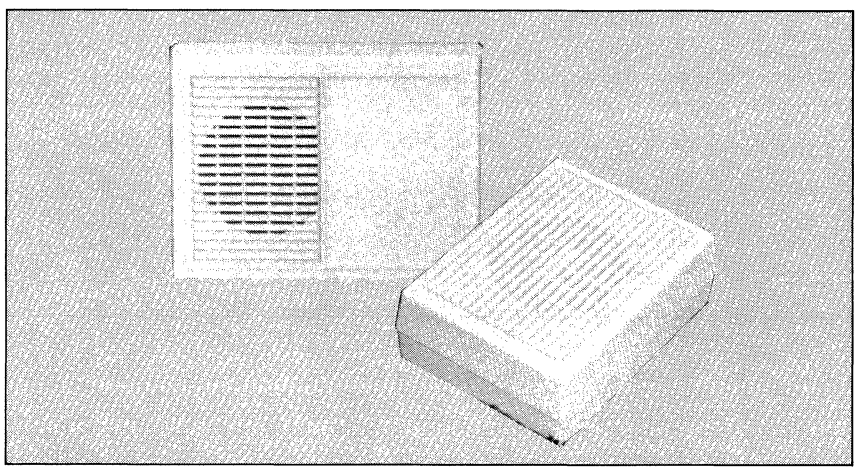
unibox PACKAGING SYSTEM

UNIBOX SERIES 170 BATTERY ENCLOSURE



Unibox Battery Compartment Enclosures offer all the versatility of the standard enclosure and more. These enclosures are designed to accommodate a standard size 9 volt battery and feature a snap lock lid, patented battery support spring, high impact ABS construction, and have an attractive scratch resistant texture. Unibox battery compartment enclosures have both vertical card guides and horizontal mounting bosses to to accommodate Unibox *Series 300* circuit boards. Each Unit is provided complete with assembly hardware.

UNIBOX SERIES 180/190 SPEAKER ENCLOSURE



Unibox Speaker Enclosures offer attractive designer styling in desktop, hand held, or wall mount applications. The Unibox speaker grill enclosures are constructed of high impact ABS and feature an attractive scratch resistant texture. Select enclosures with or without a 9V battery compartment, 2.5 inch square mount speaker with mounting hardware, or other Unibox *Series 200* accessories. Unibox speaker enclosures have both vertical card guides and horizontal mounting bosses. In addition, the 190 Series features a large recessed area on the cover to accommodate a label or value added decoration. Each Unit is provided complete with assembly hardware.

TECHNICAL SPECIFICATIONS

Part No.	DIMENSIONS (INCHES)					MAX. CIRCUIT BOARD SIZES	
	A	B	C	Cover/Base		COVER	BASE
BATTERY COMPARTMENT ENCLOSURES							
171	4.37	3.25	1.50	0.80	0.70	3.9×2.8	2.8×2.8
172	4.37	3.25	2.00	1.30	0.70	3.9×2.8	2.8×2.8
175	5.30	4.00	1.50	0.80	0.70	4.9×3.6	3.6×3.35
176	5.30	4.00	2.00	1.30	0.70	4.9×3.6	3.6×3.35
SPEAKER GRILL ENCLOSURES							
184	4.37	3.25	1.50	0.80	0.70	—	3.9×2.8
187	4.37	3.25	2.00	1.30	0.70	—	3.9×2.8
191	5.30	4.00	1.50	0.80	0.70	3.6×2.5	4.9×3.6
194	5.30	4.00	2.00	1.30	0.70	4.9×3.6	4.9×3.6
SPEAKER GRILL COVER WITH BATTERY COMPARTMENT BASE							
188	4.37	3.25	2.00	1.30	0.70	—	2.8×2.8
192	5.30	4.00	1.50	0.80	0.70	3.6×2.5	3.6×3.35
195	5.30	4.00	2.00	1.30	0.70	4.9×3.6	3.6×3.35

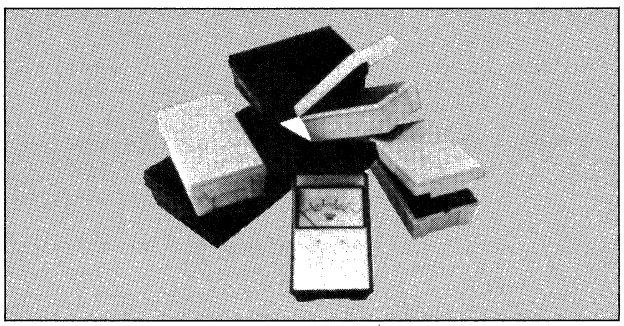
Colors: White/Gray, Bone, Black

Detailed drawing available

S&S ASSOCIATES, INC
(800)426-3739 Fax (805)544-3109

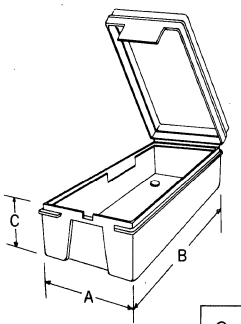
PORTABLE INSTRUMENT ENCLOSURES

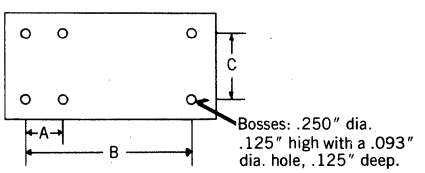
"TESTAR" SERIES



Recognizing the need for off-the-shelf, low cost, portable instrument enclosures, S&S Associates carries a family of superior quality cases. Eliminating expensive engineering and tooling costs, Testar Enclosures are ideally suited for In-House Test Equipment, Field Service instrumentation and Old/New Product Packaging. Testars are all molded in one-piece construction and have a hinged lid which snaps closed to provide protection for any panel mounted items. Testars are also available without a hinge lid for other applications. Standard options such as built-in-meters, aluminum panels, labeling, silk screening, and machining are available.

HINGED TYPE ENCLOSURES		
MODEL	**STOCK NO.**	**DESCRIPTION**
2000	2010	Case Only (black)
2000	2020	Case Only (light blue)
2000	2030	Case Only (beige)
2000	2050	Case w/Aluminum Panel (black)
2000	2080	Case w/Aluminum Panel (light blue)
2000	2090	Case w/Aluminum Panel (beige)
2000	2380	Recessed Panel (gray)
2000	2350	Aluminum Panel
2000	2400	Metered Panel 0/100 UA
2000	2450	Metered Panel 0/1 MA
3000	3010	Case Only (black)
3000	3020	Case Only (light blue)
3000	3050	Case w/Aluminum Panel (black)
3000	3080	Case w/Aluminum Panel (light blue)
3000	3350	Aluminum Panel





SPECIFICATIONS

CASE DIMENSIONS

MODEL	A	B	C
2000	3.2"	5.5"	2.0"
3000	4.6"	6.6"	2.0"
4000	3.2"	5.5"	1.52"
5000	4.6"	6.6"	1.52"

STANDARD STOCKED COLORS

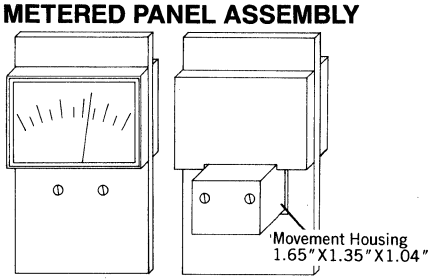
MODEL	BLACK	LT. BLUE	BEIGE
2000	yes	yes	yes
3000	yes	yes	no
4000	yes	yes	yes
5000	yes	yes	no

PC BOARD MOUNTING DIMENSIONS

MODEL	A	B	C
2000	n/a	4.0"	2.0"
3000	1.5"	5.0"	3.0"
4000	n/a	4.0"	2.0"
5000	1.5"	5.0"	3.0"

"TESTAR" PANEL INSERTS

METERED PANEL ASSEMBLY



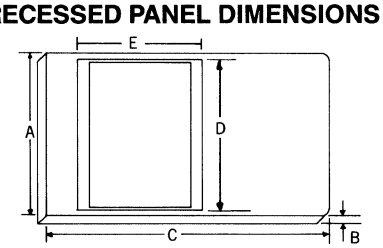
METER SPECIFICATIONS

Movement	- Pivot & Jewel	
Accuracy	- + 2 %	
Tracking	- + 2 %	RES.
Standard	- 0-1 MA	100 Ohms
Ranges	- 0-100 UA	1250 Ohms
Dial	- 80° ARC 2.7" scale Lenght	

Movement specifications meet or exceed American Standard C93.1

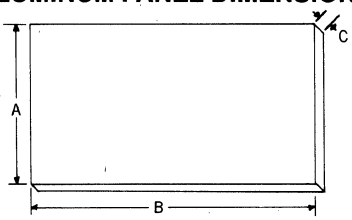
Special ranges and resistances available on special request.

RECESSED PANEL DIMENSIONS

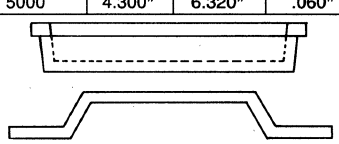


MODEL	A	B	C	D	E
2000	3.040"	.125"	5.325"	2.64"	2.25"
4000	3.040"	.125"	5.325"	2.64"	2.25"

ALUMINUM PANEL DIMENSIONS



MODEL	A	B	C
2000	3.040"	5.325"	.125"
3000	4.300"	6.320"	.060"
4000	3.040"	5.325"	.125"
5000	4.300"	6.320"	.060"



- Custom dials available at no charge for orders over 100 pieces.

Under 100 pieces add $150.00 one-time artwork set-up charge.

Custom case and panel colors are available on quantities over 500 pieces. For color mix and match thers is a one-time charge of $150.00.

Special labeling, silk screening, machining etc. available on special order basis per customer drawing.

MATERIAL SPECIFICATIONS

Metered Panel - A.B.S.
Enclosure - Polypropylene
Recessed Panel -Polypropylene
Aluminum Panel - Clear Anodized Aluminum
Movement Housing - A.B.S.

The Ultimate in Product Protection

Whether you're transporting by Air, Land or Sea, STAR CASES protect everything exposed to shock, vibration and mis-handling. Experience first-hand why no other case protects as well or lasts as long as a STAR CASE.

To find out how a Reusable, tested and proven, ATA* STAR CASE can cost less than a cardboard box, Call for your FREE Factual ATA Case Report.

**ATA (Air Transport Association of America) establishes criteria, Specification 300 Category I, II or III, for rating the air worthiness of different types of cases and containers. ATA Specification 300 Category I test procedures simulate 100 airline trips. When put to the test, STAR CASES performance surpass the criteria established by the ATA.*

STAR CASE™ MANUFACTURING CO., INC.

648E Superior Avenue Munster, IN 46321
(219)922-4440 FAX(219)922-4442

(800)822-STAR
(800)782-CASE

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UNIT OF ZERO CORPORATION
3445 Fletcher Avenue, El Monte, CA 91731-3001
(818)579-2300 • TWX: (910)587-3437

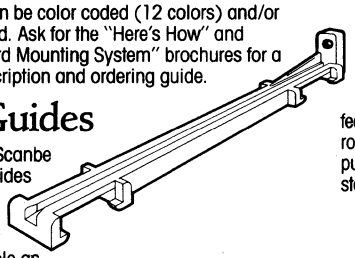
Card Cages...Components..

CARD CAGE COMPONENTS

Build your own card cage from these *five basic parts*—card guides, mounting bars, spacers, mounting feet and end plates. Thousands of possible combinations can be assembled.

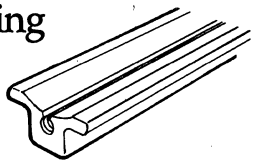
All items can be color coded (12 colors) and/or hot ID stamped. Ask for the "Here's How" and "Snap File Card Mounting System" brochures for a complete description and ordering guide.

Card Guides



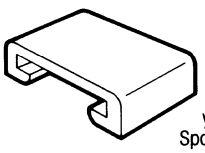
The patented Scanbe "T" series guides have integral connector mounting feet or are available as Thru-Guides for separate connector mounting components. Lengths 2.750" to 12.815". Also Snap-In Guides 2.500" to 12.000".

Mounting Bars



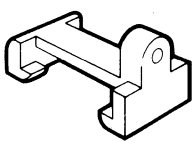
For "T" Series Guides and "A" Series mounting feet, up to 24" length, for single and multiple card rows. For Snap-In guides mounting bars are prepunched with .5, .6, .7 or .75" centers. 17" length standard, but can be cut to length.

Spacers



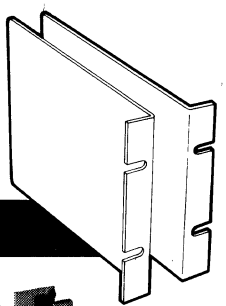
Adjust the nominal .500" width of "T" Series card guides to your card spacing. Spacers 0.031" to 1.000" for card spacing 0.531" to 1.500".

Connector Mounting



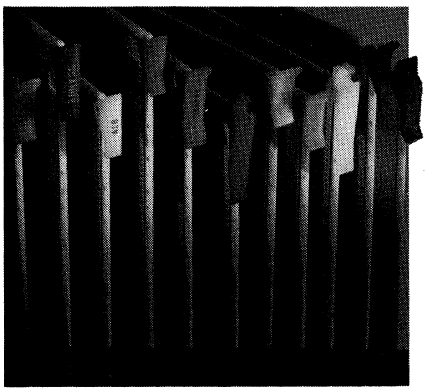
Thru-hole or with 4-40 threaded brass or stainless steel inserts. Available as "A" Series nylon mounting feet that slide on mounting bars, or as a connector mounting bar for high insertion force connectors.

End Plates



Mate with mounting bars and provide ears for rack or panel mounting. Heights 5.22" to 17.47", depths 8.25" to 11.25".

Injectors/Ejectors



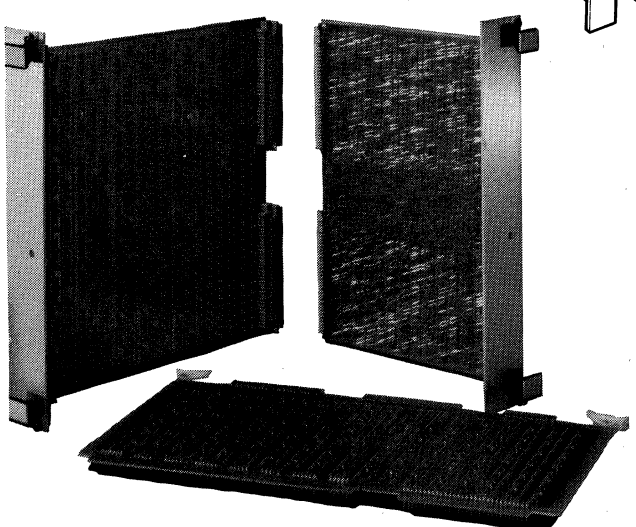
Scanbe circuit card ejectors fit virtually all card support systems. They easily attach by means of roll pins to cards either 0.062" or 0.093" thickness, and operate by lever action against the card guide or mounting bar.

Styles:

S-200	Single action, .375" wide
S-202	Slim line single action, .250" wide
S-203	Low profile (.125") single action
S-205	Single action, offset
S-206	Locking ejector for "T" series guides
S-208	Low profile tabbed
S-209	Double action injector/ejector
S-211	Single action, medium length
S-212	Single action, for larger cards
S-213	Ultra long for maximum leverage
S-214	Double action for sheet metal cage
S-216	E-Z-Ject VME panel ejector
S-217	Eurocard injector/ejector

WIRE WRAP BUS BOARDS

Scanbe wire wrap bus boards have high-density patterns that accommodate DIL pin spacing from 0.3" up, plus extensive power & ground planes with easy power connection. All pin sockets are gold plated quad contact. VME and Multibus II boards have on-board decoupling capacitors, and come with a front panel with E-Z-Ject injector/ejectors. Custom panels are available.

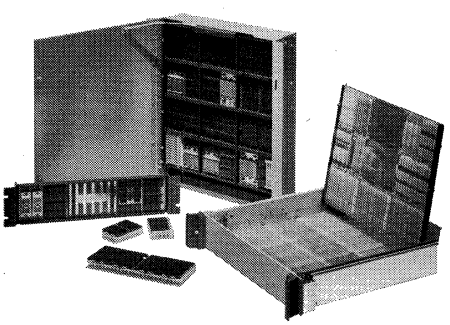


Bus, Size	W/W Pattern	Part No.
VME, 3U	Universal	VME-1101-01
VME, 6U	20-pin DIL + Univ	VME-2100-01
VME, 6U	Universal	VME-2101-01
VME, 6U	Universal + PGA	VME-2102-01
Multibus I	Universal, 2-level	12330-02
Multibus I	Universal, 3-level	12330-03
Multibus II	Universal	MBII-2201-01
Multibus II	Universal + PGA	MBII-2202-01

WIRE WRAP SERVICES

Scanbe has full wire wrap capability from initial design through NC wire and assembly, packaging, test and documentation. Find out how complete Scanbe service can save time and cut cost in your application.

Wire wrap boards are available for Multibus, VME, the 3D series of 6.25x5.56" boards, and in the 2D series socket boards and panels (pictured).



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Card Ejectors...Wire Wrap

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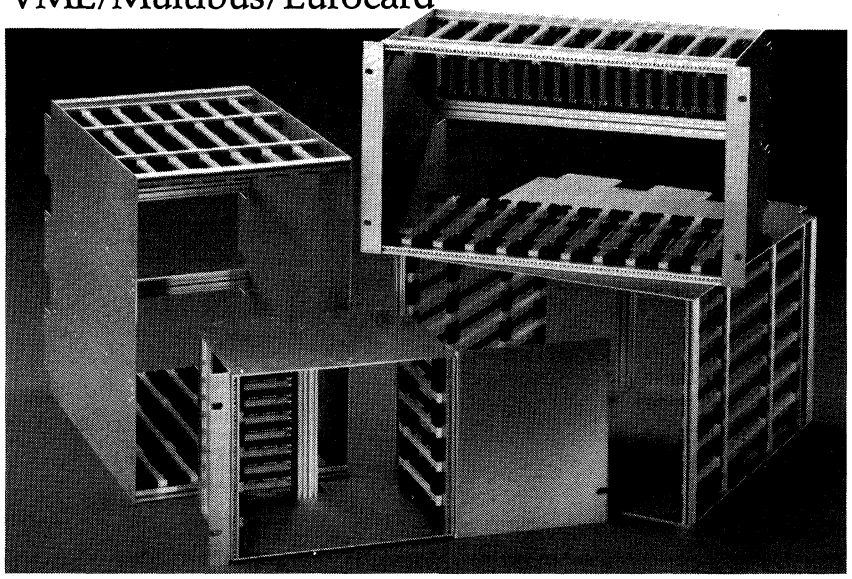
CARD CAGES

VME/Multibus/Eurocard



All Scanbe Card Cages are fully assembled and tested.

Scanbe's Eurocard cages come in hundreds of combinations from 3U to 9U heights, 100mm to 400mm depths, and from 3 to 21 slots. Universal mount, vertical rack mount and horizontal rack mount are available.

For VMEbus or Multibus II, high quality J1 backplanes are installed and tested — J2 backplanes are optional.

Universal Mount

For use inside enclosures, equipment drawers, towers and subsystems. End plates have captive fasteners for easy installation.

VME
3Ux160mm: 9,12,16,20 slots
6Ux160mm: 3,5,7,9,12,16,20,21 slots
9Ux400mm: 12,16,20 slots
Multibus II
6Ux220mm: 3,5,7,9,12,16,20 slots

Vertical Rack Mount

Standard 19" rack mounting unit with cards vertically oriented.

VME
3Ux160mm: 9,12,16,20 slots
6Ux160mm: 9,12,16,20,21 slots
9Ux400mm: 12,16,20 slots
Multibus II
6Ux220mm: 9,12,16,20 slots

Horizontal Rack Mount

Save rack space on cages with 9 slots or less.

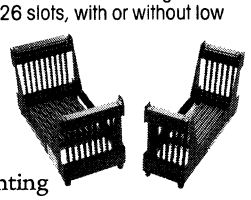
VME
6Ux160mm: 3,5,7,9 slots
Multibus II
6Ux220mm: 3,5,7,9 slots

Accessories:

Center adapter 60475-01 divides a 6Ux160 slot into two 3U slots. Fans, covers, J2 and J1/J2 monolithic backplanes are all available.

Multibus I

The MICRO-FILE™ line of Multibus cages is available with 4 to 26 slots, with or without low noise backplanes, and in universal mount, vertical rack mount or horizontal rack mount.



Standard Mounting

Slots	Part No.	Slots	Part No.
4	30660-04	12	30660-12
4*	30665-04	14	30660-14
6	30660-06	16	30660-16
8	30660-08	20	30660-20
	or 30660-108	26	30660-26
9	30660-09		

* 30665-04 has female bus extension on connector.

Horizontal Rack Mount

Slots	Part No.	Slots	Part No.
4	30960-04	9	30960-09
5	30960-05	12	30960-12
6	30960-06		
8	30960-08		
	30960-108		

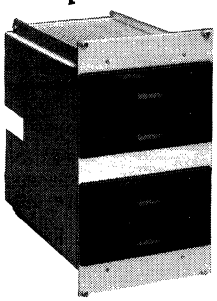
Rack heights: 4 slots: 2U; 5,6 slots: 3U; 8,9 slots: 4U; 12 slots: 5U.

Vertical Rack Mount

Slots	Part No.	Slots	Part No.
12	30860-12	20	30860-20
14	30860-14	26	30860-26
16	30860-16		

Rack height 14" (8U) on all vertical rack mount cages.

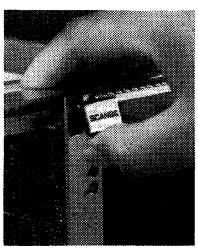
Peripheral Modules



Here is a convenient and cost-effective way to add disk/tape drives or other 5¼" peripherals to your Eurocard system. The peripheral modules mount directly in 6U 12-slot Vertical Rack Mount VME or Multibus II card cages.

Disk drive slots	Part No.
4 half-height (or 2 full height)	32013-1
3 half-height (or 1 full & 1 half height)	32013-2
2 half-height	32013-3

E-Z-JECT VME Ejectors and Panels



The Scanbe E-Z-Ject™ has become the industry standard ejector for VMEbus boards, providing a quick and easy method of removal from Eurocard format card cages. The standard E-Z-Ject front panel assembly includes the front panel, the handle(s), and the corresponding hardware. Custom panel labeling as well as custom ID panels for E-Z-Ject handles are readily available.

Size	Part No. Unassembled	Assembled
3U x 4HP	32025	32005
6U x 4HP (lower bracket)	32030	32010
6U x 4HP (upper bracket)	32028	32027
6U x 8HP (std.)	32094	32091
6U x 8HP (wire wrap)	32152	32011
9U x 4HP	32035	32014
9U x 8HP (wire wrap)	32153	32128
9U x 8HP (deep comp.)	32226	32186

Component Kits — without front panel

Includes handle(s), I.D. plates, bracket(s), and corresponding hardware:

Size	Part No.
3U x 4HP	S216-311
6U x 4HP	S216-611
9U x 4HP	S216-911

Eurocard (VME) Filler Panels

Filler panels are prepunched, anodized, vertical grained, .090" thick aluminum covers that fasten to card cage extrusions to cover openings in the front of a card cage. Mounting hardware is included, but not handles.

Include both main part no. for height, dash no. for width

Height/Part no.		Width/dash no.			
3U	32145-	2HP	-01	6HP	-14
6U	32146	3HP	-02	8HP	-11
9U	32251-	4HP	-03		

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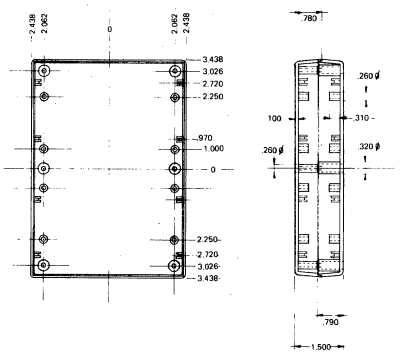
SCANBE UNIT OF ZERO CORPORATION

Serpac's™ wide variety of packaging products provide functional utility and a professional high-tech appearance. Enclosures are available in 5 standard colors (almond, black, blue, gray and white). We offer models with or without 9-volt battery compartments. All models come with vertical card guides and are bossed for mounting horizontal circuit boards. All enclosures are made from ABS GSM UL Rated 94 HB plastic, also available in Valox™ UL Rated 94 VO, ABS KJW flame retardent UL Rated 94 VO, or for shielding applications EMI RFI materials. We also offer our I-Series, Wall mount, Slant, A-Series, M-Series and V-Series enclosures.

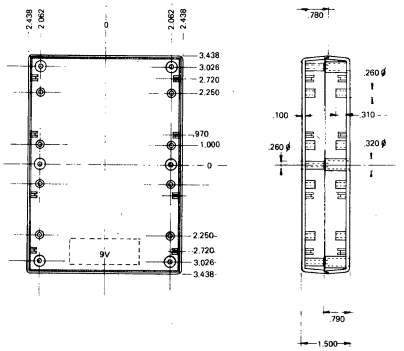
SERPAC™
Plastic Electronic Enclosures

Standard Enclosures



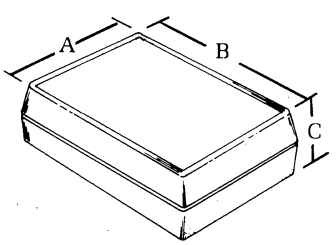
MODEL NO.	OUTSIDE DIMENSION A	B	C
010	2.250	3.600	.755
011	2.250	3.600	1.260
012	2.250	3.600	1.760
013	2.250	3.600	2.260
031	3.250	4.380	.900
032	3.250	4.380	1.400
033	3.250	4.380	1.900
051	3.250	5.624	.900
052	3.250	5.624	1.400
053	3.250	5.624	1.900
071	4.876	6.876	.900
072	4.876	6.876	1.400
073	4.876	6.876	1.900
111	2.250	3.600	1.500
112	2.250	3.600	2.000
113	2.250	3.600	2.500
131	3.250	4.380	1.500
132	3.250	4.380	2.000
133	3.250	4.380	2.500
151	3.250	5.624	1.500
152	3.250	5.624	2.000
153	3.250	5.624	2.500
171	4.876	6.876	1.500
172	4.876	6.876	2.000
173	4.876	6.876	2.500

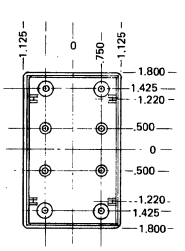
9 Volts Enclosures



MODEL NO.	OUTSIDE DIMENSION A	B	C
211	2.600	4.100	1.500
231	3.250	4.380	1.500
232	3.250	4.380	2.000
233	3.250	4.380	2.500
251	3.250	5.624	1.500
252	3.250	5.624	2.000
253	3.250	5.624	2.500
271	4.876	6.876	1.500
272	4.876	6.876	2.000
273	4.876	6.876	2.500

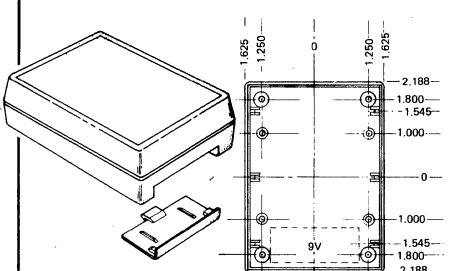
Standard Enclosures With Insert





MODEL NO.	OUTSIDE DIMENSION A	B	C
031-I	3.250	4.380	.900
051-I	3.250	5.624	.900
071-I	4.876	6.876	.900
072-I	4.876	6.876	1.400
073-I	4.876	6.876	1.900
110-I	2.250	3.600	.995
110-IPC	2.250	3.600	.995
131-I	3.250	4.380	1.500
151-I	3.250	5.624	1.500
171-I	4.876	6.876	1.500
172-I	4.876	6.876	2.000
173-I	4.876	6.876	2.500

9 Volt Enclosures With Insert



MODEL NO.	OUTSIDE DIMENSION A	B	C
211-I	2.600	4.100	1.500
231-I	3.250	4.380	1.500
251-I	3.250	5.624	1.500
271-I	4.876	6.876	1.500
272-I	4.876	6.876	2.000
273-I	4.876	6.876	2.500

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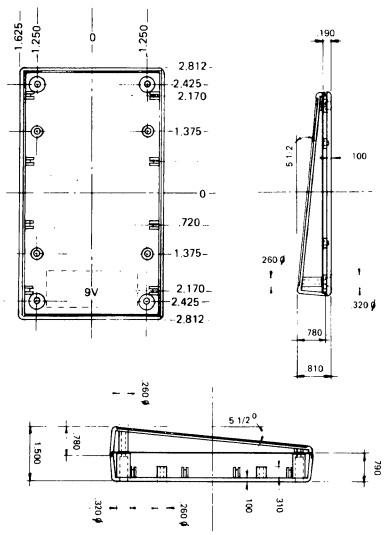
Standard Slant

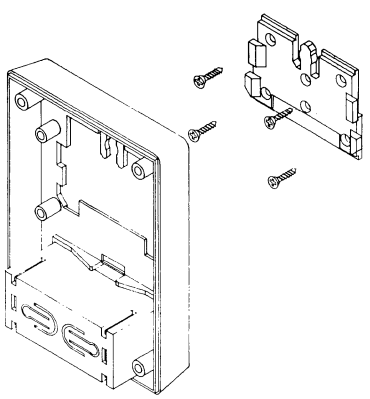


MODEL NO.	OUTSIDE DIMENSION A	B	C	C'
05-S	3.250	5.624	.900	.368
15-S	3.250	5.624	1.500	.968

9 Volt Slant

MODEL NO.	OUTSIDE DIMENSION A	B	C	C'
25-S	3.250	5.624	1.500	.968

Wall Mount and Wall Mount With Insert



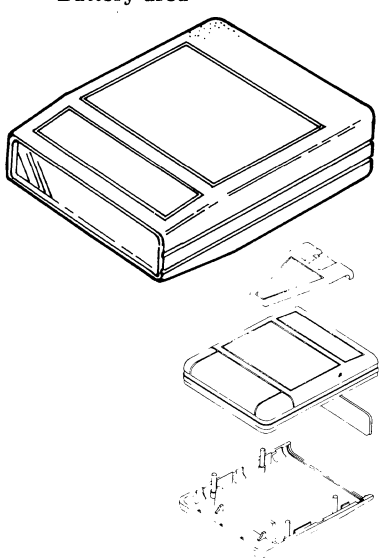
MODEL NO.	OUTSIDE DIMENSION A	B	C	C'
05-SW	3.250	5.624	.900	.368
15-SW	3.250	5.624	1.500	.968
031-W	3.250	4.380	.900	
031-WI	3.250	4.380	.900	
032-W	3.250	4.380	1.400	
033-W	3.250	4.380	1.900	
051-W	3.250	5.624	.900	
051-WI	3.250	5.624	.900	
052-W	3.250	5.624	1.400	
053-W	3.250	5.624	1.900	

9 Volt Wall Mount and 9 Volt Wall Mount With Insert

MODEL NO.	OUTSIDE DIMENSION A	B	C
231-W	3.250	4.380	1.500
231-WI	3.250	4.380	1.500
232-W	3.250	4.380	2.000
233-W	3.250	4.380	2.500
251-W	3.250	5.624	1.500
251-WI	3.250	5.624	1.500
252-W	3.250	5.624	2.000
253-W	3.250	5.624	2.500

M-Series

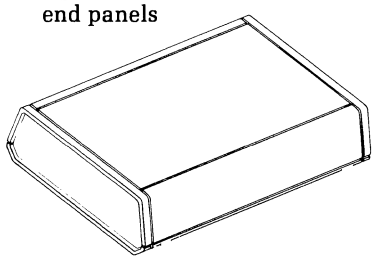
- Interlocking assembly
- Interchangeable front panel
- Battery area



MODEL NO.	OUTSIDE DIMENSION A	B	C
M4	2.200	2.280	.700
M4-PC	2.200	2.280	.700
M6-AA	2.400	4.150	.850
M6-AAPC	2.400	4.150	.850
M6-9V	2.400	4.150	.850
M6-9VPC	2.400	4.150	.850
M-10	4.800	6.750	2.050

A Series

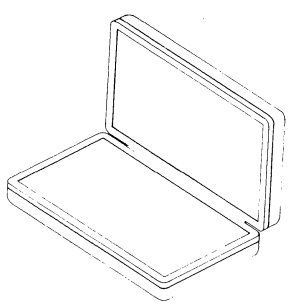
- Clam shell design
- Interchangeable end panels
- Insertable molded areas
- Optional access door on end panels



MODEL NO.	OUTSIDE DIMENSION A	B	C
A-21	2.600	4.250	1.120
A-42	5.000	7.100	1.620

V Series

- Lexan™ outer shell
- Valox™ internal face plates
- Dual pivot hinge
- Snap lock
- End panel option
- Access internal face plate



MODEL NO.	OUTSIDE DIMENSION A	B	C
V-15	3.250	5.500	1.200

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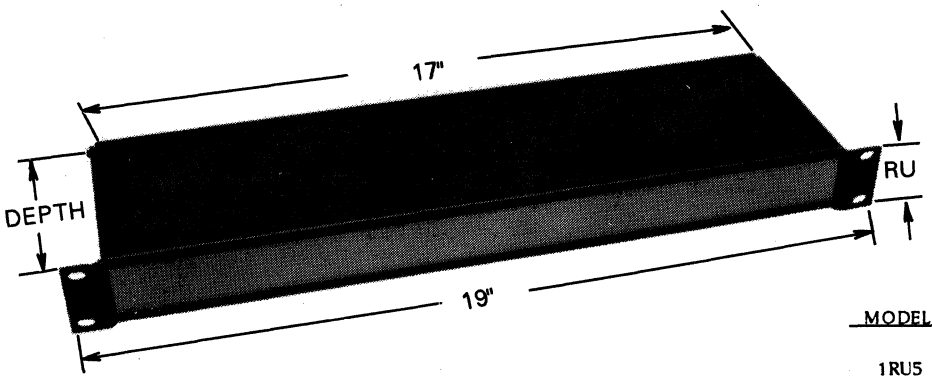
ALUMINUM RACK AND CHASSIS BOXES

FEATURES:

DESIGNED FOR SMALL LOT PRODUCTION
EASY TO FABRICATE (DRILL OR PUNCH HOLES)
SHIPPED UNASSEMBLED (FLAT)
ALL MAIN PANELS ARE FLAT FOR EASY FABRICATION
FRONT AND REAR PANELS ARE CLEAR BRUSH ANODIZED
TOP AND BOTTOM PANELS ARE BLACK BRUSH ANODIZED
END PANELS ARE BLACK ANODIZED

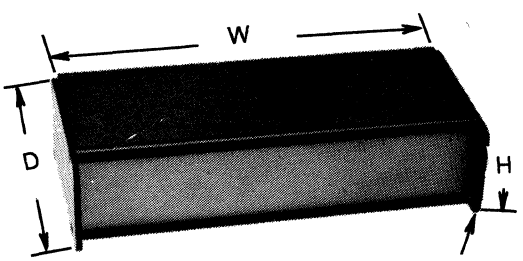


RACK BOXES

MODEL NO.	RU	DEPTH	PRICE 1-9
1RU5	1.75"	5"	$ 29.40
1RU7	1.75"	7"	31.50
1RU10	1.75"	10"	33.60
2RU5	3.50"	5"	31.50
2RU7	3.50"	7"	33.60
2RU10	3.50"	10"	35.70
3RU5	5.25"	5"	39.90
3RU7	5.25"	7"	42.00
3RU10	5.25"	10"	44.10

CHASSIS BOXES

MODEL NO.	W WIDTH	D DEPTH	H HEIGHT	PRICE (1-9)
MC-1A	4"	3"	2"	$15.75
MC-2A	6"	3"	2"	17.85
MC-3A	8"	3"	2"	19.95
MC-4A	4"	5"	3"	17.85
MC-5A	6"	5"	3"	19.95
MC-6A	8"	5"	3"	22.05
MC-7A	4"	7"	4"	19.95
MC-8A	6"	7"	4"	22.05
MC-9A	8"	7"	4"	24.15



SUPPLIED WITH SCREWS AND RUBBER FEET

THIS LIP EXTENDS 1/2" LONGER THAN THE DEPTH TO PROTECT FRONT PANEL PARTS

BLANK RACK PANELS

MODEL NO.	(NOT SHOWN) DESCRIPTION	PRICE 1-9
1RPB	1.75" X 19"	$ 8.95
2RPB	3.50" X 19"	13.15
3RPB	5.25" X 19"	17.35
4RPB	7.00" X 19"	21.50

We also stock chassis punches and instant lettering. Call for complete catalog and engineering dimensions.
Our catalog also includes our 300 pro and semi-proaudio products.
We manufacture a complete line of high quality audiotransformers, as well as custom audio transformers.

ORDER DIRECT FROM THE FACTORY.
ON PREPAID ORDERS SHIPPED UPS GROUND, SECOND DAY AIR $10.00
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MINIMUM ORDER: The minimum order is $10.00
TERMS: Terms of payment on open accounts are NET 30days from date of invoice.
C.O.D. ORDERS: Payments must be made in cash, M.O., or certified check. A company check will be accepted only if approved by the factory.
OPEN ACCOUNTS: SESCOM, INC. extends credit to goverment agencies and industrial accounts with a published rating. Firms may apply for an open account by requesting a credit application from the accounts receivable department. All orders are shipped C.O.D. until credit is approved. (please allow 4 to 6 weeks to open a new account.)
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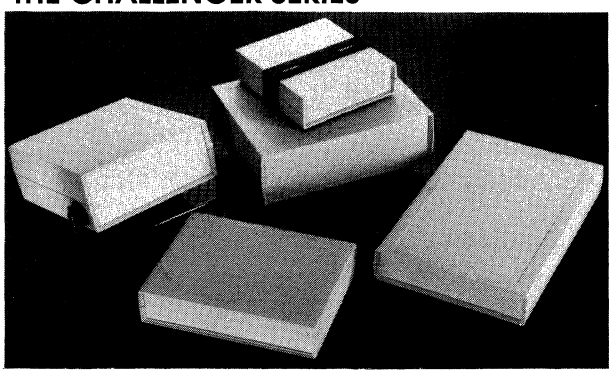
SIMCO

DRESS IT WITH A SIMCO HOUSING

The housing for an instrument or product is an integral part of its design, playing a key role in its looks, presentation, value and quality perception. It should compliment and enhance the product in every possible way.
Success of a new or redesigned product depends not only on the purpose, function, and reliability of the product, but on the aesthetics as well. The enclosure that houses a product is its first (visual) introduction. That is why its important to choose an enclosure that creates and projects the right image for both the product and the company it represents.
The beauty and durability of molded ABS are qualities that are appreciated by today's consumer. SIMCO enclosures are manufactured using only the finest grades of material and are molded to strict specifications. Our enclosures are rugged, yet attractive. They can be found in many diverse applications, such as test, measurement, instrumentation, medical, communications and consumer markets to name a few.
In addition, SIMCO provides off-the-shelf inventory, short lead times, and on-time delivery. That is why more and more companies are using SIMCO enclosures. The prices are right. The quality is high. These advantages make SIMCO enclosures the smart and most logical choice for all your enclosure needs – from prototype to production.

THE CHALLENGER SERIES



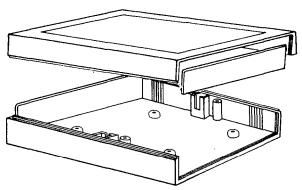
The Challenger Series is ideal for most any portable instrument housing. Five popular sizes are offered in four standard colors, Black, Beige, Dark Grey and PC Bone Grey

Features

- High Impact ABS Material
- Attractive Soft Suede Finish
- Molded-in card guides and mounting bosses
- Complete w/case screws and self adhesive rubber feet
- In-stock availability
- Colors: Black, Beige, Dark Grey and PC Bone Grey

Available Options

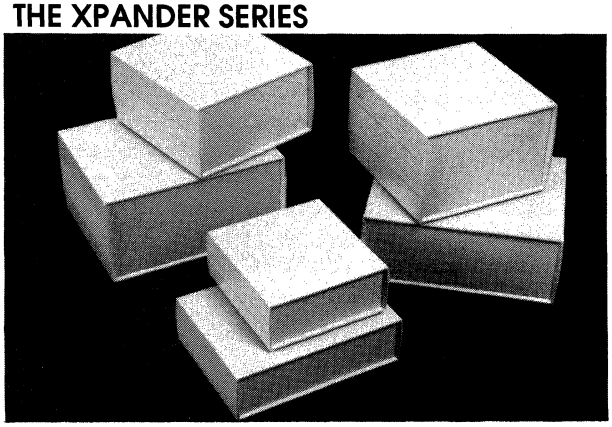
- Custom colors
- Flame retardant material, meets UL approval
- EMI/RFI shielding
- Custom designs
- Tilt stand/carrying handle
- Universal mounting brackets
- Front and rear panels



Enclosures

Model Number	Outside Dimensions (Inches)
150X5	1.53H x 5.08W x 5.30D
150X75	1.53H x 7.06W x 5.30D
150X69	1.55H x 6.33W x 9.62D
250X6	2.52H x 6.12W x 6.32D
250X86	2.52H x 8.10W x 6.32D

THE XPANDER SERIES



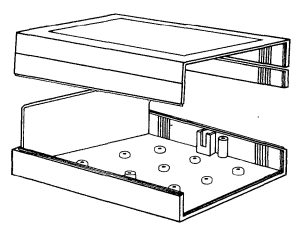
The Xpander Series is created using side xpander panels to increase the height of a standard enclosure. Available in six sizes.

Features

- High Impact ABS Material
- Attractive Soft-suede finish
- Molded-in card guides & mounting bosses
- Complete with stainless steel case screws and rubber feet
- In-stock availability
- 4 Standard colors: Black, Beige, Dark Grey, PC Bone Grey

Available Options

- Custom colors
- Flame retardant material, meets UL approval
- EMI/RFI shielding
- Custom designs
- Tilt stand/carrying handle
- Universal mounting brackets
- Front and rear panels



Enclosures

Model Number	Outside Dimensions (Inches)
200XP5	2.04H x 5.08W x 5.30D
200XP75	2.04H x 7.06W x 5.30D
325XP6	3.30H x 6.12W x 6.32D
325XP86	3.30H x 8.10W x 6.32D
400XP6	4.04H x 6.12W x 6.32D
400XP86	4.04H x 8.10W x 6.32D

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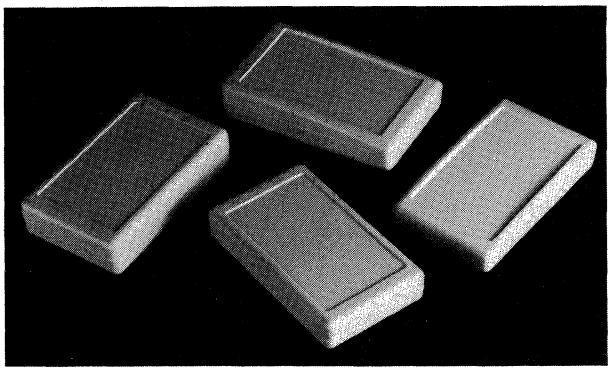
SIMCO

THE DISCOVERY SERIES



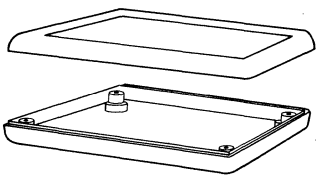
Features

- High Impact ABS Material
- Attractive appearance
- Complete with stainless steel screws and self-adhesive transparent non-skid feet
- In-stock availability
- Easily machined
- Tops and bottoms interchange to create four distinctive styles
- Four standard colors: Black, Beige, Dark Grey, PC Bone Grey

Small hand-held enclosures in four distinctive styles. Choose from a plain utility top or graceful sloped top with or without 9-volt battery compartment

Compact size 1.15 to 1.40H x 3.75W x 6.30L (inches)

Available Options



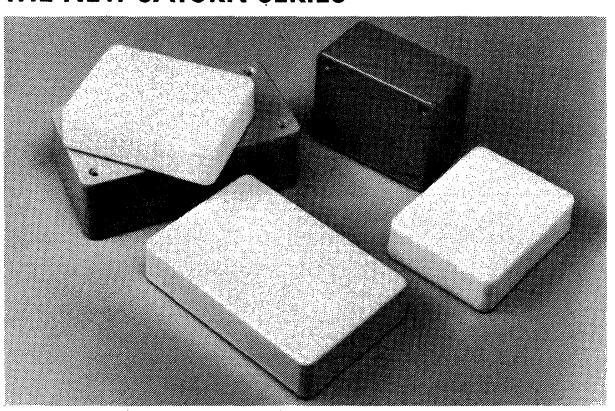
- Custom colors
- Flame retardant material, meets UL approval
- EMI/RFI shielding
- Low-cost tooling insert to customize tops or bottoms

36SB – A sloped top, plain bottom unit with sleek flowing lines. Perfect for products with high visibility.
36S9VB – Sloped top unit with molded-in 9 volt battery compartment. Has positive lock removable battery door.
36TB – A plain top, plain bottom unit, well suited for general purpose applications.
36T9VB – Plain top unit with 9-volt battery compartment.

Enclosures

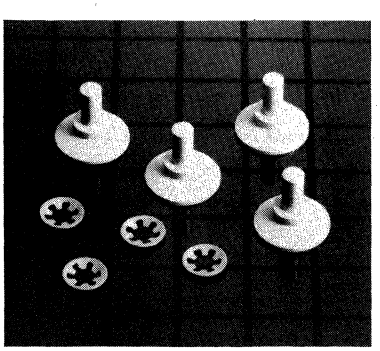
Model Number	Description
36SB	Sloped Top, Plain Bottom
36S9VB	Sloped Top, Battery Bottom
36TB	Plain Top, Plain Bottom
36T9VB	Plain Top, Battery Bottom

THE NEW SATURN SERIES



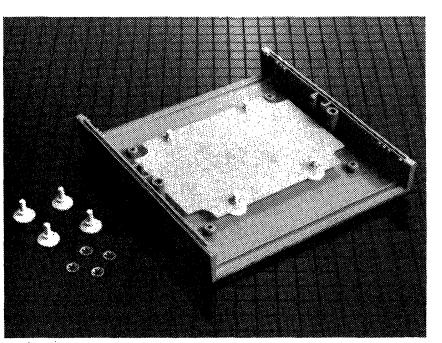
The smallest enclosures in the SIMCO line, these mini-boxes offer a practical, economical packaging solution for small electronic devices or circuitry.
Molded tops and flat bottoms feature a smooth, matte finish and have internal provisions for pc board mounting.
Impact resistant ABS material and flame retardant to meet UL94V-O standards.
They are available in three standard colors: Black, White, and Fog.
Sizes range from: 3/4" x 1" x 2" to 2" x 4" x 6"

UNIVERSAL MOUNTING BOSSES



PC board mounting boss location need not be a concern with SIMCO's new Universal Mounting Bosses. Designed to bond securely to an ABS enclosure with MEK or other bonding agent, the bosses can be located wherever needed within an enclosure. The PC board is then held in place with easy to use push-on fasteners.

Model Number	Description
PMB-125	PC board Mounting Basses and Clips



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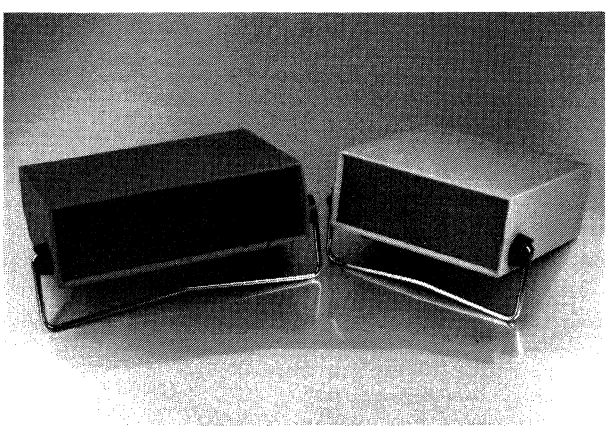
SIMCO

CUSTOM MACHINING & MOLDING

SIMCO enclosures and panels are easily machined or drilled. Do it yourself or let SIMCO quote your custom modifications. Work is done from your prints or to your specifications and with short lead times. Some SIMCO enclosures can be custom molded using our "insert" technique to create openings and assembly requirements where needed.
Front and rear panels can also be custom molded. A special, low-cost panel mold is constructed to your specifications. Silk-screening is also available through SIMCO.
Send us your drawing or print today and let SIMCO quote on your custom requirements.

TILT STAND/HANDLE KIT



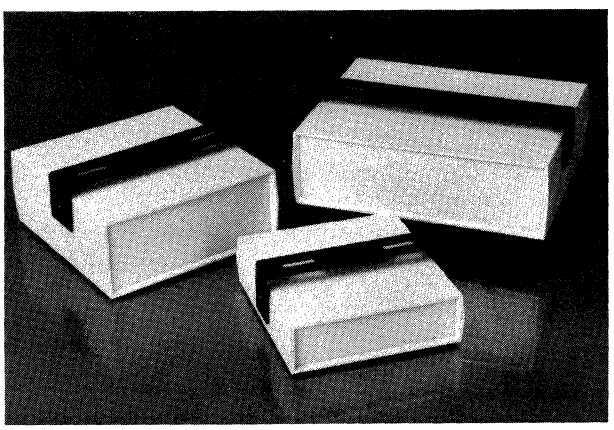
SIMCO's 3 locking position handle kits are attractive, yet functional.

Features

- Heavy-duty chrome plated steel
- Molded ABS side attachment buttons
- Provides easy viewing and accessibility to any benchtop instrument.
- Adds portability and folds out of the way when not in use.
- Easily installed and economically priced.
- Each kit includes mounting screws and over-size rubber feet.
- Low cost . . . Compare our prices.

Tilt/Stand Handle Kits
HK-6 – to fit 6" enclosure
HK-86 – to fit 8" enclosure

MOUNTING BRACKETS



SIMCO's attractive mounting brackets install easily.

Features

- Durable 16 gauge CRS 1010
- Polane, 2 part epoxy, black textured coating is long-wearing and attractive
- Adjustable height and tilt angle
- Versatile design allows bracket to be installed over or under the enclosure
- Includes 2 neoprene washers and 3/16-24 x 1/2" black machine screws
- Assembles easily. Molded-in nut pockets accept 3/16 nuts, also included
- Off-shelf availability. No costly tooling charges

Mounting Brackets
MBK-5 – to fit 5" enclosure
MBK-6 – to fit 6" enclosure
MBK-86 – to fit 8" enclosure

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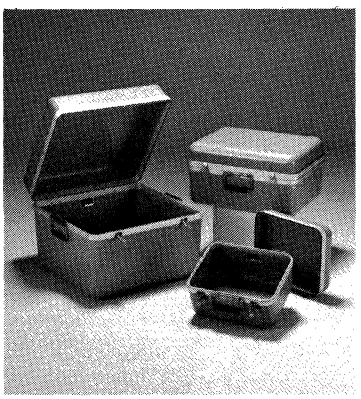
SKYDYNE Transit & Operational Cases

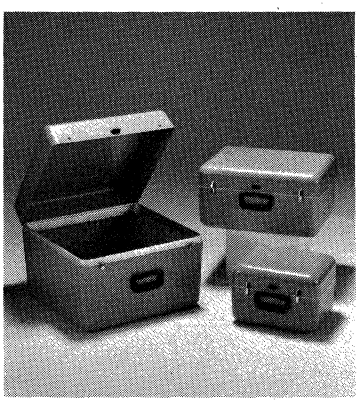
STANDARD CASE REFERENCES

(Skydyne also offers products in other materials such as aluminum composites; and with modifications to meet rugged, heavy-duty MIL-Specifications or other requirements—contact factory.)



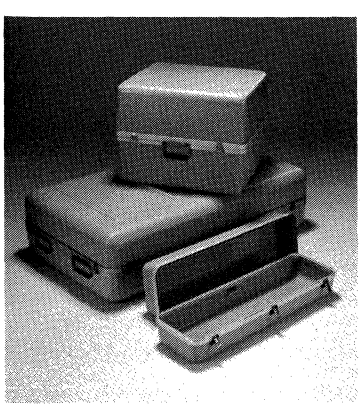
Standard Fiberglass Cases

Excellent commercial transport/shipping container. Can be adapted to mil-spec; and with mounting flange for test or display equipment.



Standard Econoglass™ Cases

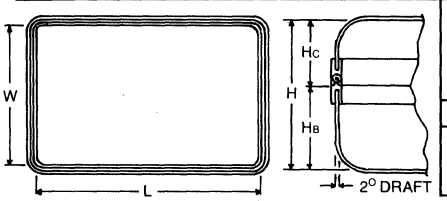
An economical fiberglass carrying case. Has standard mounting clips for simple display panel installation.



Standard Thermoformed Cases (ABS shown)

Combines high strength with light weight in a choice of thermoformed plastic materials. Easily custom-modified.

LEGEND



KEY

L = Length
W = Width
H = Height
Hb = Height of Base
Hc = Height of Cover

NOTES

1. All dimensions in inches and represent case interiors.
2. All weights in pounds.

FIBERGLASS CASES

L	W	H	Hb	Hc	Wt	Part No.
8.65	8.05	6.23	3.03	3.20	4.1	99360
13.03	10.53	6.63	3.13	3.50	6.0	92700
13.03	10.53	9.63	3.13	6.50	6.9	99480
13.03	10.53	9.63	6.13	3.50	6.9	92600
13.03	10.53	12.63	6.13	6.50	7.5	92500
14.62	14.12	6.35	2.99	3.36	8.6	68700
14.62	14.12	9.76	2.99	6.77	9.4	99490
14.62	14.12	9.76	6.40	3.36	9.4	68600
14.62	14.12	13.17	6.40	6.77	10.9	68800
16.00	6.46	4.31	1.97	2.34	5.0	93100
16.00	6.46	10.73	1.97	8.76	6.5	99500
16.00	6.46	10.73	8.39	2.34	6.5	93000
16.00	6.46	17.15	8.39	8.76	8.2	99590
16.32	9.51	3.87	1.75	2.12	5.5	93600
16.32	9.51	8.17	1.75	6.42	7.0	99510
16.32	9.51	8.17	6.05	2.12	7.0	93500
16.32	9.51	12.47	6.05	6.42	7.8	93400
17.04	13.93	5.63	2.63	3.00	8.7	93300
17.59	9.22	5.99	2.81	3.18	6.4	92100
17.59	9.22	8.22	2.81	5.41	7.5	99520
17.59	9.22	8.22	5.04	3.18	7.5	91200
17.59	9.22	10.45	5.04	5.41	7.6	69000
18.28	8.10	9.36	4.49	4.87	8.1	99410
18.28	8.10	11.17	4.49	6.68	8.6	99570
18.28	8.10	11.17	6.30	4.87	8.6	99400
18.28	8.10	12.98	6.30	6.68	9.2	99420
19.38	14.13	7.19	3.41	3.78	9.6	92400
19.38	14.13	10.69	3.41	7.28	11.1	99530
19.38	14.13	10.69	6.91	3.78	11.1	92300
19.38	14.13	14.19	6.91	7.28	12.1	92200
19.50	15.50	7.63	3.63	4.00	11.8	99340
19.50	15.50	12.81	3.63	9.18	14.3	99540
19.50	15.50	12.81	8.81	4.00	14.3	99330
19.50	15.50	17.99	8.81	9.18	17.2	93200
20.00	17.63	6.63	3.13	3.50	11.3	68200
20.38	19.38	8.63	4.13	4.50	12.9	99370
20.38	19.38	15.13	10.63	4.50	18.0	92800
20.38	19.38	15.13	4.13	11.00	18.0	99550
20.38	19.38	21.63	10.63	11.00	22.5	68900
21.24	17.24	5.25	2.44	2.81	11.0	99580
24.78	17.78	7.43	3.53	3.90	14.8	68100
26.75	14.25	12.37	6.00	6.37	13.0	99450
26.75	14.25	21.00	6.00	15.00	16.5	99460
26.75	14.25	21.00	14.63	6.37	16.5	99470
26.75	14.25	29.63	14.63	15.00	19.7	99440
26.96	26.96	15.00	7.31	7.69	28.1	92900
31.03	15.78	6.13	2.88	3.25	16.8	68500
31.03	15.78	9.50	2.88	6.62	18.5	99560
31.03	15.78	9.50	6.25	3.25	18.5	68400
31.03	15.78	12.87	6.25	6.62	20.0	68300
33.04	18.04	21.38	10.50	10.88	26.7	99430

CALL TOLL FREE: 800 428-CASE for Further Information

Quality Protection for Advanced Technology

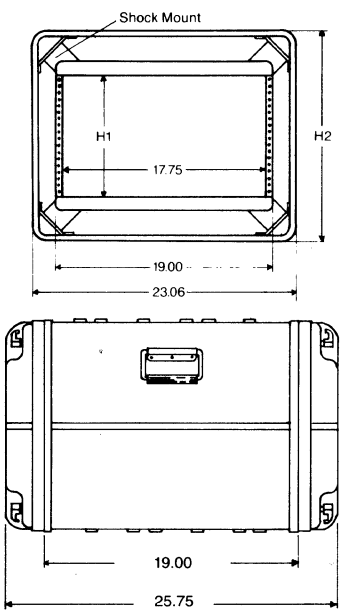
ECONOGLASS® CASES

L	W	H	Hb	Hc	Wt	Part No.
8.40	7.90	5.74	3.63	2.11	2.8	9936C
12.84	10.34	6.13	3.73	2.40	4.8	9270C
12.84	10.34	9.13	6.73	2.40	5.1	9260C
12.84	10.34	12.13	6.73	5.40	5.9	9250C
14.38	13.90	5.85	3.59	2.26	6.2	6870C
14.38	13.90	9.26	7.00	2.26	7.7	6860C
14.38	13.90	12.67	7.00	5.67	8.8	6880C
15.79	6.25	3.81	2.57	1.24	3.6	9310C
15.79	6.25	10.23	8.99	1.24	5.6	9300C
16.11	9.25	3.37	2.35	1.02	4.6	9360C
16.11	9.25	7.67	6.65	1.02	5.4	9350C
16.11	9.25	11.97	6.65	5.32	7.3	9340C
17.50	8.95	5.49	3.41	2.08	5.6	9210C
17.50	8.95	7.72	5.64	2.08	6.4	9120C
17.50	8.95	9.95	5.64	4.31	7.1	6900C
18.07	7.89	8.86	5.27	3.59	6.3	9941C
18.07	7.89	10.67	7.08	3.59	6.7	9940C
18.07	7.89	12.48	7.08	5.40	7.1	9942C
19.06	14.00	6.69	4.01	2.68	7.9	9240C
19.06	14.00	10.19	7.51	2.68	9.1	9230C
19.06	14.00	13.69	7.51	6.18	10.4	9220C
19.26	15.26	7.13	4.23	2.90	10.5	9934C
19.26	15.26	12.31	9.41	2.90	12.9	9933C
19.26	15.26	17.49	9.41	8.08	14.4	9320C
19.82	17.46	6.13	3.73	2.40	9.6	6820C
20.18	19.18	8.13	4.73	3.40	10.6	9937C
20.18	19.18	14.63	11.23	3.40	15.8	9280C
20.18	19.18	21.13	11.23	9.90	19.8	6890C
24.56	17.56	6.95	4.14	2.81	13.2	6810C
30.80	15.53	5.63	3.48	2.15	14.1	6850C
30.80	15.53	9.01	6.86	2.15	16.1	6840C
30.80	15.53	12.39	6.86	5.53	19.0	6830C

THERMOFORMED CASES

L	W	H	Hb	Hc	Wt	Part No.
10.16	9.55	12.47	6.05	6.42	5.4	882500
14.08	12.08	9.00	4.81	4.19	6.2	882900
19.00	11.75	6.27	2.95	3.32	6.2	883000
19.38	14.14	14.19	6.91	7.28	8.9	882000
22.23	19.73	20.39	10.01	10.38	14.6	881900
22.69	8.44	9.00	4.31	4.69	6.5	885900
23.51	12.76	12.00	5.81	6.19	8.8	884200
24.00	22.00	6.39	3.01	3.38	10.7	883700
24.00	22.00	12.38	9.00	3.38	12.0	883600
24.00	22.00	18.39	9.01	9.38	15.8	883800
24.72	17.72	16.37	8.00	8.37	13.2	881800
26.00	19.60	5.12	2.37	2.75	11.3	885100
26.00	19.60	11.10	8.35	2.75	13.4	885200
26.00	19.60	17.08	8.35	8.73	15.8	885000
27.04	27.04	8.63	4.13	4.50	15.2	881700
27.04	27.04	13.82	9.32	4.50	18.8	881600
27.04	27.04	19.01	9.32	9.69	22.3	881500
28.04	18.04	8.63	4.13	4.50	11.3	881400
29.06	22.32	19.50	9.56	9.94	20.3	883100
31.00	20.50	10.01	4.82	5.19	13.5	883500
31.51	23.51	13.24	6.43	6.81	17.4	884300
33.00	9.00	9.37	4.50	4.87	9.1	886000
33.96	16.96	13.00	6.50	6.50	14.1	881300
34.00	23.00	18.00	8.81	9.19	19.1	884100
36.31	18.44	12.01	8.63	3.38	17.2	881100
36.31	18.44	17.63	8.63	9.00	20.4	881000
36.31	18.44	6.39	3.01	3.38	14.0	881200
40.70	21.60	8.40	5.65	2.75	17.8	884800
40.70	21.60	11.68	5.65	6.03	18.8	884700
46.96	13.96	9.63	4.63	5.00	14.9	880900
46.96	13.96	13.38	8.38	5.00	17.4	880800
46.96	13.96	17.13	8.38	8.75	19.9	880700
50.14	27.14	13.03	6.33	6.70	26.7	880200

19" RACK MOUNT/SHOCK-ISOLATED



LEGEND

KEY	NOTES
H1 = Inside Height of Rack H2 = Outside Height of Rack	1. All dimensions in inches and represent inside rack/outside case, except depth. 2. Hard mount interiors also available. 3. Cases also available in rack/case depths of: 14.00/20.75, 22.00/28.75, 24.00/30.75 and 30.00/36.75. 4. Other EIA sizes available. 5. Case shells also available in composite aluminum or aluminum sheet construction. 6. Attenuation 45–50 G's (60 Lb. load/30" flat bottom drop). For requirements beyond this range, consult factory.

All Widths: 17.75/23.06
All Depths: 19.00 (outside rack) /25.75
All end covers have an internal depth of 3.25.

	Materials	Poly E		ABS	
EIA Size	H1 / H2	Part #	Wt. (lbs)	Part #	Wt. (lbs)
3U	5.37/13.17	825300	36.5	893000	38.0
4U	7.12/14.92	825400	38.5	893100	40.0
5U	8.87/16.67	825500	40.5	893200	42.0
6U	10.62/18.48	825600	42.5	893300	44.0
7U	12.37/20.17	825700	44.5	893400	46.0
8U	14.12/21.92	825800	46.5	893500	48.0
9U	15.87/23.67	825900	48.5	893600	50.0
10U	17.62/25.42	826000	50.5	893700	52.0
11U	19.37/27.17	826100	52.5	893800	54.0
12U	21.12/28.92	826200	54.5	893900	56.0

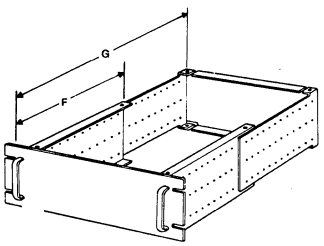
AAR SKYDYNE 21 River Road/Port Jervis, New York 12771
Phone: 914-856-6655/Fax: 914-856-8378

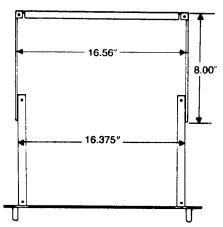
THE STRONGBOX®

E-SERIES EXTENSION KITS

E-Series depth Extension kits are user adjustable in ½" increments for intermediate and extended chassis depth. Thus any chassis depth from 9½" to 26" is available off-the-shelf.

E-Series kits contain 2 Extension Side Panels and 2 Extension Perforated Covers.





EXTENSION RANGE

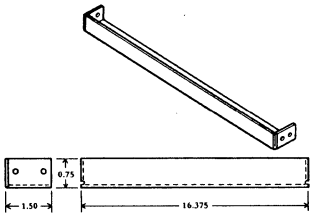
Kit Number	F	+E-Series = G
SB9-	9.50"	9.50" - 16.50"
SB12-	12.00"	12.00" - 19.00"
SB19-	19.00"	19.00" - 26.00"

E-SERIES DEPTH EXTENSION KITS

Extension Kit Number	Mates With			Price
E-3	SB9-3	SB12-3	SB19-3	125.00
E-5	SB9-5	SB12-5	SB19-5	128.00
E-7	SB9-7	SB12-7	SB19-7	131.50
E-8	SB9-8	SB12-8	SB19-8	132.50
E-10	(NONE)	SB12-10	SB19-10	169.50

Add dash "—SAC" to kit number to get Solid instead of Perforated covers (deduct $20.00 from kit price). Add dash "—SAC 1" to kit number to get one, each, Solid and Perforated cover (deduct $10.00 from kit price).

MA-1.5 MOUNTING ANGLE



The Mounting Angle is used to attach card guides and other interior parts when a full-length, -height, or -width platform is not required or would impede the flow of cooling air. It also adds torsional stiffness to chassis used in extremely demanding environments.

Each heavy-duty MA-1.5 is made of 0.090"-thick, clear-iridited aluminum, and is supplied with captive attachment hardware. It is an "L"-shaped solid which mounts to pre-drilled chassis holes in any of four useful orientations.

Order SB9-, SB12-, and SB19-Series parts from this table. Parts in each column mate with others of the same depth.

PARTS	KIT DEPTH	KIT DASH NUMBER						
		-1	-3	-5	-7	-8	-10	-12
Handle	ALL	(none)	SBH-3	SBH-5	SBH-7	SBH-8	SBH-10	SBH-12
Front Panel	ALL	FP-1	FP-3	FP-5	FP-7	FP-8	FP-10	FP-12
Interior Mounting Panel	ALL	IMP-1	IMP-3	IMP-5	IMP-7	IMP-8	IMP-10	IMP-12
Side Panel	SP9-	CHA9-1	SP9-3	SP9-5	SP9-7	SP9-8	(none)	(none)
	SP12-	CHA12-1	SP12-3	SP12-5	SP12-7	SP12-8	SP12-10	(none)
	SB19-	(none)	SP19-3	SP19-5	SP19-7	SP19-8	SP19-10	SP19-12
Perforated Cover	SB9-	PAC-9	PAC-9	PAC-9	PAC-9	PAC-9	(none)	(none)
	SB12-	PAC-12	PAC-12	PAC-12	PAC-12	PAC-12	PAC-12	(none)
	SB19-	(none)	PAC-19	PAC-19	PAC-19	PAC-19	PAC-19	PAC-19
Solid Cover	SB9-	SAC-9	SAC-9	SAC-9	SAC-9	SAC-9	(none)	(none)
	SB12-	SAC-12	SAC-12	SAC-12	SAC-12	SAC-12	SAC-12	(none)
	SB19-	(none)	SAC-19	SAC-19	SAC-19	SAC-19	SAC-19	SAC-19
Bottom Mounting Plate	SB9-	(none)	IMP-8	IMP-8	IMP-8	IMP-8	(none)	(none)
	SB12-	(none)	BMP-12	BMP-12	BMP-12	BMP-12	BMP-12	(none)
	SB19-	(none)	BMP-19	BMP-19	BMP-19	BMP-19	BMP-19	BMP-19
Heavy Cover Plate	SB9-	HCP-9	HCP-9	HCP-9	HCP-9	HCP-9	(none)	(none)
	SB12-	HCP-12	HCP-12	HCP-12	HCP-12	HCP-12	HCP-12	(none)
	SB19-	(none)	HCP-19	HCP-19	HCP-19	HCP-19	HCP-19	HCP-19
Mounting Angle	ALL	MA-1.5	MA-1.5	MA-1.5	MA-1.5	MA-1.5	MA-1.5	MA-1.5
Depth Extension Kit	ALL	(none)	E-3	E-5	E-7	E-8	E-10	(none)
Slide Kit	SB9	SLD-9	SLD-9	SLD-9	SLD-9	SLD-9	(none)	(none)
	SB12	SLD-12	SLD-12	SLD-12	SLD-12	SLD-12	SLD-12	(none)
	SB19	(none)	SLD-19	SLD-19	SLD-19	SLD-19	SLD-19	SLD-19

RACK-MOUNT CHASSIS KITS AND PRICE LIST

Kit Dash Number	Number of Rack Units	Front Panel Height	Price		
			SB9-	SB12-	SB19-
-1	1	1.72	90.00	95.00	(none)
-3	2	3.47	206.00	212.00	221.00
-5	3	5.22	212.50	218.50	227.50
-7	4	6.97	220.50	226.50	235.50
-8	5	8.72	227.50	232.50	242.00
-10	6	10.47	(none)	289.50	297.00
-12	7	12.22	(none)	(none)	306.00

Add dash "—SAC" to kit number to get Solid instead of Perforated covers (deduct $20.00 from kit price). Add dash "—SAC 1" to kit number to get one, each Solid and Perforated cover (deduct $10.00 from kit price).

Detailed drawings available on request. Other sizes available; call for quote.

Prices subject to change.
Order Bottom Mounting Plates, Slides and additional Interior Mounting Panels as separate items.

STRONGBOX®
P.O. Box 2726, Culver City, CA 90231
(213) 305-8288

THE STRONGBOX®
HEAVY-DUTY RACK-MOUNT CHASSIS

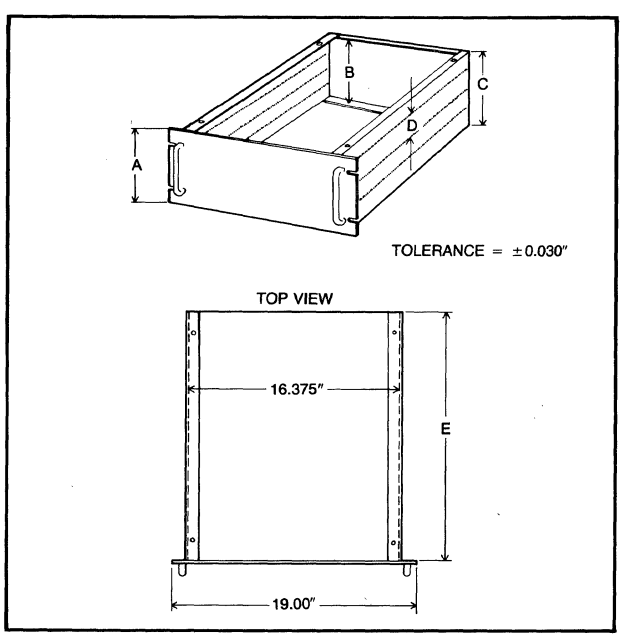
SB9-, SB12-, SB19-SERIES

Seven EIA Front Panel heights: 1¾", 3½", 5¼", 7", 8¾", 10¼", and 12½" (1, 3, 5, 7, 8, 10, 12 nominal).

Three-standard depths: 9½" (SB9-Series), 12" (SB12-Series), and 19" (SB19-Series).

Components can be ordered as complete kits or by the part. See kit and parts table. Kits and parts come with all required captive machine hardware. Front, Side, and Mounting Panels are clear iridited. Covers and handles are clear anodized. All surfaces are satin grained.

Each kit (except SB9-1 and SB12-1) contains 1 Front Panel, 2 Handles, 2 Side Panels, 2 Perforated Covers, and 1 Interior Mounting Panel.



SPECIFICATIONS

PARTS

FRONT PANEL — 0.125" thick, 19.00" wide. 6061-T6 aluminum. EIA notched.

SIDE PANEL — 0.090" thick, 5052-H32 aluminum. Three rows of holes on ½" centers for mounting panels, card cages, etc.

INTERIOR MOUNTING PANEL — 0.090" thick, 16.37" wide. 5052-H32 aluminum. For use as a rear panel or vertical or horizontal mounting panel.

PERFORATED ALUMINUM COVER — 0.063" thick. 16.85" wide. 3003 aluminum. Assembles with four screws and captive stainless steel nuts.

STRONGBOX® HANDLE — Standard aluminum handle.

ACCESSORIES

BOTTOM MOUNTING PLATE — 0.090" thick, 16.37" wide. 5052-H32 aluminum. For mounting heavy components. Clear iridite finish.

SOLID BEARING SLIDE — .38" thick. Cad plated steel. Adjustable brackets for assembling to EIA tapped-rail.

SOLID ALUMINUM COVER — 0.063" thick, 16.85" wide. 5052-H32 aluminum. Clear anodize finish.

HEAVY COVER PLATE — 0.090" thick, 16.88" wide. 5052-H32 aluminum. For mounting heavy components flush with chassis bottom. Clear iridite finish.

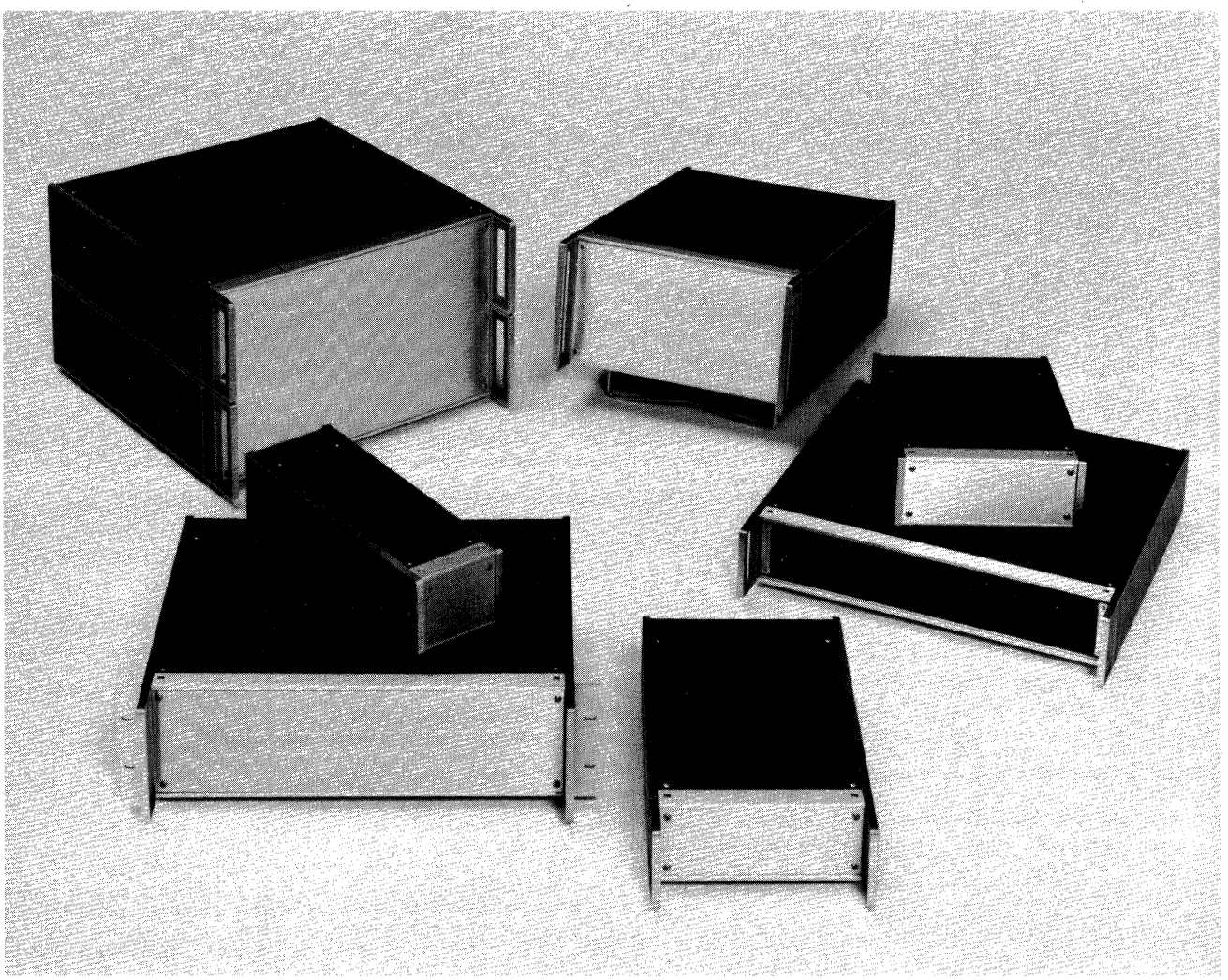
Detailed drawings available on request. Other sizes available; call for quote.

DIMENSIONS

Kit Number	A	B	C	D	E
SB9-1	1.72	1.22	1.40	0.50	9.50
SB9-3	3.47	2.91	3.15	0.75	9.50
SB9-5	5.22	4.66	4.90	1.50	9.50
SB9-7	6.97	6.41	6.65	2.00	9.50
SB9-8	8.72	8.16	8.40	3.00	9.50
SB12-1	1.72	1.22	1.40	0.50	12.00
SB12-3	3.47	2.91	3.15	0.75	12.00
SB12-5	5.22	4.66	4.90	1.50	12.00
SB12-7	6.97	6.41	6.65	2.00	12.00
SB12-8	8.72	8.16	8.40	3.00	12.00
SB12-10	10.47	9.91	10.15	3.50	12.00
SB19-3	3.47	2.91	3.15	0.75	19.00
SB19-5	5.22	4.66	4.90	1.50	19.00
SB19-7	6.97	6.41	6.65	2.00	19.00
SB19-8	8.72	8.16	8.40	3.00	19.00
SB19-10	10.47	9.91	10.15	3.50	19.00
SB19-12	12.22	11.66	11.90	4.00	19.00

STRONGBOX® **P.O. Box 2726, Culver City, CA 90231**
(213) 305-8288

TDJ Company, Inc.
Instrument Enclosures



Available With or Without Handles

Easily Assembled

Sliding Top and Bottom Covers for Maximum Accessibility

Convenient Side Frame Mounting Hole Pattern

Will Accept Your Custom Removable Front and Rear Panels

Standard Colors—Black, Brown and Blue, Off White

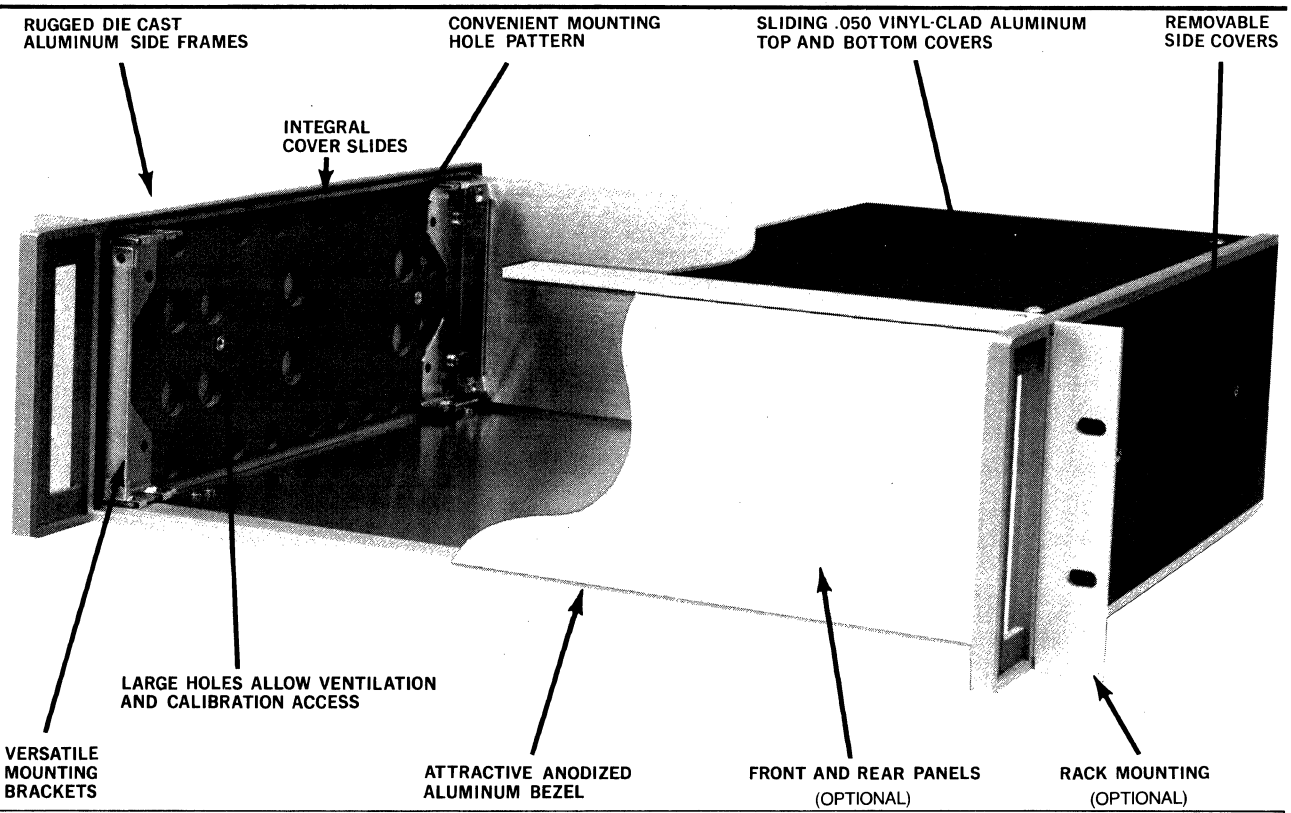
Over 100 Standard Models Available

The BETA-LINE Series enclosures offer the ultimate in quality and versatility and provide an extensive range of standard packaging dimensions. Rugged die cast aluminum side frames are uniquely engineered to accommodate the latest modular construction. The top and bottom as well as the side covers are easily removed for quick internal access. The beautifully finished side frames and vinyl clad aluminum covers combine to produce a superbly crafted enclosure. Standard vinyl colors include blue, black and brown. A full complement of optional accessories include instrument bails, rack mounting kits, rack mounting slides and aluminum front or rear panels. Rack mounting complies with MIL-STD-189. A retractable instrument bail is available for bench mounting applications. The flexible design of these enclosures permits us to provide customized enclosures for your special requirements.

T D J COMPANY INC. — 1154 Morena Boulevard, San Diego, CA 92110 — (619) 276-5920 FAX (619) 276-5960

TDJ Company, Inc.

Instrument Enclosures



Model number is determined by outside dimensions of enclosure. Example for Model **B-350-13-1700** is:

B 350-13-1700 H

- 3.5 inches High
- 13.0 Inches Deep
- 17.0 Inches Wide

Add "H" to Model No. to indicate "With Handle"

3.5 Inch Height	5.25 Inch Height	7 Inch Height	8.75 Inch Height
B-350-13-1700H	B-525-13-1700H	B-S700-13-1700H	B-S875-13-1700H
B-350-13-1275	B-525-13-1275	B-S700-13-1275	B-S875-13-1275
B-350-13-0850	B-525-13-0850	B-S700-13-0850	B-S875-13-0850
B-350-13-0425	B-525-13-0425	B-S700-13-0425	B-S875-15-1700H
B-350-15-1700H	B-525-15-1700H	B-S700-15-1700H	B-S875-15-1275
B-350-15-1275	B-525-15-1275	B-S700-15-1275	B-S875-15-0850
B-350-15-0850	B-525-15-0850	B-S700-15-0850	B-S875-17-1700H
B-350-15-0425	B-525-15-0425	B-700-17-1700H	B-S875-17-1275
B-350-17-1700H	B-525-17-1700H	B-700-17-1275	B-S875-17-0850
B-350-17-1275	B-525-17-1275	B-700-17-0850	
B-350-17-0850	B-525-17-0850		
	B-525-21-1700H		
	B-525-21-1275		
	B-525-21-0850		
10.5 Inch Height	**12.25 Inch Height**	**14 Inch Height**	**15.75 Inch Height**
B-S1050-13-1700H	B-S1225-13-1700H	B-S1400-13-1700H	B-S1575-17-1700
B-S1050-13-1275	B-S1225-13-1275	B-S1400-13-1275	B-S1575-17-1275
B-S1050-13-0850	B-S1225-13-0850	B-S1400-13-0850	B-S1575-17-0850
B-S1050-15-1700H	B-S1225-15-1700H	B-S1400-15-1700H	B-S1575-21-1700
B-S1050-15-1275	B-S1225-15-1275	B-S1400-15-1275	B-S1575-21-1275
B-S1050-15-0850	B-S1225-15-0850	B-S1400-15-0850	B-S1575-21-0850
B-S1050-17-1700H	B-S1225-17-1700H	B-S1400-17-1700H	
B-S1050-17-1275	B-S1225-17-1275	B-S1400-17-1275	
B-S1050-17-0850	B-S1225-17-0850	B-S1400-17-0850	
B-S1050-21-1700H			
B-S1050-21-1275			
B-S1050-21-0850			

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MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES
TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

Abbreviations/Acronyms **A**•1114, **B**•1037, **C**•1116, **D**•1068
AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
Fiber Optics, Miniglossary **B**•1224
Fiber Optics, Product Selection Guide **B**•1214
Filters, Power, Product Selection Guide **A**•1609
Filters, Signal, Product Selection Guide **A**•1651
Instruments, Test & Measuring, Product Selection Guide **D**•1207
Interconnection Systems, Product Selection Guide **C**•1678
Keyboards & Keypads, Product Selection Guide **B**•1794
Lamps, Lights, & Indicators, Product Selection Guide **B**•1135
Logofinder & Trademark Directories **C**•901
Microwave Components, Product Selection Guide **A**•1746
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Motors, Drives, & Rotating Components, Product Selection Guide **B**•1233
Opto Semiconductors, Miniglossary **B**•1334
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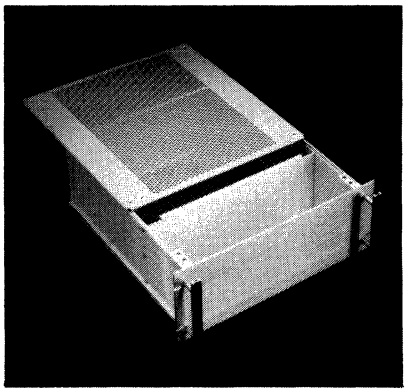
SRK/CRK series

Seven-eighths-spacing Rack-mounting Kits

Stocked for one-day shipping in your choice of 28 combinations of seven heights and four front-to-back depths, and with 7/8" vertical and 1/2" horizontal hole pattern, this SRK/CRK line of chassis drawers can be assembled in a vast variety of configurations without special hole drilling or punching. Double bends in side frame flanges & heavy-duty alumalloy materials make them extra sturdy. Order today, and they're on their way to you tomorrow! Phone toll-free number below and request your free full-color SRK/CRK catalog, which includes slides, card cages and many other mounting accesories.

SRK Kits and Parts

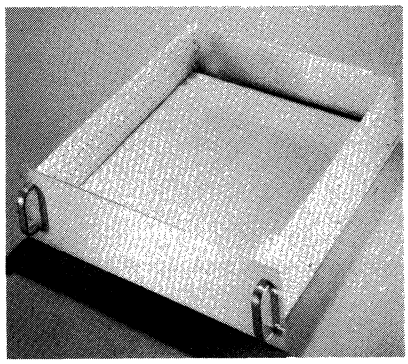


A basic SRK kit is ordered by adding dash numbers for any of seven heights and four depths. The kit will consist of one FP Front Panel; two OSH Oval-Section Handles, [clear or black anodized]; two SF-SE Side Frames with Seven-eighths-inch [vert-spacing] hole pattern; two HMP Heavy-duty Mounting Panels [one for use as a rear panel, the other as an internal mounting panel]; two PANC Perforated Aluminum Non-sliding Covers [top/bottom]; and all assembly hardware. Bottom-hinged front panels, card cages, full-bottom plates & thousands of other variations of parts and accessories can be ordered by adding dash numbers; or for even wider varieties & more combinations, order by individual part numbers from our incredible inventory.

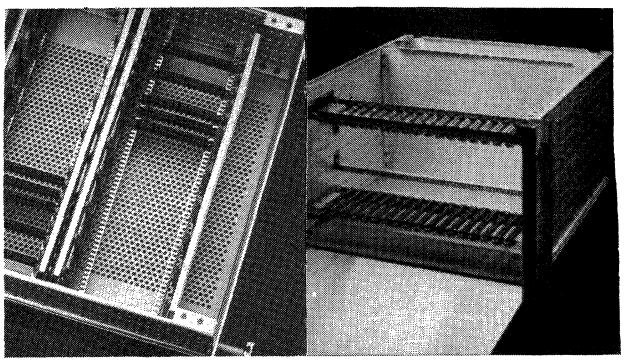
CRK Kits and Parts

A basic CRK kit consists of one FP Front Panel, which like the SRK line is notched for assembling to tapped rails of rack; two OSH Oval Section Handles, clear anodized; two SF-SE Side Frames with Seven-eighths vert-spaced hole pattern; one HMP Heavy-Duty Mounting Panel [for use as rear panel]; one FBP Full-Bottom Plate for use as a chassis base, and captive nuts [pre-installed]. All parts except handles are clear-chem-filmed [clear iridited]. All assembly hardware included.

As with the SRK line, thousands of options can be ordered by the use of dash numbers. For example, use kit number CRK-8H-15D to obtain the kit for the assembly shown at right.



QCC Card Cage Kits and Parts

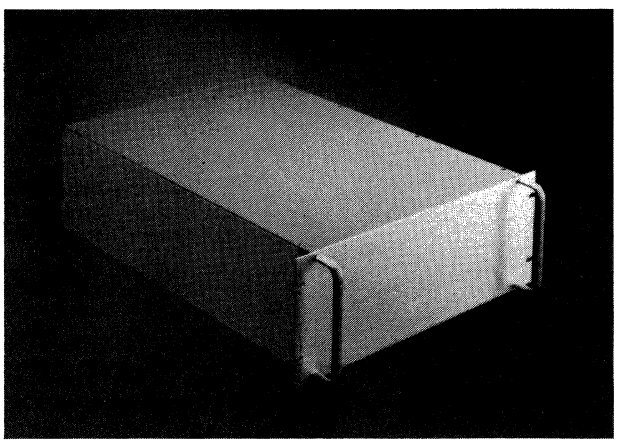


One of the most popular series of auxiliary parts of the SRK/CRK line are these QCC Quarter-inch Card Cage kits & parts with .25-inch pitch. They include connector rails which will acommodate almost any card connectors & backplanes, guide frames and snap-in card guides in your choice of three guide lengths: 3.15", 4.65" and 6.15". They assemble for front, back, top or bottom loading. Because the assembly method permits much variability, a large selection of card lengths and widths can be accommodated.

Techmar Corporation, 5420 McConnell Avenue, Los Angeles, CA 90066
Phone (213) 827-8897, 800-TECHMAR (832-4627), FAX No. 213-827-2572

BKCD series
BasiKit Chassis Drawer

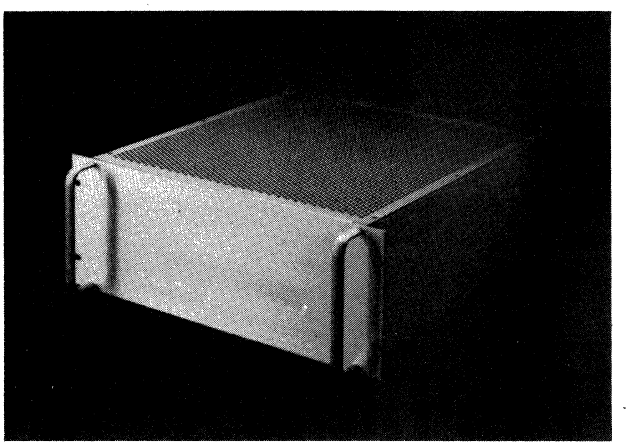
We Are Proud to Introduce the most recent member of the Techmar family of product lines: the BasiKit Chassis Drawer. This new enclosure line is the result of feedback from our customers, who have asked us to design a simpler and more economical packaging system. The BasiKit is just that, and more... it offers the same quality of design and materials, ease of assembly, strength and flexibility as all of our other products. And it is even less expensive, because we designed it to be exactly what it implies: BASIC. These sturdy aluminum kits include the standard EIA-notched, .125" thick horizontal-grained front panel; two side panels available from stock with or without rows of assembly holes, so you can either drill your own right where you want them or utilize our pre-punched hole pattern; a rear panel of .090 thick heavy-duty alumalloy, with no flanges (for easy machining) and with six mounting holes for assembly to side panels and covers for added stability; top and bottom covers are .063 thick alumalloy, available from stock with or without an all-over perforated hole pattern—the solid cover is less expensive, and many customers prefer to punch their own slots or holes in the areas where cooling is needed. Extra sturdy .090 CHASSIS BASES (solid alumalloy bottom plates) also available from stock. Each kit includes two satin-grained oval-section handles, finished in either clear or black anodize; they are cost-effective, functional and attractive. All kits and parts include assembly hardware.



Kit shown above: **BK-7H-18D** with solid side panels (no assy. hole rows), solid top/bottom covers (no perforations), standard EIA front panel, heavy-duty rear panel (no flanges), & clear-anodized oval-section handles.

Kit shown at right: **BK-8H-24D-WHR-2PC** With Hole Rows in side panels, and Two Perforated Covers.

15 Combinations in Stock for Same or Next Day Shipping: 3, 5, 7, 8 & 10" nom. heights; 12, 18 & 24" nom. depths.



Or you may choose to ORDER A LA CARTE BY INDIVIDUAL PART NUMBERS for an even wider range of designs and configurations.

TECHMAR

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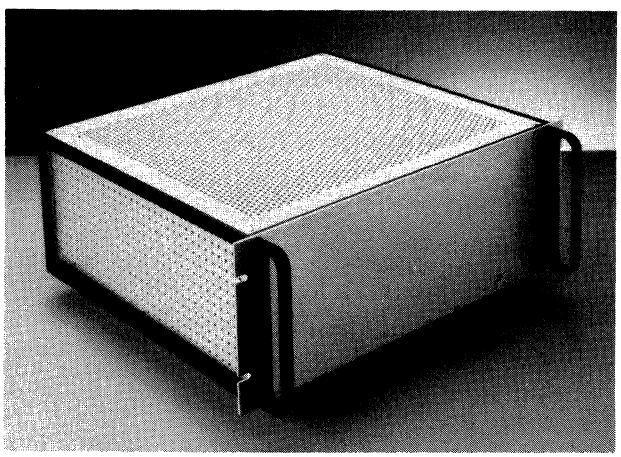
213-827-2572

VCD series
Variable Chassis Drawer

V for VARIABLE: VCDs can be assembled into even more thousands of configurations than any of Techmar's previous widely used enclosure lines.

CD for CHASSIS DRAWERS: VCDs are for assembly in EIA racks and rack cabinets. Among many new design improvements:

- Assembly-hole pattern is on 7/16" centers both vertically and horizontally, 1/4 of the EIA height increment.
  FOR YOUR CONVENIENCE: This 90-degree symmetry allows you to mount card cages for front, rear, top or bottom loading, without having to drill special holes, while retaining Techmar's long-time previous hole pattern's advantage of regularizing the locatability of internal parts relative to tops, bottoms & centers of your chassis drawers. And the new hole patterns give you the help of smaller pitches for locating internal parts.
- Your choice of color combinations: all clear [silver], clear/black or all black.
- You can machine your mounting surfaces in the flat before you asemble edge-stiffeners.
- Convertibility between VCD rackmount and VSA stand-alone models for benchtop applications. [see below].
- General purpose card cages, slides and many other mounting accessories available.

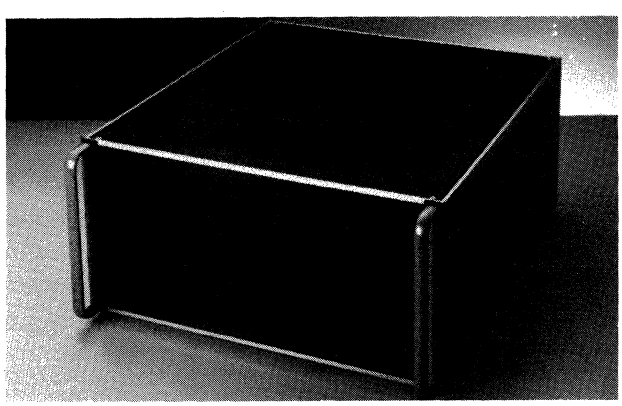


VCD Kits

If you order a standard kit by height, depth and color but no other dash or dot numbers, you will receive the parts & hardware for an assembly which includes a 12-piece frame of extrusions, standard front panel, handles, structural side panels with assembly-hole pattern, top/bottom perforated covers, & outside back panel, all in whatever color combination you specify. By adding a dot SC, you also receive Side Covers to hide the assembly holes and screwheads on the side panels. Some of the thousands of other kit options ready for immediate shipment are shown in our catalog, including the much larger number of configurations that are available to you whether you choose to order as kits or as individual parts.

VSA series
Variable StandAlones

This is an exceptionally sturdy and decorative enclosure line for benchtop/desktop instrumentation. Its parts are the same as for a VCD kit of the same height, depth and colors, with the following exceptions: The front panel is normally 17 wide and recessed instead of 19 wide; handles are backed by spacers instead of panel ears; side covers & rubber feet are included; one-third perforated covers are standard unless otherwise specified. And as with the VCD line, you can choose from a large variety of options & accessories, including card cages & other internal mounting parts. Call the number below for free catalog and/or applications assistance.



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COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
A/D acrylonitrile butadiene-styrene
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AFC audio frequency control
AFT automatic filter test
ALGOL algorithmic language
AM a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
ASIC application specific IC
ATE automatic test equipment
ATG automatic test generation
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility syste

C
CAD computer-aided design
CAE computer-aided engineering
CAM computer-aided manufacture
CAMAC computer-automated measurement and control
CAPP computer-aided process planning
CAT computer-aided test
CATV cable television or community antenna television
CCC (leaded) ceramic chip carriers
CCD computer-controlled display
CERMET ceramic metal element
CIE computer-integrated engineering
CIM computer-integrated manufacturing
CLCC ceramic leadless chip carriers
CMOS complementary metal-oxide semiconductor
Comm. communications
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DBMS data base management system
DC direct current
DFT design for testability
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DRAM dynamic RAM
DTL diode transistor logic

E
EDA electronic design automation
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EIA Electronic Industries Association
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM erasable programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide FET
CMIP commn management information protocol
GPIB general purpose interface bus
GPS global positioning system

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement, and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IAB Internet Activities Board
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared
ISDN integrated services digital network
ISO International Standards Organization

J
JEDEC Joint Electronic Device Engineering Council
JFET junction FET
JMOS junction MOS

K
kHz kilohertz (10^3 hertz)
KSR keyboard send /receive

L
LAN local area network
LC (filters) inductance/capacitance
LCC leaded chip carrier
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
µF microfarad
MHz megahertz
MIC microwave IC
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor FET
MOSIGT metal oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM national instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator
OSI open systems interconnection

P
PAL programmable array logic
PC printed circuit
PCB printed circuit board
PCM pulse code modulation
PCS plastic clad silica
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLCC plastic leaded chip carrier
PLL phased lock loop
PPI plan position indicator
PROM programmable ROM
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon-controlled switch
SDA source & detector assemblies
SGMP simple gateway monitoring protocol
SIDAC bidirectional voltage-triggered switch
SIMM single in-line memory module
SIP single in-line package
SMD surface mount device
SMT surface mount technology
SNMP simpole network management protocol
SO small outline
SOIC small outline IC
SOT small outline transistor
SSI small scale integration
SSR solid-state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCE thermal coefficient of expansion
TXCO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V
VAC volts (of) alternating current
VAN value-added network
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency (30 kHz to 300 MHz)
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W
WPS word processing software

Y
YIG yttrium iron garnet

Z
ZIF zero insertion force

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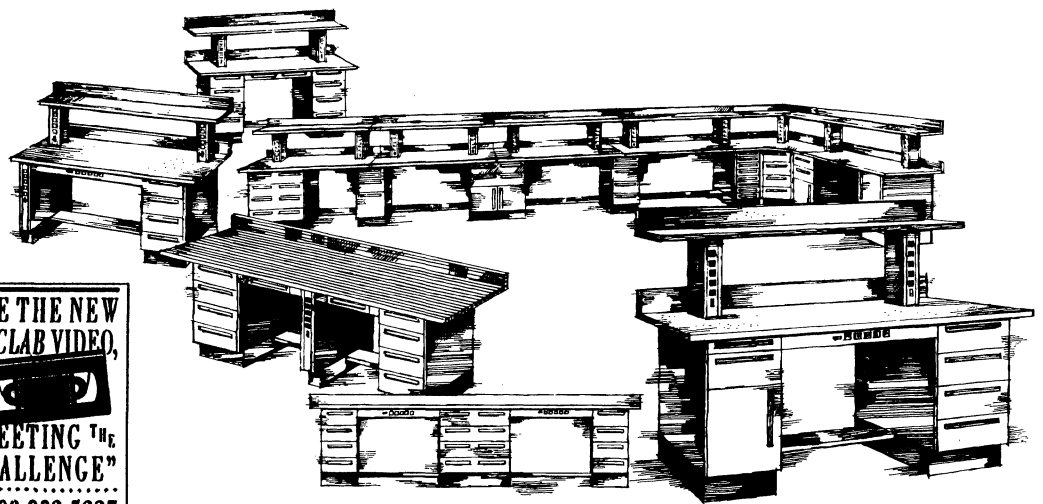

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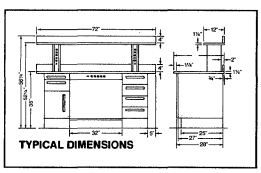

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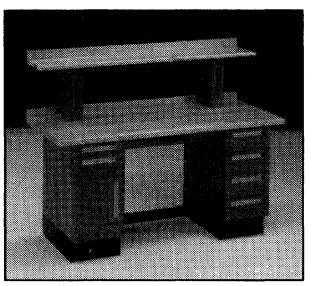
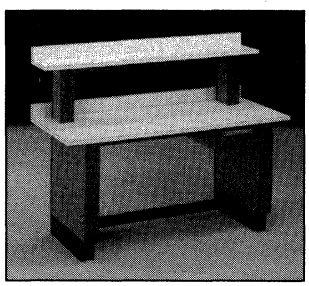

TWS-1004, 472 lbs., $2285.40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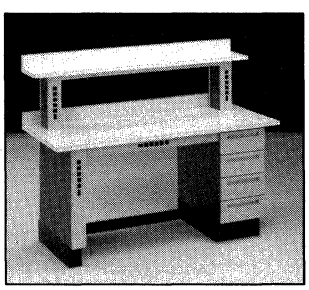
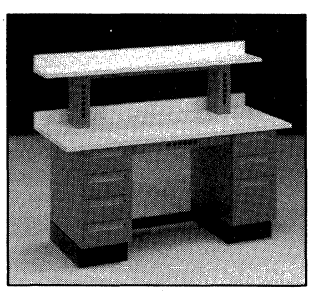

TWS-1100, 367 lbs., $1908.90


TWS-1030, 427 lbs., $2212.50

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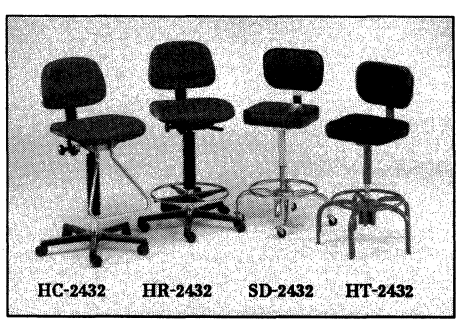

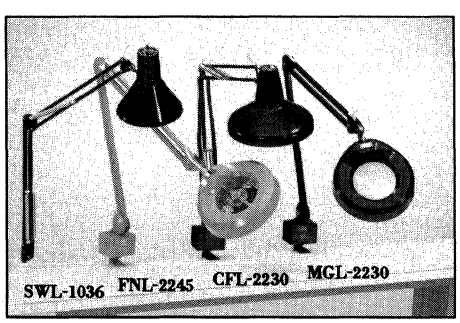

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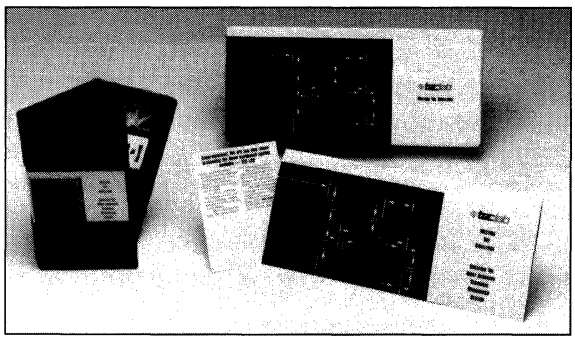

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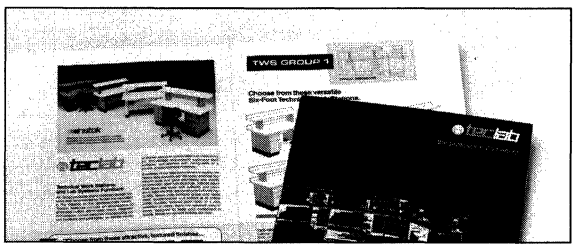

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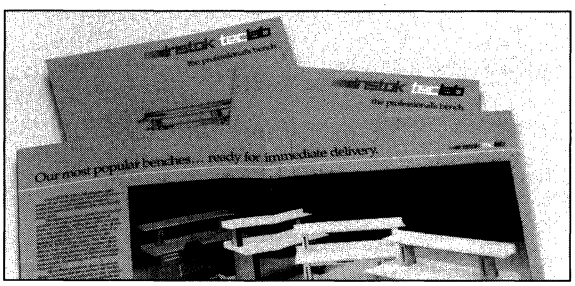

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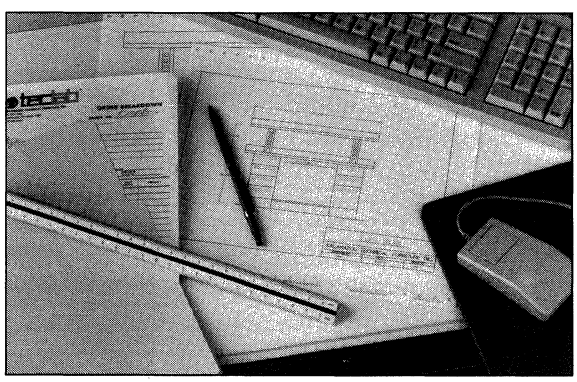

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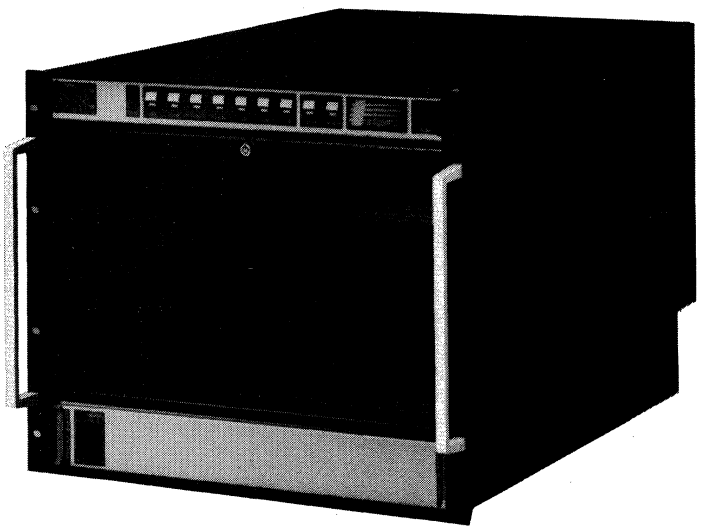


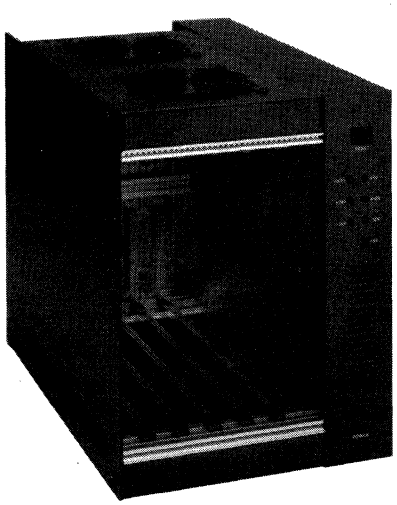
System 90 series intelligent VXI mainframes introduce a revolutionary approach to computer systems packaging technology that safeguards your VXI modules.

VXI mainframes demand tight control of power supply outputs, cooling performance and enclosure construction techniques to ensure the proper operating environment for your instrumentation modules.

Tracewell System 90 series intelligent mainframe supervisory panel scans all power supply outputs, the air flow sensor and standby battery for out of specification conditions. Detection of a fault condition triggers both visual and audible alarms alerting system operators.

System 90 series intelligent mainframes, available in both C and D sizes, are an active component of your overall VXI instrumentation system providing both the OEM and end-user with the leading "edge" in packaging technology.

System 24 VXI/VME



System 24 VME/VXI development system enclosures are designed for testing hardware and software, provide full access to the backplane and power supply outputs. Forced air cooling permits boards and modules to be tested under operating conditions.

- VXI 5 slot C size
- VME 7 slot

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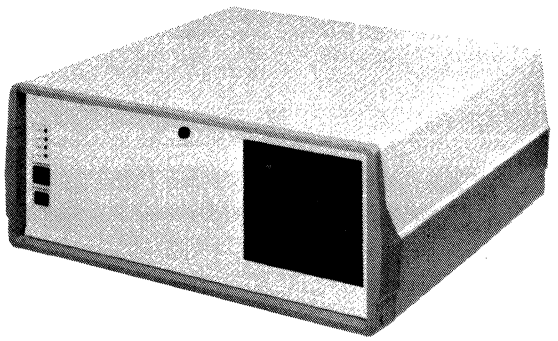
System 17 VME



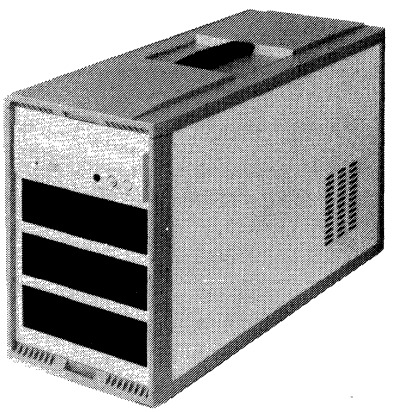
System 17 VME desk top packaging systems are housed in an injection molded, electroless-plated, glass reinforced polycarbonate enclosure.

features:

- Recessible 6U / 160mm 7 to 9 slot sub-rack
- Disk drive holder for 3 - 5 1/4" half heights
- 400 watt power supply FCC class B
- Power and system reset mounted on front of system
- Positive pressure air-plenum
- EMI shielded enclosure
- Fully wired and tested

System 18 VME

System 18 portable mass storage unit is housed in an aluminum enclosure incorporating rugged die cast top and bottom with retractable polyurethane carry handle and feet. System 18 is fully wired with a 3 output switching power supply. The enclosure will accommodate four 5 1/4 inch half height devices. Space is provided for disk drive control board.

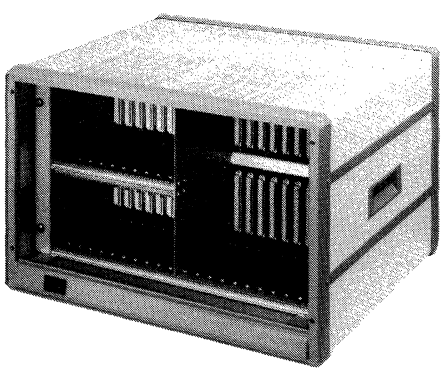


System 19 VME

System 19 table top and stand-alone units with die cast aluminum bezels that permit the sub-rack to be recessed.

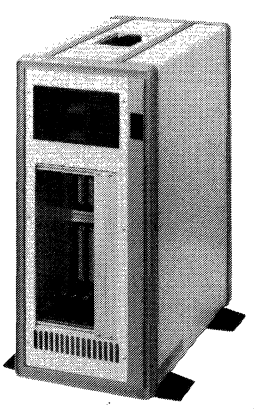
Table Top

- 6U/9U 20 slot sub-rack
- Optional drive holders available
- 400/750 watt power supply
- Power and system reset mounted on front of system.
- Fully wired and tested



Tower

- 6U/160mm 7 slot sub-rack
- Drive holder for 2 - 5 1/4" half heights
- 400 watt power supply FCC class B
- Power and system reset mounted on front of system
- Fully wired and tested



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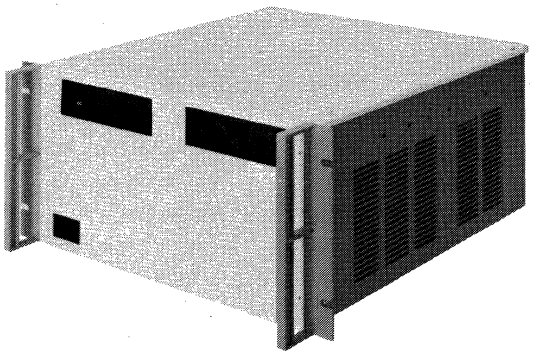
System 20 VME



System 20 VME 5U 19 inch rack-mount units are all aluminum . The precision die cast handles act as structural members and permit the top, front panel and rear panel to be removed, leaving the sub-assembly intact.

features:

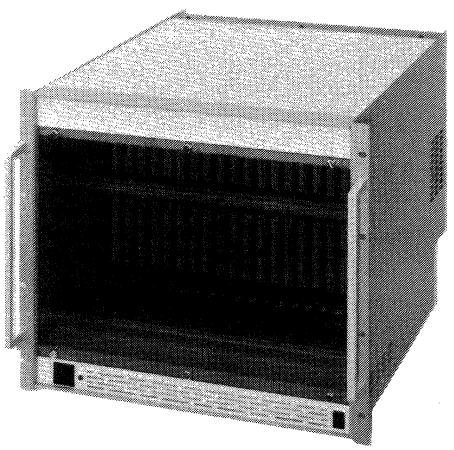
- Recessible 6U / 160mm 7 slot sub-rack
- Disk drive holder for 3 - 5 1/4" half heights
- 400 watt power supply FCC class B
- Power and system reset mounted on front of system
- Positive pressure air-plenum with externally replaceable air filter
- Fully wired and tested

System 21 VME

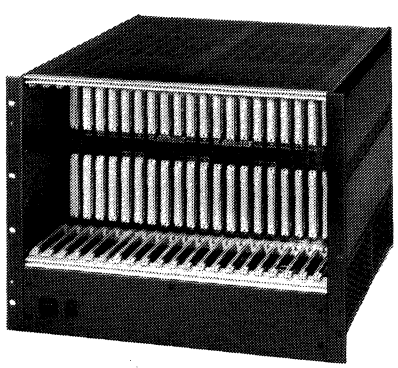
System 21 VME 9U/12U 19 inch rack-mount systems are easily modified to accept modules up to 400mm or sub-divided into multiple height and depth configurations.

features:

- Recessed 6U/9U 20 slot sub-rack
- 400/750 watt power supply
- Power and system reset mounted on front of system.
- Large air-plenum with filter
- Pre-punched I/O panel
- Optional drive holders available
- Fully wired and tested



System 22 VME



System 22 8U 19 inch all aluminum bench top/rack-mount unit. Precision machined .125" side plates provide for rugged construction, flexible design and attractive appearance.

features:

- 6U 20-40 slot sub-racks
- Optional drive holders available
- 400 watt power supply FCC class B
- Power and system reset mounted on front of system
- Optional 80mm transition sub-rack in rear
- Fully wired and tested

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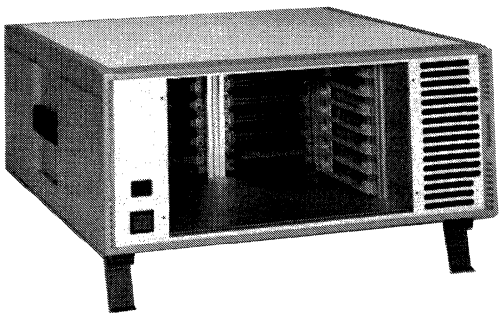
System 25 VME



System 25 portable 7 slot VME unit is housed in an aluminum enclosure incorporating rugged die cast sides with retractable polyurethane carry handle and feet.

features:

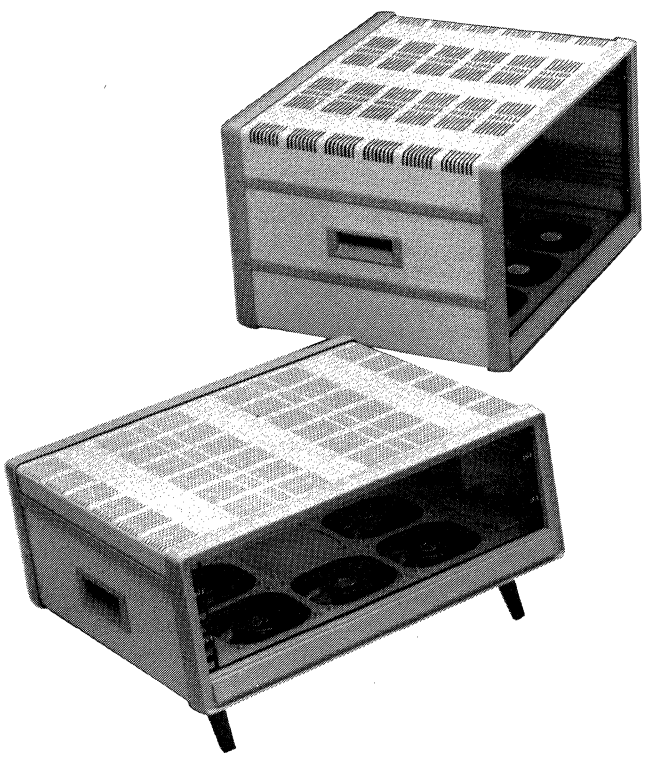
- Recessed 6U 7 slot 160mm sub-rack
- 200 watt power supply
- Plenum directed cooling with filter
- Power and system reset mounted on front of system
- Rear mounting provision for transition module
- Fully wired and tested

Customs And Modifications

Tracewell Enclosures manufactures standard products and also specializes in modified standards. We are ready to meet special needs through our ability to flexibly manufacture standard products to custom specifications. Contact factory for details.

Enclosures

19" 3U - 9U Enclosures



E series enclosures are designed to accommodate sub-racks and/or panels that are 19 inches in width and 5.25 inches (3U) 10.50 inches (6U) or 15.75 inches (9U) in height. Standard depths are 12, 16, and 21 inches (300mm, 400mm, 500mm), and special depths may be ordered. Sub-racks can be mounted flush with the front or rear of the enclosures or may be recessed to any depth. The E series is fabricated of aluminum, providing good heat dissipation, light weight and improved shielding and grounding characteristics. Standard Models E3, E6, and E9 include solid top and bottom covers, side handles, pull down feet, rear panel, front E.I.A. mounting hardware and internal mounting rails. Options for Models E3, E6, and E9 include • front cover panel available in aluminum or translucent plastic • built-in fan tray designed to accommodate up to 9 fans that are 1 inch thick • large dust filter removable from bottom • I/O rear panels • support rails • vented top and bottom covers • grounding kit • recessed mounting frames.

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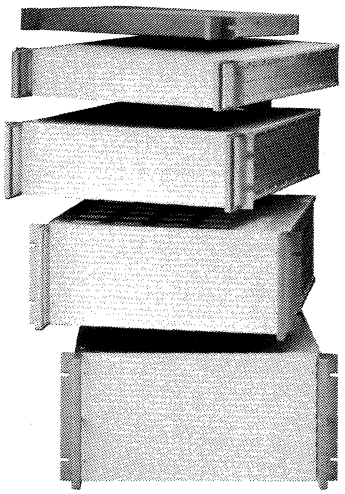
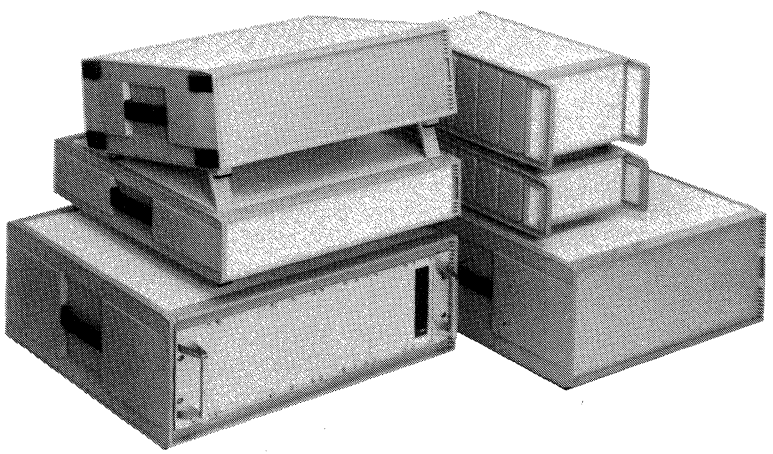
Rack Mounted EIA Enclosures



The CH series is a heavy-duty 19 inch rack-mounted chassis enclosure designed to comply with EIA standard RS310-C. Units are available in five heights: 1.75 inches (1U), 3.5 inches (2U), 5.25 inches (3U), 7 inches (4U), and 8.5 inches (5U). The 1.75 inch model has a standard depth of 12 inches. The other four come in two standard depths: 12 inches and 19 inches. Custom depths for any CH model are available. The precision die cast aluminum handles act as structural members and also as EIA mounting brackets. The front panel can be removed when the enclosure is mounted in a rack. Four extruded aluminum mounting rails connect the sides together. Permitting the top, bottom, front, and rear panels to be removed, while leaving the sub-assembly intact. The top and bottom covers are available in either solid or perforated styles and remove easily with quarter-turn fasteners. Mounting holes on the CH sides are 1 inch OC vertically and .5 inches OC in the horizontal direction.

Die Cast Aluminum Enclosures



The R and SR enclosures use precision aluminum die castings for ruggedness as well as function and appearance. Unique construction techniques conceal the fasteners, yet provide easy access to the interior.

The R and SR series to enclosures can be used as stand-alone or as rack-mounted units. They are available in full EIA 19 inch rack and half-rack sizes.

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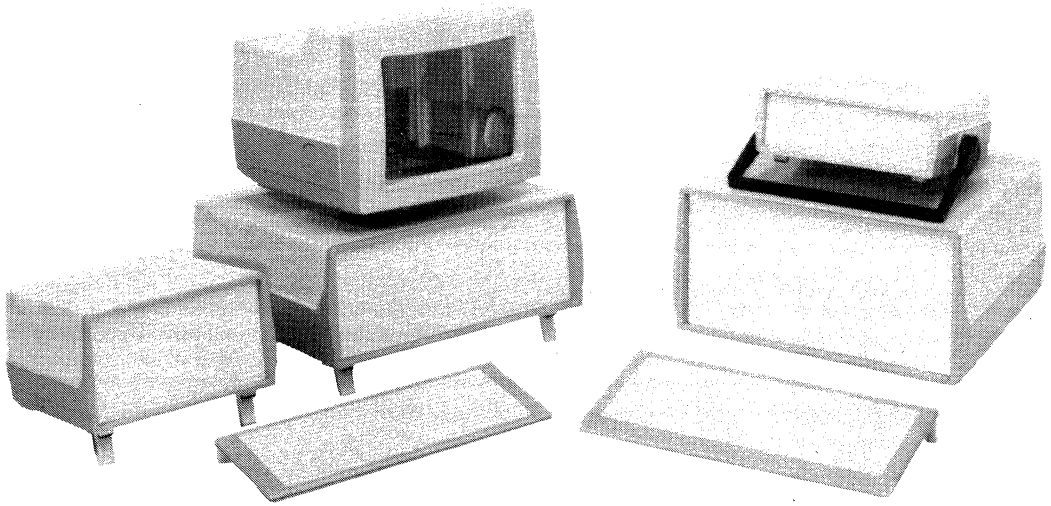
Injection Molded Electronic Enclosures



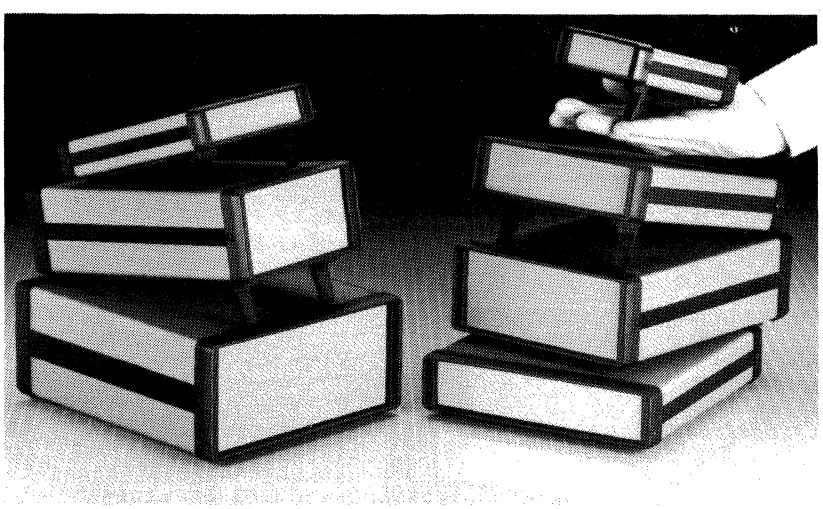
The NC series is a complete line of electronic enclosures designed for the large systems, small peripherals, adjustable CRTs, low-profile keyboards, and CPU-type housings in either vertical or horizontal configuration.

NC enclosures feature sophisticated engineering and quality construction. Manufactured from injection-molded, glass-reinforced polycarbonate, this material is rated V-O in UL flammability tests. This material supplies the greater rigidity and strength needed when packaging electromechanical systems.

The exterior finish on the NC line of enclosures is a marresistant, two-coat textured polyurethane.

The NC line also features over-lapping joints, grounding brackets and vent openings with the proper EMI slot geometry. Optional EMI shielding of plated nickel over copper provides excellent EMI suppression.

Small Aluminum Enclosures



The SL series is available in seven models, from 3.5"W x .97"H x 3.7"D to 7.46"W x 3"H x 8"D. This series is constructed using extruded aluminum sides with PC grooves, aluminum front and rear panels, vinyl clad aluminum top and bottom covers. The bezels are injection molded polycarbonate. Pull down feet are standard. Options include: Chassis plate, mounting bracket and belt clip.

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MINIGLOSSARY ENCAPSULATION

MATERIALS/HANDLING

Catalyst: A substance which changes the *rate* of chemical reaction. Very small quantities can cause fast change.

Conformal coating Sprayed or dipped. A thin conformal jacket which protects an assembly from moisture or other degrading environments.

Curing agent: See catalyst.

Hardener: See catalyst.

Hermetic: A permanent gas-tight seal.

RTV: Room Temperature Vulcanizing. Associated with silicone rubber sealants which vulcanize at room temperature.

Thermoplastic: Plastic materials which can be made to flow *repeatedly* with the application of heat.

Thermosetting: Plastics which once cured cannot be made to flow again.

Thixotropy: The property of a coating compound which has low viscosity when agitated, but which thickens when the agitation ceases.

Viscosity: Measured in units of *poise* or *centipoise*. The property of a liquid which resists internal flow. Low viscosity equates with thin and vice-versa.

PROCESSING

Casting: Parts or assemblies are placed in a mold. Encapsulating material is added and cured. Part is then removed from the mold.

Dip coating: Part or assembly is dipped into the encapsulating material. Final thickness is determined by number of dips, viscosity, rate of withdrawal, and temperature.

Embedding: Wherein an encapsulant substantially fills all voids in and about an assembly.

Impregnation: A process of encapsulation involving evacuating all air and then allowing the encapsulating material to flow in and fill all voids.

Molding: Similar to casting except this process usually implies multicavity molds and costly machines.

Potting: Wherein the part or assembly is immersed in an encapsulating material contained in a shell which becomes a permanent outer surface after curing.

DIELECTRIC

Arc resistance: An encapsulant's resistance to the formation of a conductive path or track. Measured in time.

Breakdown voltage: The voltage at which an encapsulant fails electrically.

Capacitance: The property of conductors and dielectrics which allows the storage of an electrical charge when the voltage is applied.

Corona: A luminous discharge of electricity due to air ionization when a certain voltage is reached. Can be internal or external. The formation of ozone can cause rapid deterioration of certain materials.

Dielectric: Insulator (Nonconductor.)

Dielectric constant: The property of a material that determines its ability to store electrostatic energy.

Dielectric strength: The ratio of dielectric breakdown to the thickness of insulating material.

Dissipation factor: The ratio of a dielectric material's energy losses.

Flashover: Point at which an electric discharge occurs around an edge or across a surface. Can result in a carbon track and permanent degradation.

Insulation resistance: (IR) An insulating material's total DC leakage.

Surface resistivity: The resistance of the surface of an insulating material to the flow of direct current.

Voltage endurance: Sometimes called corona resistance. The ability of a material to withstand the application of sustained high voltage.

Volume resistivity: The resistance of a material to direct current flow as a measure of volume. Expressed as ohm-centimeters.

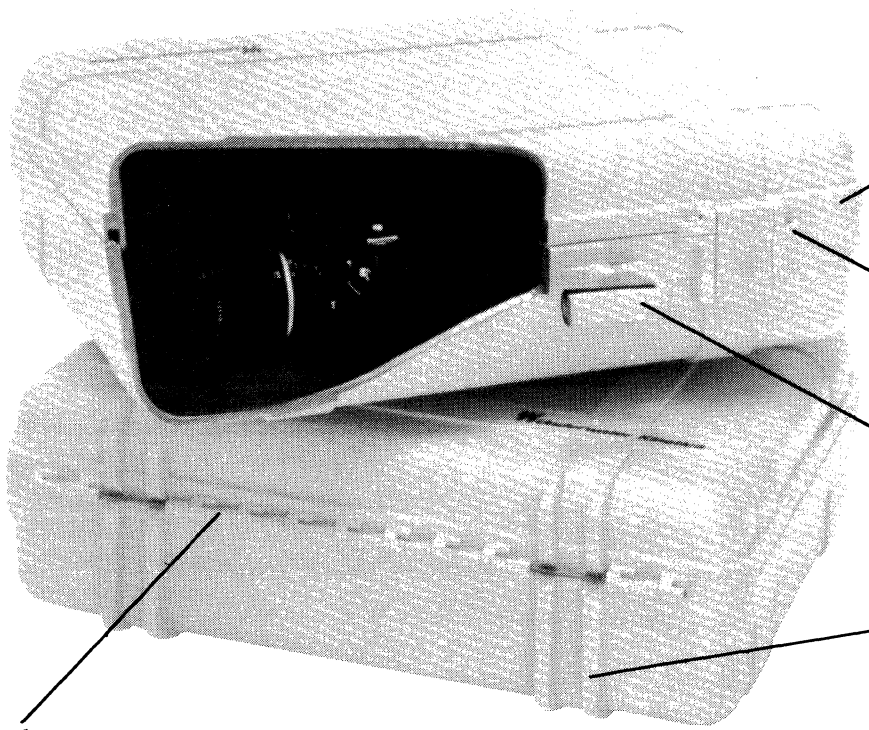
KINETICS DRY CASES

Positive Protection At An Affordable Price

Why risk damage to valuable equipment or delicate instrumentation? Kinetics Cases withstand incredible abuse even in the harshest environments. Injection molded from ABS/polycarbonate alloy, the rugged construction provides protection from shock or impact, while maintaining an excellent appearance. A silicone O-ring seals out the elements, protecting contents from water, dust, or other contaminants. Unlike aluminum cases, Kinetics Cases will not dent, chip, or lose their finish – ideal for any portable equipment!

Likewise, Kinetics Cases present your products as having craftsmanship and value at an affordable cost. Interiors include custom foam, pre-diced pluck foam, plush dividers, and briefcase. In addition, our unique Kinetics panel ring cases provide the ideal method of permanently mounting equipment into a protective case.

Ten sizes, a variety of colors and interiors and an array of accessories make Kinetics Cases first choice for the professional user. Less expensive than a costly repair, Kinetics Cases provide the protection your products need.



Underwater Kinetics

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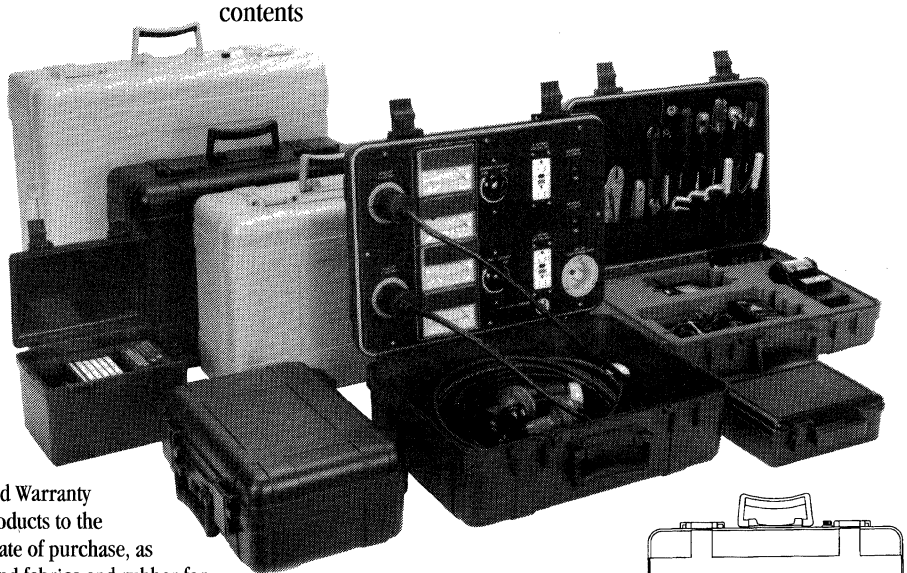
KINETICS DRY CASES

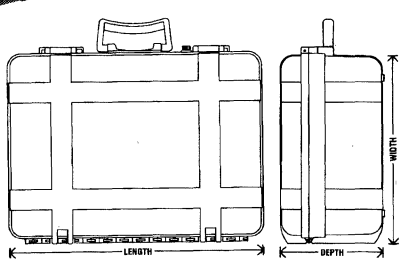
Kinetics Cases. Engineered For Any Environment

- Cases have been tested and approved to meet ATA 300
- Withstand 2000 pound stacking loads and 7 foot drops on to concrete
- Thick walls safeguard against impact, jarring, vibration, and crushing
- Silicone O-ring seal allows new freedom to take equipment in any weather
- Interlock in stacks
- Wide variety of case sizes, customization accessories and options available
- Silicone O-ring keeps out water, salt air, dust, and sand
- Non-metal construction will not dent, corrode, or conduct electricity
- Adjustable interiors offer unlimited potential for organization of contents
- Operating temperature -20° to 160°F
- Ultraviolet and ozone stabilized
- Molded in color can't scratch off
- *Custom work such as silk screening, special case colors, antistatic materials and RF shielding cases are also available*



Limited Lifetime Warranty

Underwater Kinetics products are engineered for maximum performance and durability. All products carry a Limited Lifetime Warranty to the original retail purchaser to be free from defective material and workmanship under normal and intended use. In addition, the Underwater Kinetics Limited Warranty covers materials used in its products to the original purchaser, from the date of purchase, as follows: plastics for 10 years and fabrics and rubber for 3 years. For the complete Limited Lifetime Warranty write to Underwater Kinetics.



Kinetics Dry Case™ and Dry Box Selection Chart

Model	Internal Dimensions Length	Width	Depth[2]	External Dimensions Length	Width[3]	Depth	Weight	Interior Options
Boxes								
309	8.5 in	6.0 in	3.0 in	8.9 in	7.8 in	3.4 in	1.0 lb	a
409	8.5 in	6.0 in	3.6 in	9.3 in	7.2 in	4.1 in	1.2 lb	a
609	8.5 in	6.0 in	5.4 in	9.3 in	7.2 in	6.0 in	1.6 lb	a, b
Cases[1]								
613	13.4 in	8.9 in	5.6 in	14.0 in	10.6 in	6.5 in	4.1 lb	a, b, d
716	16.9 in	9.9 in	6.5 in	17.5 in	11.6 in	7.5 in	7.1 lb	a, b, d
518	17.8 in	12.8 in	5.1 in	18.5 in	14.6 in	5.7 in	8.4 lb	a, b, c, d
718	17.8 in	12.8 in	6.8 in	18.5 in	14.6 in	7.5 in	9.2 lb	a, b, c, d
821	20.9 in	12.9 in	8.4 in	21.7 in	14.6 in	9.0 in	10.7 lb	a, b, d
822	21.9 in	18.0 in	8.4 in	22.7 in	19.8 in	9.0 in	13.4 lb	a, b, d
827	26.9 in	18.0 in	8.4 in	27.6 in	19.8 in	9.0 in	16.7 lb	a, b, d

Options: (a) Multi-layer Pluckout Foam; (b) Plush Dividers; (c) Briefcase; (d) Panel Ring

Colors: (Cases) Sunshine Yellow, Jet Gray, and Charcoal Black

[1] All sizes except 822 and 827 meet airline carry-on regulations

[2] Lid depth 1.8 in. for 613, 716, 518 and 718 cases. Lid depth 2.2 in. for 821, 822 and 827 cases

[3] Includes handle and hinges. Custom colors available

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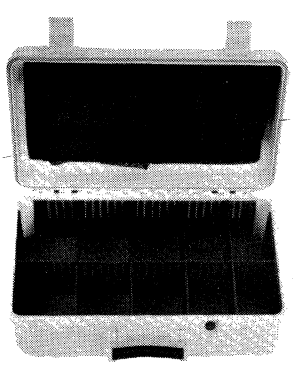
KINETICS DRY CASES

Interior Options To Fit Any Need

Permanent Mounting Of Valuable Test Instrumentation And Delicate Equipment Is Simple With A Kinetics Panel Ring Case

Kinetics panel ring cases revolutionize portable panel mounted instrumentation! Equipment which needs to be permanently housed in a protective case is easily mounted into any size Kinetics Case. The panel ring provides a simple and secure mounting surface for any panel. A second O-ring keeps water, dust, and other harmful agents from circuitry below panel. Brushed aluminum panels pre-drilled and cut to match the panel rings are available for each case. Body can be glued to or machined for easy customization.

Plush Divider System
Plush dividers are easily cut and positioned for instant customization of the case interior. Dividers can be quickly adjusted to fit a variety of configurations and keep contents well protected as well as neatly organized.



Rigid Plastic Divider System
Rigid plastic dividers are washable and provide maximum interior space.

Custom Foam / Pluck Foam Padding
Multi-layer foam partially pre-diced into pluck out foam squares which can be easily removed to form soft cavities. Each component is completely surrounded and cushioned for maximum protection.

Leather Trim Briefcase
Leather trimmed interior comes with three-compartment accordion file, and protects important documents against the elements. The ideal briefcase for the active business person.

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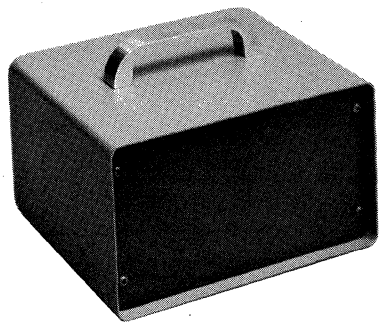
ZERO CENTURION VALULINE CARRYING CASES

ZERO CORPORATION

SHIPMENT: 2 WEEKS A.R.O.

Zero Centurion 400 Series Instrument Cases



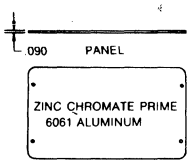
Distinctively designed deep drawn aluminum cases give small instruments a sales-appealing custom appearance. Seamless, deep drawn shells provide protection, even under rugged conditions. The aluminum front panel, recessed for protection of dials, meters, knobs, etc., is attached with four slotted screws for quick access.

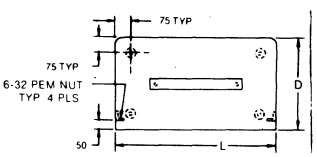
DESCRIPTION/SPECIFICATIONS

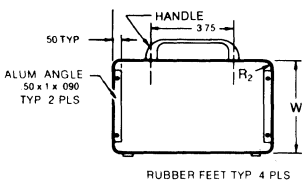
Case	ZIC 407 to 409: .063" 1100-0 aluminum. ZIC 411: .063" 6061-0 aluminum.
Handle	Cast aluminum, brushed finish.
Feet	Four, rubber.
Color	Case: Textured blue polyester exterior. Panel: Zinc chromate primed 6061 aluminum.

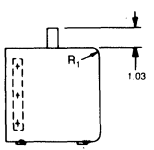
CASE NUMBER	W	L	D	R_1	R_2	NET WT. LBS.
ZIC 407	4.00	7.00	5.00	.31	.31	1.3
ZIC 408	4.50	7.75	7.00	.25	.25	1.8
ZIC 409	6.00	9.00	5.00	.31	.31	2.1
ZIC 411	7.00	11.00	7.00	.50	.31	2.9

Measurements shown in Inches

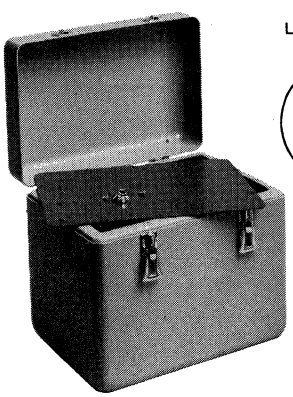


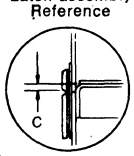




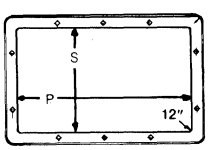


Zero Centurion Valuline 600 Series Aluminum Carrying Cases





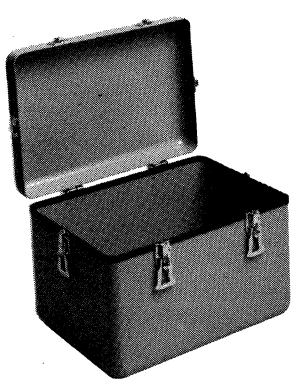
Strongest of the "Valuline" cases, this series features a spot-welded pre-drilled panel flange, with threaded inserts installed to accept a full-size, primed .090" aluminum panel, which is included with the basic case. (See page 5 for material specifications.)



CASE NUMBER	W	L	H_1	H_2	T	ALLOY	R_1	R_2	C	S	P	SIZE PANEL	NET WT. LBS.
ZIC 608	7.00	8.00	2.50	6.00	.06	1100-0	.31	.31	.25	5.37	6.37	6.50 x 7.50	3.3
ZIC 609	9.00	9.00	2.50	8.00	.06	6061-0	.50	.50	.25	7.37	7.37	8.50 x 8.50	4.7
ZIC 610	6.69	10.69	2.50	6.00	.09	6061-0	.50	.50	.21	5.00	9.00	6.18 x 10.18	4.8
ZIC 611	7.00	11.00	2.50	6.00	.06	6061-0	.50	.31	.34	5.37	9.37	6.31 x 10.31	4.3
ZIC 612	8.37	11.50	2.50	7.00	.06	6061-0	.50	.56	.25	6.75	9.87	7.87 x 11.00	4.9
ZIC 613	9.19	13.25	2.50	9.00	.09	6061-0	.56	.56	.28	7.50	11.56	8.56 x 12.62	8.2
ZIC 616	10.00	16.00	2.50	9.00	.09	6061-0	1.00	1.00	.28	8.31	14.31	9.50 x 15.50	9.8

Note: W, L & H are outside dimensions, R_1, R_2, P & S are inside dimensions.

Zero Centurion Valuline 7000 Series Aluminum Carrying Cases



Most economical of the "Valuline" cases, the ZC 7000 Series cases feature fully-gasketed closure around edge of case. Hinges are separable for easy cover removal. (See page 5 for material specifications.)

CASE NUMBER	W	L	H_1	H_2	T	ALLOY	R_1	R_2	LATCHES FRT.	LATCHES SIDE	NET WT. LBS.
ZC 7010	4.00	7.00	1.25	2.90	.06	1100-0	.31	.31	2	—	1.3
ZC 7020	4.00	8.75	1.25	2.90	.06	1100-0	.19	.25	2	—	1.6
ZC 7030	5.00	7.00	1.25	3.65	.06	1100-0	.31	.31	2	—	1.7
ZC 7040	5.50	8.00	1.25	3.65	.06	1100-0	.25	.25	2	—	1.8
ZC 7050	5.68	10.00	1.25	4.65	.06	1100-0	.25	.25	2	—	2.3
ZC 7060	6.00	9.00	1.25	4.65	.06	1100-0	.31	.31	2	—	2.2
ZC 7070	6.00	14.50	1.37	4.53	.06	1100-0	.44	.50	2	—	2.9
ZC 7080	7.00	11.00	1.50	5.40	.06	6061-0	.50	.31	2	—	2.9
ZC 7090	8.00	14.00	1.87	6.03	.06	6061-0	.87	.87	2	—	3.8
ZC 7100	9.00	9.00	1.50	6.40	.06	6061-0	.50	.50	2	—	3.2
ZC 7110	9.19	13.25	1.62	7.28	.06	6061-0	.59	.59	2	1	4.6

Note: W, L & H are outside dimensions; R_1 and R_2 are inside dimensions.

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ZERO CORPORATION

ZERO CENTURION VALUELINE CARRYING CASES

Zero Centurion Valuline ZIP 800 Series
Aluminum Carrying Cases

SHIPMENT: 2 WEEKS A.R.O.

Most versatile of the "Valuline" cases, this series features a fully-gasketed closure of extruded aluminum, spot-welded to the case shell interior to permit installation of optional panel support brackets and full-size primed panel (order separately). An O-ring gasket provides additional environmental protection.

CASE NUMBER	W	L	H_1	H_2	T	ALLOY	R_1	R_2	LATCHES FRT.	LATCHES SIDE	HINGES	OPTIONAL PANEL NUMBER	CASE NET WT. LBS.
ZIP 805	6.00	9.00	2.50	5.00	.06	1100-0	.31	.31	2	—	2	ZP 9178-05	2.9
ZIP 810	7.00	11.00	2.50	7.00	.06	6061-0	.50	.31	2	—	2	ZP 9178-10	3.9
ZIP 820	8.00	14.00	2.50	7.00	.06	6061-0	.87	.87	2	—	2	ZP 9178-20	4.8
ZIP 830	8.75	12.00	2.50	8.00	.06	6061-0	.50	.75	2	—	2	ZP 9178-30	4.8
ZIP 840	9.19	13.25	2.50	9.00	.06	6061-0	.59	.59	2	—	2	ZP 9178-40	5.6
ZIP 850	10.00	16.00	2.50	9.00	.09	6061-0	1.00	1.00	2	1	3	ZP 9178-50	8.8

Note: W, L & H are outside dimensions; R_1 and R_2 are inside dimensions.

OPTIONAL ACCESSORY:

Adjustable Panel Support Brackets (specify quantity)—ZSP 9-014

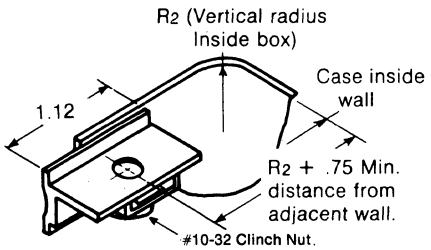
ZIP 800 Series Panel Dimensions

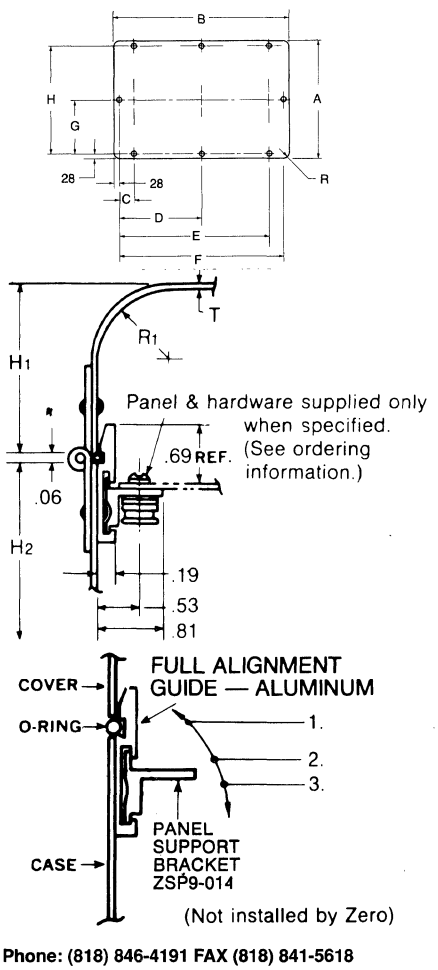
PANEL NUMBER	A	B	C	D	E	F	G	H	R	NO. OF HOLES
ZP 9178-05	5.37	8.37	1.50	—	6.31	—	—	4.81	.18	4
ZP 9178-10	6.37	10.37	2.00	—	7.81	—	—	5.81	.18	4
ZP 9178-20	7.37	13.37	2.87	—	9.93	12.81	3.40	6.81	.62	6
ZP 9178-30	8.12	11.37	2.00	—	8.81	10.81	3.78	7.56	.50	6
ZP 9178-40	8.56	12.62	2.50	—	9.56	12.06	4.00	8.00	.43	6
ZP 9178-50	9.31	15.31	2.50	7.37	12.25	14.75	4.37	8.75	.75	8

Adjustable Panel Support Bracket
ZSP 9-014 (Option B)

The adjustable panel support bracket shown is an accessory. If desired, specify quantity required for interface with equipment panel. Install per instructions shown below.

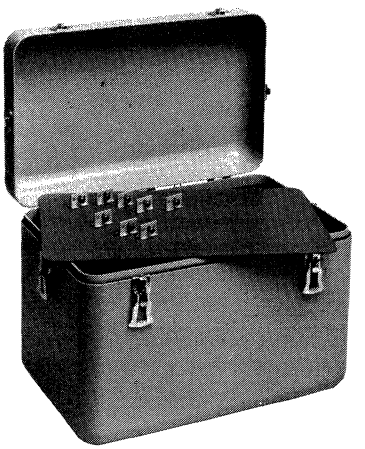
Measurements shown in Inches





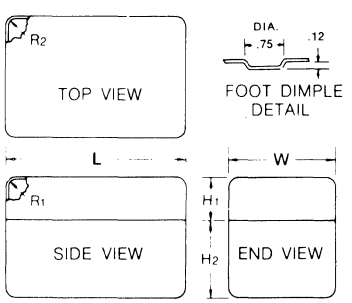
PANEL SUPPORT BRACKET INSTALLATION

1. Apply room temperature cure epoxy to contact surface of support bracket and insert bracket into extrusion slot, as shown.
2. Rotate downward, as shown, until support bracket is seated.
3. Slide bracket laterally as required to align bracket with panel hole location.
4. Allow epoxy to cure prior to further handling. (Note: Epoxy can be obtained locally at most hardware or industrial supply houses.)
5. To order panel support brackets add "B" and quantity. (Example: ZIP 805B4).



Ruggedly built deep drawn seamless carrying cases are available in three basic configurations *(ZIC 600 Series/ZC 7000 Series/ZIP 800 Series)* and are ideal for housing and/or transporting instrumentation equipment.

Case dimensions are always shown in the following order:
WIDTH — the narrowest measurement, looking down on the case.
LENGTH — the longest measurement, looking down on the case.
HEIGHT — measured from base to top. The "upper" shell is designated H_1. The "lower" shell is designated H_2.



DESCRIPTION/SPECIFICATIONS

Material	Aluminum alloy (see tables).
Latches	Zamack #7, nickel plated.
Hinges	Separable pin-type, nickel plated steel, riveted to case/cover.
Handle	Black molded plastic, nickel plated hardware.
Feet	ZIC & ZC Series: Integral dimpled; ZIP Series: Four, black rubber.
Gasket	ZC & ZIP Series: Black extruded synthetic rubber.
Finish	Textured blue polyester—outside. Semi-gloss blue polyester—inside.
Tolerances	±.06"

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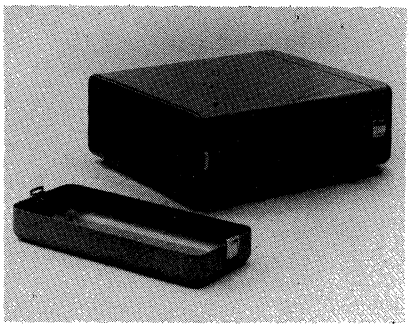
ZERO CENTURION VALUELINE II DOUBLE ENDED CASE

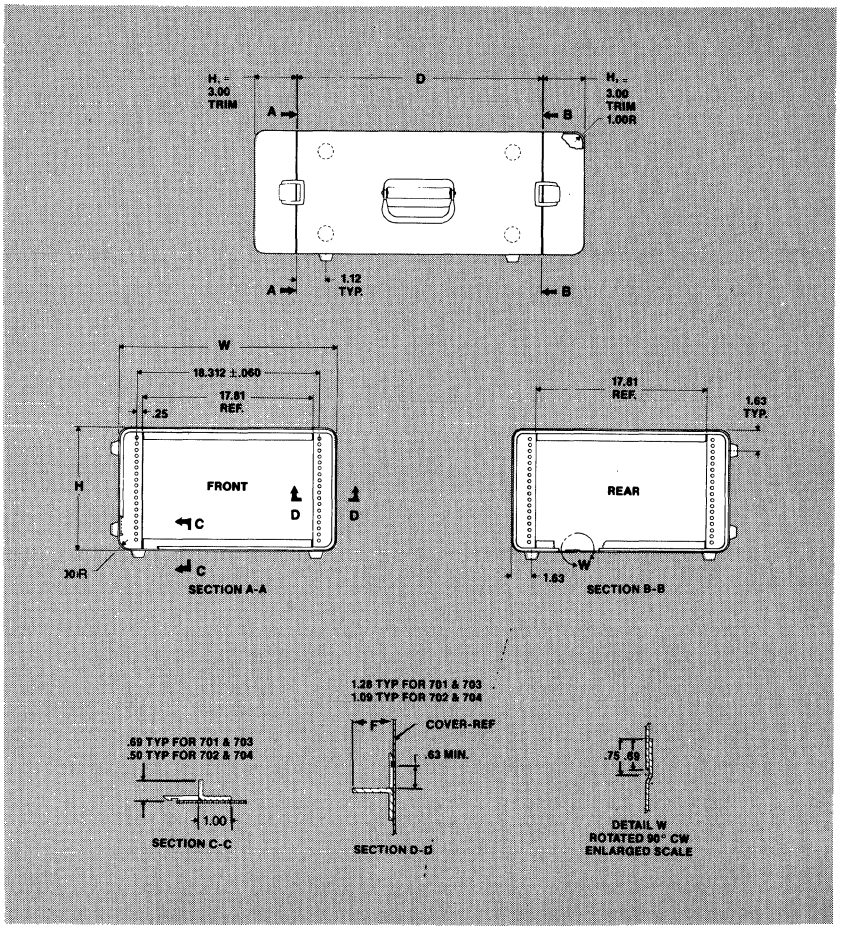
ZERO CORPORATION

Instrument, Operating and Carrying Cases

SHIPMENT: 2 WEEKS A.R.O.



Available in four standard sizes, this line is constructed of aluminum alloy, featuring an open center section with closures on both ends and fitted with front and rear mounting rails with EIA standard hole pattern spacing. Latched to both ends are seamless deep drawn aluminum lids, complete with environmental gasketing, which are secured to the main case section by positive, bail-type latches.



SPECIFICATIONS

Material: .063" Aluminum Alloy

Latches: Set of 4. Bail-type, chrome. plated with key type locking feature. Latches on cover, with strike on center section.

Handle: 180° free-swinging. Molded Neoprene grip.

Feet: Two sets of 4. One set on bottom and one set opposite side.

Rack Panel Filler: .125" Aluminum — used as a spacer to fill front panel opening on certain sizes.

Closure: Aluminum alloy extrusion with integral groove for Mounting Gasket Seal.

Mounting Rails: Two sets (front & rear), equipped with standard E.I.A. hole pattern.

Mounting Hardware: Case comes with eight each 10-32 clip nuts and mounting screws.

Finish: Exterior - Light blue textured. Interior - Light blue smooth. Panel - Chemical film.

ORDERING INFORMATION

Ordering is as simple as composing a part number. Simply order the Case Number you require.

OPTIONS:

Rear support extension brackets (pair). See page 28.

Chassis slides C300 Series. See page 30.

Standard 19" Blank Panels — See Table A and order by part number. (For blank panel information see page 17. Available in panel sizes B, C, D, E and F.)

PRODUCT SELECTION TABLE/DIMENSIONS

CASE NUMBER	FOR PANEL HEIGHT	WIDTH "W"	HEIGHT "H"	CENTER SECTION "D"	NET WT. LBS.
ZDE701	3.47 5.22 6.97	20.50	8.50	21.00	15.6
ZDE702	8.72 10.47	20.12	11.62	21.00	17.9
ZDE703	3.47 5.22 6.97	20.50	8.50	27.00	18.8
ZDE704	8.72 10.47	20.12	11.62	27.00	20.2

Zero Blank 19 Inch Panels Front & Rear (Table A)

	DIMENSIONS (±0.031")			
PANELS	A*	B*	C*	PART NUMBER
"B" Size	3.47	—	3.00	ZP112000-BO.12
"C" Size	5.21	—	2.25	ZP112000-CO.12
"D" Size	6.96	—	4.00	ZP112000-DO.12
"E" Size	8.71	2.25	1.75	ZP112000-EO.12
"F" Size	10.46	3.00	2.25	ZP112000-FO.12

*Dimension drawing for A, B and C (see page 17.)

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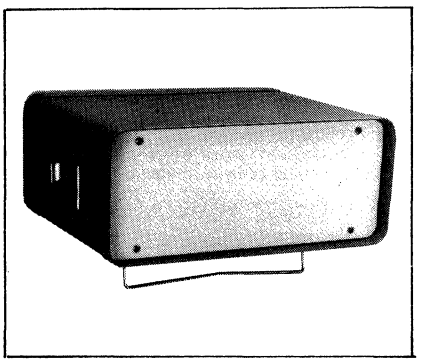
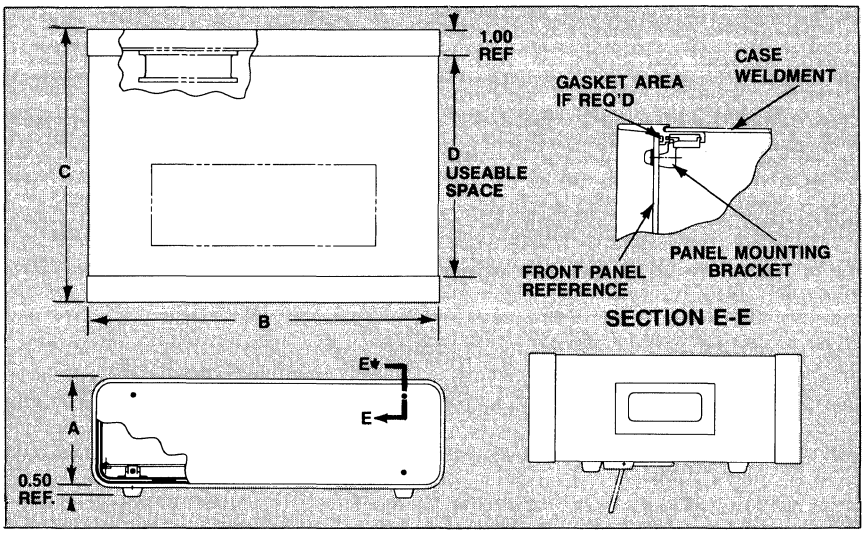
ZERO CORPORATION

ZERO VALULINE III INSTRUMENT CASES

SHIPMENT: 2 WEEKS A.R.O.





Available in six standard sizes with and without "EMI" Shielding, this new line of aluminum desk top enclosures features front and rear access. The EMI models are supplied with EMI gaskets in a specially-designed groove in the front and rear bezels of the enclosure. The bottom area of the unit has a perforated vent pattern located near the front.

Other standard features include side handles, rubber feet and front and rear panels.

The following optional acessories are also available;

- Tilt Stand
- Chassis Plate
- Fan in Rear Panel (30 CFM on 5¼" high model and 80 CFM on the 7, 8¾ and 10½" high models)

SPECIFICATIONS

Material: .090 Aluminum Alloy (center section) and Extruded Aluminum (front and rear bezels).
Handles: Stainless Steel-Recessed Grip
Front & Rear Panels: .125 Aluminum Alloy
Feet: Four (4)-Black Rubber
Chassis Plate: (Optional) .090 Aluminum Alloy
Tilt Stand: (Optional) Steel Chrome Plated
EMI Gasket: (Optional) Knitted Wire Mesh
Finish: Exterior - Light Blue Textured Interior - Light Blue Smooth Panels (Front, Rear & Chassis Plate) - Chemical Film

TABULATION CHART

CASE NO.	A	B	C	D
ZP20860-1	5.22	8.43	10.00	8.00
ZP20860-3	5.22	16.88	13.00	11.00
ZP20860-5	6.97	8.43	10.00	8.00
ZP20860-7	6.97	16.88	13.00	11.00
ZP20860-9	8.72	16.88	13.00	11.00
ZP20860-11	10.47	16.88	17.00	15.00

OPTIONS CHART

OPTION DESCRIPTION	NON SHIELDED	SHIELDED
NO OPTIONS	-21	-41
TILT STAND	-23	-43
REAR FAN PANEL	-25	-45
CHASSIS PLATE	-27	-47
TILT STAND AND FAN PANEL	-29	-49
TILT STAND AND CHASSIS PLATE	-31	-51
FAN PANEL AND CHASSIS PLATE	-33	-53
TILT STAND, FAN PANEL AND CHASSIS PLATE	-35	-55

Ordering Example: ZP20860 — 1 — 51

Basic Case Number

Overall Case Size
5.22 x 8.43 x 10.00
(Tabulation Chart)

Shielded/Tilt Stand and Chassis Plate
(Options Chart)

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ZERO STYLE-LITE CASES

Here is the ideal instrument, sample, service or parts case. Zero's Centurion Style-lite carrying cases are high style and low cost. Strong, durable and lightweight, these cases come in "standard" or "heavy duty" thermoformed construction. See the following pages for options and accessories to customize the interior for your products.

APPLICATIONS:

- Transport computers, electronic instrumentation, medical electronics, telecommunications, and sensitive electromechanical devices
- Portable unit for testing and diagnostic equipment
- Camera and video equipment transport
- Tool case, medium duty weight
- Naval/oceanic environments
- Product display and samples

BENEFITS:

- Multiple sizes on both standard and heavy duty styles
- Light weight
- High impact plastic shells
- Rugged good looks
- Reliable durability

FEATURES:

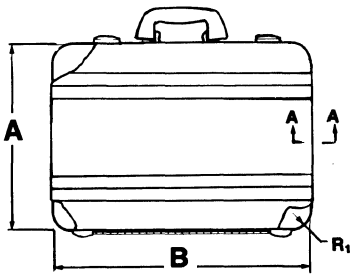
- Constructed from textured ABS (Acrylonitrile Butadiene Styrene) high-impact thermoformed plastic
- Black or grey morocco grain outside. Smooth finish inside
- Interlocking tongue and groove closure of 6063-T52 aluminum alloy
- Two, positive-seating, bail type, chrome plated latches
- Piano type, clear anodized hinge
- Injection molded handle
- Molded plastic feet

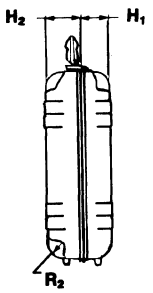
Custom sizes, colors, and foam cushions available on special orders.

ZERO PLASTICS
UNIT OF ZERO CORPORATION

STYLE-LITE CASES

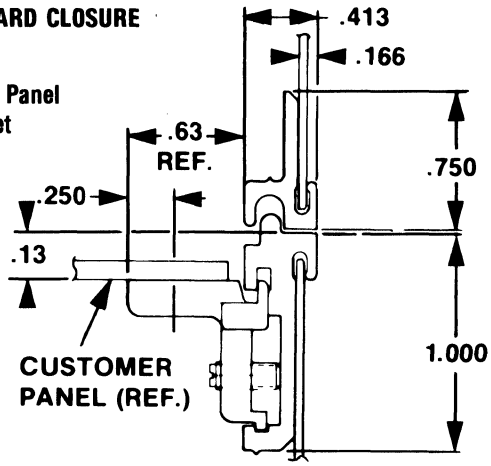
All dimensions are in inches: tolerance + .06''.
All dimensions are inside unless otherwise shown.





CP500 STANDARD CLOSURE

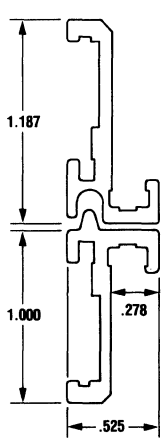
Section AA
Case Extrusion Panel
Support Bracket



STANDARD			HEAVY DUTY			INSIDE DIMENSIONS						NET WEIGHT/LBS.	
CASE NUMBER	STOCK	NON STOCK	CASE NUMBER	STOCK	NON STOCK	A	B	H_1	H_2	R_1	R_2	STANDARD	HEAVY DUTY
CP500	X		CP6000	—	X	8.92	11.92	2.00	3.00	.71	1.00	2.6	3.7
CP501		X	CP6001	—	X	8.92	15.92	2.50	5.25	1.25	.50	3.5	5.0
CP502	X		CP6002	—	X	12.92	17.92	2.00	2.50	1.00	1.00	4.4	6.4
CP503	X		CP6003	—	X	12.92	17.92	2.50	3.50	1.00	1.00	4.7	6.9
CP505	X		CP6005	—	X	12.92	20.92	2.75	3.75	1.00	1.00	5.2	7.6
CP506	X		CP6006	—	X	16.90	20.90	3.00	4.50	1.00	1.25	6.0	8.7
CP510	X		CP6010	—	X	17.90	25.90	4.25	4.75	1.00	1.25	7.3	10.8
CP511		X	CP6011	—	X	18.00	24.00	3.00	4.00	1.25	.50	6.3	9.3
CP515	X		CP6015	—	X	13.00	19.12	1.50	2.13	1.25	.50	4.5	6.6
CP517	X		CP6017	—	X	13.00	19.12	2.50	3.13	1.25	.50	4.6	6.7
CP519	X		CP6019	—	X	14.00	19.00	2.50	3.00	1.00	.50	4.4	6.4
CP524		X	CP6024	—	X	9.00	41.00	2.00	2.00	1.25	.50	6.4	9.1
CP525		X	CP6025	—	X	10.50	30.00	2.00	2.00	1.25	.50	5.3	7.5
CP527		X	CP6027	—	X	13.00	53.00	2.00	2.00	1.25	.50	9.1	13.3
CP531		X	CP6031	—	X	14.00	50.00	2.00	2.00	1.25	.50	9.0	13.1

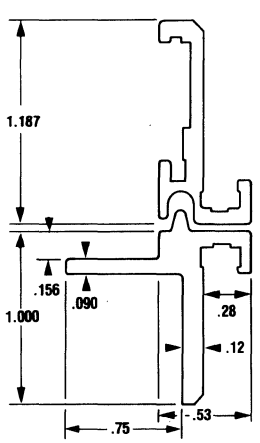
CUSTOM SIZES AND COLORS AVAILABLE ON SPECIAL ORDER. CALL 413-267-5561 FOR MORE INFORMATION.

CP6000 STANDARD CLOSURE



CP6000 FLANGED CLOSURE

CODE CF



PART NUMBER CP [ ] [ ] [ ]

CASE NUMBER

COLOR:
B-Black
G-Gray
C-Custom

CODE ACCESSORIES:
P-Panel Mtg. Bracket
BF-Blank Foam Pack
DF-Diced Foam Pack
LL-Locking Latches
HS-Hinge-Seperable
LA-Inner Lid Assy.
CF-Closure-Flanged *(CP6000 Series Only)*

ZERO TRANSITAINER ROTO-MOLDED CASES

The Zero Transitainer line represents the ultimate in total packaging capability at a very affordable price. Transitainers provide a highly reliable, cost-effective alternative to other types of shipping/ storage and transit cases, and are available from inventory in 1 to 2 week delivery in a variety of popular sizes.

APPLICATIONS:

SHIPMENT AND STORAGE OF:

- Field portable, sensitive electronic instruments
- Military applications, monitoring equipment
- Seismic, pollution control instrumentation
- Test equipment
- Telecommunications test equipment
- Airport, flight guidance systems
- Field computer systems
- Field communications systems

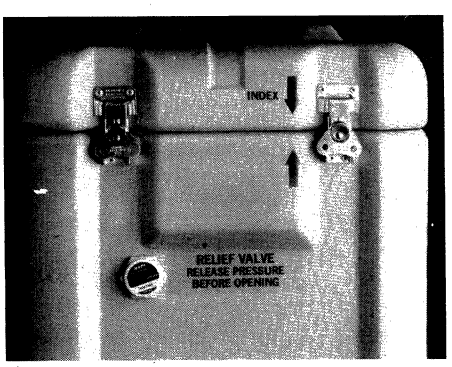
BENEFITS:

- Total packaging at an affordable price
- Outstanding durability and performance
- Easy storage and transit with trouble-free stacking
- Resists most chemicals and solvents
- Gasketed for weathertight protection

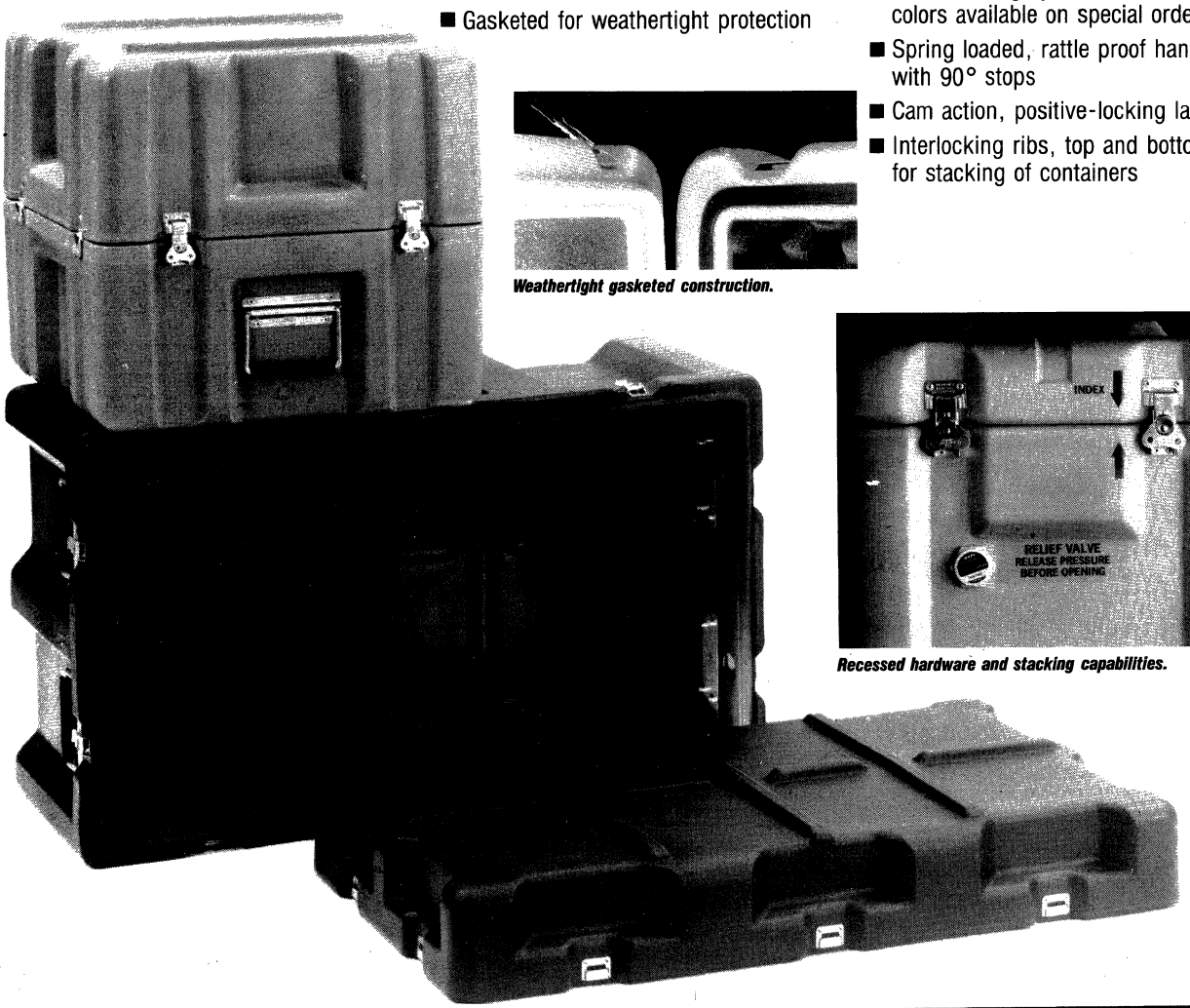
FEATURES:

- Made from rotationally molded polyethylene plastic
- Uniform wall thicknesses
- Compounded color impregnated directly into durable polyethylene plastic shells
- Nearly stress-free shells
- Integrally molded tongue and groove closure, pressure tight to 0.5 P.S.I.
- Extra rugged corner construction
- Gasketed construction with integral tongue and groove closure interlocks top and bottom
- Recessed hardware for added protection
- Meets ATA 300, Category 1, and applicabale portions of MIL-T-28800, MIL-C-4150 and MIL-STD-108
- Available in gray standard, other colors available on special order
- Spring loaded, rattle proof handles with 90° stops
- Cam action, positive-locking latches
- Interlocking ribs, top and bottom allow for stacking of containers

Weathertight gasketed construction.



Recessed hardware and stacking capabilities.



ZERO PLASTICS
UNIT OF ZERO CORPORATION

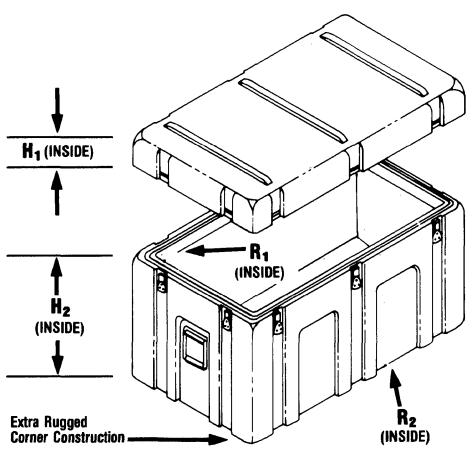
ORDERING INFORMATION: Ordering a Transitainer is easy. Simply choose the width/length/height combination from the table, indicate your choice of pressure relief valve, cushioning, and color, and then specify your quantity.

Zero also offers on an individual basis, custom shock isolation systems to your specific requirements and custom colors on special order. Contact your local representative or the factory for design and engineering assistance.

CASE NUMBER	INSIDE DIMENSIONS			NO. OF LATCHES	NO. OF HANDLES	H_1	H_2	R_1	R_2	NET WT. LBS.	STOCK	NON STOCK	FORK LIFT
	WIDTH	LENGTH	HEIGHT										
ZRM0606-0208	6.00	6.00	10.00	2	1	2.00	8.00	.37	.75	4	X		
ZRM0808-0210	8.00	8.00	12.00	4	1	2.00	10.00	.37	.75	6	X		
ZRM1010-0315	10.00	10.00	18.00	4	2	3.00	15.00	.37	.75	13	X		
ZRM1216-0422	12.75	16.00	26.37	8	2	4.00	22.37	1.00	1.50	16	X		
ZRM1331-0408*	13.00	31.00	12.00	10	2	4.00	8.00	.38	.50	20	X		
ZRM1619-0512	16.00	19.00	17.00	8	2	5.00	12.00	.50	.50	19	X		
ZRM1717-0509*	17.00	17.00	14.00	8	2	5.00	9.00	.37	.50	17	X		
ZRM1717-0909	17.00	17.00	18.00	8	2	9.00	9.00	.37	.50	19	X		
ZRM1828-0409	18.00	28.00	13.00	10	2	4.00	9.00	.37	.50	25	X		
ZRM1830-0509	18.30	30.00	14.00	10	2	5.00	9.00	.37	.50	30	X		
ZRM1830-0514	18.00	30.00	19.00	10	2	5.00	14.00	.37	.50	38	X		
ZRM1934-0514	19.00	34.00	19.62	10	4	5.00	14.62	.37	1.50	36	X		
ZRM2020-0414	20.00	20.00	18.00	8	2	4.00	14.00	.37	.50	23	X		
ZRM2040-0310	20.25	40.13	13.50	14	4	3.40	10.10	1.19	1.19	36	X		
ZRM2122-0406	21.00	22.50	10.49	8	2	3.93	6.56	.38	.50	20	X		
ZRM2122-0512	21.00	22.00	18.00	8	2	5.50	12.50	.38	.50	26	X		
ZRM2225-0513	22.70	25.90	18.00	12	2	5.00	13.00	1.00	1.00	39	X		
ZRM2324-0505	23.00	24.00	11.24	12	2	5.62	5.62	1.00	1.00	28	X		
ZRM2426-0508*	24.00	26.00	13.00	12	2	5.00	8.00	1.00	1.00	28	X		
ZRM2426-0518*	24.00	26.00	23.00	12	2	5.00	18.00	1.00	1.00	39	X		
ZRM2434-0512	24.00	34.00	17.00	12	4	5.00	12.00	.37	.50	41	X		
ZRM2937-0417*	29.00	37.00	22.00	14	4	4.38	17.62	1.19	1.19	51	X		X
ZRM2937-1517	29.00	37.00	33.12	14	4	15.50	17.62	1.19	1.19	61	X		X
ZRM3244-0512	32.75	44.75	17.00	16	4	5.00	12.00	.38	.50	52		X	
ZRM3244-0612	32.75	44.75	18.00	16	4	6.00	12.00	.38	.50	55	X		X
ZRM4852-0613	48.00	52.25	19.63	20	4	6.25	13.38	1.19	1.19	94	X		

CUSTOM SIZES AND COLORS AVAILABLE ON SPECIAL ORDER. CALL (413) 267-5561 FOR MORE INFORMATION.

**Available April 1991*



PART NUMBER ZRM [ ] [ ] [ ] [ ] [ ]

CASE NUMBER

RELIEF VALVE:

A-Automatic

CUSHIONING:

1-Custom Cutout **2**-Not Required **3**-Blank Foam Pack
2 lbs. polyurethane (charcoal gray)
1'' thick layers

CASE COLOR:

A-Gray *(Std.)* **X**-Custom*

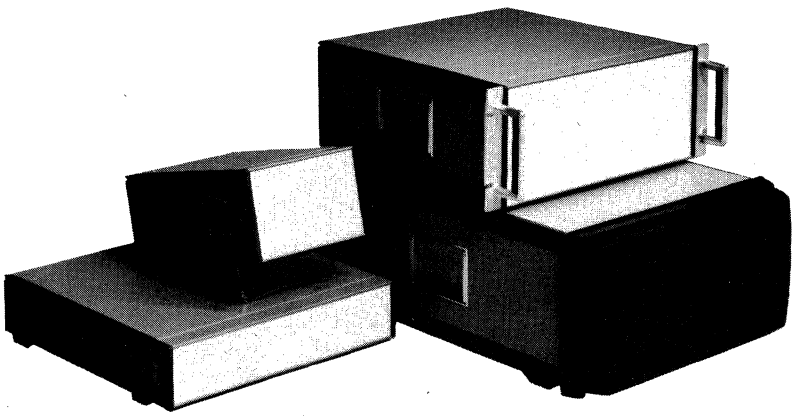
**Submit complete details for estimate.*

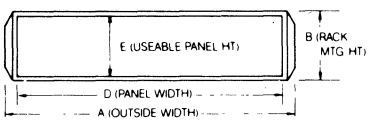
ZERO INSTRUMENT ENCLOSURES

ZERO CORPORATION

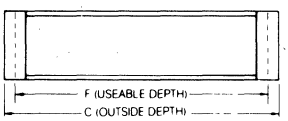
SHIPMENT: 5 DAYS A.R.O.

Zero VIP 6-Way





FRONT VIEW



SIDE VIEW

OPTIONAL ACCESSORIES

Option "B" — Rack Mounting Brackets.

Option "C" — Protective Cover — ABS thermoformed plastic — black (fits front only).

Option "H" — Horizontal Joiner Strips (pair).

Option "P" — Rack mounting bracket with pullhandles—aluminum extrusion and die cast handle —for 19" rack mounting.

Option "S" — Chassis Slides (80 lbs./pair). See notes below ①.

Option "T" — Tilt Stand — two position nickel plated steel.

Option "U" — Channel Standoff — used in conjunction with "Option S" when slide mounting VIP 6-Way into Series 19. Specify depth -1 for 12", -2 for 16" and -3 for 22".

Option "V" — Vertical Joiner Strips (pair).

Option "Y" — Rear Fan Panel (30 CFM or 80 CFM.) See notes ② and ③

ORDERING INFORMATION

Units can be ordered with accessories by showing the enclosure number followed by the code letter for each option desired;

EXAMPLE: 170516-21-PT which specifies the 170516-21 enclosure rack mtg. brackets & handle and tilt stand.

NOTE: For models 7" high or greater the top panel is vented at the rear and the bottom panel is vented at the front. Designated by suffix "X".

NOTES:

① For mounting in Matrix IV Cabinet. For installation in VIP Series 19, see page 14. Options S and U.

② Rear fan panel available on all but the following enclosure numbers. 170312, 170316, 080312, 080316. Fan will be located at the lower left rear as viewed from the front.

③ 30 CFM fan on 5.25" only or 80 CFM on 7.00" - 12.25" only.

BLUE POLYESTER ENCLOSURE NO.	DIMENSIONS (±0.031")					
	A	B	C	D	E	F
170312-21	16.88	3.50	12.70	15.98	3.15	11.07
170316-21			16.70	15.98	3.15	15.07
170512-21	16.88	5.25	12.70	15.98	4.90	11.07
170516-21			16.70	15.98	4.90	15.07
170712-21-X	16.88	7.00	12.70	15.98	6.65	11.07
170716-21-X			16.70	15.98	6.65	15.07
170812-21-X	16.88	8.75	12.70	15.98	8.40	11.07
170816-21-X			16.70	15.98	8.40	15.07
170822-21-X			22.70	15.98	8.40	21.07
171016-21-X	16.88	10.50	16.70	15.98	10.15	15.07
171022-21-X			22.70	15.98	10.15	21.07
171216-21-X	16.88	12.25	16.70	15.98	11.90	15.07
171222-21-X			22.70	15.98	11.90	21.07
080312-21	8.43	3.50	12.70	7.52	3.15	11.07
080316-21			16.70	7.52	3.15	15.07
080512-21		5.25	12.70	7.52	4.90	11.07
080516-21			16.70	7.52	4.90	15.07

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ZERO CORPORATION

ZERO INSTRUMENT ENCLOSURES

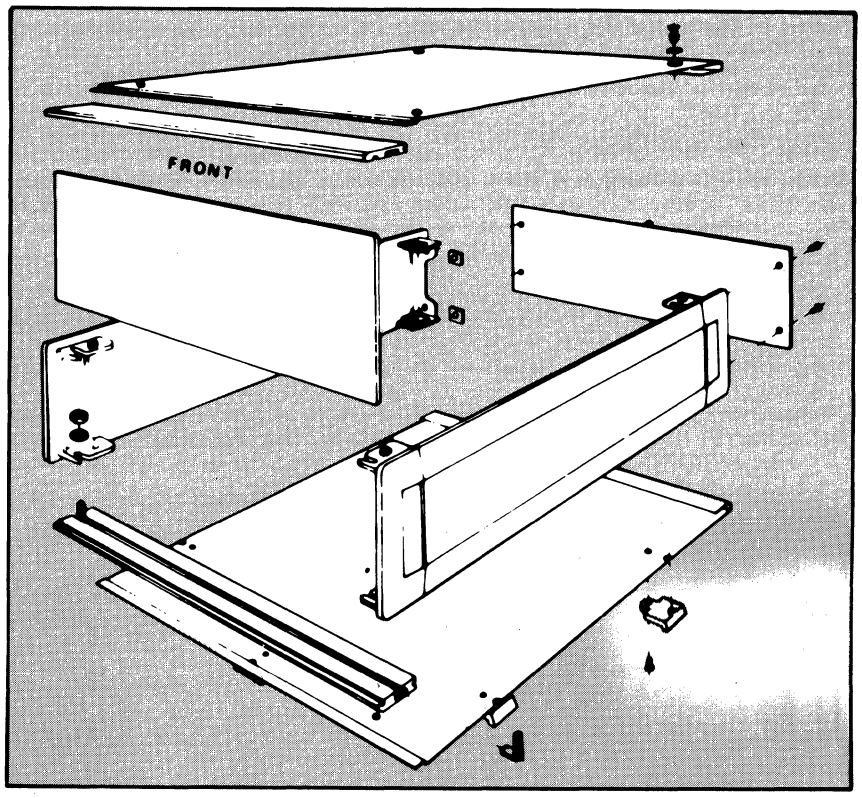
Zero VIP 6-Way

DESCRIPTION/SPECIFICATIONS

All units shipped UNASSEMBLED. VIP 6-Way can be hard mounted, used as a portable or table-top unit, tilted, stacked, and racked.

Finish: Case	Textured two-toned blue polyester.
Panels	Semi-gloss gray polyester
Panels—	
Front & Rear	.125" aluminum.
Top & Bottom	Vented, on models 7" high or greater.
Side Handles	Strap-type on 3.5" & 5.25" high; Swing-out type on others.
Feet	5, plastic, nesting.

Zero all-aluminum 6-Way Enclosures represent a thoroughly engineered approach to multi-function enclosures. From the first glance, VIP 6-Way says quality.



SHIPMENT: 2 WEEKS A.R.O.

BLUE POLYESTER ENCLOSURE NO.	OPTIONAL ACCESSORIES								
	OPTION H	OPTION S	OPTION V	OPTION B	OPTION C	OPTION P	OPTION Y	OPTION T	OPTION U
170312-21	B25778C13-1	ZP20309	B25778C11-1	B25778D33-1	ZP112001	ZP20178-101	—	B26217-3	B25778C42 -1, -2, or -3
170316-21	B25778C13-2	ZP20311	B25778C11-2						
170512-21	B25778C13-1	ZP20310	B25778C11-1	B25778D33-2	ZP112002	ZP20178-103	ZP20852-1		
170516-21	B25778C13-2	ZP20312	B25778C11-2						
170712-21-X	B25778C13-1	ZP20310	B25778C11-1	B25778D33-3	ZP112003	ZP20178-105	ZP20852-3		
170716-21-X	B25778C13-2	ZP20312	B25778C11-2						
170812-21-X	B25778C13-1	ZP20310	B25778C11-1	B25778D33-4	ZP112004	ZP20178-107	ZP20852-5		
170816-21-X	B25778C13-2	ZP20312	B25778C11-2						
170822-21-X	B25778C13-3	ZP20313	B25778C11-3						
171016-21-X	B25778C13-2	ZP20312	B25778C11-2	B25778D33-5	ZP112007	ZP20178-109	ZP20852-7		
171022-21-X	B25778C13-3	ZP20313	B25778C11-3						
171216-21-X	B25778C13-2	ZP20312	B25778C11-2	B25778D33-6	ZP112008	ZP20178-111	ZP20852-9		
171222-21-X	B25778C13-3	ZP20313	B25778C11-3						
080312-21	B25778C13-1	ZP20309	B25778C11-1	B25778D33-1	ZP112005	ZP20178-101	—	B26217-2	
080316-21	B25778C13-2	ZP20311	B25778C11-2						
080512-21	B25778C13-1	ZP20310	B25778C11-1	B25778D33-2	ZP112006	ZP20178-103	ZP20852-11		
080516-21	B25778C13-2	ZP20312	B25778C11-2						

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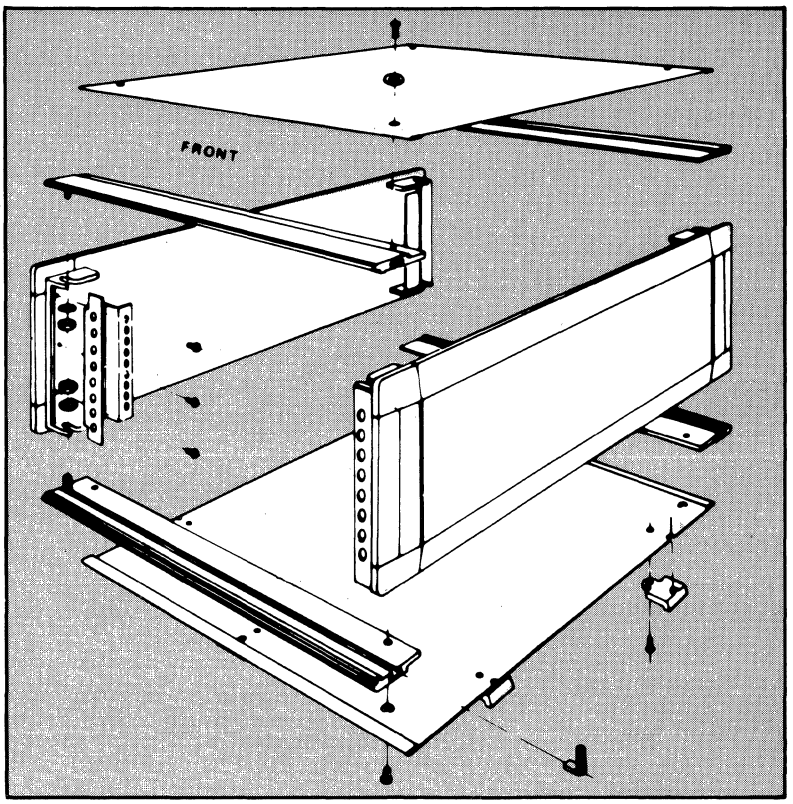
ZERO INSTRUMENT ENCLOSURES

ZERO CORPORATION

ZERO VIP SERIES 19

Zero all-aluminum Series 19 enclosures are engineered for lightness and strength, beauty, and versatility. VIP 19 enclosures combine functional design with precision engineering. Components consist of investment castings, extrusions, and specially fabricated aluminum sections.



OPTIONAL ACCESSORIES

Option "F" — Front Panel

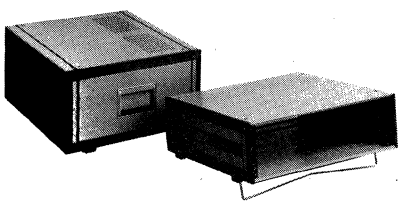
Option "R" — Rear Panel

Option "S" — Chassis Slides

Option "T" — Tilt Stand

Option "U" — Channel Standoff used in conjunction with Option "S" when slide mounting VIP 6-Way into Series 19. Specify depth -1 for 12", -2 for 16" and -3 for 22".

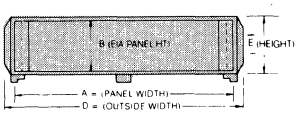
Option "Y" — Rear fan panel Fan will be located at the lower left rear as viewed from the front. Available on models 190517 thru 191225.



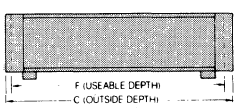
DESCRIPTION/SPECIFICATIONS

All units shipped UNASSEMBLED.

Finish	Textured two-toned blue polyester.
Panels:	
Top & Bottom	Vented on models 7" high and greater.
Side Handles	Strap-type on 5.25" high; Swing-out type on others.
Feet	5, plastic nesting



FRONT VIEW



SIDE VIEW

DIMENSIONS (±0.031") A	B	C	D	E	F	ENCLOSURE NO.	OPTION F & R	OPTION Y	OPTIONAL ACCESSORIES OPTION S	OPTION T	OPTION U
19.00	5.25	17.90	20.04	6.03	17.20	190517-41	ZP112000-CO-.12	ZP20852-13	ZP20498-7	B26217-4	B25778C42 -1, -2, or -3
19.00	7.00	17.90	20.04	7.78	17.20	190717-41-X	ZP112000-DO-.12	ZP20852-43			
19.00	8.75	17.90	20.04	9.53	17.20	190817-41-X	ZP112000-EO-.12	ZP20852-45			
19.00	10.50	17.90	20.04	11.28	17.20	191017-41-X	ZP112000-FO-.12	ZP20852-47			
19.00	12.25	25.90	20.04	13.03	25.20	191225-41-X	ZP112000-GO-.12	ZP20852-49			
19.00	14.00	25.90	20.04	14.78	25.20	191425-41-X	ZP112000-HO-.12	NOT AVAILABLE ON THESE MODELS	ZP20498-15		
19.00	17.50	25.90	20.04	18.28	25.20	191725-41-X	ZP112000-KO-.12				
19.00	21.00	25.90	20.04	21.78	25.20	192125-41-X	ZP112000-MO-.12				
19.00	24.50	25.90	20.04	25.28	25.20	192425-41-X	ZP112000-PO-.12				
19.00	28.00	25.90	20.04	28.78	25.20	192825-41-X	ZP112000-SO-.12				

ORDERING INFORMATION

Units can be ordered with accessories by showing the enclosure number followed by the code letter for each option desired;

EXAMPLE 190817-41-X-RST, which specifies the 190817-41-X enclosure with rear panel, 1 pair chassis slides and tilt stand.

SHIPMENT: 2 WEEKS A.R.O.

NOTE: For models 7" high or greater the top panel is vented at the rear and the bottom panel is vented at the front. Designated by suffix "X".

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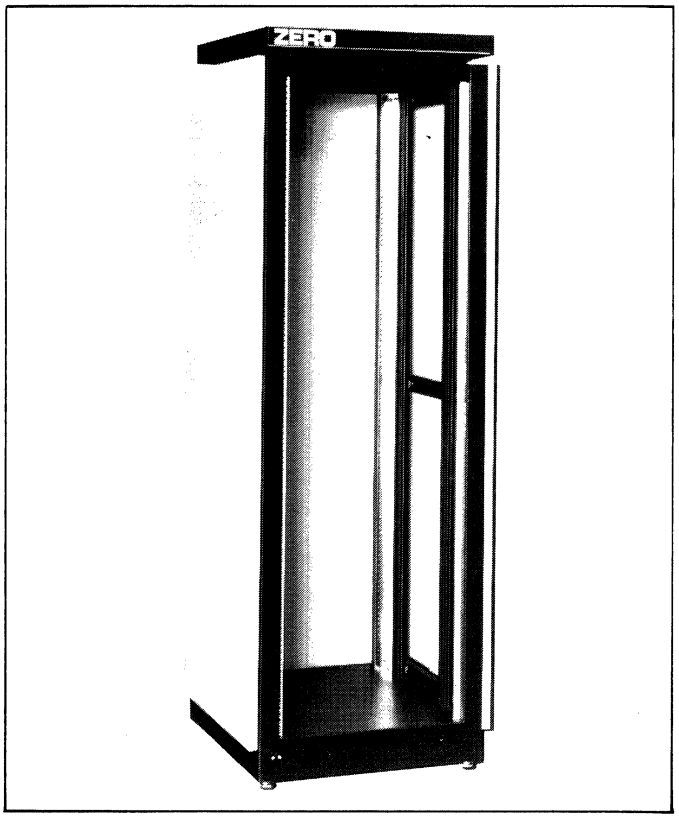
ZERO MATRIX IV SERIES 101 & 404

ZERO STANTRON

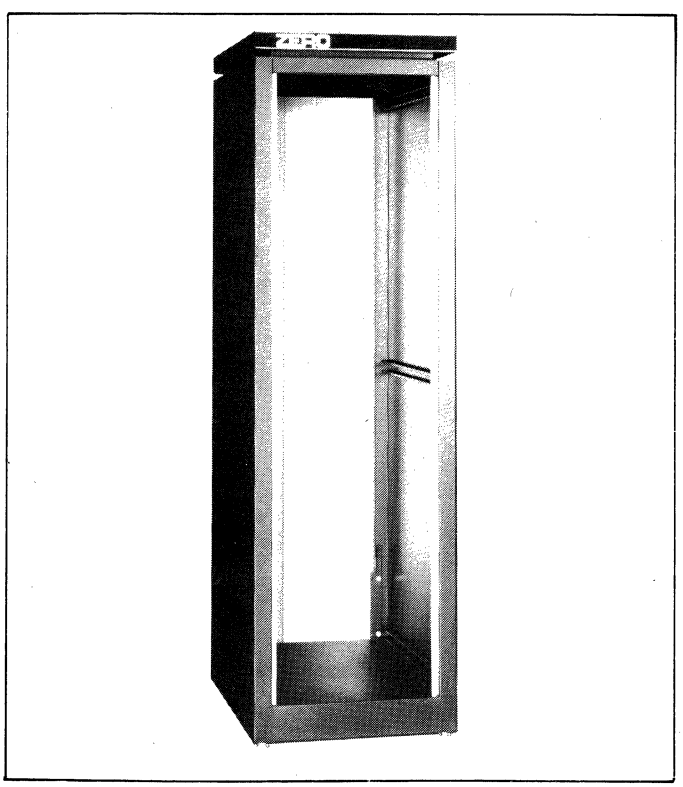
Heavy Duty Commercial Cabinet



Modularized **Series 101** cabinets are the most flexible models in the Matrix IV line. Their wide-open design provides access on both sides, front, and back. Instruments are easy to install and simple to service. Series 101 units are easily expanded from one to two or more bays — you simply bolt them together.

The standard Series 101 includes a basic frame, two lift-off side panels, your choice of a flush or pagoda top, a surface-mounted auxiliary hinged rear door with magnetic latch, four leveling feet, and *two* mounting rails. Extra sets of mounting rails are available as an option.

Side panels and rear doors are painted with a light beige baked, textured finish. Tops and frame are black. Other colors are available on special order.



In quantity orders, **Series 404** is the most economical Matrix IV cabinet and is ideally suited to applications that do not require lateral enclosure access. For high strength and rigidity, the space-saving Series 404 uses side panels that function as stationary frame members.

The standard Series 404 cabinets consist of a basic frame, your choice of a flush or pagoda top, a surface-mounted auxiliary hinged rear door with magnetic latch, four leveling feet, and two mounting rails. Extra sets of mounting rails are available as an option.

Cabinet frame and top are painted black. Rear door is painted with a light beige baked, textured finish. Other colors are available on special order.

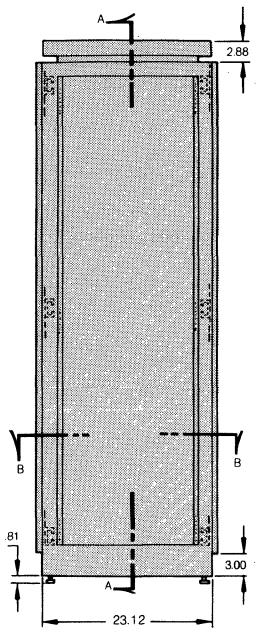
For reference only:
approximate weight:
56″ cabinet 232 lbs.
63″ cabinet 245 lbs.
70″ cabinet 258 lbs.

ZERO STANTRON 777 Front St., Burbank, CA 91502 • (818) 841-1825 FAX (818) 841-8892

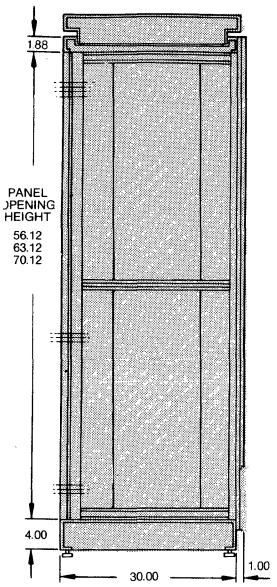
ZERO STANTRON

ZERO MATRIX IV SERIES 101 & 404

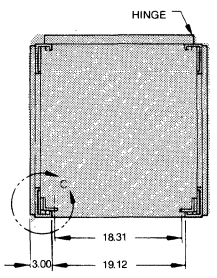
MATRIX IV 101 MECHANICALS



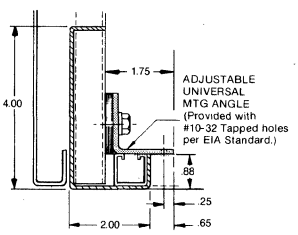
FRONT VIEW



SECTION A-A

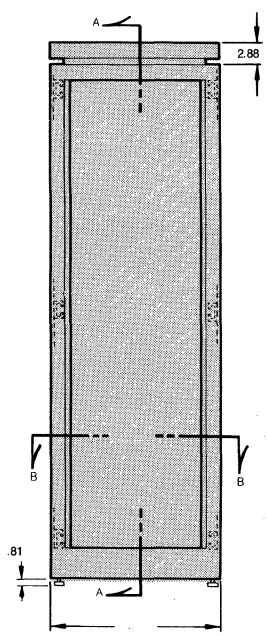


SECTION B-B

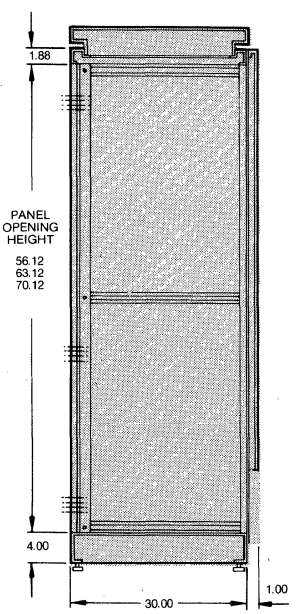


VIEW C

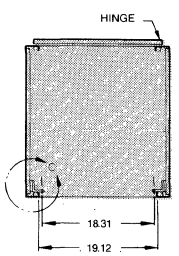
MATRIX IV 404 MECHANICALS



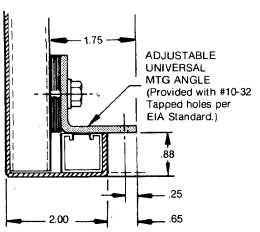
FRONT VIEW



SECTION A-A



SECTION B-B

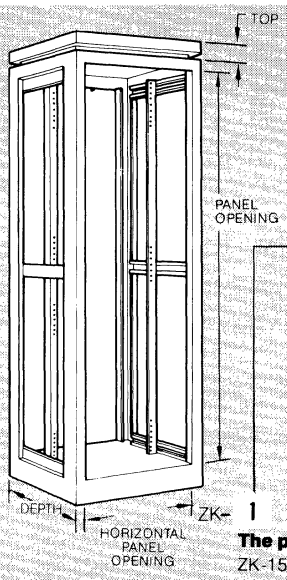


VIEW C

ZERO STANTRON 777 Front St., Burbank, CA 91502 • (818) 841-1825 FAX (818) 841-8892

HOW TO ORDER

Ordering a Zero Matrix IV cabinet is as simple as building a part number. If you need more information or technical assistance, please contact your local Zero representative, or call us.



Example:

If you wanted a Series 101 single bay cabinet with 70.12" panel opening, 19.12" horizontal panel opening, 30" cabinet depth, a solid Pagoda top, casters, vertical trim, identification trim, and two additional mounting angles, you would build the part number this way:

ZERO STANTRON

SERIES
VERTICAL PANEL OPENING
NUMBER OF BAYS
HORIZONTAL PANEL OPENING & DEPTH
TOP STYLE
ACCESSORIES

ZK- 1 5 1 B - T2 - A10 - A7 - A3 - A8

The part number is:
ZK-151 B-T2-A10-A7-A3-A8

Fill in the blanks as shown with the appropriate number or letter for the Matrix IV cabinet you require.

SERIES
101 or 404. Omit last two digits.

VERTICAL PANEL OPENING*
(Use conversion table.)

Order	Panel Opening
3	56.12
4	63.12
5	70.12

NUMBER OF BAYS
(Specify quantity 1, 2, etc.)

HORIZONTAL PANEL OPENING & DEPTH

Order	Panel Opening	Depth
B	19.12	30

TOP STYLE
(See below.)

ACCESSORIES*
(May be any quantity.)

ZK- [ ] [ ] [ ] B - [ ] - A13 - [ ] - [ ] - [ ]

NOTE: Additional sizes and accessories are available with longer lead time, request copy of our full line catalog.

ZERO MATRIX IV SPECIFICATIONS & STANDARD TOPS

Standard Panel Heights:

56.12 in.
63.12 in.
70.12 in.

Standard Panel Width:

19.12 in.

Standard Depth:

30 in.

Materials:

Tops are 20 GA. (0.036) steel. Frames are 16 GA. (0.060) steel. Doors and side panels are 18 GA. (0.047) steel.

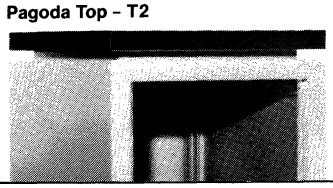
Mounting angles are 11 GA. (0.120) steel. Drilled and tapped for #10-32 screw to E.I.A. Standard hole pattern.

Standard Finish:

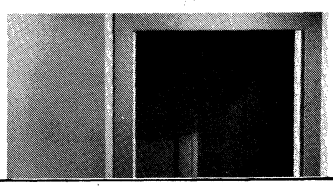
Painted with minimum 2 mils of polyester coating. Hardware, including 10-32 tapped mounting angles, are plated.

Matrix IV cabinets come with your choice of top styles. The flush-mounted top is ideal for applications where overhead clearances may be a problem. Pagoda tops provide an interesting styling alternative and the functional benefits of an integral cooling pattern. (Vent holes on underside.)

Pagoda Top - T2



Flush-Mounted Top - T5



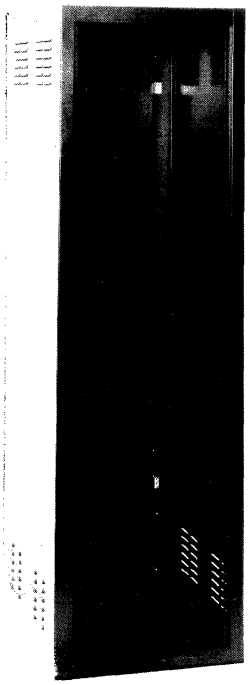
ZERO STRANTON 777 Front St., Burbank, CA 91502 • (818) 841-1825 FAX (818) 841-8892

19" Cabinets for Multi-Rack Configurations.

Exceptional Quality, Affordable Prices & Fast Delivery

ZERO STANTRON FASTRACK

SFRW Series Welded Cabinets & Relay Racks



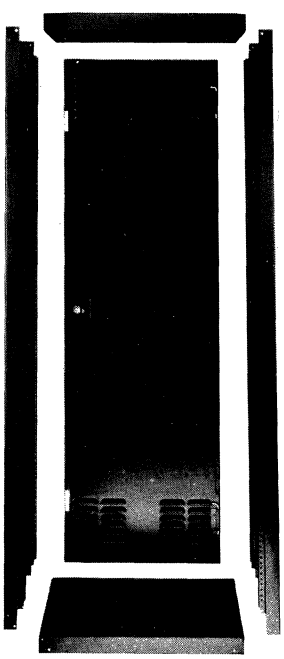
SFRW SERIES

This rugged series offers superior strength in a stylish, solid-side configuration. In addition to louvers in the side panels, the cabinet features a louvered rear door with recessed handle and lock, knockouts in the base and top panel, two pairs of steel mounting rails tapped 10-32, and ample wiring access through its base. An optional front door (plain) is also available.

MODEL NUMBER		CABINET (in inches)			
Base Unit	W/Frt Door	Width	Height	Depth	Panel Ht.
SFRW35-18	SFRW35-D	22 3/8	39 1/16	18 5/8	35 1/16
SFRW35-25		22 3/8	39 1/16	25 5/8	35 1/16
SFRW52-18	SFRW52-D	22 3/8	56 9/16	18 5/8	52 5/16
SFRW52-25		22 3/8	56 9/16	25 5/8	52 5/16
SFRW61-18	SFRW61-D	22 3/8	65 5/16	18 5/8	61 5/16
SFRW61-25		22 3/8	65 5/16	25 5/8	61 5/16
SFRW70-18	SFRW70-D	22 3/8	74 1/16	18 5/8	70 1/16
SFRW70-25		22 3/8	74 1/16	25 5/8	70 1/16
SFRW78-18	SFRW78-D	22 3/8	82 13/16	18 5/8	78 13/16
SFRW78-18		22 3/8	82 13/16	25 5/8	78 13/16

NOTE: All doors are left hand hinged

SFRK Series Unassembled Cabinets & Racks



SFRK SERIES

This low-cost series has the strength of 16 GA. steel construction with the economy of a knock-down rack. Easily assembled with simple hand tools SFRK cabinets are complete with base, top panel, side panels, rear door and two pairs of mounting rails tapped 10-32. The units feature convenient wiring access and conduit knockouts, louvered side panels, a louvered rear door with recessed handles and lock. An optional front door (plain) is also available.

MODEL NUMBER		CABINET (in inches)			
Base Unit	W/Frt Door	Width	Height	Depth	Panel Ht.
SFRK35-18	SFRK35-D	22 3/8	39 1/16	18 5/8	35 1/16
SFRK35-25		22 3/8	39 1/16	25 5/8	35 1/16
SFRK52-18	SFRK52-D	22 3/8	56 9/16	18 5/8	52 5/16
SFRK52-25		22 3/8	56 9/16	25 5/8	52 5/16
SFRK61-18	SFRK61-D	22 3/8	65 5/16	18 5/8	61 5/16
SFRK61-25		22 3/8	65 5/16	25 5/8	61 5/16
SFRK70-18	SFRK70-D	22 3/8	74 1/16	18 5/8	70 1/16
SFRK70-25		22 3/8	74 1/16	25 5/8	70 1/16
SFRK78-18	SFRK78-D	22 3/8	82 13/16	18 5/8	78 13/16
SFRK78-25		22 3/8	82 13/16	25 5/8	78 13/16

NOTE: All doors are left hand hinged

777 FRONT ST., BURBANK, CA 91502 (818) 841-1825 FAX (818) 841-8892

ZERO STANTRON

micro-circuits

ELECTRICALLY CONDUCTIVE SHIELDING, RESISTOR, AND ANTI-STATIC COATINGS

For Research and Production in: Electronics, Medicine, Aerospace, Electro-Mechanics, Communications

CONDUCTIVE COATINGS SELECTOR TABLE

Conductive paint catalog numbers See descriptions below.	Most Frequent Uses							
	Gold Replace-ment	Surface Mounting	RF Shield	Aircraft Precip. Static	Membrane Switches	Static Shield	Anti-static Flooring	Sensors: Stretch, Bend, Timing
NR2HF			√		√	√		√
4c series	√	√						
CPA series	√	√						
RSE100				√		√	√	
RA2			√	√		√	√	
SC12, 13, 15, 20					√	√		√
RS17 series			√			√	√	√
RSE22			√				√	√

DESCRIPTIONS OF PAINTS LISTED ABOVE

4c SERIES OF GOLD CONTACT REPLACEMENTS

May be carried as a shirt pocket kit for field repair of worn or defective gold plated contacts or to upgrade base metal contacts. It is applied in seconds as part of normal trouble shooting procedure. Each $83, shirt pocket kit for electronic field service representatives can save over $3520 in reduced board float, call-backs, and preventative maintenance.

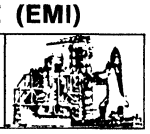
May also be applied on original equipment contacts by production methods. There is no need for electroplating equipment, chemical disposal, or product design changes except for the elimination of gold plating and the substitution of a 4c material by far simpler application methods which may include brushing, dipping, spraying, or banding. Even electronic and electrical battery-operated games and toys can have the dependability of gold without the cost.

These 4c gold substitutes offer one of the most effective technologies available to increase reliability in two areas: A — Reducing the cost and consumer irritation of servicing the millions of your products already in the field, and, B — By adding them to your future production, assure maximum reliability and the reputation that results from reduced manufacturing costs and reduced field repairs. FREE DATA

SHIELDING LARGE STRUCTURES FROM ELECTROMAGNETIC INTERFERENCE (EMI)

New Shielding Method:
Reduces cost up to 80%
Reduces time 90% to 95%
Simplifies planning
Stands rough treatment

NR2HF is in the space program



The WORRY-FREE shielding for a building, a cabinet, or a phonograph cartridge.

The new NR2HF synthetic rubber shielding combines the three KEY advantages of, 1 — Fast, low cost application by painting, 2 — Very high shielding effectiveness (up to 90 dB) and, 3 — Ability to survive warping, building settling, vibration, and shock that would crack prevous shielding paint or open the seams of metal enclosures. It is INSURANCE against FUTURE problems. Applied quickly in production or in the field by spray, roller, brush, or dip. Samples available to shielding consultants and to potential shielding users. FREE DATA

CPA SERIES OF CONDUCTIVE ADHESIVES

These new circuit assembly materials provide a fundamentally new approach to simplifying a wide range of electrical connections such as surface mounted components, simplified connectors, and elimination of mechanical fasteners. For example, a pocket radio or TV set or wrist watch or washing machine or auto dash board circuitry can be designed to be assembled with far fewer parts and assembly operations. Surface mounted circuit board manufacture using the new Micro-Circuits assembly methods eliminates seven out of eight major items of assembly equipment and 57 of the 72 areas of cost that now limit acceptance of surface mounting. Like the 4c materials above, these products offer one of the most powerful new technologies now available for simplifying and miniaturizing electronic products. FREE DATA

AIRCRAFT ANTISTATIC AND RAIN EROSION RESISTANT PAINT

RSE100 paint is used for radomes and antenna covers. Used world-wide for over 20 years. One of our most goof-proof products. May be overcoated with decorative aircraft paints if our RA2 Antistatic Additive is mixed into the decorative paint to prevent static puncture damage and loss of antistatic effectiveness. RSE100 is very abrasion and chemical resistant as an antistatic flooring. May be overcoated with conventional floor coatings containing RA2 Antistatic Additive. RSE22 is similar to RSE100 but has a resistance of less than 200 ohms for shielding, ground planes on boat hulls, etc. FREE DATA

STATIC ELECTRICITY PROTECTION

Static electricity protection is becoming critically important in sensitive equipment, computer rooms, electronic warehouses, assembly lines and assembly benches, many hospital areas, chemical processing plants, and similar areas. The RSE100 Antistatic paint (see above) may be used on floors, walls, tables, furniture, etc. The RA2 Antistatic Additive (see above) permits the use of decorative, protective, and color-coding where such paints would previously have caused static problems. FREE DATA

SC12, SC13. SC20, AND SC15 SILVER PAINTS

These are conductive silver paints and inks used to form "wires", electromagnetic shielding, cold soldering of fine wires, reversing contacts on recording tape, conductive areas on paper and plastic parts, adjusting resistors, coils, capacitors, and pots. They have been used by magicians and to indicate fracture of rocks and aircraft parts. SC20 is for human skin electrodes. FREE DATA

micro-circuits co., inc.
10800 MAUDLIN ROAD, NEW BUFFALO, MI 49117 • (616) 469-2744 • FAX NO.: (616) 469-2742

NYE Designer Lubricants ELECTRIC CONTACT LUBRICANTS NYE Designer Lubricants

Lubricants are insulators. When one is faced with the need to lubricate an electrical contact, a first reaction might be that an electrically conductive material is needed. This is not the case. The thin films in which contact lubricants do their job leave plenty of room for metal-to-metal contact and current flow; or, if a lube film remains, it is sufficiently thin that current can be transmitted by a phenomenon called the "tunnel effect."

Switch Contact Greases

Greases for lubrication of sliding electrical contacts, as in electric switches, should have the same qualities as required for straightforward mechanical sliding: good film strength, appropriate high and low temperature fluid range and 'stay-in-place' capability. These greases are relatively 'additive-clean' to simplify the chemistry of grease degradation, which will inevitably occur if there is arcing in the lubricant's presence. Butt contacts, where no sliding takes place, are best left unlubricated.

Product	Temperature Range, °F	Characteristics
Rheolube 362	-65 to 250	Light, synthetic hydrocarbon-based grease for wide temperature applications.
NyoGel® 782D	-10 to 200	Non-melting polyether gel which degrades to volatiles with arcing.
Instrument Grease 737	-65 to 225	Light, synthetic hydrocarbon-grease for automotive instrumentation. Resists salt-water.
Rheolube 789DM	-40 to 300	Non-melting, polyol ester-based grease for higher temperature switch needs.
NyoGel® 760D	-20 to 250	Synthetic hydrocarbon-based heavy gel for distribution switchgear.

Potentiometer Lubricants

A potentiometer is a variable resistor, usually with low voltage and very low current; arcing is not likely. A sliding electrical contact is inherently involved. Oils and light greases based on synthetic esters have shown good performance, especially in wire-wound potentiometers. With many newer designs, using unusual material combinations, such as metal wipers on a conductive plastic or ceramic-metal matrix, special silicone formulations have provided the only workable solutions, especially when very low or very high operating temperatures are encountered.

Product	Temperature Range, °F	Characteristics
Synthetic Oil 203	-65 to 250	Polyol ester contact oil with additives for wire-wound pots.
Fluoroether Grease 833B	-40 to 300	Wide temperature fluoroalkyl polyether grease with resistance to fuels and solvents.
Rheolube 799	-65 to 250	Light polyol ester-based grease with lubricity additives.
Fluorocarbon Gel 813	-100 to 400	Soft, non-melting silicone grease for extreme temperature needs.

Electrical Connector Lubricants

For stationary separable electric contacts, or connectors, the purpose of a lubricant is to reduce wear from repeated insertions and withdrawals and, equally important, to prevent tarnish of a pollution-vulnerable contact surface. Heavy oils applied from dilute solutions in selected solvents are used on noble-metal connectors. Where fretting corrosion occurs, as may happen with tin-lead, a relatively thick film of thixotropic grease has proved useful. The 500-series products listed below are applied from volatile solvent dispersions.

Product	Characteristics
NyeTact 512	Complex formulation for porous gold contacts to prevent substrate corrosion.
Synthetic Oil 438 Synthetic Oil 439	5-Ring and 6-Ring polyphenyl ether oils each available in a variety of dispersions.
Synthetic Oil 174A NyeTact 517	Oil/solvent dispersion based on synthetic hydrocarbons providing thin protective film.
NyoGel® 759G NyeTact 502	Soft, thixotropic synthetic grease/dispersion for tin-lead/fretting corrosion problems.

Damping Greases

"Controlled-shear" gels or damping greases are frequently used to reduce free motion and to quiet operating noise of loosely-fitting components in electro-mechanical devices, including the mechanical elements of electrical switches and potentiometers. These greases work as "motion-control compounds" where damping of free motion is needed. They have proved especially useful on the shafts of hand-operated potentiometers where they can provide a "velvet feel" and can eliminate coasting. They are all tacky or adhesive to a greater or lesser degree.

NyeBar® Barrier Films to prevent oil creep

Certain types of electrical contacts must be protected from lubricant films. Examples are the relay contacts of telephone systems or butt contacts where no sliding occurs during actuation. The NyeBar barrier films are fluorinated polymers applied from very dilute solvent solutions which, by covering a surface with an ultra-thin film of extremely low surface energy, can render that surface non-wettable by oils or other fluids. Oil creep from nearby lubricated areas can be controlled or eliminated. Current flow and signal integrity are not affected by the presence of a very thin NyeBar film.

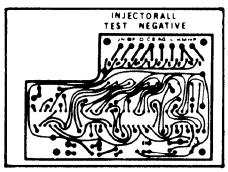
Send details of your product application and a sample of a recommended lubricant will be sent at no charge. Write for Nye's 12-page summary catalog describing specialty products for electrical contacts.

NYE® Designer Lubricants
William F. Nye, Inc.
P.O. Box G-927, New Bedford, MA 02742-0927
Tel: (508) 996-6721 Telex: 940807
Facsimile: (508) 997-5285

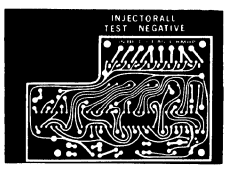
QUALITY PRODUCTS FOR PROFESSIONAL RESULTS

INJECTORALL

COPPER CLAD LAMINATES



POSITIVE ARTWORK



NEGATIVE ARTWORK

Copper clad laminates available as:
1. Uncoated;
2. Negative resist coating; or
3. Positive resist coating.

WE ARE AFFILIATED WITH A QUALITY PC HOUSE FOR PROTOTYPES AND SMALL TO LARGE RUNS AS WELL AS MULTI-LAYER BOARDS.

UNCOATED

Size	Copper Thickness	CEM Cat. Nos. 1 side	CEM Cat. Nos. 2 sides	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	CEM Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides
3 × 4½	1 oz.	PC1-CEM	PC9-CEM	PC5	PC40	2 oz.	PC5-CEM	PC9	PC51	1 oz.	PC55	PC44	½ oz.	PC70	PC74
*4½ × 6½	1/16″	—	—	PC6A	PC41A	1/16″	—	—	—	1/32″	—	—	1/16″	—	—
4 × 6″		PC2-CEM	PC10-CEM	PC6	PC41		PC6-CEM	PC10	PC52		PC56	PC45		PC71	PC75
6 × 9		PC3-CEM	PC11-CEM	PC7	PC42		PC7-CEM	PC11	PC53		PC57	PC46		PC72	PC76
*4½ × 9½″		—	—	PC6B	PC41B		—	—	—		—	—		—	—
12 × 18		PC4-CEM	PC12-CEM	PC8	PC43		PC8-CEM	PC12	PC54		PC58	PC47		PC73	PC77
24 × 36		PC4-CEM-1	PC12-CEM-1	PC8-1	PC43-1		PC8-CEM-1	PC12-1	PC54-1		PC58-1	PC47-1		PC73-1	PC77-1
36 × 48		PC4-CEM-2	PC12-CEM-2	PC8-2	PC43-2		PC8-CEM-2	PC12-2	PC54-2		PC58-2	PC47-2		PC73-2	PC77-2

DRY FILM — NEGATIVE RESIST BOARDS (BLACK BAG—GREEN HEADER) USE WITH INJECTORALL D1 DEVELOPER

3 × 4½	1 oz.	PC1-CEMF	PC9-CEMF	PC17F	PC40F	2 oz.	PC5-CEMF	PC9F	PC51F	1 oz.	PC55F	PC44F	½ oz.	PC70F	PC74F
*4½ × 6½	1/16″	—	—	PC6AF	PC41AF	1/16″	—	—	—	1/32″	—	—	1/16″	—	—
4 × 6		PC2-CEMF	PC10-CEMF	PC18F	PC41F		PC6-CEMF	PC10F	PC52F		PC56F	PC45F		PC71F	PC75F
6 × 9		PC3-CEMF	PC11-CEMF	PC19F	PC42F		PC7-CEMF	PC11F	PC53F		PC57F	PC46F		PC72F	PC76F
*4½″ × 9½″		—	—	PC6BF	PC41BF		—	—	—		—	—		—	—
12 × 18″		PC4-CEMF	PC12-CEMF	PC19AF	PC43F		PC8-CEMF	PC12F	PC54F		PC58F	PC47F		PC73F	PC77F

POSITIVE RESIST BOARDS (BLACK BAG—BLUE HEADER) USE WITH INJECTORALL D3 DEVELOPER

3 × 4½	1 oz.	PC1-CEMP	PC9-CEMP	PC17P	PC40P	2 oz.	PC5-CEMP	PC9P	PC51P	1 oz.	PC55P	PC44P	½ oz.	PC70P	PC74P
*4½ × 6½	1/16″	—	—	PC6AP	PC41AP	1/16″	—	—	—	1/32″	—	—	1/16″	—	—
4 × 6		PC2-CEMP	PC10-CEMP	PC18P	PC41P		PC6-CEMP	PC10P	PC52P		PC56P	PC45P		PC71P	PC75P
6 × 9		PC3-CEMP	PC11-CEMP	PC19P	PC42P		PC7-CEMP	PC11P	PC53P		PC57P	PC46P		PC72P	PC76P
*4½ × 9½″		—	—	PC6BP	PC41BP		—	—	—		—	—		—	—
12 × 18″		PC4-CEMP	PC12-CEMP	PC19AP	PC43P		PC8-CEMP	PC12P	PC54P		PC58P	PC47P		PC73P	PC77P

***NOTCHED TO FIT 22/44 CARD EDGE CONNECTOR. NOTCHED BOARDS AVAILABLE IN ANY SIZE.**

Special cuts available in sensitized boards to 12″ x 18″, non-sensitized boards available to 36″ x 48″. There is no charge for special cuts. Please specify coating and type from above chart. **Perforated breadboards available in various sizes and patterns: .042, .062, .093.**

ELECTRONIC CHEMICALS

For the preparation and preservation of your PC Boards and Electronic Devices.

COMPUTER CLEANER - NO CFCs
CONTACT CLEANERS
CONFORMAL COATINGS-NO CFCs
DEGREASERS
DEVELOPERS
ETCHANT
FREEZER SPRAYS
PLOTTER PEN RESIST INK AND SOLVENT
RESIST INK PENS- fine, med., extra fine
STRIPPERS

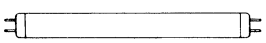
CIRCUIT BOARD DRILL BITS

Specially designed for smooth, burr-free drilling in printed circuit boards. Made of high speed tool steel or CARBIDE.

Drill Bit	Diameter	
69	.029	No. PC300-69 10 pcs. of #69
66	.033	No. PC300-66 10 pcs. of #66
60	.040	No. PC300-60 10 pcs. of #60
55	.052	No. PC300-55 10 pcs. of #55
52	.062	No. PC300-52 10 pcs. of #52
No. PC300-Kit		5 bits (1 of each)

For CARBIDE BITS add a "C" to the catalog # i.e.PC300C-69 (1 of each)

NEW **No. PC557F ULTRAVIOLET LIGHT SOURCE**



Use to expose positive or negative sensitized material. 15W 18″ bi-pin

TAPE HEAD CLEANING STICKS AND CLEANERS For Tape Recorder Heads

TAPE HEAD CLEANING STICKS are 6 inch cotton-tipped wooden swabs. They are excellent to reach dirty recorder heads without taking the tape recorder apart. Packed 100 on a hanging package.

No. 255 Cotton Tip 6″ wooden handle
No. 257 Foam Tip 4" poly handle
BULK PACKS AVAILABLE

TAPE HEAD CLEANER #250-2 2 oz. btl.
DRIVE WHEEL CLEANER #251-2 2 oz. btl.

KIT 551

Photo reversing kit produces professional positives or negatives: 3 sheets 4″ × 6″ film, developer, fixer, toner, 75W black light bulb and instructions.
NEW CLEAR FILM

KIT 650

Photo-etch kit using boards with negative DRY FILM resist: 2-3″ × 4″ neg. sensitized single side boards, exposure glass, tray, chemicals, drill bit, spring clips and complete instructions and exposure lamp.

NEW KIT 750

Photo-etch kit using 2 sided boards with either negative Dry Film or Positive Acting Resist. Specify 750F or 750P. Contains: 2- 3x4"sens. boards, exposure glass, spring clips, chemicals, exposure lamp, drill bit, and more. Complete instructions.

KIT 850

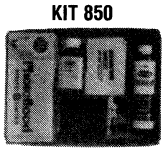


Photo-etch kit using boards with positive resist: 2-3″ × 4″ pos. sensitized single side boards, glass, tray, pen, art aids, chemicals, clips, drill bit, exposure lamp and complete instructions.

NEW

atc TIMERS

TIMERS, TIME DELAY RELAYS, COUNTERS, PHOTO-ELECTRIC CONTROLS, & PROGRAMMABLE CONTROLLERS.

These products are used in hundreds of industries for high accuracy timing and counting with multi-functional programmable timing controls.

DRAFTING AIDS

PC22

DRAFTING TAPE

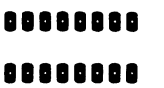
648" rolls of etch resist tape in widths of: .031, .040, .062, .080, .093, .125, .156, .200 and .250 inches. Pressure sensitive.

PC23

DONUT TERMINAL PADS

Pressure sensitive, etch resistant in sizes from .062″ with .031 hole up to .500″ with .062″ hole in ten sizes. Pkgs of 40, 250 or 1000 depending on size.

PC28



DUAL IN-LINES

Pressure sensitive, .002″ accuracy. 1:1 and 2:1 ratio. Pin pads: 8, 14, 16, 18, 20, 22, 24, 28 and 40. Pkgs. of 8 or 100.

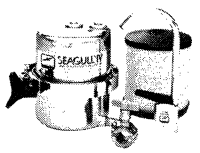
SUPER JET AIR - COMPUTER CLEANER

NEW-ENVIRONMENTALLY SAFER
Aerosol Dust Remover **No CFCs**

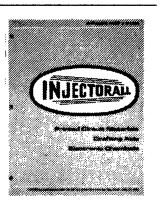
SUPER JET AIR is a pressurized chemical at 120 PSI which is used for blowing dust, lint and dirt from electronic instruments as well as projection and camera lenses. It is ideal to use in computers and other precision instruments where a moisture and lint free dust remover is necessary. Replaces the use of a brush or cloth which may disturb circuitry or break fine wiring. NEW VARIABLE SPEED TRIGGER CONTROL.

SUPER JET AIR
No. 9 E 10 oz. spray can

HEALTH AND SAFETY



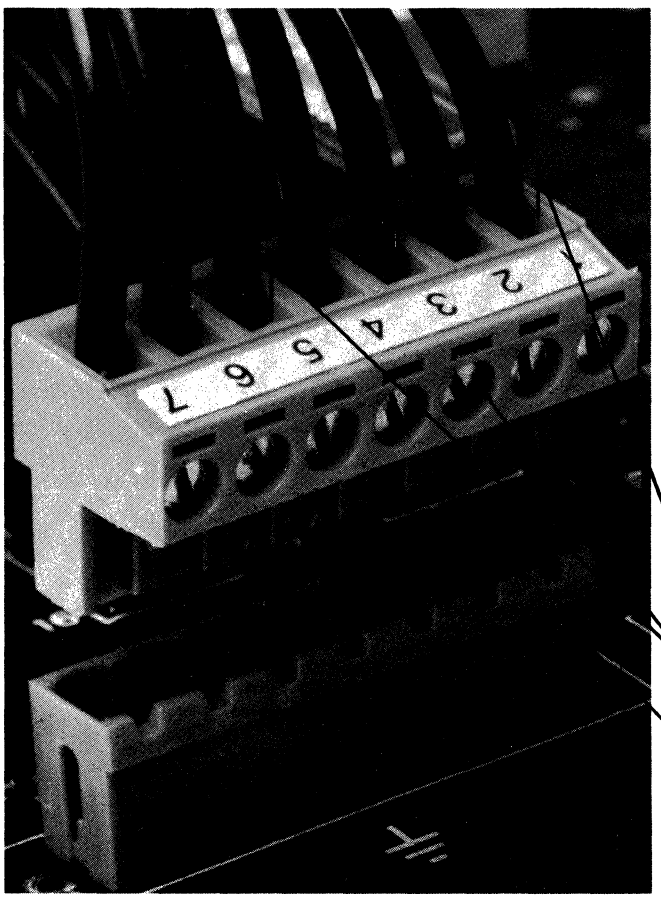
WATER PURIFIERS & REPLACEMENT FILTERS
NITRILE & NYLON GLOVES
ORGANIC VAPOR MASKS
TYVEK JUMPSUITS
ALL NATURAL PET FOODS



SEND FOR FREE ADDITIONAL INFORMATION FOR OTHER INJECTORALL QUALITY PRODUCTS

INJECTORALL ELECTRONICS CORP. • 110 KEYLAND COURT • BOHEMIA, NY 11716 • (516) 563-3388 • FAX: 516-563-3389
Woman Owned Small Business

Practical...Logical...PLUGGABLE



Altech's two-piece, pluggable printed circuit board terminal blocks speed and simplify the process of board replacement, reducing costly downtime and eliminating wiring mistakes. One-piece precision molded construction with high mechanical strength, and a double beam contact design ensure the highest possible number of mating cycles and minimum contact resistance.

Our pluggables are readily compatible with other industry-standard plug and header designs and meet worldwide standards. They are available with 2 to 24 pole configurations and have received electrical ratings of 300V, 15A, 22-12 AWG.

Altech's Pluggable Terminal Blocks ensure a reliable connection...every time.

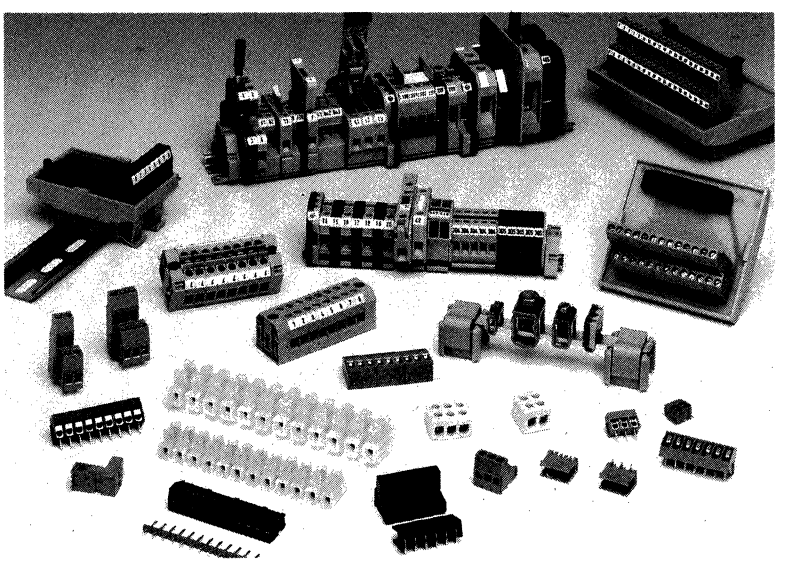
Funnel shaped entry guides facilitate connection of stranded wires.

Screw-cage clamp provides gas-tight, vibration-proof wire connection.

Closed-end headers eliminate possible damage and short circuits due to misplugging.

A system to connect to

Altech's industry standard terminal blocks deliver high density, dead-front safety and increased flexibility to make your product more competitive. Our comprehensive terminal block line includes fixed and pluggable printed circuit board mini-terminals, DIN rail and modular panel mount blocks, tubular screw Eurostrips, interface and electronic modules and terminal block accessories. If you are seeking the optimum solution for your wire termination requirements, give Altech a try.



Altech Corp.

Altech Corp.
120 Old Camplain Road
Somerville, NJ 08876-4228
Tel: (908) 707-8484 • FAX: (908) 707-4455

Information on our Terminal Blocks can be found on the following EEM pages.

Altech Terminal Blocks	C•1164	Interface & Electronic Modules	C•1170
Pluggable Terminal Blocks	C•1165	Panel Mount Terminal Blocks	C•1170
Fixed Terminal Blocks	C•1167	Eurostrips	C•1171
DIN Rail Mt Terminal Blocks	C•1169		

SOCKETS

Manufacturer	Starting EEM Page No.	IC	DIP/ SIP	Pin Grid Array	Carrier	Tran-sistor	Crystal	Battery/ Lamp	Relay	Tube	Test	Adapter
ABL Electronic Supply Inc.	C•1155		√								√	√
Amp Inc.	C•1173	√	√	√	√						√	
Andon Electronics Corp.	C•1274	√	√	√	√							
Aries Electronics	C•1281	√	√	√	√	√					√	√
Augat Inc.	C•1290	√	√	√	√							
Connector Corp.	C•1326					√	√	√	√	√	√	√
Die-Tech Inc.	C•1347	√			√	√						
Elastomeric Technologies	C•1357	√			√						√	
Emulation Technology Inc.	C•1358	√	√	√							√	√
E-Z Hook	C•1364	√	√								√	√
Fujipoly	C•1375							√				
Globtek Inc.	C•1386								√			√
Grayhill	C•1387					√		√				
Hirose Electric U.S.A.	C•1394	√	√	√	√	√						
ISL Products International	C•1399	√				√	√	√	√	√		
JAE Industries	C•1400	√	√	√	√							
Jettron Products	C•1404									√	√	
J.H. America	C•1406				√							
Jolo Industries Inc.	C•1408	√	√									
Kycon Cable & Conn.	C•1422	√		√	√							
LZR Electronics Inc.	C•1446				√							
3M Electronic Products	C•1463	√	√	√	√						√	
McKenzie Technology	C•1467	√	√	√	√	√	√				√	√
Mill Max	C•1473	√	√	√	√	√			√			√
Multi-Contact U.S.A.	C•1475										√	√
Oxley Inc.	C•1479										√	
Panel Components	C•1484										√	
Pomona Electronics	C•1493	√			√						√	√
Schurter, Inc.	C•1516										√	
Shogyo International	C•1523							√				
Specialty Electronics	C•1526							√				
Texas Instruments	C•1550	√	√								√	
US Terminals, Inc.	C•1563		√			√	√					

TERMINALS, TERMINAL BOARDS, BLOCKS, ETC.

Manufacturer	Starting EEM Page No.	Barrier Blocks	Terminal Boards	Terminal Strips	Terminals								
					Feed-thru	Lug	PCB	Standoff	Threaded	Wire-wrap	Solder-less	Push-on/ Quick Disconn.	Turret
ABL Electronic Supply Inc.	C•1155						√						
Airborn Inc.	C•1160									√	√		
Altech Corp.	C•1164		√	√	√		√	√	√		√	√	
Amp Inc.	C•1173	√			√	√	√				√	√	
Andon Electronics Corp.	C•1274				√		√	√	√	√		√	√
Beau Products Div.	C•1292	√	√	√									
Buchanan	C•1307	√		√			√					√	
Concord Electronics	C•1324	√	√	√	√	√		√	√		√		
Connector Corp.	C•1326		√									√	
E.I. Dupont Corp.	C•1350						√					√	
Elastomeric Technology	C•1357						√						
Electronic Precision Technology	C•1359											√	
E-Z Hook	C•1364		√				√	√		√	√	√	
Globtek Inc.	C•1386	√	√				√				√	√	
Hiram Jones	C•1388				√		√	√	√				√
Hirose Electric U.S.A.	C•1394				√	√	√					√	
ISL Products International	C•1399	√	√	√									
Jolo Industries Inc.	C•1408	√		√			√						
JST Corp.	C•1411					√	√				√	√	
Lemo USA	C•1426											√	
LMI Connectors	C•1442	√	√	√	√	√	√			√	√	√	
3M Electronic Products	C•1463		√	√			√						
Mill Max	C•1473						√			√			√
Multi-Contact U.S.A.	C•1475						√					√	
Oxley nc.	C•1479				√		√	√					√
Panduit	C•1480									√			
Schurter	C•1516	√											
Shogyo International Corp.	C•1523		√	√								√	
U.S. Terminals	C•1563				√	√	√	√	√				√
Weco Electrical Connectors	C•1568	√		√	√		√					√	
Weidmuller Inc.	C•1578	√			√		√						

CONNECTORS, CABLE-TO-CABLE/PANEL

Manufacturer	Starting EEM Page No.	Series/ Model No.	Type Connector					Con-nection		No. Conductors		Angle		Special Features
			Cir-cular	Coax/ Triax	Flat Cable	Rect-an-gular	D-Sub-min-iature	Sol-der	Sol-der-less	Single	Mul-ti	Right Angle	Par-allel	
ABL Electronic Supply	C•1155			√	√			√	√	√	√	√	√	
Airborn, Inc.	C•1160				√		√	√						Microminiature, High density
Alden Products Co.	C•1161	9000, V1 Series	√							√	√		√	High voltage, high current, environmentally sealed, user friendly, quick locking, custom designs
AMP	C•1173		√	√	√	√	√	√	√	√	√	√	√	
Aries Electronic	C•1281				√		√	√	√		√	√		
BTC Elctrn. Comps.	C•1296		√				√	√						Hermetic
Circuit Assembly	C•1316	NFH & NFHR			√			√				√	√	High density board mount plug mates with 10C type socket (NFS) latch/ejectors permit easy removal of mating sockets.
					√				√		√			Mates with .025 inch conductor, center flat ribbon cable, high density mass termination
		NFT			√				√					Mass terminates with .025 inch conductor center ribbon cable. Direct termination with PCB.
		NFHL & NFHLR						√				√	√	Mates with high density board mount socket (NFVS). Typically reduces board space by half .050 grid.
		NFVS						√					√	Mates with high density header on .050 grid (NFHL)
Connector Corp.	C•1326		√					√	√	√	√	√	√	
Connectronics Corp.	C•1328		√	√	√	√		√	√	√	√	√	√	High Voltage, Corona Free, High Current, Radiation Resistant, Underwater, High Altitude, Design to Application, Molded "To" Wire/Cable
CW Industries	C•1332						√		√		√	√	√	
Dale Elect.	C•1334					√	√	√	√			√	√	
DDK Electronics	C•1337	Various	√		√	√		√			√	√	√	MIL-C-5015; Ribbon
Elastomeric Technologies	C•1357				√				√		√	√	√	Herm. sealed, Envrnmt. resist., High density
Electronic Precison Technology	C•1359	DIN			√			√	√					
Fischer-Connector, Inc	C•1365	101-107	√	√				√	√	√	√	√	√	Environmentally sealed also available - High volts, high current, high radiation, and capable of being sterilized.
Fox Conn International	C•1372		√	√		√	√	√	√	√	√	√		Filters are installed in connectors
Fujipoly	C•1375								√					
Fujitsu Microelectronics	C•1380				√		√			√	√	√	√	
Globtek Inc.	C•1386	EL	√		√		√	√	√	√	√	√	√	
Hirose Electric USA	C•1394		√	√	√	√	√	√	√	√	√	√	√	High density, SMT, Fiber optics
Richard Hirshman of America	C•1398		√					√			√	√		Locking connectors, water tight, miniature
ISL Products Int'l Ltd.	C•1399		√	√	√	√	√	√	√	√	√	√	√	
JAE Electronics Inc.	C•1400		√		√	√	√	√	√	√	√	√	√	
J.H. America	C•1406	FC/EC/D			√		√	√	√	√	√	√	√	
JST Corp.	C•1411	Various	√		√		√	√	√	√	√	√		
Kycon Cable and Conn.	C•1422						√							
L-Com	C•1424			√		√					√			
Lemo USA Inc.	C•1426		√	√				√	√	√	√	√		
LMI Connectors	C•1442								√	√	√	√	√	
LZR Electronics Inc.	C•1446		√	√	√		√	√	√	√	√	√	√	Locking type
3M Electronic Prod. Div.	C•1463		√		√	√	√	√	√		√	√	√	High density, Hi Rel., Locking
Metuchen Capacitors Inc.	C•1468	All		√	√		√	√	√		√	√	√	Locking Inserts, EMI filtered
Molex Inc.	C•1474			√	√		√		√	√	√	√	√	I/O conn. systems, SMT components, D-Submin. conn. PC interconn. syst., Dense packaging syst., Telephone conn. products, Fiber Optics
Multi-Contact USA	C•1475		√					√	√			√	√	Hi-Rel, Power, Locking
Oxley Inc.	C•1479							√		√				
Panduit Corp.	C•1480			√	√	√	√				√	√	√	Hi density, Hi Rel, Locking

* MIL Spec.

CONNECTORS, CABLE-TO-CABLE/PANEL (con't.)

Manufacturer	Starting EEM Page No.	Series/ Model No.	Type Connector: Circular	Coax/ Triax	Flat Cable	Rectangular	D-Sub-miniature	Connection: Solder	Solderless	No. Conductors: Single	Multi	Angle: Right Angle	Parallel	Special Features
Preh Electronic Industries	C•1508		√					√	√		√	√		
RDI Electronics	C•1510				√		√	√		√	√	√	√	
Rowe Industries Inc.	C•1513	RMC	√						√		√	√		High voltage applications
Schurter Inc.	C•1516					√		√	√			√	√	
Shin-Etsu Polymer America	C•1521							√			√			
Shogyo Int'l Corp.	C•1523		√	√	√	√	√	√	√	√	√	√	√	
Stewart Connector Sys.	C•1533								√		√	√	√	Modular plugs & PCB jacks; shielded and non-shielded
Superior Electric	C•1537	Supercon	√					√	√	√			√	
Switchcraft	C•1538		√									√	√	European AC receptacles, Surface mounting, Thru-panel mounting, PC board mounting
Texas Instruments	C•1550					√	√	√			√	√	√	Hi-Rel
Trompeter Electronics	C•1556			√				√	√		√	√		
U.S. Terminals	C•1563		√	√			√	√		√	√	√	√	
Virginia Plastics Co.	C•1564	DT & SP			√				√		√	√		Locking Profile, Female connector
Weidmuller	C•1578	Interface Modules			√		√			√	√	√	√	Connect discrete wires to D-Sub or IDC connectors, or relay sockets

* MIL Spec.

CONNECTORS, RACK AND PANEL

Manufacturer	Starting EEM Page No.	Series/Model No.	Contact: Pin	Contact: Cantilever	Two Piece II Mating	Special Features: Crimp	Wire-wrap	DIP Solder	Cup/Eye Solder	Locking	Heads	Jack Screw	Hi Rel/ Mil.
Airborn, Inc.	C•1160		√			√	√	√	√				√
Amp Inc.	C•1173		√	√	√	√	√	√	√	√		√	√
Connectronics Corp.	C•1328								√			√	
Dale Electronics	C•1334		√	√			√	√					
DDK Electronics	C•1337			√				√	√				
E.I. Du Pont Co.	C•1350	Various	√			√				√			√
Electronic Precision Technology	C•1359	DIN					√	√	√				
Fujipoly	C•1375		√		√								
Globtek Inc.	C•1386	PX	√										
Hirose Electric U.S.A.	C•1394		√	√		√	√	√	√	√	√	√	
JAE Electronics Inc.	C•1400		√		√	√							
J.H. America	C•1406		√				√	√		√		√	
Kycon	C•1422	K22/K44 K85 37 Series	√ √ √					√ √	√ √	√		√ √	
Lemo U.S.A.	C•1426		√			√							
LMI Connector Inc.	C•1442		√		√		√	√					
3M Electronic Prod.	C•1463		√	√				√					
Metuchen Capactitors	C•1468	All	√				√		√	√			
Multi-Contact U.S.A.	C•1475												√
Panel Components	C•1484	830, 835, 880			√								
Preh Electronic	C•1508		√							√			
Rowe Ind.	C•1513	MRC	√									√	
Shogyo International	C•1523		√		√	√				√		√	
Superior Electric Co.	C•1537	Supercon & 5-Way	√					√				√	
Texas Instruments	C•1550				√								
U.S. Terminals Inc.	C•1563												√

CONNECTORS, PCB/FLAT CABLE

Manufacturer	Starting EEM Page No.	Series/ Model No.	Board to Chassis/ Mother Board: One Piece	Board to Chassis/ Mother Board: Two Piece	Board to Cable/ I/O: One Piece	Board to Cable/ I/O: Two Piece	For Ext. Board	Type or Feature	Contact Style: Cantilever	Contact Style: Pin	Contact Style: Bellow	Special Features
ABL Electronic Supply	C•1155		√	√	√	√						
Airborn, Inc.	C•1160			√		√				√		
Amp Inc.	C•1173		√	√	√	√	√					
Aries Electronic	C•1281		√				√			√		
Buchanan	C•1307		√	√	√	√						
Circuit Assembly	C•1316	NFS		√ √	√	√ √ √ √		Header Socket Trans. plug Header Socket				
Comm Con Connectors	C•1323	√	√	√						√		
Connector Corp.	C•1326		√		√					√		
CW Industries	C•1332		√	√	√	√			√	√	√	
Dale Electronics	C•1334								√	√	√	
DDK Electronics	C•1337	Various		√		√			√			Half pitch, surface mount
Elastomeric Technologies	C•1357		√	√	√	√	√	Right Angle				
Electronic Precision Technlg.	C•1359	DIN										
E-Z Hook	C•1364											Coaxial test accesories
Fujipoly	C•1375	W	√	√	√	√	√	High Density		√		Fine wires embedded in rubber
Fujitsu Comp. of America	C•1380		√	√	√	√						
Globtek Inc.	C•1386	GL	√									
Hirose Electric USA	C•1394		√	√	√	√			√	√	√	
JAE Elec.	C•1400		√	√	√	√				√	√	
J.H. America	C•1406				√	√			√	√		
Jolo Ind.	C•1408			√	√					√		
JST Corp.	C•1411					√				√	√	Surface mount types available
Kycon Cable and Conn.	C•1422	K98/K99 37F Series				√ √				√	√	
Lemo U.S.A.	C•1426									√		
LMI Connectors	C•1442		√	√	√	√				√		
3M Electronic Prod. Div.	C•1463		√	√	√	√	√			√		DIP, U Contact
Metuchen Capacitors Inc.	C•1468	All	√		√					√		Wirewrap
Mill Max	C•1473		√	√	√	√				√		
Molex	C•1474											Micro & Nanominiature Connectors (MIL) Fiber optic interconnect systems
Multi-Contact U.S.A.	C•1475											Gold connectors
Panduit Corp.	C•1480		√	√	√	√		DIN		√		Gold conts., Eurocard Conn.
Shogyo International Corp.	C•1523		√	√	√	√						
Specialty Elec.	C•1526	.0252	√	√						√		
Sullins Electronics	C•1534	Edgecard connectors					√	4-220 contacts			√	For eyelet, wirewrap, dip solder, SM and card extender applications
Switchcraft	C•1538					√		Right angle tel. jacks			√	
Teka Interconn. System	C•1544	Card edge and DIN connectors		√					√			Optional retentive leads, special bending or card extenders available
Texas Instruments/ Connector Systems	C•1550		√			√		Gold contacts	√			
Virginia Plastics	C•1564	DT & SP	√		√				√			Beryllium copper contacts
Weidmuller, Inc.	C•1578	LP/BL/SL			√	√				√		Vibration proof clamp coding system 45°, 90°, 180°

JACKS, PLUGS, ADAPTERS, PINS

Manufacturer	Starting EEM Page No.	Jacks	Jack Adapters	Plug & Jack Sets	Plugs, Electric	Plug Adapters	Binding Posts	Pins, Elec. Cond.	Contacts, Electrical	Plugs, Power	Modules/ Receptacles, Power	Jumpers, Circuit Board	Clips, Test	Leads, Test	High Volt.
ABL Electronic Supply	C•1155	√	√	√	√	√	√	√	√	√		√	√	√	√
ADC Telecommunications	C•1157	√	√	√	√										
AMP	C•1173								√			√	√		√
Aries Electronic	C•1281	√		√				√	√			√			
Buchanan	C•1307											√			
C & C Jetronic, Inc.	C•1393			√	√	√		√		√					√
Caton Connector Corp.	C•1311										√				√
Concord Electronics	C•1324	√	√	√	√	√	√	√	√			√	√	√	
Connector Corp.	C•1326	√	√	√	√	√		√	√	√					√
Connectronics Corp.	C•1328			√					√	√	√				√
Corcom Inc.	C•1330									√	√				
Delta Products Corp.	C•1346			√	√					√	√				
DSA Inc.	C•1324	√		√	√	√									
Emulation Tech. Inc.	C•1358					√							√	√	
E-Z Hook	C•1364	√	√	√		√	√					√	√	√	√
Globtek Inc.	C•1386			√	√	√	√			√			√	√	
Gray Hill	C•1387						√						√		
Hiram Jones Electronics	C•1388	√													
Hirose Electric USA	C•1394	√	√												
Richard Hirshmann of America	C•1398			√	√		√		√	√			√	√	
ISL Products Int'l Ltd.	C•1399	√	√	√		√	√	√		√			√		
Jettron Products Inc.	C•1404													√	√
J.H. America	C•1406											√			
Jolo Industries Inc.	C•1408	√										√			
Kycon Cable and Conn.	C•1422	√										√			
L-Com , Inc.	C•1424					√									
LMI Connectors Inc.	C•1442								√	√	√				√
LZR Electronics Inc.	C•1446	√	√	√	√	√				√	√				
3M Electronic Products	C•1463												√	√	
Mill Max	C•1473	√						√	√			√			
Multi-Contact USA	C•1475	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Oxley Inc.	C•1479	√		√				√	√				√		
Panel Components Corp.	C•1484				√					√	√				√
Pomona Electronics	C•1493	√	√	√	√	√							√	√	
Power Dynamics	C•1500									√	√				
RDI Elec.	C•1510	√									√				
Rowe Industries Inc.	C•1513										√				√
Schurter Inc.	C•1516	√		√						√	√			√	
Shogyo International	C•1523	√	√	√	√	√	√	√	√	√	√		√	√	
Specialty Electronics	C•1526											√			
Superior Electric Co.	C•1537			√	√		√			√					
Switchcraft, Inc.	C•1538	√		√	√					√	√				
Trompeter Electronics	C•1556	√	√	√		√									
U.S. Terminals	C•1563	√						√							√
Virginia Plastics	C•1564	√			√										

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

Abbreviations/Acronyms **A**•1114, **B**•1037, **C**•1116, **D**•1068
AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
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Fiber Optics, Product Selection Guide **B**•1214
Filters, Power, Product Selection Guide **A**•1609
Filters, Signal, Product Selection Guide **A**•1651
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Military Qualified Products List **B**•1002
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Power Supplies, DC, Product Selection Guide **D**•1501
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide **B**•1347
Relay Contact Forms **B**•1550
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SI Units, Basic Guide To, **A**•2080, **B**•1666, **C**•1362, **D**•2246
Solenoids, Product Selection Guide **B**•1614
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Symbols—International Authorities **A**•1139, **B**•1024, **C**•1156, **D**•1090
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Thyristors/High Power Diodes, Miniglossary **A**•1728, **A**•2084
Timers, Miniglossary **B**•1409, **D**•1149
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Transducers & Encoders, Product Selection Guide **B**•1872
Transformers, Product Selection Guide **A**•2131
Wire & Cable, Product Selection Guide **C**•1705
Wire Gauges—Diameter, Area, Copper Weight **C**•1864

Coax Connection

Coaxial Adapters, Connectors, P.C. Mounts, Attenuators, & Terminations; Coaxial Bulk Cable and Cable Assemblies; Multiconductor Adapters, Connectors, and Cable Assemblies; Test Accessories; Crimp Tools.

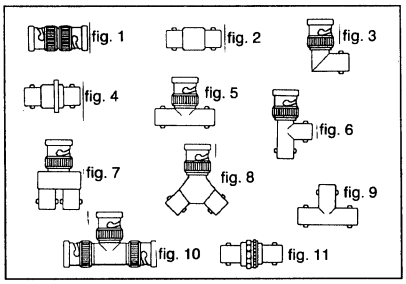
ABL is your Coax Connection

Connectors, Adapters, Assemblies & Accessories

BNC...N...TNC...SMA...SMB...SMC...MHV...UHF...TWINAX

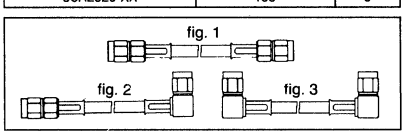
BNC ADAPTERS

ABLE Part No.	Description	Fig.
CA3000	plug to plug - straight	1
CA3001	jack to jack - straight	2
CA3002	plug to jack - right angle	3
CA3003	jack to jack - panel mount	4
CA3004	jack - plug - jack "T"	5
CA3004A	jack -jack - plug "T"	6
CA3004G	jack - plug - jack "Goalpost"	7
CA3004Y	jack - plug - jack "Y"	8
CA3005	jack - jack - jack "T"	9
CA3006	plug - plug - plug "T"	10
CA3007	jack to jack - bulkhead feedthru	11
CA3008	jack to jack - bulkhead feedthru insulated	11



SMA CABLE ASSEMBLIES

ABLE Part No.	RG/U Cable	Fig.
Straight Plug To Plug		
CCA2500-XX	58	1
CCA2501-XX	55	1
CCA2502XX	142	1
CCA2503-XX	223	1
CCA2504-XX	174	1
CCA2505-XX	178	1
CCA2506-XX	179	1
CCA2507-XX	316	1
CCA2508-XX	188	1
CCA2509-XX	59	1
Straight To Right Angle Plug		
CCA2510-XX	58	2
CCA2511-XX	142	2
CCA2512-XX	223	2
CCA2513-XX	174	2
CCA2514-XX	178	2
CCA2515-XX	316	2
CCA2516-XX	188	2
Right Angle Plug to Plug		
CCA2520-XX	58	3
CCA2521-XX	142	3
CCA2522-XX	223	3
CCA2523-XX	174	3
CCA2524-XX	178	3
CCA2525-XX	316	3
CCA2526-XX	188	3



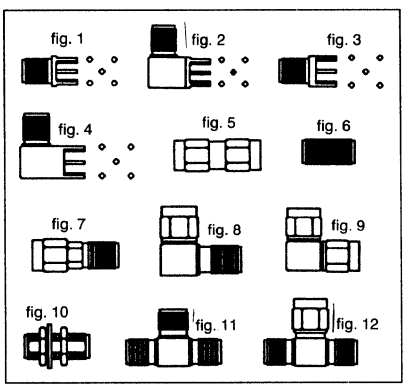
SMA

SMA PC MOUNTS

ABLE Part No.	Mfg. Hole Dimension	Description	Fig.
CC7550	.200	straight jack receptacle	1
CC7551	.200	right angle jack receptacle	2
CC7555	.281	straight jack receptaclele	3
CC7556	.281	right angle jack receptacle	4

SMA ADAPTERS

ABLE Part No.	Description	Fig.
CA3040	plug to plug - straight	5
CA3041	jack to jack - straight	6
CA3042	plug to jack - straight	7
CA3043	plug to jack - right angle	8
CA3044	plug to plug - right angle	9
CA3045	jack to jack - bulkhead feedthru	10
CA3046	jack - jack - jack "T"	11
CA3047	jack - plug - jack "T"	12

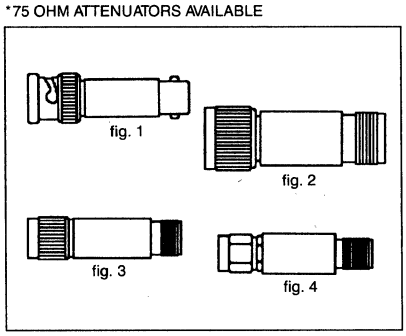


50 OHM* ATTENUATORS

ABLE Part No.	Atten. dB	Fig.	ABLE Part No.	Atten. dB	Fig.
BNC			**TNC**		
ATT6001-B	1	1	ATT6001-T	1	3
ATT6002-B	2	1	ATT6002-T	2	3
ATT6003-B*	3	1	ATT6003-T	3	3
ATT6004-B	4	1	ATT6004-T	4	3
ATT6005-B	5	1	ATT6005-T	5	3
ATT6006-B*	6	1	ATT6006-T	6	3
ATT6007-B	7	1	ATT6007-T	7	3
ATT6008-B	8	1	ATT6008-T	8	3
ATT6009-B	9	1	ATT6009-T	9	3
ATT6010-B*	10	1	ATT6010-T	10	3
ATT6012-B	12	1	ATT6012-T	12	3
ATT6015-B*	15	1	ATT6015-T	15	3
ATT6020-B*	20	1	ATT6020-T	20	3
N			**SMA**		
ATT6001-N	1	2	ATT6001-S	1	4
ATT6002-N	2	2	ATT6002-S	2	4
ATT6003-N	3	2	ATT6003-S	3	4
ATT6004-N	4	2	ATT6004-S	4	4
ATT6005-N	5	2	ATT6005-S	5	4
ATT6006-N	6	2	ATT6006-S	6	4
ATT6007-N	7	2	ATT6007-S	7	4
ATT6008-N	8	2	ATT6008-S	8	4
ATT6009-N	9	2	ATT6009-S	9	4
ATT6010-N	10	2	ATT6010-S	10	4
ATT6015-N	15	2	ATT6015-S	15	4
ATT6020-N	20	2	ATT6020-S	20	4

1 - 12 dB VSWR	15 - 20 dB VSWR
DC-500 MHz 1.3:1	DC-500 MHz 1.3:1
DC-1000 MHz 1.5:1	DC-1000 MHz 1.6:1
DC-1000 MHz 1.7:1	DC-1500 MHz 1.8:1
ATTENUATION	ATTENUATION
500 MHz; ± .3 dB Max	500 MHz; ± .4 dB Max
1000 MHz; ± .6 dB Max	1000 MHz; ± .8 dB Max
1500 MHz; ± 1.0 dB Max	1500 MHz; ± 1.3 dB Max

*75 OHM ATTENUATORS AVAILABLE



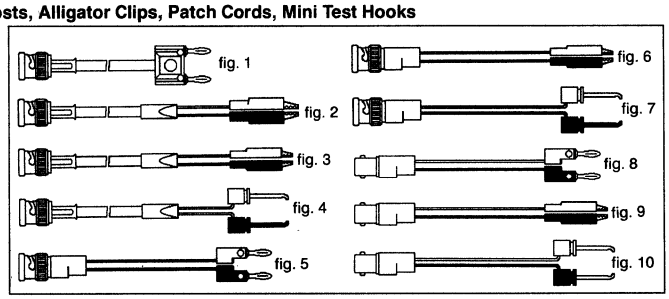
TEST ACCESSORIES

Adapters, Banana Plugs, Binding Posts, Alligator Clips, Patch Cords, Mini Test Hooks

TEST LEADS

ABLE Part No.	RG/U Cable	Description	Fig.
TA001-XX	58	BNC Plug to Stackable Double Banana Plug	1
TA002-XX	58	BNC Plug to Standard Alligator Clips	2
TA003-XX	58	BNC Plug to Mini Alligator Clips	3
TA004-XX	58	BNC Plug to Mini Test Hooks	4
TA011-4	*	BNC Breakout Plug to Stackable Banana Plugs	5
TA012-4	*	BNC Breakout Plug to Mini Alligator Clips	6
TA013-4	*	BNC Breakout Plug to Mini Test Hooks	7
TA021-4	*	BNC Breakout Jack to Stackable Banana Plugs	8
TA022-4	*	BNC Breakout Jack to Mini Alligator Clips	9
TA023-4	*	BNC Breakout Jack to Mini Test Hooks	10

STANDARD LENGTHS 12, 24, 36, 48 INCHES XX: SPECIFY DESIRED LENGTH (IN INCHES)
Breakouts available only in 4 inch lengths :Hook-Up Wire Standard Colors Black and Red



ABLE ELECTRONIC SUPPLIES 1736 FRONT STREET, YORKTOWN HEIGHTS, NY 10598 • 914-962-2253 • 1-800-431-2103 FAX 914-962-2296

eem SYMBOLS USED BY INTERNATIONAL REGULATORY AGENCIES

These symbols appear on many electrical/electronic components distributed in the world market. They indicate that a country's standard-setting agency has approved the design of the component and/or a testing agency has approved the performance of the component in meeting the standard. This page lists only those countries that have a *symbol* to represent their authority.

Argentina (IRAM) Instituto Argentino de Racionalization de Materiales

Australia (SAA) Standards Association of Australia

Austria (ÖVE) Österreichischer Verband für Elektrotechnik

Belgium (CEB) Comité Electrotechnique Belge

Brazil (ABNT) Associação Brasileira de Normas Teonicas

Canada (CSA) Canadian Standards Association

Czechoslovakia Urad pro Normalizaci a Mereni (Office for Standards and Measurements)

Denmark (DEK) Dansk Elektroteknisk Komite (Danish Electrotechnical Committee)

Egypt (EOS) Egyptian Organization for Standardization and Quality Control

Finland (SETI) Electrical Inspectorate

France (UTE) Union Technique de l'Électricité

Germany, Democratic Republic of (East) (ASMW) Amt für Standardi-sierung Messwesen und Warenprufung (Office for Standardization, Metrology and Quality Control)

Germany, Federal Republic of (West) (DKE) Deutsche Electrotechnische Kommission im DIN und VDE (German Electrotechnical Commission of DIN and VDE)

Greece (ELOT) The Hellenic Organization of Standardization

Hong Kong Hong Kong Standards & Testing Centre

Hungary (MSZH) Magyar Szabvanyugi Hivatal (Hungarian Office for Standardization)

India (ISI) Indian Standards Institute "Manak Bhavan"

Indonesia Badan Kerjasama Standardisasi LIPI-YDNI (LIPI-YDNI Joint Standardization Committee)

Iran Institute of Standards and Industrial Research of Iran

Ireland (IIRS) Institute for Industrial Research and Standards

Israel (SII) Standards Institution of Israel

Italy (CEI) Comitato Elettrotecnico Italiano (Italian Electrotechnical Committee)

Japan (JISC) Japanese Industrial Standards Committee Agency of Industrial Science and Technology

Korea, Republic of (South) Industrial Advance Administration

Mexico (DGN) Dirección General de Normas Secretaria de Patrimonio y Fomento Industrial Puente de Tecamachalco

Netherlands (NEC) Nederlands Elektrotechnisch Comite

New Zealand (SANZ) Standards Association of New Zealand

Norway (NEK) Norsk Elektroteknisk Komite (Norwegian Electrotechnical Committee)

Pakistan Pakistan Standards Institution

Poland Polski Komitet Normalizacji Miar i Jakosci (Polish Committee for Standardization, Measures and Quality Control)

Portugal (CEP) Comissão Electrotécnica Portuguesa

Romania Institutul Roman de Standardizare (Romanian Standards Institute)

Singapore Singapore Institute of Standards and Industrial Research

South Africa (SABS) South African Bureau of Standards

Spain (IRANOR) Instituto Nacional de Racionalización y Normalización

Sweden (SEK) Svenska Elektriska Kommissionen (Swedish Electrotechnical Commission)

Switzerland (SEV) Schweizerischer Elektrotechnischer Verein Postfach

Turkey (TSE) Turk Standardlari Enstitusu (Turkish Standards Institution)

United Kingdom (BSI) British Standards Institution

United States Underwriters Laboratories Inc. Recognized Component Mark

United States Underwriters Laboratories Inc.

Venezuela CODELECTRA en Conjunto con COVENIN Avda. Ppal.

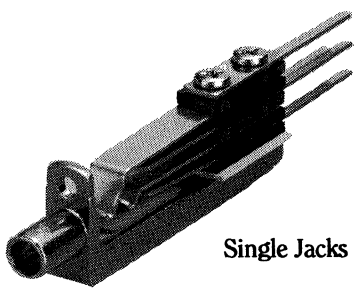
Yugoslavia Federal Institute of Standardization

Discover ADC's Technical Excellence!

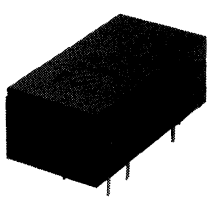
ADC Telecommunications is committed to provide the finest technological connectors in the communications industry.

ADC offers: • Over 50 years of industry experience.
• Technical leadership in telephone & coaxial jack, plug and patch cord designs.

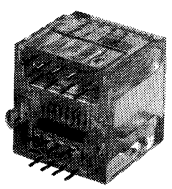
I. BantamTelephone Jacks: Single Jacks, Dual PCB Jacks, PEM RJ Jacks and 2 + 1 Jacks:



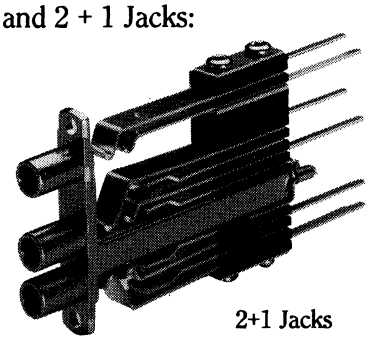
Single Jacks



Dual PCB Jacks



PEM RJ Jacks



2+1 Jacks

Telephone Jack Technical Specifications:*

ELECTRICAL
Contact Resistance:
.020 ohms maximum (initial)
.020 ohms maximum (after life cycling)
.10 ohms maximum (after salt spray)
Insulation Resistance:
10,000 megohms minimum (initial)
1,000 megohms minimum (after moisture resistance test)
Dielectric Withstanding Voltage:
500 V RMS
Contact Rating:
Maximum: 100mA at ± 130 Vdc
Minimum: -40 dBm

MECHANICAL
Mechanical Shock:
Per MIL-STD-202F, method 213B, test condition H
Vibration:
Per MIL-STD-1344, method 2005
Insertion Force:
7 lbs. (3.17 kg) maximum
Withdrawal Force:
1.0 lbs. (.45 kg) minimum
Life:
20,000 insertion/withdrawal cycles minimum

ENVIRONMENTAL
Thermal Limits:
-40°C to +65°C operating
-55°C to +85°C non-operating
Thermal Shock:
Per MIL-STD-202F, method 107G
Relative Humidity:
0% to 95% non-condensing, operating and non-operating
Salt Spray:
Per MIL-STD-202F, method 101D
Moisture Resistance:
Per MIL-STD-202F, method 106D

MATERIALS
Frame:
Zinc die-cast—zinc or cadmium plated with chromate conversion plating
Frame: (Military approved)
Steel, cadmium plated with chromate conversion plating
Bushing: (Military approved only)
Brass—finish same as frame
Springs:
Nickel-silver alloy
Insulators:
Either phenolic or thermo-plastic
Contacts:
WECO No. 1 gold alloy, crossbar contacts welded to springs

*Dual PCB Jack Technical Specifications Are Available in the Communications Connector Catalog.

ADC Telecommunication, Inc.
4900 West 78th Street
Minneapolis, MN 55435
Attn: J. Field M/S 38

ADC® Telecommunications

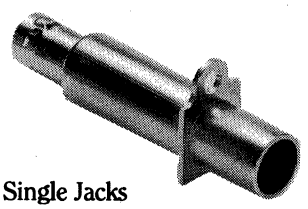
For immediate technical assistance or to request the Communication Connector Catalog:
Call Toll Free: 1 (800) 366-3891 ext. 7008
In Minnesota: (612) 835-6800
FAX: (612) 893-3292

Recognize ADC's Total Quality Commitment!

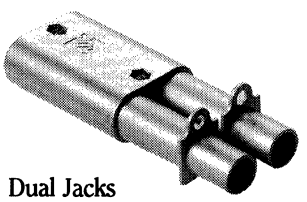
ADC Telecommunications is committed to provide the finest quality connectors in the communications industry.

ADC performs: • Our zero defect failure rates and philosophy of continuous improvement guarantees quality products and services.

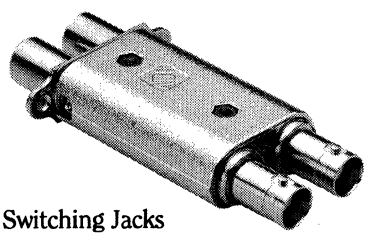
II. Coaxial Jacks: Single Jacks, Dual Jacks and Switching Coaxial Jacks.



Single Jacks



Dual Jacks



Switching Jacks

Standard Size Coaxial Jack Technical Specifications:*

ELECTRICAL
Characteristic Impedance:
62.5 ohms nominal
Return Loss: ≤-20 dB
1 MHz to 500 MHz
Contact Resistance:
5 milliohms typical

MECHANICAL
Mechanical Shock:
Per MIL-STD-202, method 213
Vibration:
Per MIL-STD-202, method 201
Insertion Force:
7 lbs. (3.17 kg) maximum
Withdrawal Force:
1.5 lbs. (0.675 kg) minimum
Life:
600 insertion/withdrawal cycles minimum

ENVIRONMENTAL
Thermal Limits:
-40°C to +65°C operating
-55°C to +85°C non-operating
Thermal Shock:
Per MIL-STD-202, method 107
Humidity:
0% to 95% non-condensing, operating and non-operating
Salt Spray:
Per MIL-STD-202, method 101
Moisture Resistance:
Per MIL-STD-202, method 106

MATERIAL
Jack Sleeve and Frame:
CDA 360 brass rod per ASTM B16 with electro-deposited gold plating per MIL-G-45204 or electro-deposited nickel plating per QQ-N-290
Center Conductors:
.090" (.23 cm): Beryllium copper per QQ-C-533 with electro-deposited gold plating per MIL-G-45204 on contact areas only
.070" (.18 cm): Phosphor bronze per ASTM B139 with electro-deposited gold plating per MIL-G-45204
Outer Conductor Contacts:
Phosphor bronze, grade A spring temper per QQ-B-746 with electro-deposited gold plating per MIL-G-45204 or electro-deposited nickel plating per QQ-N-290
Insulators:
Polytetraflourethylene rated UL 94V-0 for flammability
Crimping Sleeves:
CDA 360 brass with tin plating per MIL-T-10727A

INTERFACE DIMENSIONS:
Outside diameter of mating plugs must be .375" (.95 cm) with pin diameter of .090" (.23 cm) or .070" (.18 cm).

MOUNTING INFORMATION:
All jacks are supplied with 6-32, 5/16" Phillips head screws (cadmium and chrome plated).

*Mid-Size and Switching Jack Specifications Available in the Communications Connector Catalog.

ADC Telecommunication, Inc.
4900 West 78th Street
Minneapolis, MN 55435
Attn: J. Field M/S 38

ADC® Telecommunications

For information on ADC's Quality programs or to request the Communication Connector Catalog:
Call Toll Free: 1 (800) 366-3891 ext. 7008
In Minnesota: (612) 835-6800
FAX: (612) 893-3292

Enjoy ADC's Responsive Delivery!

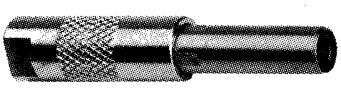
ADC Telecommunications is committed to provide the most responsive delivery of products and services in the communications industry.

ADC responsiveness:
- On-line product availability and order entry.
- Products and services are delivered in the quantity you want, where you want it and when you want it.

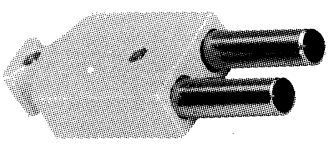
III. Telephone Plug and Coaxial Plug and Patch Cord products.*

Single Bantam Telephone Plugs

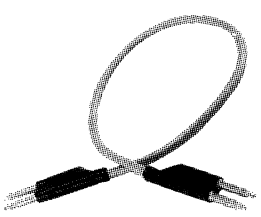
Dual Bantam Telephone Plugs



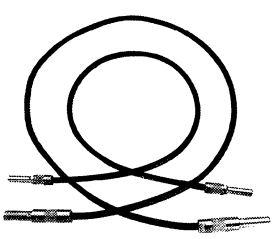
Single Coaxial Plugs



Dual Coaxial Plugs



Single and Dual Telephone Patch Cords



Coaxial Patch Cords

*Technical Specifications for Plug and Patch Cord products available in the Communications Connector Catalog.

ADC Telecommunication, Inc.
4900 West 78th Street
Minneapolis, MN 55435
Attn: J. Field M/S 38

ADC® Telecommunications

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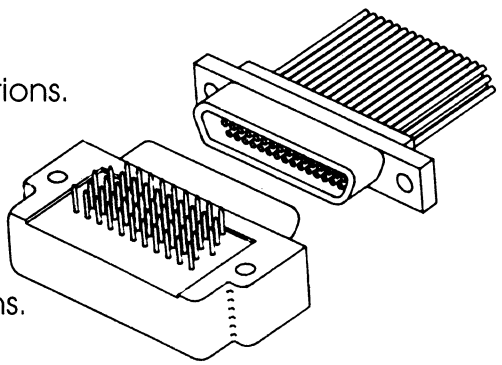
AirBorn Connectors



- Printed wiring board and cable to board applications.
- Right angle and straight through pin to socket connectors to **Mil-C-55302**.
- Right angle and straight through Micro-miniature connectors to **Mil-C-83513**.
- Also designs for high reliability, custom applications.

.100"

W-Series
2-, 3-, and 4- row subminiature connectors on .100 centers from 6 to 200+ contacts. Qualified to **Mil-C-55302**. Many modified and custom designs available.

.075"

R-Series
2-, and 3- row subminiature connectors on .075" centers from 10 to 206 contacts. Qualified to **Mil-C-55302**. Also many modified and custom designs, including SMT types, available.

.050"

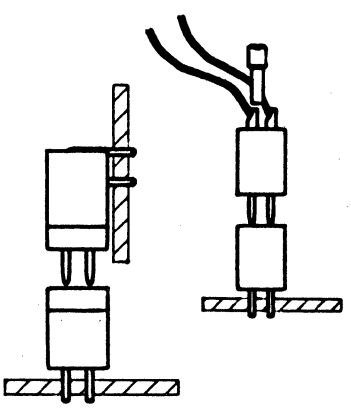
M-Series
2-, 3- and 4- row microminiature connectors on .050" centers from 9 to 100 contacts. Qualified to **Mil-C-83513**. Also many modified and custom designs, including SMT and STRIP configurations, available.

CABLE HARNESS

Military and commercial discrete wire, shielded, overmolded, cad design service and custom specification our speciality.

Our direct fast delivery service, or one of our distributors, Hall-Mark Electronics, D.C. Electronics, Erik-A-Electronics, Gemini Electronics or Spirit Electronics can provide parts often within hours.

AirBorn Customer Service and Application/Design Support Centers



W-Series

AirBorn, Inc.
4321 AirBorn Drive
Addison, Texas 75001-0519
Phone: 214/931-3200
Fax: 214/931-9305

M-Series
R-Series
Cable/Harness

AirBorn, Inc.
215 West Royal Drive
Georgetown, Texas 78626
Phone: 512/863-5585
Fax: 512/863-8259

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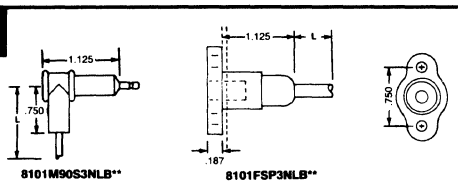
ALDEN

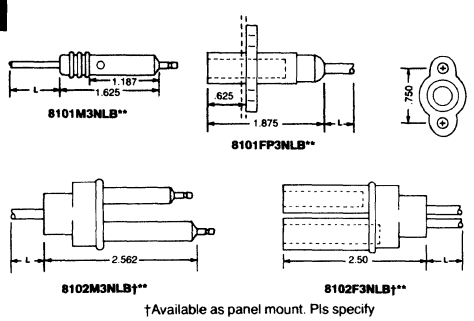
HIGH VOLTAGE CONNECTIONS 508-583-0160

5 KVDC



- Withstand voltage 15 KVDC
- Molded in 94V-0 flame retardant polypropylene
- 30 KVDC UL/CSA listed wire (** specifies length)
- Molded directly to wire for optimum performance
- Other styles and custom modifications available, use our FAXBACK Service.

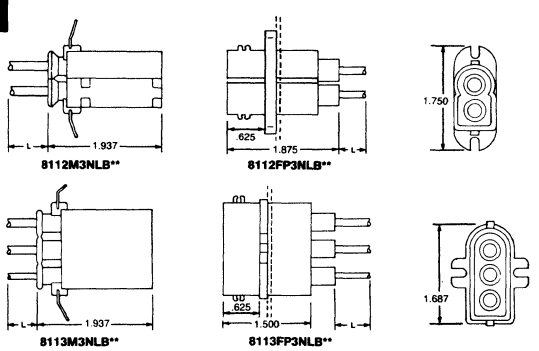
15 KVDC



†Available as panel mount. Pls specify

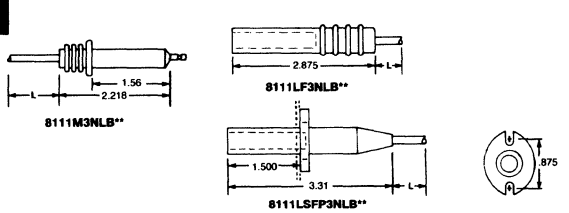
- Withstand voltage to 24 KVDC
- Molded in 94V-0 flame retardant polypropylene
- 30 KVDC UL/CSA listed wire (** specifies length)
- Molded directly to wire for optimum performance
- Other styles and custom modifications available, use our FAXBACK Service.

20 KVDC



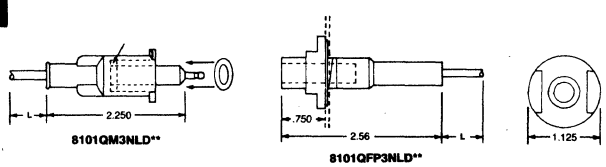
- Polarized 2 and 3 circuit connectors
- Withstand voltage 32 KVDC
- Molded in UL 94V-0 flame retardant polypropylene
- 30 KVDC UL/CSA listed wire (** specifies length)
- Molded directly to wire for optimum performance
- Locking rings for added retention
- Custom modifications available, use our FAXBACK Service.

25 KVDC

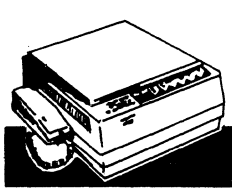


- Withstand voltage 40 KVDC
- Molded in UL 94V-0 flame retardant polypropylene
- 30 KVDC UL/CSA listed wire (** specifies length)
- Molded directly to wire for optimum performance
- Other styles and custom modifications available, use our FAXBACK Service.

35 KVDC



- Twist-locking with moisture resistant seal
- Withstand voltage 48 KVDC
- 40 KVDC UL/CSA listed wire (** specifies length)
- Molded directly to wire for optimum performance
- Other wires and custom modifications available, use our FAXBACK Service.



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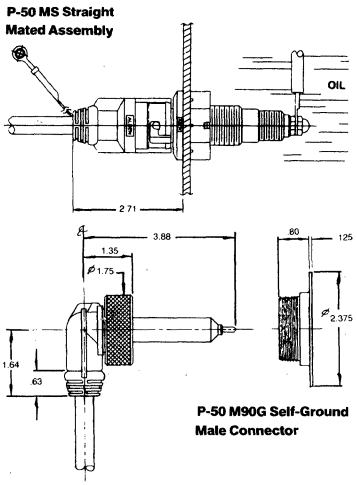
ALDEN

HIGH VOLTAGE CONNECTIONS 508-583-0160

HIGH VOLTAGE DETACHABLE, ENVIRONMENTALLY SEALED FEED-THRUS THE P-50 SERIES



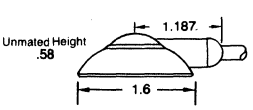
Alden Products' P-50 Connector Series is designed for use with high voltage electronic equipment cooled or insulated by dielectric liquids. The easy-to-install panel mount receptacle provides a fluid-tight seal, making it an excellent feed through for oil filled enclosures.

SPECIFICATIONS

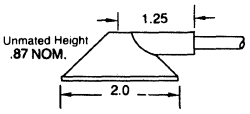
- **Electrical**
  - Working Voltage.....to 60 KVDC
  - Max. Current .....20 amps
- **Environmental**
  - Max. Temperature .....150°C
  - Receptacle Resistant to ....Transformer Oil, Freon 113 (TF), Freon 11
  - Flammability .....UL 94V-0
- **Mechanical**
  - Insulator Material .....Polyester Resin
  - Wire Insulation .....Silicone Rubber
  - Shielding .....Braided Tinned Copper (85% Coverage)
  - Conductor .....12 AWG (19/25)
  - Cable O.D. (over cover) .....430" nom.

P-50 Cable Assemblies are available from the factory pre-terminated at one or both ends with a P-50MS or a P-50M90G plug. MS style is a straight plug with pigtail. M90G style is a right-angle plug with self-grounding nut.

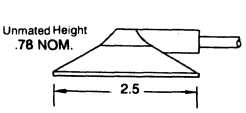
CRT ANODE CONNECTORS THE 3228 SERIES



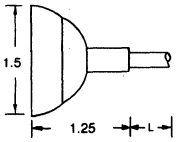
3228RA-2
- Operating voltages up to 30 KVDC
- Insulation material: silicone rubber UL94V-1
- Wire: 30 KVDC 18 AWG Silicone Rubber
- Fits JEDEC anode style J1-21, J1-22, J1-30



3228RA-3
- Operating voltages up to 30 KVDC
- Insulation material: silicone rubber UL94V-0
- Wire: 30 KVDC 22 AWG Cross Linked PVC
- Fits JEDEC anode style J1-21

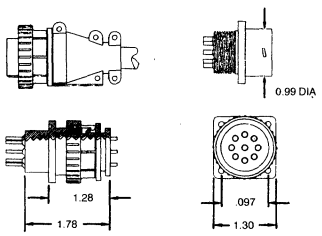


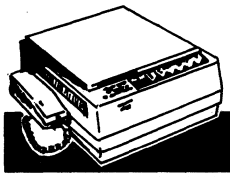
3228RA-4
- Operating voltages up to 40 KVDC
- Insulation material: thermoplastic rubber UL94V-0
- Wire: 40 KVDC 22 AWG Cross Linked PVC
- Fits JEDEC anode style J1-21



3228A
- Operating voltages up to 30 KVDC
- Insulation material: silicone rubber UL94V-1
- Wire: 30 KVDC 22 AWG Cross Linked PVC
- Fits JEDEC anode style J1-21

CIRCULAR SHELL CONNECTORS THE 9000 SERIES





Alden's 9000 series circular shell connectors represent a versatile new line of multi-circuit, environmental interconnects. The 9000 series' unique polyester resin housing offers many of the high performance features associated with exotic metal shell and glass hermetic circulars in a more cost effective package.

FEATURES
- Twist locking collar
- Oil immersable panel mount options
- Environmental sealing options
- Custom pin configurations available

Electrical options include filtering and shielding as well as captivation of passive electronic components on a custom basis.

FAXBACK SERVICE 508-583-0164 Just FAX us your functional requirements and package dimensions and we'll FAX back a quote and drawings for prototype or production.

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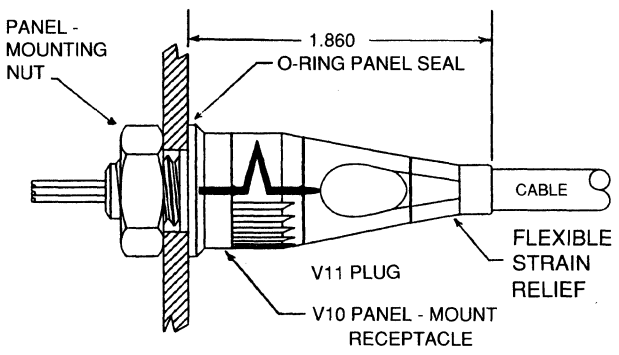
ALDEN

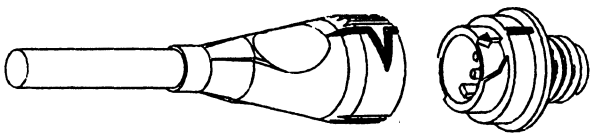
HIGH VOLTAGE CONNECTIONS 508-583-0160

AUTO-COUPLING CONNNECTOR SYSTEMS



MATED ASSEMBLY

NEW!



Alden Product's V1 Series, *PULSE-LOK* connector system features an innovative coupling mechanism that sets new performance standards for multi-pole interconnects. This user friendly connector provides both audible and visible feedback that connector pairs are fully mated. Fool-proof, quick-mate features qualify this package as an ideal candidate for instrumentation, emergency medical and consumer applications.

Our Standard, Your Custom
PULSE-LOK connectors are available in several standard contact and wire configurations to meet most signal, high current and high voltage applications. Custom contact requirements are easily accommodated by the *PULSE-LOK* connector's modular construction.

FEATURES

—Auto-Coupling	:	self-locking/quick release
—Blind Mating Aids	:	positive, sequential keying
	:	recessed, self-aligning pins
—Environmentally Sealed	:	splash-proof/submersible
—Corrosion Resistant	:	rugged, light weight, plastic housing
—Low Insertion Force	:	precision formed, gold plated contacts

* Patent Recieved

TECHNOLOGIES

Prototypes
First piece for physical evaluation with minimal tooling
Fast delivery

Liquid Resin Casting
Cast epoxies, urethanes, silicones to represent thermoset, thermoplastic, or elastomeric materials

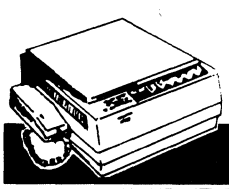
Cast and Molded Inserts
For electrical components, mechanical devices, and mounting hardware

Encapsulated Circuits
Combine electronic, mechanical and cable components in one mold

Custom Inserts
Work with your design specifications

Cable and Electro-Mechanical Assemblies
Soldering, hot-stamping, heat-staking, ultrasonic welding, mass cable preparation, termination , and harnessing

Alden from start to finish — for defect free parts.



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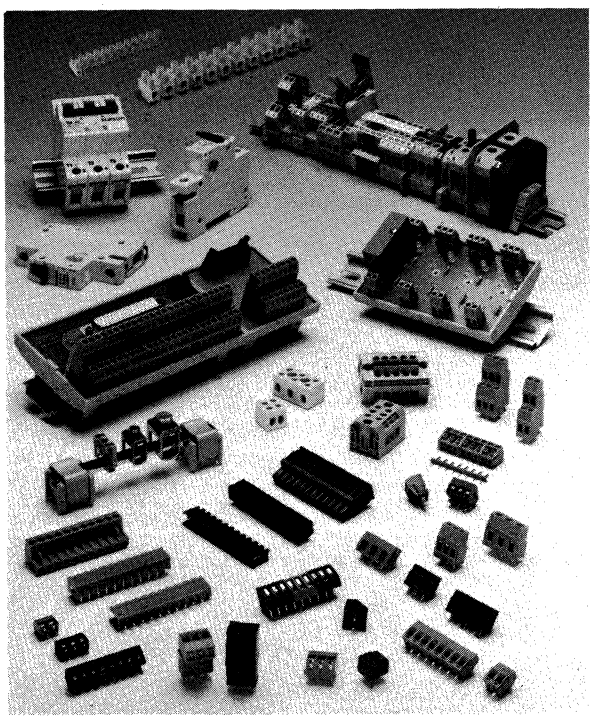
Altech Corp.
120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

Altech's Comprehensive Terminal Block Family...*A System To Connect To*

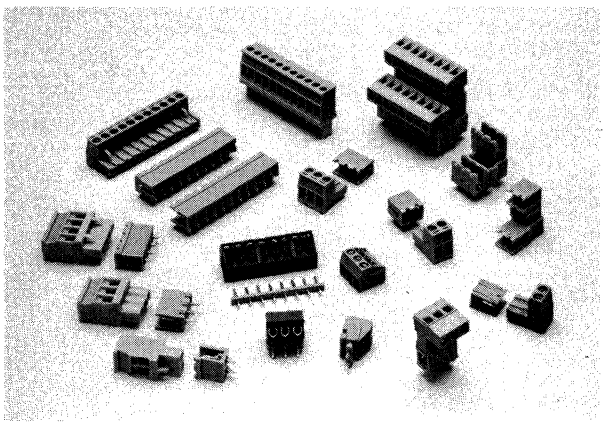


Today's design engineer can achieve modern, reliable, cost-effective wire terminations with Altech's terminal blocks. As systems and equipment have become more sophisticated, barrier strips and wire lugs are no longer efficient for electrical connections. Altech's terminal blocks perform multiple functions that meet today's requirements for high density, deadfront safety, modularity, flexibility, reliability, reduced cost, plus national and international acceptance. Altech will make your design and selection process an easy one.

- **PRINTED CIRCUIT BOARD–PLUGGABLE**
- **PRINTED CIRCUIT BOARD–FIXED**
- **EUROSTRIPS**
- **PANEL MOUNT**
- **DIN RAIL MOUNT**
- **INTERFACE AND ELECTRONIC MODULES**

At Altech, we work closely with our customers to provide tailor-made solutions that meet stringent individual requirements. Superior products, state-of-the-art technology, and helpful people. Whether your application calls for standard or custom designs, Altech provides cost-effective solutions in a timely manner.

PRINTED CIRCUIT BOARD TERMINAL BLOCKS–PLUGGABLE



Two piece plug and header design "pluggables" speed and simplify board replacement, reducing costly downtime and misconnections. Altech offers a wide selection of single mold and modular terminal blocks with screw-cage or tubular screw clamps.

- Industry Standard Compatible
- Horizontal or Vertical, Open or Closed End Headers
- Metric and Inch Pin Spacing
- UL/CSA Recognized, IEC/VDE
- 300V, 15A, 22-12 AWG
- Standard Color: Green
- Optinal Keying, Factory Marking

SCREW-CAGE CLAMP DESIGN

- Shrouded, Single and Double Level Headers Open and Closed Ends
- Locking Mechanism Ensures Reliable Connection
- Several Wire Entry Options Increase Flexibility

TUBULAR SCREW CLAMP DESIGN

- Open Pin Type Header
- Dual Contact System for Front and Top Wire Entry
- Wire Protector Standard (Available Without Wire Protector)

Quick Reference to Pluggable Terminals *(See Key)*

Terminal Type	AK950	AKZ950	BU04/2	AK130	AK900	AKZ900
Pin Spacing (mm)	5.0	5.08	5.08	5.0	5.0	5.08
Pin Spacing (in.)	.197	.200	.200	.197	.197	.200
Voltage (UL/CSA)	300	300	300	300	300	300
Current (UL/CSA)	15	15	15	10	15	15
Max. Wire Size (AWG)	12	12	10	14	12	12
Clamp Design	SC	SC	SC	TS	SC	SC
Comment	*3	*3	*3	*1	*2	*2
Max. No. of Poles	24	24	16	12	6+	6+

Key:
SC = Screw-Cage, Industrial Grade;
TS = Tubular Screw, Commercial/Industrial Grade;

*1 Used with STL130 Pin Headers.
*2 Used with horizontal STL900, STLZ900; or vertical STL905, STLZ905 headers.
*3 Used with horizontal STL950, STLZ950 headers; or vertical STL955, STLZ955, horizontal STLZ970, or vertical STLZ975 headers.
†Standard

We have only shown a small sampling of our terminal block line here. Please request our full line catalog and free samples.

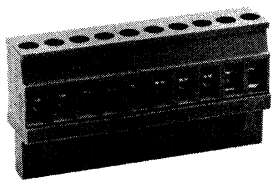
SEE OUR ENCLOSURES IN SECTION 1400 C•1006/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1349/SEE OUR SWITCHES IN SECTION 5100 B•1643

Altech Corp. 120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

PLUGS – Screw-Cage Clamp

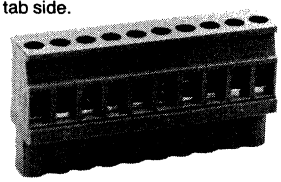
BU02 Plug

Wire entry-perpendicular to plug in direction, on locking tab side. 5.08mm (.200") pin spacing. 300V, 15A, 22-10 AWG. Mate with STL(Z)950, 955 headers and STLZ970, 975 double level headers.



BU04 Plugs

Same as BU02 Series with wire entry opposite locking tab side.

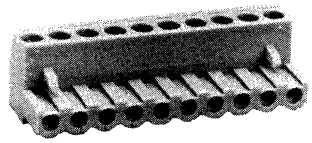


No. of Poles*	Type BU02	Type BU04	Length mm (in.)
2	BU02/2	BU04/2	10.16 (.40")
3	BU02/3	BU04/3	15.24 (.60")
4	BU02/4	BU04/4	20.32 (.80")
5	BU02/5	BU04/5	25.40(1.00")
6	BU02/6	BU04/6	30.48(1.20")
7	BU02/7	BU04/7	35.56(1.40")
8	BU02/8	BU04/8	40.64(1.60")
10	BU02/10	BU04/10	50.80(2.00")
12	BU02/12	BU04/12	60.96(2.40")
14	BU02/14	BU04/14	71.14(2.80")
15	BU02/15	BU04/15	76.22(3.00")

*Available in up to 16 poles

AK950/AKZ950 Plug

Wire entry in the same direction as plug-in. 5.00mm (.197") and 5.08mm (.200") pin spacing. 300V, 15A, 22-12 AWG. Mate with STL(Z)950, 955 headers and STLZ970, 975 double level headers.



AK950 5.00mm (.197") pin spacing

No. of Poles*	Type	Length mm (in.)
2	AK950/2	10(.394")
3	AK950/3	15(.591")
4	AK950/4	20(.788")
5	AK950/5	25(.985")
6	AK950/6	30(1.18")
7	AK950/7	35(1.38")
8	AK950/8	40(1.58")
10	AK950/10	50(1.97")
12	AK950/12	60(2.36")
14	AK950/14	70(2.76")
15	AK950/15	75(2.95")

AKZ950 5.08mm (.200") pin spacing

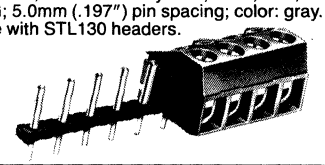
2	AKZ950/2	10.16 (.40")
3	AKZ950/3	15.24 (.60")
4	AKZ950/4	20.32 (.80")
5	AKZ950/5	25.40(1.00")
6	AKZ950/6	30.48(1.20")
7	AKZ950/7	35.56(1.40")
8	AKZ950/8	40.64(1.60")
10	AKZ950/10	50.80(2.00")
12	AKZ950/12	60.96(2.40")
14	AKZ950/14	71.14(2.80")
15	AKZ950/15	76.22(3.00")

*Available in up to 24 poles by special order

PLUG and HEADER Tubular Screw Clamp

AK130 Plug

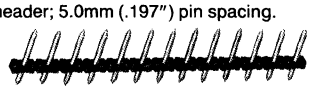
Tubular screw clamp; front or top wire entry; wire protector; dual contact system; 300V, 10A, 22-14 AWG; 5.0mm (.197") pin spacing; color: gray. Mate with STL130 headers.



No. of Poles*	Type	Length mm (in.)
2	AK130/2wp	10 (.394)
3	AK130/3wp	15 (.591)
4	AK130/4wp	20 (.788)
5	AK130/5wp	25 (.985)
6	AK130/6wp	30 (1.182)
7	AK130/7wp	35 (1.379)
8	AK130/8wp	40 (1.576)
9	AK130/9wp	45 (1.773)

STL130 Series Header

Pin header; 5.0mm (.197") pin spacing.

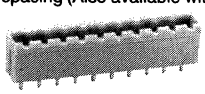


No. of Poles*	Type	Length mm (in.)
2	STL130/2	10.0 (.394)
3	STL130/3	15.0 (.591)
4	STL130/4	20.0 (.788)
5	STL130/5	25.0 (.985)
6	STL130/6	30.0 (1.182)
7	STL130/7	35.0 (1.379)
8	STL130/8	40.0 (1.576)
9	STL130/9	45.0 (1.773)
24	STL130/24	120.0 (4.720)

HEADERS For Screw-Cage Clamp Plugs

STL950/STLZ950 Horizontal –Closed End

Industry standard compatible, one piece molded construction; color: green; mate with AK(Z)950, BU04/BU02 Plugs; 5.00mm (.197") and 5.08mm (.200") pin spacing (Also available with open end).



STL950 5.00mm (.197") pin spacing

No. of Poles*	Type	Length mm (in.)
2	STL950/2-W	11.20 (.441)
3	STL950/3-W	16.20 (.638)
4	STL950/4-W	21.20 (.835)
5	STL950/5-W	26.20(1.032)
6	STL950/6-W	31.20(1.229)
7	STL950/7-W	36.20(1.426)
8	STL950/8-W	41.20(1.620)
10	STL950/10-W	51.20(2.017)
12	STL950/12-W	61.20(2.400)
14	STL950/14-W	71.20(2.800)
15	STL950/15-W	76.20(3.000)

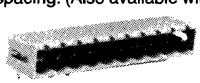
STLZ950 5.08mm (.200") pin spacing

2	STLZ950/2-W	11.36 (.447)
3	STLZ950/3-W	16.44 (.647)
4	STLZ950/4-W	21.52 (.847)
5	STLZ950/5-W	26.60(1.048)
6	STLZ950/6-W	31.68(1.248)
7	STLZ950/7-W	36.76(1.448)
8	STLZ950/8-W	41.84(1.648)
10	STLZ950/10-W	52.00(2.050)
12	STLZ950/12-W	62.16(2.450)
14	STLZ950/14-W	72.32(2.850)
15	STLZ950/15-W	77.40(3.050)

*Available in up to 24 poles by special order

STL955/STLZ955 Vertical –Closed End

Industry standard compatible, one piece molded construction; color: green; mate with AK(Z)950, BU04/BU02 Plugs; 5.00mm (.197") and 5.08mm (.200") pin spacing. (Also available with open end).



STL955 5.00mm (.197") pin spacing

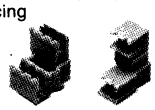
No. of Poles*	Type	Length mm (in.)
2	STL955/2-W	11.20 (.441)
3	STL955/3-W	16.20 (.638)
4	STL955/4-W	21.20 (.835)
5	STL955/5-W	26.20(1.032)
6	STL955/6-W	31.20(1.229)
7	STL955/7-W	36.20(1.426)
8	STL955/8-W	41.20(1.620)
10	STL955/10-W	51.20(2.017)
12	STL955/12-W	61.20(2.400)
14	STL955/14-W	71.20(2.800)
15	STL955/15-W	76.20(3.000)

STLZ955 5.08mm (.200") pin spacing

2	STLZ955/2-W	11.36 (.447)
3	STLZ955/3-W	16.44 (.647)
4	STLZ955/4-W	21.52 (.847)
5	STLZ955/5-W	26.60(1.048)
6	STLZ955/6-W	31.68(1.248)
7	STLZ955/7-W	36.76(1.448)
8	STLZ955/8-W	41.84(1.648)
10	STLZ955/10-W	52.00(2.050)
12	STLZ955/12-W	62.16(2.450)
14	STLZ955/14-W	72.32(2.850)
15	STLZ955/15-W	77.40(3.050)

STLZ970/STLZ975 Vertical and Horizontal

Open End, Double level, industry standard compatible; modular construction; color: green; mate with AKZ950 and BU02/04 Plugs; 5.08mm (.200") pin spacing



STLZ970 5.08mm (.200") pin spacing

No. of Poles*	Type
4	STLZ970/4
6	STLZ970/6
8	STLZ970/8
10	STLZ970/10
12	STLZ970/12
14	STLZ970/14
16	STLZ970/16
18	STLZ970/18
20	STLZ970/20
22	STLZ970/22
24	STLZ970/24

STLZ975 5.08mm (.200") pin spacing

4	STLZ975/4
6	STLZ975/6
8	STLZ975/8
10	STLZ975/10
12	STLZ975/12
14	STLZ975/14
16	STLZ975/16
18	STLZ975/18
20	STLZ975/20
22	STLZ975/22
24	STLZ975/24

We have only shown a small sampling of our terminal block line here. Please request our full line catalog and free samples.

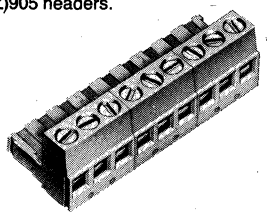
SEE OUR ENCLOSURES IN SECTION 1400 C•1006/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1349/SEE OUR SWITCHES IN SECTION 5100 B•1643

Altech Corp. 120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

PLUGS– Screw-Cage Clamp

AK900 Plug

Economical pluggable features positive locking at every other pole; modular construction; 5.00mm (.197″) and 5.08mm (.200″) pin spacing; 300V, 15A; color: green; mate with STL(Z)900 and STL(Z)905 headers.



AK900 5.00mm (.197″) pin spacing

No. of Poles	Type	Length mm (in.)
2	AK900/2	10.0(.394)
3	AK900/3	15.0(.591)
4	AK900/4	20.0(.788)
5	AK900/5	25.0(.985)
6	AK900/6	30.0(1.182)

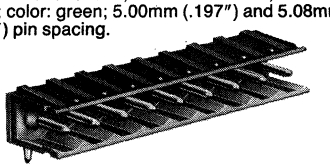
AKZ900 5.08mm(.200″) pin spacing

2	AKZ900/2	10.16(.40)
3	AKZ900/3	15.24(.60)
4	AKZ900/4	20.32(.80)
5	AKZ900/5	25.40(1.00)
6	AKZ900/6	30.48(1.20)

HEADERS For AK(Z)900 Screw-Cage Clamp Plugs

STL900/STLZ900 Horizontal-Open

Modular construction; mate with AK900, AKZ900 plugs; color: green; 5.00mm (.197″) and 5.08mm (.200″) pin spacing.



No. of Poles	Type STL900 5.0mm(.197)	Type STLZ900 5.08mm(.200)
2	STL900/2	STLZ900/2
3	STL900/3	STLZ900/3
4	STL900/4	STLZ900/4
5	STL900/5	STLZ900/5
6	STL900/6	STLZ900/6

STL900/STLZ900 Horizontal-Closed

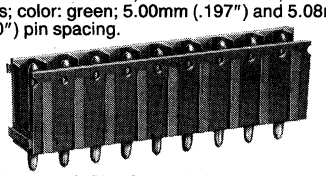
Modular construction; color: green; mate with AK900, AKZ900 plugs; 5.00mm (.197″) and 5.08mm (.200″) pin spacing.

No. of Poles	Type STL900 5.0mm(.197)	Type STLZ900 5.08mm(.200)
2	STL900/2-w	STLZ900/2-w
3	STL900/3-w	STLZ900/3-w
4	STL900/4-w	STLZ900/4-w
5	STL900/5-w	STLZ900/5-w
6	STL900/6-w	STLZ900/6-w

Overall inch length = no. of poles(n) x 5.8mm (.200″) or no. of poles(n) x 5.0mm (.197″)

STL905/STLZ905 Vertical-Open

Modular construction; mate with AK900, AKZ900 plugs; color: green; 5.00mm (.197″) and 5.08mm (.200″) pin spacing.



No. of Poles	Type STL905 5.0mm(.197)	Type STLZ905 5.08mm(.200)
2	STL905/2	STLZ905/2
3	STL905/3	STLZ905/3
4	STL905/4	STLZ905/4
5	STL905/5	STLZ905/5
6	STL905/6	STLZ905/6

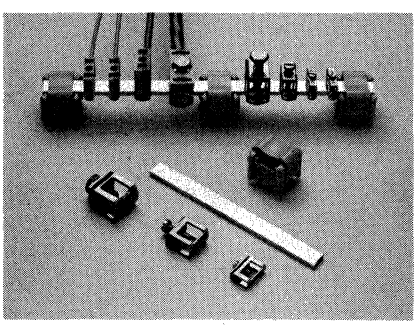
STL905/STLZ905 Vertical-Closed

Modular construction; color: green; mate with AK900, AKZ900 plugs; 5.00mm (.197″) and 5.08mm (.200″) pin spacing.

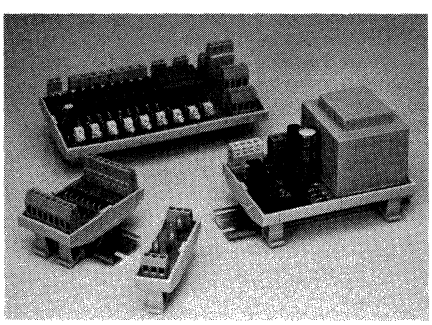
No. of Poles	Type STL900 5.0mm(.197)	Type STLZ900 5.08mm(.200)
2	STL905/2-w	STLZ905/2-w
3	STL905/3-w	STLZ905/3-w
4	STL905/4-w	STLZ905/4-w
5	STL905/5-w	STLZ905/5-w
6	STL905/6-w	STLZ905/6-w

Overall inch length = no. of poles(n) x 5.8mm (.200″) or no. of poles(n) x 5.0mm (.197″)

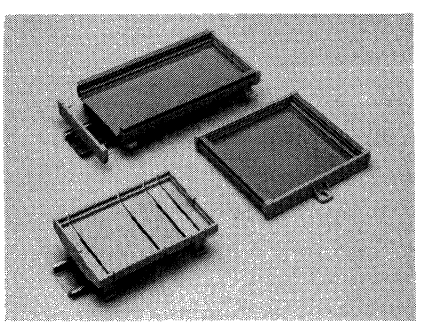
MORE TERMINAL BLOCK PRODUCTS FROM ALTECH



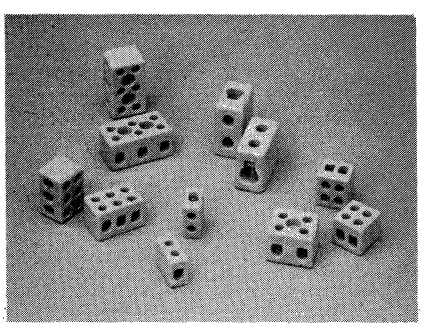
Busbar System



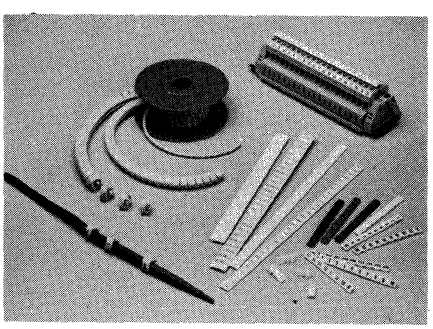
Electronic Modules



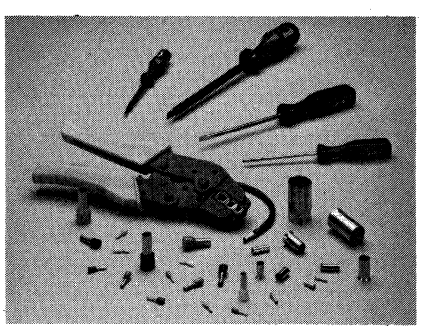
Printed Circuit Board Mounting Tracks



High Temperature Ceramic



Marking Systems



Tools, Ferrules

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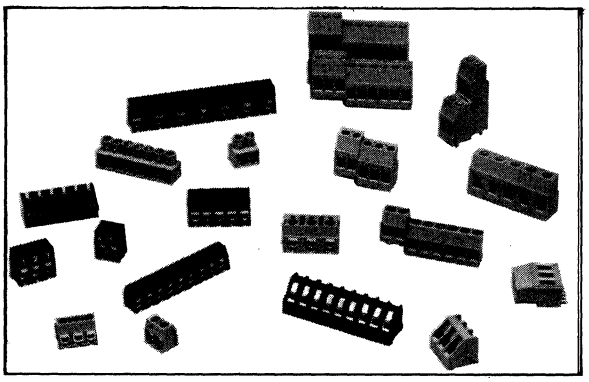
Altech Corp. 120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

PRINTED CIRCUIT BOARD TERMINAL BLOCKS - FIXED



Use the screw-cage clamp design for industrial applications where frequent wire terminations occur. Or use the cost effective tubular screw clamp design for commercial or industrial applications where infrequent wire terminations are expected. Both provide modern, reliable wire termination. Modularity provides the flexibility to create multipole assemblies from 2 and 3 pole modules, simplifying ordering and minimizing inventory. Order as single modules or preassembled.

- Metric and Inch Pin Spacing
- UL/CSA Recognized, IEC/VDE
- Factory Marking Optional

SCREW-CAGE CLAMP

- Front, Top or 45° Wire Entry
- Single and Double Level
- 15A, 300V, AWG 22 to 12

TUBULAR SCREW CLAMP

- Front and Top Wire Entry
- 15A, 300V, AWG 22 to 14
- Wire Protector Standard (Available Without Wire Protector)

Quick Reference to Fixed Terminals *(See Key)*

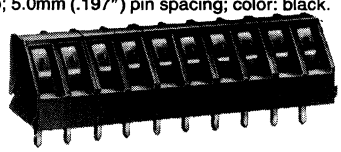
Terminal Type (AK)	100	110	120	125	300	350	Z350	500	Z500	505	700	Z700	710	750	Z750
Pin Spacing (mm)	5.0	7.5	5.08	5.08	5.0	5.0	5.08	5.0	5.08	5.0	5.0	5.08	7.5	5.0	5.08
Pin Spacing (in.)	.197	2.95	.200	.200	.197	.197	.200	.197	.200	.197	.197	.200	2.95	.197	.200
Voltage (UL/CSA)	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Current (UL/CSA)	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Max Wire Size (AWG)	14	14	14	14	12	12	12	14	14	14	12	12	12	12	12
Wire Entry	F	F	F	T	45°	F	F	F	F	T	F	F	F	F	F
Clamp Design	TS	TS	TS	TS	SC	SC	SC	TS	TS	SC	SC	SC	SC	SC	SC
Terminal Config.	S	S	S	S	S	S	S	S	S	S	S	S	S	D	D

Key
F = Front; T = Top; 45° = 45 Degrees; SC = Screw-Cage, Industrial Grade; TS = Tubular Screw, Commercial/Industrial Grade; S = Single Level; D = Double Level.

SCREW-CAGE CLAMP

AK300

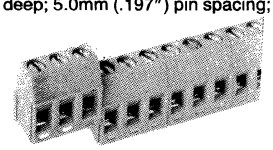
45° wire entry; 12.5mm (.492″) high; × 12.5mm deep; 5.0mm (.197″) pin spacing; color: black.



No. of Poles*	Type	Length mm (in.)
2	AK300/2	10.00(0.394)
3	AK300/3	15.00(0.591)
4	AK300/4	20.00(0.788)
5	AK300/5	25.00(0.985)
6	AK300/6	30.00(1.182)
7	AK300/7	35.00(1.379)
8	AK300/8	40.00(1.576)
9	AK300/9	45.00(1.773)
10	AK300/10	50.00(1.970)
12	AK300/12	60.00(2.364)

AK350

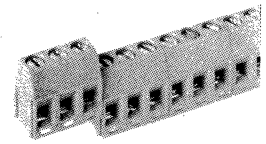
Front wire entry; 13.5mm (.531″) high; × 9.0mm (.354″) deep; 5.0mm (.197″) pin spacing; color: green.



No. of Poles*	Type	Length mm (in.)
2	AK350/2	10.00(0.394)
3	AK350/3	15.00(0.591)
4	AK350/4	20.00(0.788)
5	AK350/5	25.00(0.985)
6	AK350/6	30.00(1.182)
7	AK350/7	35.00(1.379)
8	AK350/8	40.00(1.576)
9	AK350/9	45.00(1.773)
10	AK350/10	50.00(1.970)
12	AK350/12	60.00(2.364)

AKZ350

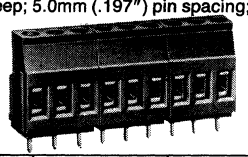
Same as AK350, but 5.08mm (.200″) pin spacing.



No. of Poles*	Type	Length mm (in.)
2	AKZ350/2	10.16(0.400)
3	AKZ350/3	15.24(0.600)
4	AKZ350/4	20.32(0.800)
5	AKZ350/5	25.40(1.001)
6	AKZ350/6	30.48(1.201)
7	AKZ350/7	35.56(1.401)
8	AKZ350/8	40.64(1.601)
9	AKZ350/9	45.72(1.801)
10	AKZ350/10	50.80(2.001)
12	AKZ350/12	60.96(2.402)

AK700

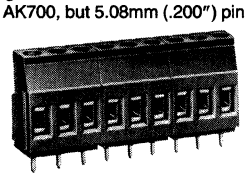
Front wire entry; 19.0mm (.748″) high; × 10.5mm (.413″) deep; 5.0mm (.197″) pin spacing; color: green.



No. of Poles*	Type	Length mm (in.)
2	AK700/2	10.00(0.394)
3	AK700/3	15.00(0.591)
4	AK700/4	20.00(0.788)
5	AK700/5	25.00(0.985)
6	AK700/6	30.00(1.182)
7	AK700/7	35.00(1.379)
8	AK700/8	40.00(1.576)
9	AK700/9	45.00(1.773)
10	AK700/10	50.00(1.970)
12	AK700/12	60.00(2.364)

AKZ700

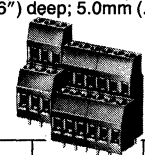
Same as AK700, but 5.08mm (.200″) pin spacing.



No. of Poles*	Type	Length mm (in.)
2	AKZ700/2	10.16(0.400)
3	AKZ700/3	15.24(0.600)
4	AKZ700/4	20.32(0.801)
5	AKZ700/5	25.40(1.001)
6	AKZ700/6	30.48(1.201)
7	AKZ700/7	35.56(1.401)
8	AKZ700/8	40.64(1.601)
9	AKZ700/9	45.72(1.801)
10	AKZ700/10	50.80(2.001)
12	AKZ700/12	60.96(2.402)

AK750

Front wire entry; double level, 2nd level offset 2.54mm (.10″) left; 34.0mm (1.339″) high × 21.5mm (.846″) deep; 5.0mm (.197″) pin spacing color: green.



No. of Poles†	Type	Length mm (in.)
4	AK750/4	12.50(0.492)
6	AK750/6	17.50(0.689)
8	AK750/8	22.50(0.886)
10	AK750/10	27.50(1.083)
12	AK750/12	32.50(1.280)
14	AK750/14	37.50(1.476)
16	AK750/16	42.50(1.673)
18	AK750/18	47.50(1.870)
20	AK750/20	52.50(2.067)
24	AK750/24	62.50(2.461)

*Available in up to 24 poles by special order

†Available in 5.08mm(.200) pin spacing

We have only shown a small sampling of our terminal block line here. Please request our catalog and free samples.

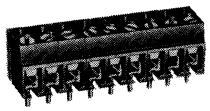
SEE OUR ENCLOSURES IN SECTION 1400 C•1007/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1343/SEE OUR SWITCHES IN SECTION 5100 B•1643

Altech Corp. 120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

TUBULAR SCREW CLAMP

AK100

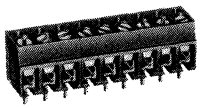
Front wire entry; 12.5mm (.492″) high; x 9.0mm (.354″) deep; 5.0mm (.197″) pin spacing; color: gray.



No. of Poles*	Type	Length mm (in.)
2	AK100/2WP	10.00(0.394)
3	AK100/3WP	15.00(0.591)
4	AK100/4WP	20.00(0.788)
5	AK100/5WP	25.00(0.985)
6	AK100/6WP	30.00(1.182)
7	AK100/7WP	35.00(1.379)
8	AK100/8WP	40.00(1.576)
9	AK100/9WP	45.00(1.773)
10	AK100/10WP	50.00(1.970)
12	AK100/12WP	60.00(2.364)

AK120

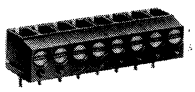
Front wire entry; 13.0mm (.512″) high, including 5mm standoff feet, x 9.0mm (.354″) deep; 5.08mm (.200″) pin spacing; color: gray.



No. of Poles*	Type	Length mm (in.)
2	AK120/2WP	10.16(0.400)
3	AK120/3WP	15.24(0.600)
4	AK120/4WP	20.32(0.801)
5	AK120/5WP	25.40(1.001)
6	AK120/6WP	30.48(1.201)
7	AK120/7WP	35.56(1.401)
8	AK120/8WP	40.64(1.601)
9	AK120/9WP	45.72(1.801)
10	AK120/10WP	50.80(2.001)
12	AK120/12WP	60.96(2.402)

AK125

Top wire entry; 9.0mm (.354″) high x 13.0mm (.512″) deep; 5.08mm (.200″) pin spacing; color: gray.



No. of Poles*	Type	Length mm (in.)
2	AK125/2WP	10.16(0.400)
3	AK125/3WP	15.24(0.600)
4	AK125/4WP	20.32(0.801)
5	AK125/5WP	25.40(1.001)
6	AK125/6WP	30.48(1.201)
7	AK125/7WP	35.56(1.401)
8	AK125/8WP	40.64(1.601)
9	AK125/9WP	45.72(1.801)
10	AK125/10WP	50.80(2.001)
12	AK125/12WP	60.96(2.402)

AK500

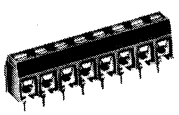
Front wire entry; 10.0mm high (.394″) x 7.5mm (.295″) deep; 5.0mm (.197″) pin spacing; color: gray

No. of Poles*	Type	Length mm (in.)
2	AK500/2WP	10.00(0.394)
3	AK500/3WP	15.00(0.591)
4	AK500/4WP	20.00(0.788)
5	AK500/5WP	25.00(0.985)
6	AK500/6WP	30.00(1.182)
7	AK500/7WP	35.00(1.379)
8	AK500/8WP	40.00(1.576)
9	AK500/9WP	45.00(1.773)
10	AK500/10WP	50.00(1.970)
12	AK500/12WP	60.00(2.364)

*Available in up to 24 poles by special order

AKZ500

Same as AK500; but 5.08mm (.200″) pin spacing; color: gray



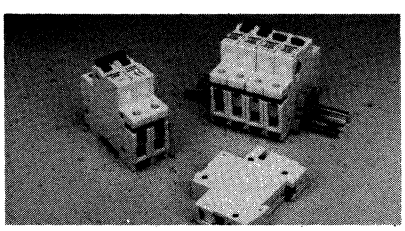
No. of Poles*	Type	Length mm (in.)
2	AKZ500/2WP	10.16(0.400)
3	AKZ500/3WP	15.24(0.600)
4	AKZ500/4WP	20.32(0.801)
5	AKZ500/5WP	25.40(1.001)
6	AKZ500/6WP	30.48(1.201)
7	AKZ500/7WP	35.56(1.401)
8	AKZ500/8WP	40.64(1.601)
9	AKZ500/9WP	45.72(1.801)
10	AKZ500/10WP	50.80(2.001)
12	AKZ500/12WP	60.96(2.402)

AK505

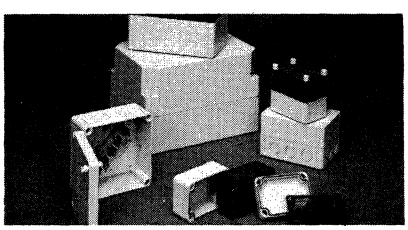
Top wire entry; 10.0mm high (.394″) x 7.5mm (.295″) deep; 5.0mm (.197″) pin spacing; color: gray

No. of Poles	Type	Length mm (in.)
2	AK505/2WP	10.00(0.394)
3	AK505/3WP	15.00(0.591)
4	AK505/4WP	20.00(0.788)
5	AK505/5WP	25.00(0.985)
6	AK505/6WP	30.00(1.182)
7	AK505/7WP	35.00(1.379)
8	AK505/8WP	40.00(1.576)
9	AK505/9WP	45.00(1.773)
10	AK505/10WP	50.00(1.970)
12	AK505/12WP	60.00(2.364)

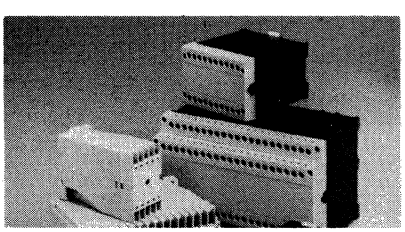
OTHER PRODUCTS AVAILABLE FROM ALTECH



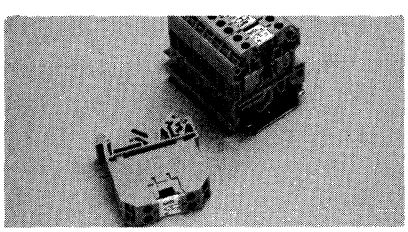
Thermal/Magnetic Circuit Breakers



Innovative Direct Mount Enclosures



DIN Rail Mount Electronic Enclosures



Thermocouple Terminal Blocks

We have only shown a small sampling of our terminal block line here. Please request our catalog and free samples.

SEE OUR ENCLOSURES IN SECTION 1400 C•1006/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1349/SEE OUR SWITCHES IN SECTION 5100 B•1643

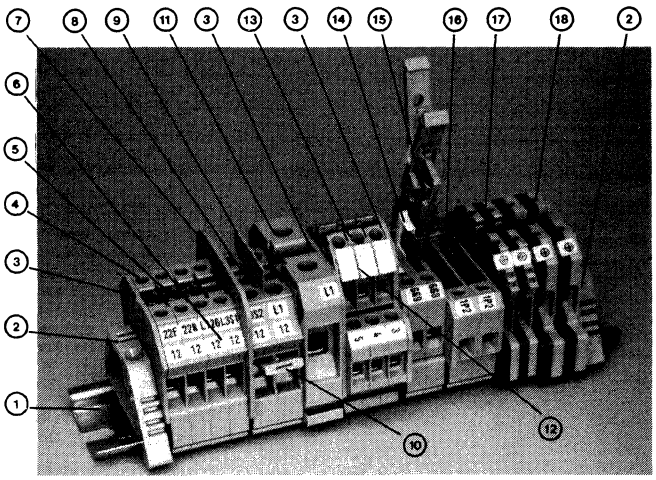
Altech Corp. 120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

DIN RAIL MOUNT TERMINAL BLOCKS

Altech's DIN rail mount terminal blocks combine multiple functions on a standard rail, enhancing design capabilities, saving space and reducing installation time. Screw-cage clamps increase efficiency and reliability.

- Feed-Through, Multi-Level, Ground
- Disconnect, Fuse, Thermocouple
- Assemblies for 15, 32, 35mm DIN Rail

The standard terminal blocks feature a universal foot for 35mm or 32mm DIN rails. They are designed for high density, industrial use. Material: polyamide 6.6; up to 600A, 600V. Screw-cage clamp wire termination. UL, CSA and IEC/VDE. Dead front construction prevents dangerous electrical shocks and damaging shorts.



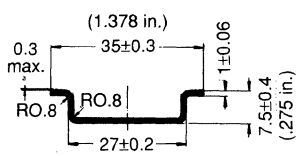
Type	Fig.	Function†	Current	Wire Size (AWG)	H x W
RK2.5-4	4	1	40.0 Amps	22-10	47mm x 6mm
RK6-10	8	1	65.0 Amps	22-6	47mm x 8mm
RK16	11	1	85.0 Amps	12-4	53mm x 12mm
RKD4*	13	2	25.0 Amps	22-12	60mm x 6mm
TK1/STB	14	3	10.0 Amps	22-14	42mm x 6.5mm
STK1	15	4	6.3 Amps	22-12	42mm x 8mm
STK1LED**	16	5	6.3 Amps	22-12	42mm x 8mm
STK1LED***	—	5	6.3 Amps	22-12	42mm x 8mm
SL2.5/35	17	6	—	22-12	47mm x 6mm
SL4/35	18	6	—	22-10	47mm x 8mm
SL2.5/32	—	7	—	22-12	52mm x 6mm
SL4/32	—	7	—	22-10	52mm x 8mm

*300V, **for 110V, ***for 24VDC. 1) Height of block on 35mm DIN rail.
Both fuse blocks are for use with G-Cartridge fuses, 5 x 20mm
+ Functions 1-feed through; 2-double level; 3-knife disconnect isolator with test sockets; 4-fuse; 5-fuse with blown fuse LED; 6-ground for 35mm rail; 7-ground for 32mm rail.

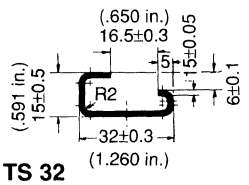
DIN RAILS

The rails below are made of steel with yellow chromated plating. Perforated or nonperforated. Standard rail length: 2 meters.

Type	Description	Cat. No.
TS35 x 7.5	Flat mounting rail, 35mm, unperforated	2026.0
TS35 x 7.5	Flat mounting rail, 35mm, perforated	2094.0
TS32	Asymmetrical mounting rail, 32mm, unperforated	2025.0
TS32	Assymetrical mounting rail, 32mm, perforated	2093.0



TS 35
(Flat Mounting Rail)



TS 32
(Asymmetrical Mounting Rail)

DIN RAIL MOUNT TERMINAL BLOCK ACCESSORIES

Use this Table to determine how to order accessories for the terminal blocks listed above (refer to Table above)

Type	Type of Accessory	Fig.	Cat. No. For Terminal Blocks RK2.5-4	RK6-10	RK16	RKD4	TK1	STK1
AP	End Plate	3	2001.2	2001.2	2104.2	2101.2	2045.2	2046.2
TW	Isolation Partition	7	2002.2	2002.2	2105.2	—	—	—
TRS	Busbar Separator	9	2003.2	2003.2	2003.2	2566.2	—	—
ES35	End Stop 35mm Rail	2	2005.2	2005.2	2005.2	2005.2	2005.2	2005.2
ES32	End Stop 32mm Rail	—	2004.2	2004.2	2004.2	2004.2	2004.2	2004.2
Q-2 pos.	Internal Jumper	—	2019.0	2060.0	2112.0	2087.0	—	—
Q-3 pos.	Internal Jumper	5	2020.0	2061.0	2113.0	2088.0	—	—
Q-4 pos.	Internal Jumper	—	2021.0	2062.0	2114.0	2089.0	—	—
Q-10 pos.	Internal Jumper	—	2022.0	2063.0	2115.0	2090.0	—	—
AQ-2 pos.	External Jumper	10	2064.0	2067.0	—	2064.0	2064.0	2067.0
AQ-3 pos.	External Jumper	—	2065.0	2068.0	—	2065.0	2065.0	2068.0
AQ-4 pos.	External Jumer	—	2066.0	2069.0	—	2066.0	2066.0	2069.0
STB	Test Socket	—	2006.0	2050.0	2050.0	2075.0	—	—
PS	Test Plug	—	2007.0	2051.0	2051.0	2007.0	2007.2	—

End Plates

Type	Cat. No.
AP2.5, 10	2001.2
AP16	2104.2
AP4	2101.2
AP/TK1	2045.2
AP	2046.2

Isolation Partition

TW2.5, 10	2002.2
TW16	2105.2

Separators

TRS1	2003.2
TRS3	2566.2

End Stop

ES35	2005.2
ES32	2004.2

Test Plug

PS2.3	2007.0
PS4	2051.0

Internal Jumpers

No. of Poles	Type	Cat. No.
2	Q24	2019.0
3	Q34	2020.0
4	Q44	2021.0
10	Q104	2022.0
2	Q25	2060.0
3	Q35	2061.0
4	Q45	2062.0
10	Q105	2063.0
2	Q26	2112.0
3	Q36	2113.0
4	Q46	2114.0
10	Q106	2115.0
2	Q23	2087.0
3	Q33	2088.0
4	Q43	2089.0
10	Q103	2090.0

External Jumpers

2	AQ21	2064.0
3	AQ31	2065.0
4	AQ41	2066.0
2	AQ22	2067.0
3	AQ32	2068.0
4	AQ42	2069.0

Test Sockets

Type	Cat. No.
STB14/2.3	2006.0
STB14/4	2050.0
STB8.5/2.3	2075.0

Insulated Tin-Plated Copper Crimp Ferrules

Type	Cat. No.	Wire AWG	Strip Length	Ferrule Length
H0.5/14	2201.0	26-22	.394"	.551"
H0.75/14	2202.0	20	.433"	.575"
H1.0/14	2203.0	18	.433"	.575"
H1.5/14	2204.0	16	.433"	.583"
H2.5/15	2206.0	14	.433"	.598"
H4.0/16	2208.0	12	.472"	.630"
H6.0/20	2210.0	10	.787"	.787"

Uninsulated, Tin-Plated Copper Crimp Ferrules

H0.5/6	2216.0	26-22	.236"	.236"
H0.75/10	2218.0	20	.394"	.394"
H1.0/10	2220.0	18	.394"	.394"
H1.5/7	2221.0	16	.276"	.276"
H2.5/7	2223.0	14	.276"	.276"
H4.0/9	2225.0	12	.354"	.354"
H6.0/12	2227.0	10	.472"	.472"

Terminal Markers

Type	Fig.	Cat. No.	I.D.
SB6/10*	6	2035.0	Blank
SB6/10FW*	6	2036.0/1-10	1-10
SB6/10FW*	6	2036.0/11-20	11-20
SB6/10FW*	6	2036.0/21-30	21-30

*10 strips of 10. Strips are horizontal, consecutively numbered; 6mm (.236") wide.

Type	Fig.	Cat. No.	I.D.
AS1	13	2023.0	Blank

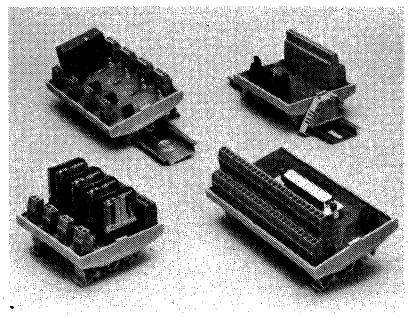
We have only shown a small sampling of our terminal block line here. Please request our catalog and free samples.

SEE OUR ENCLOSURES IN SECTION 1400 C•1006/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1349/SEE OUR SWITCHES IN SECTION 5100 B•1643

Altech Corp.
120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

INTERFACE AND ELECTRONIC MODULES

Altech Interface and Electronic Modules provide a simple, cost effective interconnection between connector equipped cables, relays or custom circuits to discrete wiring. Single or double level terminal blocks with screw-cage clamps provide efficient connections. DIN rail or panel mount. Custom modules can be designed for your special requirements.



INTERFACE MODULES

Ribbon Cable to Discrete Wire

Short ejector latches are standard on the ribbon cable connector (long latches are available). 125V, 1A, 22-12 AWG.

No. of Poles	Type	Module Length
10	FBK10	47mm(1.850″)
14	FBK14	47mm(1.850″)
16	FBK16	69mm(2.717″)
20	FBK20	69mm(2.717″)
26	FBK26	80mm(3.150″)
34	FBK34	103mm(4.055″)
40	FBK40	114mm(4.488″)
50	FBK50	148mm(5.827″)
60	FBK60	170mm(6.682″)
64	FBK64	170mm(6.682″)

D-Sub to Discrete Wire

125V, 1.5A, 22-12 AWG

D-Sub Female Connector

9	SD B9	35mm(1.378″)
15	SD B15	58mm(2.283″)
25	SD B25	81mm(3.189″)
37	SD B37	114mm(4.488″)
50	SD B50	137mm(5.394″)

D-Sub Plug

9	SD S9	35mm(1.378″)
15	SD S15	58mm(2.283″)
25	SD S25	81mm(3.189″)
37	SD S37	114mm(4.488″)
50	SD S50	137mm(5.394″)

RELAY MODULES

One changeover contact per relay. Screw-cage clamp connection. Isolate sensitive electronic controllers from harmful voltage spikes. 32 or 35mm DIN rail mount. Module width: 77mm (3.031″); 22-12 AWG; pluggable relay.

24VDC + Switching

Type	Module Length
RM1-1W(1 Relay)	24mm(0.945″)
RM2-1W(2 Relays)	47mm(1.850″)
RM4-1W(4 Relays)	69mm(2.717″)

110VAC

RM1-1W(1 Relay)	24mm(0.945″)
RM2-1W(2 Relays)	47mm(1.850″)
RM4-1W(4 Relays)	69mm(2.717″)

I/O MODULE MOUNTING CARRIERS

Mount industry standard solid state input/output (I/O) modules in Altech's carriers to optically isolate ICs and microprocessors in PCs or PLCs from damaging voltage spikes. 125VAC, 5A, screw-cage clamp connections, 32 or 35mm DIN rail mount.

5VDC, Green LED, 22-12 AWG

Type	Module Length
I/O-1A(1 position)	34.5mm(1.36″)
I/O-2A(2 position)	57.8mm(2.28″)
I/O-4A(4 position)	114.0mm(4.49″)

24VDC, Red LED, 22-12 AWG

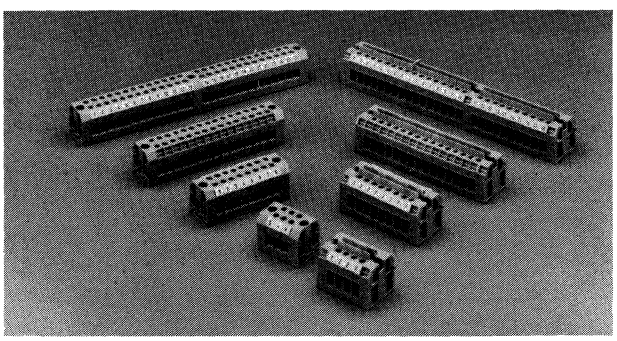
I/O-1B(1 position)	34.5mm(1.36″)
I/O-2B(2 position)	57.8mm(2.28″)
I/O-4B(4 position)	114.0mm(4.49″)

PANEL MOUNT TERMINAL BLOCKS

Panel Mount Modular Terminal Blocks and Assemblies

Cost effective terminals and assemblies replace outdated barrier strips and eliminate the need for wire lugs. Compact and convenient to use where space is a constraint or where no special functions are required. Modular design allows for changing requirements.

- Individual, Snap-Together Sections
- Standard or Custom Assemblies Available
- Jumpers Available
- 300V, 36A, 22-12AWG
- Accepts Standard Marking System
- Screw-Cage Clamp Design
- High Density - 50 Termination/ft.



BKA Series

Screw Cage Clamp, Modular, 300V, 20A, 22-12 AWG. UL. rated. 6mm (.236″) pole spacing; 22mm (.866″) wide x 22mm (.866″) high.

Poles	Type	Length mm (in)
2	BKA/2	26.5 (1.044)
3	BKA/3	32.6 (1.284)
4	BKA/4	38.7 (1.525)
5	BKA/5	44.8 (1.765)
6	BKA/6	50.9 (2.005)
8	BKA/8	63.1 (2.486)
10	BKA/10	75.3 (2.967)
12	BKA/12	87.5 (3.448)
13	BKA/13	93.6 (3.688)
14	BKA/14	99.7 (3.928)
15	BKA/15	105.8 (4.168)
16	BKA/16	111.9 (4.409)
18	BKA/18	124.1 (4.889)
20	BKA/20	136.3 (5.370)
24	BKA/24	160.7 (6.332)

Single Pole BKA Section

BKA/1	6.0 (.236″)

Mounting Section for BKA Components

EH2	7.5 (.296″)

RKB Series

Screw-Cage Clamp, Modular, Internal jumper provisions: 300V, 20A, 22-12 AWG, UL rated. 6mm (.236″) pole spacing; 27mm (1.063″) wide x 23mm (.905″) high

Poles	Type	Length mm (in)
2	RKB/2	26.5 (1.044)
3	RKB/3	32.6 (1.284)
4	RKB/4	38.7 (1.525)
5	RKB/5	44.8 (1.765)
6	RKB/6	50.9 (2.005)
7	RKB/7	57.0 (2.246)
8	RKB/8	63.1 (2.486)
9	RKB/9	69.2 (2.765)
10	RKB/10	75.3 (2.967)
11	RBK/11	81.4 (3.207)
12	RKB/12	87.5 (3.448)

Single Pole RKB Section

RKB/1	6.0 (.236″)

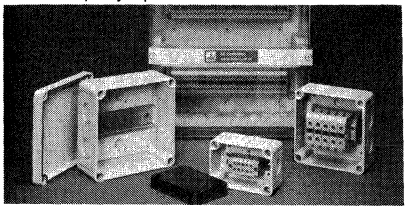
Mounting Section for RKB Components

EH1	7.5 (.296″)

Internal Jumpers (only for RKB)

Type	Cat. No.	Length mm (in)
Q23	2087.0	12 (.473)
Q33	2088.0	18 (.709)
Q43	2089.0	24 (.946)
Q103	2090.0	60 (2.364)

Other multi-pole jumpers available



PRE-EQUIPPED ENCLOSURES

Inquire about Altech's enclosure line. Terminal blocks and terminal block assemblies as well as other control components and devices, can be housed and protected in Altech's nonmetallic enclosures. Their functional and appealing designs will enhance the value of your product.

We have only shown a small sampling of our terminal block line here. Please request our full line catalog and free samples.

SEE OUR ENCLOSURES IN SECTION 1400 C•1007/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1343/SEE OUR SWITCHES IN SECTION 5100 B•1643

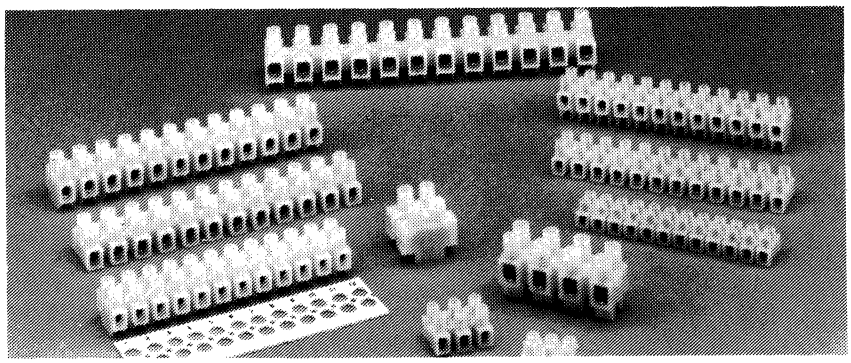
Altech Corp.
120 OLD CAMPLAIN RD., SOMERVILLE, N.J. 08876-4228
TELEPHONE: (908) 707-8484 FAX (908) 707-4455

EUROSTRIPS

Easy to use tubular screw terminal strips are a cost-effective alternative to barrier strips. Eurostrips are offered in easy to cut standard 12 pole strips, or can be ordered with the required number of poles. Available with a flat base or standoff feet.

- Housing: White Polyamide 6.6
- Stainless Steel Wire Protector*
- Panel Mount or Free Floating
- UL/CSA Recognized, IEC/VDE

Supplied open for immediate wire hookup. Just strip the wire, insert and tighten the screw . . . never use wire lugs!



DOUBLE ROW

TS1.5

Flat base, pole spacing 8mm (.315") mounting hole diameter 2.8mm (.110"), width 18.2mm (.72"),300V,15A, 22-16 AWG

Poles	Type	Length mm (in.)
2	TS1.5/2wp	15.0 (.591)
3	TS1.5/3wp	23.0 (.906)
4	TS1.5/4wp	31.5 (1.240)
5	TS1.5/5wp	39.5 (1.555)
6	TS1.5/6wp	47.5 (1.870)
7	TS1.5/7wp	55.5 (2.185)
8	TS1.5/8wp	64.0 (2.520)
9	TS1.5/9wp	72.0 (2.835)
10	TS1.5/10wp	80.0 (3.150)
11	TS1.5/11wp	88.5 (3.484)
12	TS1.5/12wp	96.5 (3.800)

TS2.5

Flat base, pole spacing 10mm (.394"), mounting hole diameter 3.5mm (.138"), width 20mm (.78"), 600V, 30A, 18-12 AWG

Poles	Type	Length mm (in.)
2	TS2.5/2wp	17.0 (.669)
3	TS2.5/3wp	27.0 (1.063)
4	TS2.5/4wp	37.0 (1.457)
5	TS2.5/5wp	47.0 (1.850)
6	TS2.5/6wp	57.0 (2.244)
7	TS2.5/7wp	67.0 (2.638)
8	TS2.5/8wp	77.0 (3.032)
9	TS2.5/9wp	87.0 (3.425)
10	TS2.5/10wp	97.0 (3.819)
11	TS2.5/11wp	107.0 (4.213)
12	TS1.5/12wp	117.0 (4.606)

TS6

Flat base, pole spacing 12mm (471"), mounting hole diameter 4.2mm (.165"), width 23.5mm (.93"), 600V, 30A, 18-10 AWG

Poles	Type	Length mm (in.)
2	TS6/2wp	20.0 (.787)
3	TS6/3wp	32.0 (1.260)
4	TS6/4wp	44.0 (1.732)
5	TS6/5wp	56.0 (2.205)
6	TS6/6wp	68.0 (2.677)
7	TS6/7wp	80.0 (3.150)
8	TS6/8wp	92.0 (3.622)
9	TS6/9wp	104.0 (4.095)
10	TS6/10wp	116.0 (4.567)
11	TS6/11wp	128.0 (5.039)
12	TS6/12wp	140.0 (5.512)

TSF1.5

Standoff feet, pole spacing 8mm (.315"), mounting hold diameter 2.8mm (.110"), width 18.2mm (.72"), 300V, 15A, 22-16 AWG

Poles	Type	Length mm (in.)
2	TSF1.5/2wp	15.0 (.591)
3	TSF1.5/3wp	23.0 (.906)
4	TSF1.5/4wp	31.5 (1.240)
5	TSF1.5/5wp	39.5 (1.555)
6	TSF1.5/6wp	47.5 (1.870)
7	TSF1.5/7wp	55.5 (2.185)
8	TSF1.5/8wp	64.0 (2.520)
9	TSF1.5/9wp	72.0 (2.835)
10	TSF1.5/10wp	80.0 (3.150)
11	TSF1.5/11wp	88.5 (3.484)
12	TSF1.5/12wp	96.5 (3.800)

TSF2.5

Standoff feet, pole spacing 10mm (.394"), mounting hole diameter 3.5mm (.138"), width 22.5mm (.87"), 600V, 30A, 18-12 AWG.

Poles	Type	Length mm (in.)
2	TSF2.5/2wp	17.0 (.669)
3	TSF2.5/3wp	27.0 (1.063)
4	TSF2.5/4wp	37.0 (1.457)
5	TSF2.5/5wp	47.0 (1.850)
6	TSF2.5/6wp	57.0 (2.244)
7	TSF2.5/7wp	67.0 (2.638)
8	TSF2.5/8wp	77.0 (3.032)
9	TSF2.5/9wp	87.0 (3.425)
10	TSF2.5/10wp	97.0 (3.819)
11	TSF2.5/11wp	107.0 (4.213)
12	TSF1.5/12wp	117.0 (4.606)

TSF6

Standoff feet, pole spacing 12mm (.472"), mounting hole diameter 4.2mm (.165"), width 23.5mm (.93"), 600V, 30A, 18-10 AWG.

Poles	Type	Length mm (in.)
2	TSF6/2wp	20.0 (.787)
3	TSF6/3wp	32.0 (1.260)
4	TSF6/4wp	44.0 (1.732)
5	TSF6/5wp	56.0 (2.205)
6	TSF6/6wp	68.0 (2.677)
7	TSF6/7wp	80.0 (3.150)
8	TSF6/8wp	92.0 (3.622)
9	TSF6/9wp	104.0 (4.095)
10	TSF6/10wp	116.0 (4.567)
11	TSF6/11wp	128.0 (5.039)
12	TSF6/12wp	140.0 (5.512)

TSF10

Standoff feet, pole spacing 15mm (.591),, mounting hole diameter 4mm (.157"), width 26mm (1.02"), 600V, 65A, 18-8 AWG.

Poles	Type	Length mm (in.)
2	TSF10/2wp	25.0 (.984)
3	TSF10/3wp	40.0 (1.575)
4	TSF10/4wp	55.0 (2.165)
5	TSF10/5wp	70.5 (2.776)
6	TSF10/6wp	86.0 (3.386)
7	TSF10/7wp	101.0 (3.976)
8	TSF10/8wp	116.0 (4.568)
9	TSF10/9wp	131.0 (5.157)
10	TSF10/10wp	146.0 (5.748)
11	TSF10/11wp	161.0 (6.339)
12	TSF10/12wp	176.0 (6.929)

TSF16

Standoff feet, pole spacing 15mm (.591"), mounting hole diameter 4mm (.157"0, width 26mm (1.01"), 600V, 65A, 18-6 AWG.

Poles	Type	Length mm (in.)
2	TSF16/2wp	25.0 (.984)
3	TSF16/3wp	40.0 (1.575)
4	TSF16/4wp	55.0 (2.165)
5	TSF16/5wp	70.5 (2.776)
6	TSF16/6wp	86.0 (3.386)
7	TSF16/7wp	101.0 (3.976)
8	TSF16/8wp	116.0 (4.568)
9	TSF16/9wp	131.0 (5.157)
10	TSF16/10wp	146.0 (5.748)
11	TSF16/11wp	161.0 (6.339)
12	TSF16/12wp	176.0 (6.929)

MARKING PLATES

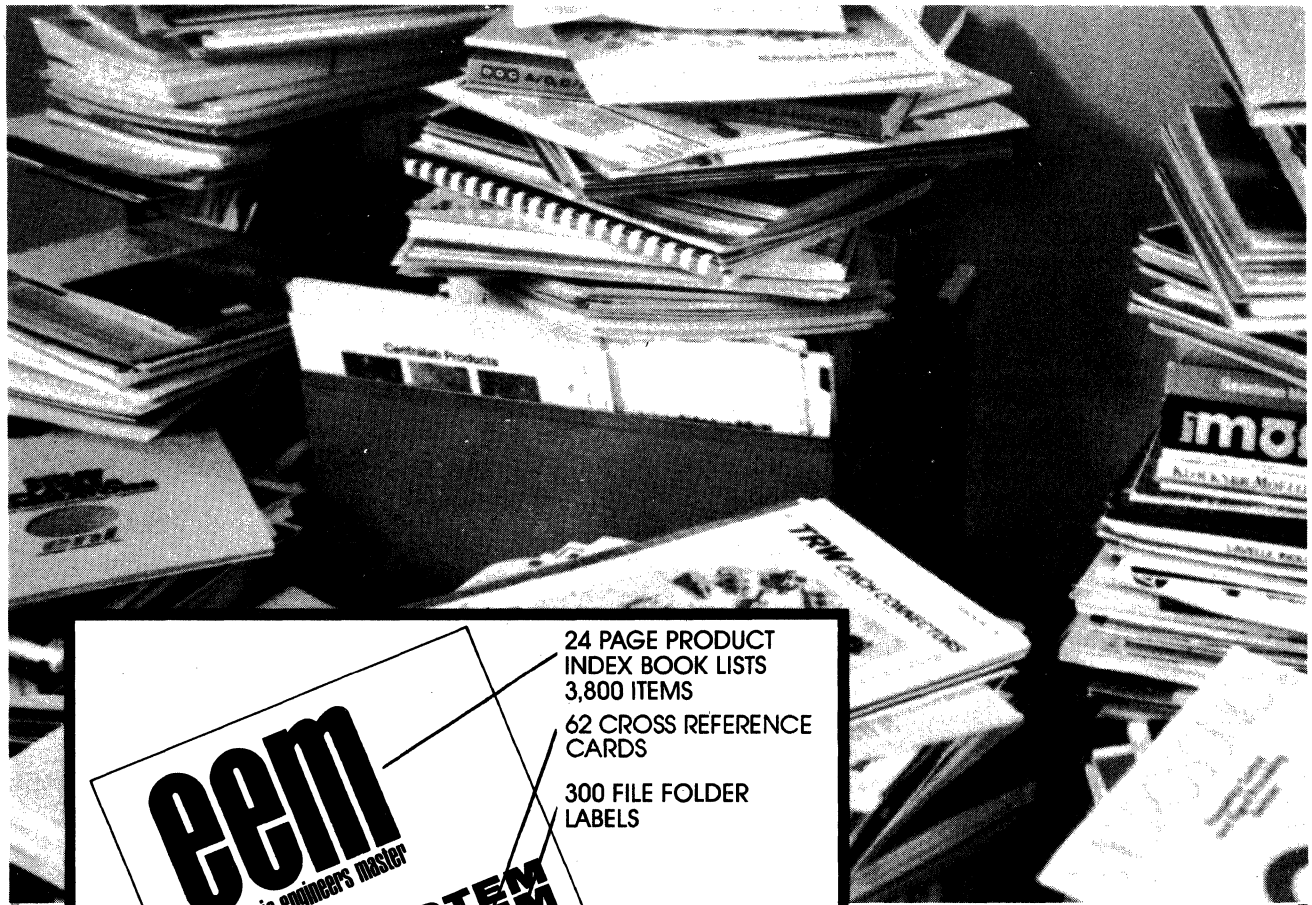
Easy to use Eurostrip terminal markers for quick and efficient wiring. Easy to cut 12 pole strips. Blank, or imprinted on one or both sides. White, self extinguishing PVC.

Marking Plate	For Eurostrip Type		
	TS(F)2.5	TS(F)6	TSF10/16
Blank	MPB2.5-4	MPB6	MPB10
Imprinted	MP12.5-4	MP16	MP110

*Available without wire protector

We have only shown a small sampling of our terminal block line here. Please request our full line catalog and free samples.

SEE OUR ENCLOSURES IN SECTION 1400 C•1006/SEE OUR CIRCUIT BREAKERS IN SECTION 4300 B•1349/SEE OUR SWITCHES IN SECTION 5100 B•1643



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AMP

PURCHASING GUIDE

Industry Standard Products

AMP

A big resource, from a local source... your AMP Sales Engineer or your AMP Authorized Distributor

This catalog shows the most popular AMP product lines. They represent the items most often purchased and which meet a majority of your requirements. If the items shown in this catalog do not meet your application needs contact your local AMP Sales Engineer or Authorized Distributor.

Sales Engineer
Thoroughly trained in the application of AMP Products, the Sales Engineer is the best source for the original equipment manufacturer (OEM) for information and assistance with your specific AMP product requirement.

Authorized Distributors
AMP has established a network of local, regional and national distributors to service your needs. This select group maintains an inventory of popular AMP Products, many of them are included in this catalog. This vital source will provide fast turn-around for prototype needs through production quantities. Your local needs for inventory as well as value-added services, such as kitting, cable assemblies and packaging to name a few can be met by your local authorized distributor.

Field Engineering
Our Field Engineering Department is ready to help Customers resolve any problems regarding AMP products and application equipment. In addition they will provide training in the proper operation and maintenance of all application equipment. For immediate access to technical assistance, information or to order spare parts for application tooling, call our toll-free, nationwide Field Engineering hotline, 1-800-722-1111.

Regional Warehouses
AMP maintains five regional warehouses in Pennsylvania, Illinois, North Carolina, Texas and California. These terminals can provide over-night shipping of Industry Standard Products for prototyping and other emergency needs throughout the continental United States.

Value-added Assemblies
AMP provides advanced tooling to cable co-operatives, value-added distributors and custom assemblers for fast response and prototyping so that we can accommodate very high volume needs directly, or supply the machinery and components you need to do it yourself.

International Division
So that we may provide complete service to our worldwide Customers, AMP has established a network of distributors, agents or direct representatives in over 30 countries.

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Dimensioning:
All dimensions in inches and millimeters. Values in brackets are metric equivalents. Charts contain dimensions in inches over millimeters.

Note: Dimensions in this catalog are for reference purposes only. Customer drawings are available upon request.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

ACTION PIN, AMP, AMP-LATCH, AMPLIMITE, AMPMODU, BOMB-TAIL, CHAMP, CHAMP-LOK, COAXICON, DIPLOMATE, DUALAN, FASTON, MATE-N-LOK, OPTIMATE, PIDG, PLASTI-GRIP—Trademarks of AMP Incorporated.

Commercial Approvals

Recognized under the Components Program of Underwriters Laboratories, Inc., File No. E28476
- IC Sockets[2]
- AMP-LATCH Connectors[1]
- Standard Edge Connectors
- Mass Terminated (MTA) Connectors[2]
- AMPMODU Posts, Headers and Receptacles[2]
- AMPLIMITE Connectors[2]
- MATE-N-LOCK Connectors[2]
- .093 [2.36] and .062 [1.57] Soft Shell Connectors[2]
- MR Series Connectors[2]
- CHAMP Connectors[2]

[1]CSA Certified File No. LR46568
[2]CSA Certified File No. LR16455

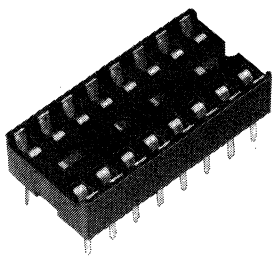
PIDG and PLASTI-GRIP Terminals and Splices are listed by Underwriters Laboratories, Inc., File No. UL424C and certified by the Canadian Standards Association, File No. LR7189.

Ultra-Fast and Ultra-Fast Plus FASTON Receptacles are listed by Underwriters Laboratories, Inc., File No. E66717 and by the Canadian Standards Association, File No. LR82852-1.

LISTED

DIP Sockets

DIPLOMATE Dual Leaf (DL) Contact Sockets (Closed Frame)



Socket accepts .008-.014 [0.2-0.36] thick IC leads

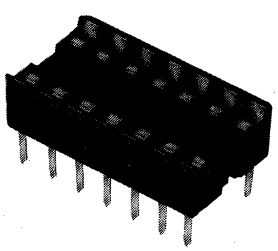
Material and Finish:

Housing—Glass-filled thermoplastic, 94V-0 rated, black

Number of Positions	Part Number[1] Sockets with Straight Solder Tails[2]	
	Beryllium Copper Tinned[3]	Phosphor Bronze Tinned[3]
6	2-641296-1	2-641296-3
8	2-640463-1	2-640463-3
14	2-640357-1	2-640357-3
16	2-640358-1	2-640358-3
18	2-640359-1	2-640359-3
20	2-640464-1	2-640464-3
22	2-640360-1	2-640360-3
24	2-640361-1	2-640361-3
28	2-640362-1	2-640362-3
40	2-640379-1	2-640379-3

[1]All parts are packaged in plastic tubes. ONLY sockets with straight solder tails are recommended for automatic insertion.
[2]Sockets with retention feature are also available.
[3]Sockets with gold plate are also available.

DIPLOMATE Dual Leaf (DL) Contact Sockets (Open Frame)



Socket accepts .008-.014 [0.2-0.36] thick IC leads

Material and Finish:

Housing—Glass-filled thermoplastic, 94V-0 rated, black

Number of Positions	Part Numbers Sockets with Straight Solder Tails[1]		
	Beryllium Copper Tinned[2]	Phosphor Bronze Tinned[2]	Copper Alloy Tinned[2]
14	2-641599-1	2-641599-3	2-641599-5
16	2-641600-1	2-641600-3	2-641600-5
18	2-641601-1	2-641601-3	2-641601-5
20	2-641602-1	2-641602-3	2-641602-5
22	—	2-644105-3	—
24	2-641932-1	2-641932-3	2-641932-5
24[3]	2-382471-1	2-382471-3	2-382471-5
24[4]	2-641604-1	2-641604-3	2-641604-5
28	2-641605-1	2-641605-3	2-641605-5
40	2-641606-1	2-641606-3	2-641606-5
48	2-643574-1	2-643574-3	2-643574-5
64	643575-1	643575-3	643575-5

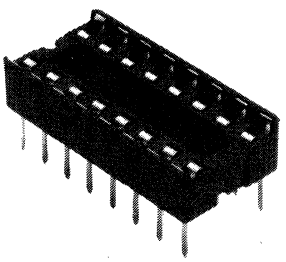
[1]Sockets with retention feature are also available.
[2]Sockets with gold plate are also available.
[3].400 [10.16] centerline
[4].600 [15.24] centerline

DIPLOMATE Over-the-Component (OTC) Socket

Receptacle accepts .008-.014 [0.2-0.36] thick IC leads

Material and Finish:

Housing—Glass-filled thermoplastic, 94V-0 rated, black



No. of Pos.	Part Numbers Sockets with Straight Solder Tails[1]	
	Beryllium Copper Tinned	Phosphor Bronze Tinned
16	2-644100-1	2-644100-3
18	2-382060-1	2-382060-3
20	2-382515-1	2-382515-3
28	2-382415-1	2-382415-3
32	2-644018-1[2]	2-644018-3[2]
40	2-382153-1	2-382153-3

[1]Sockets with retention feature are also available.
[2]Sockets with gold plate are also available in this size.

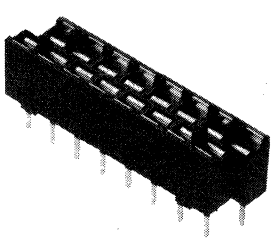
ZIP Sockets

DIPLOMATE Zig-Zag Package (ZP) Sockets

Receptacle accepts .008-.015 [0.2-0.38] thick x .030 [0.76] max. wide rectangular leads

Material and Finish:

Housing—Glass-filled thermoplastic
Contacts—Phosphor bronze, tin-plated



No. of Pos.	Part Numbers
16	2-382006-3
20	2-382007-3
24	2-382008-3
28	2-382009-3
40	3-382040-3

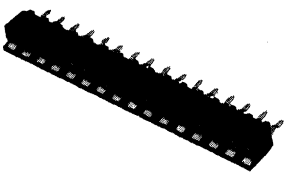
SIP Sockets

DIPLOMATE Dual Leaf (DL) SIP Contact Sockets

Socket accepts .008-.015 [0.2-0.38] thick x .030 [0.76] max. wide rectangular leads

Material and Finish:

Housing—Glass-filled thermoplastic, 94V-0 rated, black
Contacts—Phosphor bronze, tin plated

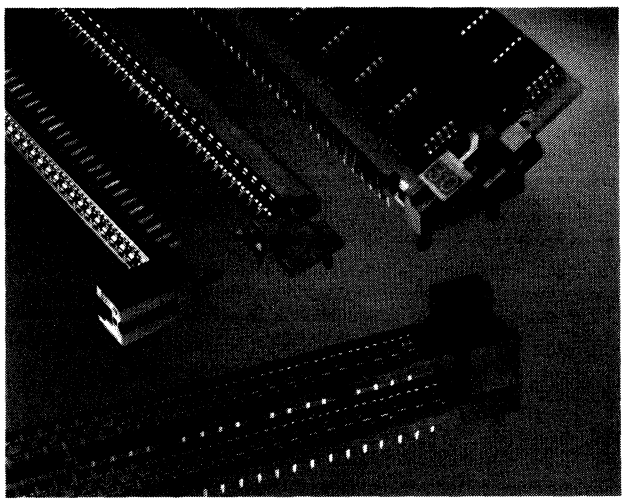


No. of Pos.	Part Numbers
8	643640-3
9	643641-3
10	643642-3
11	643643-3
12	643644-3
13	643645-3
14	643646-3
15	643647-3
16	643648-3
17	643649-3
18	643650-3
19	643651-3
20	643652-3
21	643653-3
22	643654-3
23	643655-3
24	643656-3
25	643657-3
26	643658-3
27	643659-3
28	643660-3
29	643661-3
30	643662-3

SIMM Sockets

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82172



DIPLOMATE SIMM Standard Vertical Sockets

Material and Finish:

Housing—Liquid crystal polymer (LCP), glass filled, 94V-0 rated

Contact—Beryllium copper, bright tin-lead plating

Number of Positions[1]	Single Row	Double Row .300 [7.62] Centerline
22	643922-1	—
30	643930-1	2-382230-1[2]
35	643935-1	—
42	643942-1	—

[1]Other sizes and variations can be made available upon request.
[2]Packaged in slide tube for robotic assembly.

DIPLOMATE SIMM Low Profile (Angled) Sockets

Material and Finish:

Housing—Liquid Crystal Polymer (LCP), glass-filled, 94V-0 rated

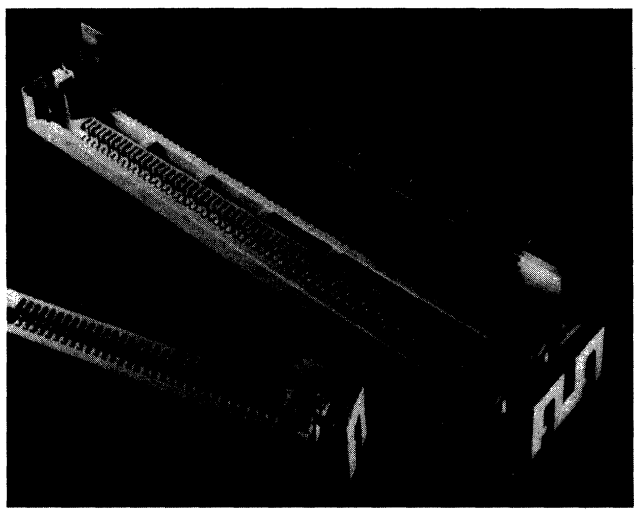
Contact—Beryllium copper, bright tin-lead plating

Number of Positions[1]	Single Row	Double Row
30	2-382030-1	2-382130-1
35	382035-1	—
31	382042-1	—

[1]Other sizes and variations can be made available upon request.

Memory Module Extraction Tool

Part No. 382264-1



MICRO-EDGE SIMM Connectors with Metal Latches, .050 [1.27] Centerline

Material and Finish:

Housing—Liquid crystal polymer, 94V-0 rated

Contact—Phosphor bronze with tin-lead plate over nickel plate

Latch—Brass with nickel plate

Vertical Single Row Connectors with Center Post

Standard Polarization

Number of Positions	Part Numbers Tin Plate
40	822021-1
64	822021-2
68	822021-3
72	822021-4
80	822021-5

Note: Connectors without center posts and with gold plating are also available.

Reverse Polarization

72 Position

Part No. 822030-3

Vertical Dual Row Connectors with Center Post

Number of Positions	Part Numbers Tin Plate
64	822090-2
68	822090-3
72	822090-4

Note: Connectors without center posts and with gold plating are also available.

MICRO-EDGE SIMM Connectors with Metal Latches, .100 [2.54] Centerline

Material and Finish:

Housing—Liquid crystal polymer, 94V-0 rated

Contact—Phosphor bronze with tin-lead plate over nickel plate

Latch—Brass with nickel plate

Vertical Single Row Connectors

Number of Positions	Part Numbers Tin Plate
22	822056-1
30	822056-2
35	822056-3
40	822056-4
42	822056-5

Note: Connectors with gold plating are also available.

Vertical Dual Row Connectors

30 Position, .100 [2.54] x .300 [7.62] Centerline

Part No. 822058-2

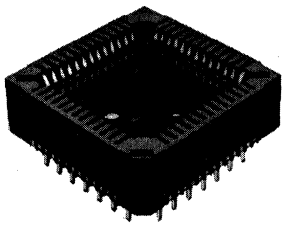
30 Position, .100 [2.54] x .400 [10.16] Centerline

Part No. 822060-2

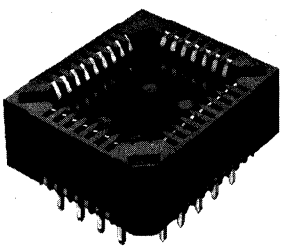
Square and Rectangular Sockets

Square and Rectangular Sockets for PLCC Packages

HPT Sockets with Solder Tails



Square



Rectangular

Materials and Finish:

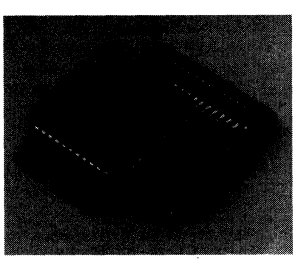
Housing—Polyphenylene sulfide, 40% glass-filled, 94V-0 rated, 220° C

Contacts—Phosphor bronze

Plating—.000150 [0.00381] min. tin-lead (93-7) over .000040 [0.00102] min. nickel

No. of Positions	Package Configuration	Part Number
20	Square	821815-1
28	Square	821581-1
32	Rectangular	821665-1
44	Square	821575-1
52	Square	821551-1
68	Square	821574-1
84	Square	821573-1

Square and Rectangular Sockets for Low Profile PLCC Packages, Surface Mount



Materials and Finish:

Housing—Polyphenylene sulfide, 40% glass-filled, 94V-0 rated, 220° C

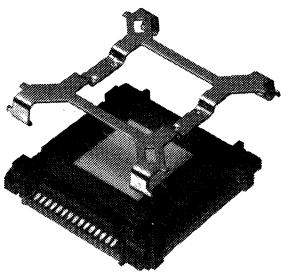
Contacts—Phosphor bronze with .000200 [0.00508] 93/7 tin-lead per MIL-T-10727 Type I over .000050 [0.00127] nickel per QQ-N-290

No. of Positions	Part Numbers	
	Without Locking Posts	With Locking Posts
20	822014-3	822065-4
28	822039-3	822066-4
32*	821977-1	822067-2
44	821979-3	822068-4
52	822041-3	822069-4
68	822029-3	822070-4

*Rectangular

Square Sockets for LCCC Packages

Low Height Chip Carrier Sockets with Solder Tails



Materials and Finish:

Housing—Polyester glass filled

Contacts—Beryllium copper with gold over nickel plating in substrate area and tin-lead over nickel in solder tail area

Cover—Steel with nickel plating

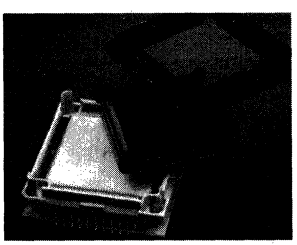
Thruster Clip—Stainless steel

No. of Positions	Assembly with Cover*	
	Leg Length	
	.140 [3.65]	.110 [2.79]
44	55232-1	55232-2
52	55227-1	55227-2
68	55159-1	55159-2
84	55225-1	55225-2
100	55219-1	55219-2

*Cover and assembly available separately.

Square Sockets for PQFP Packages

Micro-Pitch Sockets for Plastic Quad Flat Pack ICs



Materials and Finish:

Housing—High temperature liquid crystal polymer (LCP), 94V-0 rated

Cover—Polyphenylene sulfide (PPS), 94V-0 rated

Contacts—Tin plated phosphor bronze

Insertion/Extraction Tools:
Tool No. 821958-1 (100 Position)
Tool No. 821958-2 (132 Position)

No. of Positions	Part No.	
	Housing Subassembly	Cover
100	821949-4	821939-1
132	821949-5	821942-1

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

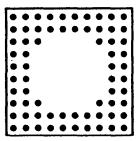
For more information request Catalog 82172

Square Sockets for PGA Packages

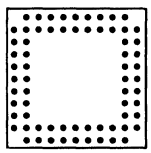
Material and Finish:

Housing—Glass filled polyester, 94V-0 rated

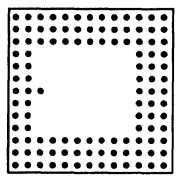
Contacts—Phosphor bronze, plated gold over nickel in the contact area and tin-lead over the solder legs



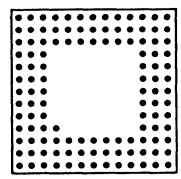
10 x 10
68 Position
(Symmetrical)



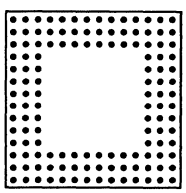
11 x 11
68 Position
(Symmetrical)



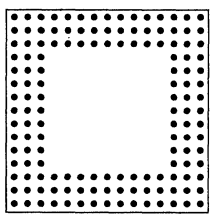
13 x 13
114 Position
Type II
(Non-Symmetrical)



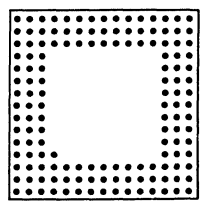
13 x 13
121 Position
(Non-Symmetrical)



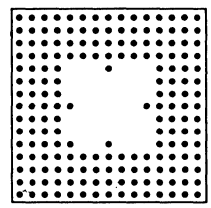
14 x 14
132 Position
(Symmetrical)



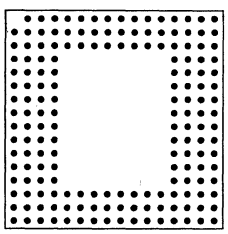
15 x 15
144 Position
(Symmetrical)



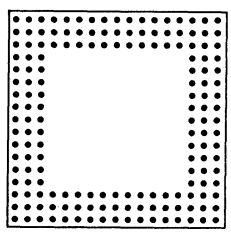
15 x 15
145 Position
(Non-Symmetrical)



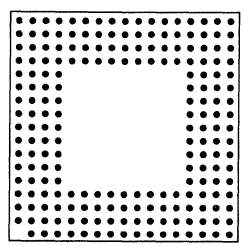
15 x 15
181 Position
(Symmetrical)



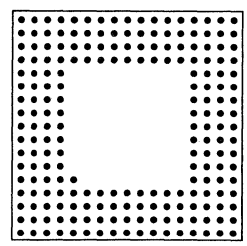
16 x 16
175 Position
(Non-Symmetrical)



17 x 17
168 Position
(Symmetrical)

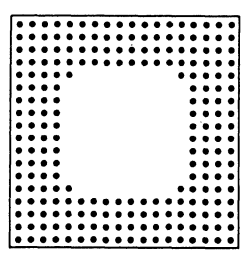


17 x 17
207 Position
(Non-Symmetrical)

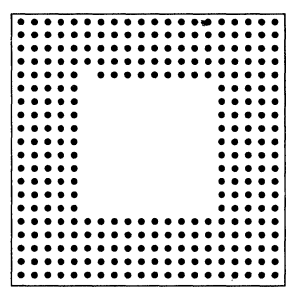


17 x 17
209 Position
(Non-Symmetrical)

Configuration	Part Numbers	
	Closed Frame	Open Frame
10 x 10—68 Pos.	916220-2	—
11 x 11—68 Pos.	916221-3	—
13 x 13—114 Pos.	916223-3	—
13 x 13—121 Pos.	916223-2	1-916223-6
14 x 14—132 Pos.	916224-1	916224-8
15 x 15—144 Pos.	916225-1	—
15 x 15—145 Pos.	916225-3	—
15 x 15—181 Pos.	916225-4	—
16 x 16—175 Pos.	—	916226-6
17 x 17—168 Pos.	916227-7	1-926227-2
17 x 17—207 Pos.	916227-6	—
17 x 17—209 Pos.	916227-1	—
18 x 18—179 Pos.	916228-3	—
20 x 20—299 Pos.	916300-3	—

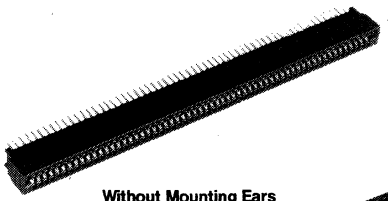


18 x 18
179 Position
(Symmetrical)

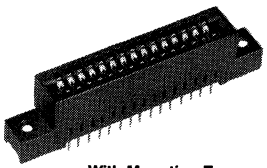


20 x 20
299 Positions
(Non-Symmetrical)

Standard Edge II Connectors .100 [2.54] and .125 [3.18] Centerline Solder and Wrap Type Posts



Without Mounting Ears



With Mounting Ears

Material:

Housing—94V-0 rated, glass-filled polyester, black
Contact—Phosphor bronze
Finish—.000030 [0.00076] Gold over nickel unless otherwise noted.

With Mounting Ears, Wrap-Type Posts

No. of Dual Positions	.100 [2.54] Centerlines .570 [14.48] Post Length	No. of Dual Positions	.125 [3.18] Centerlines .570 [14.48] Post Length
30	4-530396-3	10	4-530825-2
35	4-530396-5	22	4-530825-5
36	4-530396-4	28	4-530825-6
43	4-530396-7	50	5-530825-2
50	4-530396-8		

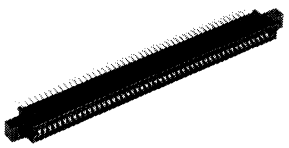
No. of Dual Positions	Post Length*	.100 [2.54] Centerline Solder Posts			.125 [3.18] Centerline Solder Posts	
		Without .000030 [0.00076] Gold Plate	Mounting Ears .000015 [0.00038] Gold Plate	With Low Mounting Ears	Without Mounting Ears	With Low Mounting Ears
3	.125	1-530843-7	—	—	—	—
	.187	—	—	—	—	—
6	.125	7-530843-5	—	—	530844-1	—
	.187	7-530843-6	—	—	1-530844-2	—
10	.125	5-530843-0	—	—	530844-2	—
	.187	4-530843-9	5-530843-2	—	1-530844-3	—
12	.125	530843-1	2-530843-5	—	—	—
	.187	1-530843-2	—	—	—	—
15	.125	530843-2	2-530843-6	530841-2	—	—
	.187	1-530843-3	—	—	—	—
17	.125	5-530843-3	—	—	—	—
	.187	—	—	—	—	—
18	.125	530843-3	2-530843-7	530841-3	—	—
	.187	1-530843-4	—	—	1-530844-5	—
20	.125	5-530843-4	—	—	—	—
	.187	—	—	—	—	—
22	.125	530843-4	2-530843-8	530841-4	530844-5	—
	.187	1-530843-5	—	—	1-530844-6	—
25	.125	530843-5	2-530843-9	530841-5	—	—
	.187	1-530843-6	—	1-530841-6	—	1-530842-7
28	.125	530843-6	—	530841-6	—	—
	.187	1-530843-7	—	—	1-530844-7	—
30	.125	530843-7	—	530841-7	—	—
	.187	1-530843-8	4-530843-2	1-530841-8	1-530844-8	—
31	.125	6-530843-5	7-530843-0	—	—	—
	.187	6-530843-3	—	—	—	—
35	.125	2-530843-3	—	—	—	—
	.187	2-530843-4	—	—	—	—
36	.125	530843-8	—	530841-8	—	—
	.187	1-530843-9	—	1-530841-9	1-530844-9	1-530842-9
40	.125	530843-9	—	—	—	—
	.187	2-530843-0	—	530841-9	2-530844-0	—
43	.125	1-530843-0	—	—	1-530844-0	—
	.187	2-530843-1	—	2-530841-1	—	—
50	.125	1-530843-1	—	1-530841-1	1-530844-1	1-530842-1
	.187	2-530843-2	—	2-530841-2	2-530844-2	2-530842-2
52	.125	645169-3	—	—	—	—
60	.125	5-530843-5	5-530843-7	530841-3	—	—
	.187	5-530843-6	5-530843-8	—	—	—
70	.125	5-530843-9	6-530843-1	—	—	—

*Metric equivalents for post length are .125 [3.18]; .187 [4.75].
1. Low mounting ears .360 [9.14].

For **drawings, technical data or samples,** contact you local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82619

Standard Edge II Connectors .100 [2.54] Centerline Card Extenders



Number of Positions	Part Number
30	1-530826-0
36	530826-1
40	530826-2
43	1-530826-2
50	530826-3

Standard Edge II Connectors .125 [3.18] Centerline Card Extenders

Number of Positions	Part Number
18	530384-8
30	530384-1
36	530384-2
50	530384-3

Material:

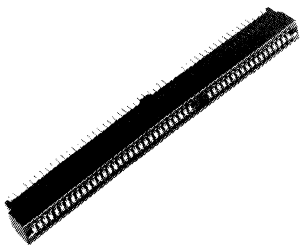
Housing—94V-0 rated, glass-filled polyester, black
Contacts—Phosphor bronze
Finish—Gold over nickel accu-plating in contact area, .000030 [0.00076] thick; tin plated posts.

Mounting Block

Material:

Natural Color Nylon
Kit Part No. 531250-1
Each kit includes 2 mounting blocks, 2 self tapping screws, #5 x .375 [9.52] 2 roll pins, .075 x .25 [1.57 x 6.35]

Standard Edge II Connectors .100 [2.54] Centerline



18/31 Card Slot

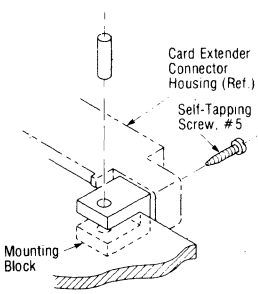
52 Dual Position **Part No. 645169-2**
Retention Style I

18 Dual Position **Part No. 645235-4**
31 Dual Position **Part No. 645235-1**
Retention Style III
(Other configurations available)

Material:

Housing—Glass-filled polyester, black
Contact—Phosphor bronze
Finish—Gold over nickel accu-plating in contact area, .000030 [0.00076] thick; tin plated posts.

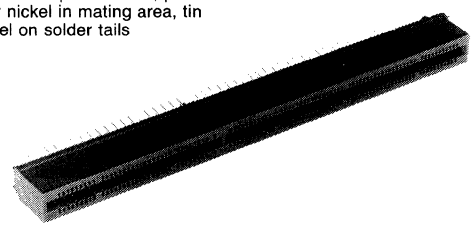
Short Keying Plug Part No. 650025-2



Standard Edge .050 Series Connectors .050 [1.27] Centerline

Material and Finish:

Housing—Polyphenlyene sulfide
Contacts—Phosphor bronze, plated gold over nickel in mating area, tin over nickel on solder tails



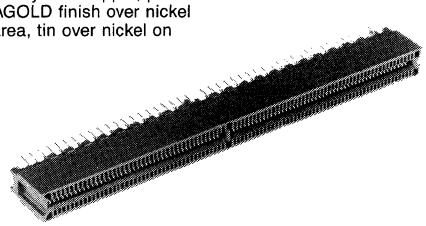
No. of Positions	Post Length*	Part Numbers	Configuration
15	.100	650712-1	End Key
23	.100	650090-7	1 Key-2 Pylons
	.140	650181-3	1 Key-2 Pylons
25	.100	650719-1	End Key
30	.100	650090-6	1 Key-2 Pylons
40	.100	650090-3	1 Key-2 Pylons
	.140	650181-2	1 Key-2 Pylons
45	.100	650090-2	1 Key-2 Pylons
56	.100	650090-1	1 Key-2 Pylons
	.140	650181-1	1 Key-2 Pylons
66	.100	650091-1	1 Key/1 Web-2 Pylons
	.140	650091-2	1 Key/1 Web-2 Pylons
91	.100	650092-1	1 Key-2 Pylons
	.140	650092-2	1 Key-2 Pylons
97	.100	650706-1	1 Key/1 Web-2 Pylons
	.140	650706-2	1 Key/1 Web-2 Pylons
101	.100	650707-1	1 Key/1 Web-2 Pylons
	.140	650707-2	1 Key/1 Web-2 Pylons
120	.100	650231-2	1 Key/1 Web-2 Pylons
	.140	650231-1	1 Key/1 Web-2 Pylons

*Metric equivalents for post length are .100 [2.54], .140 [3.56].

Standard Edge EISA Connector .050 [1.27] Centerline (.100 [2.54] Staggered Grid)

Material and Finish:

Housing—Vapor phase compatible thermoplastic
Contacts—Beryllium copper, plated AMP-DURAGOLD finish over nickel in mating area, tin over nickel on solder tails



188 Position, Part No. 650226-1

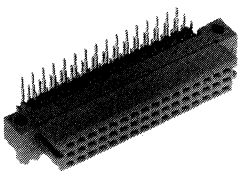
Eurocard Connecters Post Assemblies with Solder Posts

Type ½R Connectors .100 [2.54] Grid 3 Row, Inverse Style

Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

Pin Assembly with Solder Posts
48 Position **Part No. 532546-1**
Post length .190 [4.83] Rows loaded A,B,C

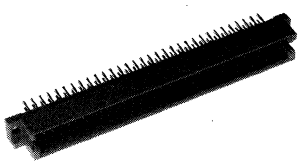


Receptacle Assemblies with Solder Posts
48 Position **Part No. 650868-4**
Rows loaded A,B,C

Standard Type R Connectors .100 [2.54] Grid 3 Row, Inverse Style

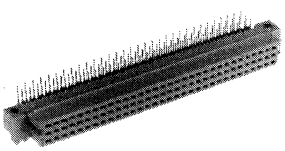
Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II



Pin Assembly with Solder Posts

No. of Contacts	Rows Loaded	Post Length .190 [4.83]
96	A, B, C	650470-5
64	A, C	650934-5



Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

Type R
Receptacle Assemblies with Solder Posts

No. of Contacts	Rows Loaded	Post Length .108 [2.74]	Post Length .168 [4.27]
96	A, B, C	650461-4	650462-4
64	A, C	650870-4	650871-4

Standard Type R Connectors .100 [2.54] Grid 3 Row, Inverse Style

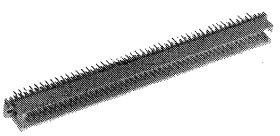
Pin Assemblies with ACTION PIN Posts for .093 [2.36] to .125 [3.18] Thick Printed Circuit Boards

Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy plated as follows:
A—DIN 41612, Class II in contact area, tin-lead on tail
B—Din 41612, Class II in contact area and last .200 [5.08] of tail

No. of Contacts	Rows Loaded	Contact Plating	Post Length .250 [6.35]	Post Length .521 [13.23]	Post Length .733 [18.62]
96	A, B, C	A	650889-5	650909-5	531787-1
		B	—	1-650909-4	532525-1
64	A, C	B	—	1-650930-4	—

Expanded Type R Connectors .100 [2.54] Grid 3 Row, Inverse Style



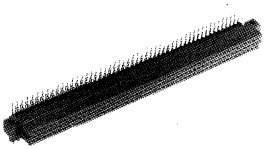
Pin Assemblies with Solder Posts

Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

No. of Contacts	Rows Loaded	Post Length .190 [4.83]
120	A, B, C	534054-1
150	A, B, C	534054-2

Receptacle Assemblies with Solder Posts



Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

No. of Contacts	Rows Loaded	Post Length .110 [2.79]	Post Length .167 [4.24]
120	A, B, C	650874-4	650876-4
150	A, B, C	650875-5	650877-4

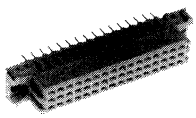
Eurocard Connectors Post Assemblies with Solder Posts

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82721

Type ½C Connectors .100 [2.54] Grid 3 Row, Standard Style

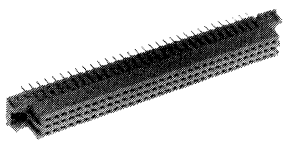
Receptacle Assembly with Solder Posts



48 Contacts **Part No. 535071-4**
Post Length .180 [4.57]

Standard Type C Connectors .100 [2.54] Grid 3 Row, Standard Style

Receptacle Assemblies with Solder Posts



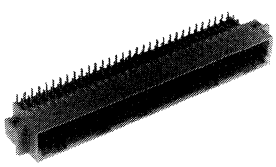
Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

No. of Contacts	Rows Loaded	Post Length		
		.180 [4.57]	.130 [3.3]	.098 [2.49]
96	A, B, C	535043-4	—	535089-4
64	A, C	—	650408-4	—

Standard Type C Connectors .100 [2.54] Grid 3 Row, Standard Style

Pin Assemblies with Solder Posts



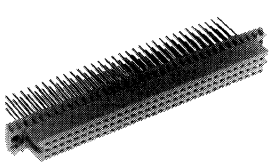
Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to
[1]DIN 41612, Class II
[2]DIN 41612, Class III

No. of Contacts	Part Numbers Post Length	
	.104 [2.46]	.130 [3.30]
96	650473-5[1]	650947-5[1]
96	650733-9[2]	650947-9[2]
64	650945-5[1]	—

Receptacle Assemblies with ACTION PIN Posts

(For .093 [2.36] printed circuit boards)



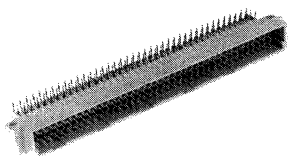
Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to
[1]DIN 41612, Class II in contact area, tin-lead on tail
[2]DIN 41612, Class II in contact area and last .200 [5.08] of tail

No. of Contacts	Rows Loaded	Post Length		
		.190 [4.83]	.512 [13]*	.669 [17]*
96	A,B,C	—	1-215912-4[2]	1-215614-4[2]
96	A,B,C	535032-4	215912-4[1]	—

*Use Insertion Tool No. 535072-1 for .512 [13] and .669 [17] post lengths.

Expanded Type C Pin Assemblies

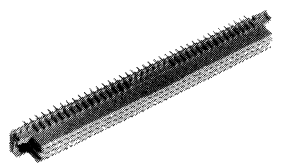


Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

No. of Contacts	Rows Loaded	Post Length	
		.104 [2.64]	.130 [3.30]
120	A, B, C	650906-5	650949-5
150	A, B, C	650907-5	650950-5

Expanded Type C Receptacle Assemblies

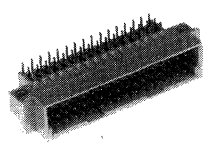


Material and Finish:

Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

No. of Contacts	Rows Loaded	Post Length		
		.098 [2.49]	.130 [3.30]	.180 [4.57]
120	A, B, C	535097-4	535098-4	535099-4
150	A, B, C	650404-4	650405-4	650406-4

Type ½C Pin Assemblies



Material and Finish:

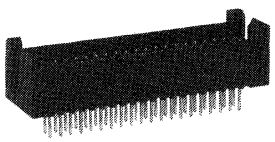
Housing—Thermoplastic, gray
Contacts—Copper alloy, plated to DIN 41612, Class II

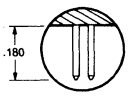
No. of Contacts	Rows Loaded	Post Length	
		.104 [2.64]	.130 [3.30]
32	A, C	650946-5	650952-5
48	A, B, C	650478-5	650948-5

Two-Piece Printed Circuit Board Connectors (AMPMODU)

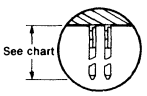
For more information request Catalog 82076

Solder Post and ACTION PIN Contacts (with Pin Protection and Guide Pins)





.025 [0.64] Square Solder Posts



.025 [0.64] Square ACTION PIN Posts

Material:

Housing—Glass filled thermoplastic, flame retardant
Contacts—Phosphor bronze, plated as follows:
A—Duplex plated .000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.
B—Duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

ACTION PIN Replacement Contact Part Numbers

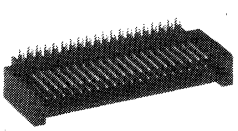
.250 [6.35] Post Length
Plating A 102824-9
Plating B 1-102824-0

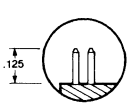
No. of Pos.	Header Part Numbers			
	With .180 [4.57] Solder Posts		With ACTION PIN Posts	
	Plating A	Plating B	Post Length*	Plating B
12	102567-1	102692-1	.250	102690-1
20	1-102567-1	1-102692-6	.250	1-102690-3
24	102567-2	102692-2	.250	102690-2
30	1-102567-3	1-102692-7	.250	1-102690-5
36	102567-3	102692-3	.250	102690-3
40	1-102567-2	1-102692-3	.250	1-102690-6
50	102567-6	102692-4	.250	102690-4
60	102567-4	102692-5	.250	102690-5
70	1-102567-0	1-102692-4	.250	1-102690-7
72	1-102567-6	1-102692-8	.250	1-102690-8
80	102567-8	102692-6	.250	102690-6
100	102567-9	102692-8	.250	102690-8
120	102567-7	102692-9	.250	102690-9

*Metric equivalent for post length is .250 [6.35].

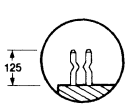
Two-Row Headers Right-Angle Post .100 [2.54] Centers

Card Extender (with Pin Protection and Guide Pins)



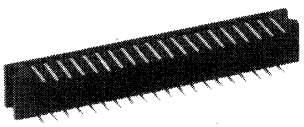


.025 [0.64] Square Solder Posts



.025 [0.64] Square Board Retention Posts

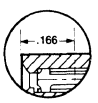
Two-Row Closed Entry Receptacle Assemblies Board Mounted, .100 [2.54] Centers



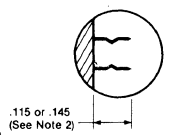
Horizontal Mount (with Guide Pin Slots and Standoffs)

Material and Finish:

Housing—Polyphenylene sulfide
Contacts—Phosphor bronze, duplex plated as follows:
A—.000015 [0.00038] gold on mating area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel.
B—.000030 [0.00076] gold on mating area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel.



Point of Contact



Board Retention Posts

No. of Positions	Receptacle Assembly Part Numbers		
	.115 [2.92] Solder Tail		.145 [3.68] Solder Tail
	Plating A	Plating B	Plating B
12	532955-1	532956-1	533009-1
16	—	532956-1	—
20	532955-3	532956-3	—
24	532955-4	532956-4	—
30	532955-5	532956-5	533009-5
36	532955-6	532956-6 534204-3[1]	—
40	532955-7	532956-7	—
44	2-532955-4	2-532956-8 532956-8	—
50	532955-8	534204-1[1]	533009-8
60	532955-9	532956-9 534204-5[1]	533009-9
70	1-532955-0	1-532956-0	—
72	1-532955-1	1-532956-1	—
80	1-532955-2	1-532956-2 534204-8[1]	1-533009-2
90	1-532955-4	1-532956-4	—
100	1-532955-6	1-532956-6 534204-6[1]	—
120	1-532955-8	1-532956-8 534204-7[1]	1-533009-8[2] 534229-3[3]
130	2-532955-0	2-532956-0	—
140	2-532955-1	2-532956-1	2-533009-1

[1]Receptacle Assembly with board retention feature.
[2]Low-force receptacle assembly with board retention feature.
[3]Low-force receptacle assembly.

Material:

Housing—Glass filled thermoplastic, flame retardant
Contacts—Phosphor bronze, duplex plated as follows:
A—.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel.
B—.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel.

No. of Positions	Header Part Numbers	
	Plating A	Plating B
12	102589-8	1-102802-2
36	102589-2	102802-3
40	1-102589-3	102802-8
50	102589-5	534245-1* 102802-4
60	102589-7	102802-9
72	1-102589-7	—
80	102589-1	102802-5
100	102589-3	102802-6
120	1-102589-1	102802-2

*Header with board retention feature.

AMP-LATCH Ribbon Cable Connector System

Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .195 [4.95] min. lengths.

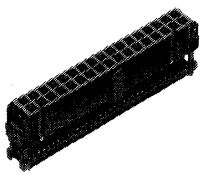
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82012

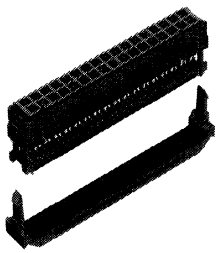
Novo Receptacle

Material and Finish:

Housing, Cover & Strain Relief—Black Thermoplastic, 94V-0 Rated
Contacts—Phosphor Bronze, tin or duplex plated



Novo Receptacles, Center and Military Polarized .100 x .100 [2.54 x 2.54] Centers



Novo Receptacles, Military Polarized* .100 x .100 [2.54 x 2.54] Centers

*These receptacles can be used in applications requiring non-polarization, as well as military polarization.

Novo Receptacle (Female, .100 x .100 [2.54 x 2.54] Centers for use with .050 [1.27] Centers Ribbon Cable) (Preassembled Recessed Cover)

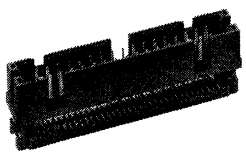
No. of Positions	Contact Plating	Receptacle Kit No. (Preassembled) Center and Military Polarization: Military Polarized	Receptacle Kit No. (Preassembled) Center and Military Polarization: Center and Military Polarized	Strain Relief
10	Duplex[1] Duplex[2]	499997-1 746290-1	746285-1 746288-1	499252-5
14	Duplex[1] Duplex[2]	499997-2 746290-2	746285-2 746288-2	499252-9
16	Duplex[1] Duplex[2]	499997-3 746290-3	746285-3 746288-3	499252-8
20	Duplex[1] Duplex[2]	499997-4 746290-4	746285-4 746288-4	499252-2
24	Duplex[1] Duplex[2]	499997-5 746290-5	746285-5 746288-5	1-499252-0
26	Duplex[1] Duplex[2]	499997-6 746290-6	746285-6 746288-6	499252-3
30	Duplex[1] Duplex[2]	499997-7 746290-7	746285-7 746288-7	1-499252-2
34	Duplex[1] Duplex[2]	499997-8 746290-8	746285-8 746288-8	499252-6
40	Duplex[1] Duplex[2]	499997-9 746290-9	746285-9 746288-9	499252-1
50	Duplex[1] Duplex[2]	1-499997-0 1-746290-0	1-746285-0 1-746288-0	499252-4
60	Duplex[1] Duplex[2]	1-499997-1 1-746290-1	1-746285-1 1-746288-1	499252-7
64	Duplex[1] Duplex[2]	1-499997-2 1-746290-2	1-746285-2 1-746288-2	1-499252-3

[1].000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.
[2].000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.
[3].000100-.000200 [0.00254-0.00508] bright tin-lead on over .000050 [0.00127] nickel on entire contact.

Keying Plug 499712-1 (Plugs into contact on mating face).

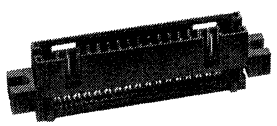
Note: Other sizes, plating or military approved connectors available. Contact AMP Incorporated.

Without Mounting Ears



Shown without Detent Windows

With Slotted Mounting Ears



Shown with Detent Windows

Pin Connector (Male, .100 x .100 [2.54 x 2.54] Centers for use with .050 [1.27] Centers Ribbon Cable) (Preassembled Cover) Universal 4-Sided Shroud

No. of Positions	Without Mounting Ears	With Slotted Mounting Ears
10	746364-1	746353-1
14	746364-2	746353-2
16	746364-3	746353-3
20	746364-4	746353-4
24	746364-5	746353-5
26	746364-6	746353-6
30	746364-7	746353-7
34	746364-8	746353-8
40	746364-9	746353-9
44	1-746364-0	1-746353-0
50	1-746364-1	1-746353-1
60	1-746364-2	1-746353-2
64	1-746364-3	1-746353-3

[2].000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

Note: Other sizes, plating or military approved connectors available. Contact AMP Incorporated.

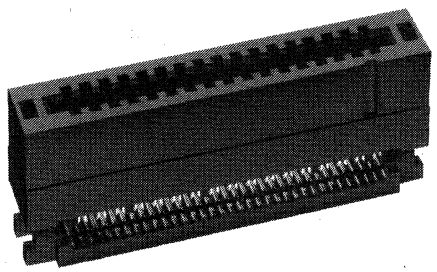
Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .195 [4.95] min. lengths.

Card Edge Connectors without Mounting Ears

Housing Assembly with Cover (Preassembled)

Material and Finish:

Housing & Cover—Black Thermoplastic, 94V-0 Rated
Contacts—Phosphor Bronze .000030 [0.00076] gold on pc board mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on terminating end, with entire contact underplated .000050 [0.00127] nickel.



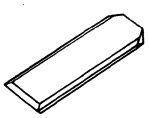
No. of Positions	Contact Plating	Without Mounting Ears	Without Mounting Ears With Molded Key
10	A	111109-8	111111-8
	B	111110-8	111112-8
14	A	111109-9	111111-9
	B	111110-9	111112-9
16	A	1-111109-0	1-111111-0
	B	1-111110-0	1-111112-0
20	A	111109-6	111111-6
	B	111110-6	111112-6
26	A	111109-5	111111-5
	B	111110-5	111112-5
30	A	111109-4	111111-4
	B	111110-4	111112-4
34	A	111109-3	111111-3
	B	111110-3	111112-3
40	A	111109-2	111111-2
	B	111110-2	111112-2
44	A	1-111109-2	1-111111-2
	B	1-111110-2	1-111112-2
50	A	111109-1	111111-1
	B	111110-1	111112-1
60	A	111109-7	111111-7
	B	111110-7	111112-7
64	A	1-111109-1	1-111111-1
	B	1-111110-1	1-111112-1

A—.000030 [0.00076] gold pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.
B—.000015 [0.00038] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

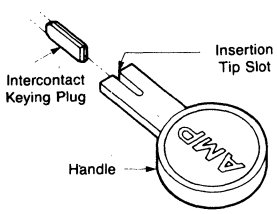
Note: Inter contact keying plug is molded between positions 3, 4, 5 and 6.

Keying Plug

Material: Natural color thermoplastic, 94V-0 rated



Intercontact Keying Plug, Part No. 88113-1
(Use insertion Tool No. 91233-1)



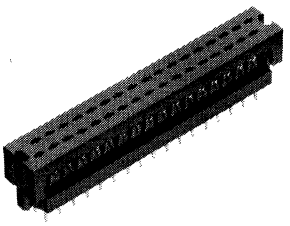
Insertion Tool No. 91233-1

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

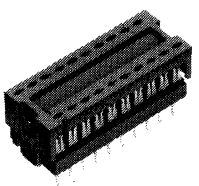
For more information request Catalog 82012

DIP Plugs

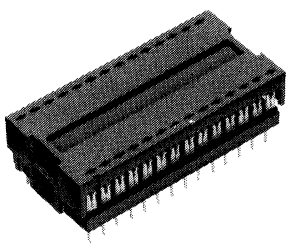
Housing Assembly with Cover (Preassembled)



.100 x .100 [2.54 x 2.54] Centers



.100 x .300 [2.54 x 7.62] Centers



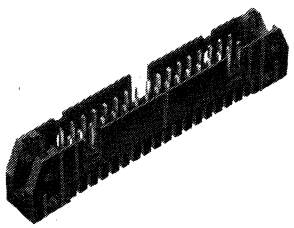
.100 x .600 [2.54 x 15.24] Centers

No. of Positions	.100 x .100 [2.54 x 2.54]		.100 x .300 [2.54 x 7.62]		.100 x .600 [2.54 x 15.24]	
	Contact Plating	Part No.	Contact Plating	Part No.	Contact Plating	Part No.
8	—	—	A	746612-1	—	—
	—	—	B	746611-1	—	—
	—	—	C	746613-1	—	—
10	C	746610-1	—	—	—	—
14	—	—	A	746612-2	—	—
	—	—	B	746611-2	—	—
	C	746610-2	C	746613-2	—	—
16	—	—	A	746612-3	—	—
	—	—	B	746611-3	—	—
	C	746610-3	C	746613-3	—	—
20	—	—	A	746612-5	—	—
	—	—	B	746611-5	—	—
	C	746610-4	C	746613-5	—	—
24	—	—	—	—	A	746615-1
	—	—	—	—	B	746614-1
	C	746610-5	—	—	C	746616-1
26	C	746610-6	—	—	—	—
28	—	—	—	—	A	746615-2
	—	—	—	—	B	746614-2
	—	—	—	—	C	746616-2
30	C	746610-7	—	—	—	—
34	C	746610-8	—	—	—	—
40	—	—	—	—	A	746615-3
	—	—	—	—	B	746614-3
	C	746610-9	—	—	C	746616-3
44	C	1-746610-3	—	—	—	—
50	C	1-746610-0	—	—	—	—
60	C	1-746610-1	—	—	—	—
64	C	1-746610-2	—	—	—	—

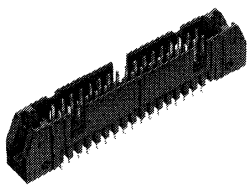
A—.000015 [0.00038] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.
B—.000030 [0.00076] gold pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.
C—.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .195 [4.95] min. lengths.

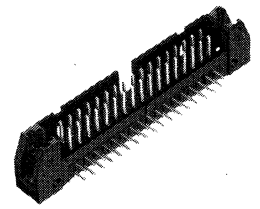
Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers .240 [6.1] Mating Post Length



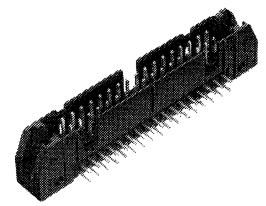
Straight-Thru, 4 Sided .025 [0.64] Sq. Posts



Straight-Thru, 4 Sided .025 [0.64] Sq. ACTION PIN Posts



Right-Angle, 3 Sided .025 [0.64] Sq. Posts



Right-Angle, 4 Sided .025 [0.64] Sq. Posts

No. of Positions	Housing Style	Post Type	Post Length	Plating Type	Part Numbers
10	4 Sided	Straight	.110 2.79	A	102153-1
				B	102154-1
			.155 3.94	A	102155-1
				B	102156-1
		Right Angle	.110 2.79	A	102159-1
				B	102160-1
	3 Sided	Right Angle	.110 2.79	B	746143-1
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-1
				B	499582-1
14	4 Sided	Straight	.110 2.79	A	102153-2
				B	102154-2
			.155 3.94	A	102155-2
				B	102156-2
		Right Angle	.110 2.79	A	102159-2
				B	102160-2
	3 Sided	Right Angle	.110 2.79	B	746143-2
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-2
				B	499582-2
16	4 Sided	Straight	.110 2.79	A	102153-3
				B	102154-3
			.155 3.94	A	102155-3
				B	102156-3
		Right Angle	.110 2.79	A	102159-3
				B	102160-3
	3 Sided	Right Angle	.110 2.79	B	746143-3
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-3
				B	499582-3

No. of Positions	Housing Style	Post Type	Post Length	Plating Type	Part Numbers
20	4 Sided	Straight	.110 2.79	A	102153-4
				B	102154-4
			.155 3.94	A	102155-4
				B	102156-4
		Right Angle	.110 2.79	A	102159-4
				B	102160-4
	3 Sided	Right Angle	.110 2.79	B	746143-4
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-4
				B	499582-4
24	4 Sided	Straight	.110 2.79	A	102153-5
				B	102154-5
			.155 3.94	A	102155-5
				B	102156-5
		Right Angle	.110 2.79	A	102159-5
				B	102160-5
	3 Sided	Right Angle	.110 2.79	B	746143-5
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-5
				B	499582-5
26	4 Sided	Straight	.110 2.79	A	102153-6
				B	102154-6
			.155 3.94	A	102155-6
				B	102156-6
		Right Angle	.110 2.79	A	102159-6
				B	102160-6
	3 Sided	Right Angle	.110 2.79	B	746143-6
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-6
				B	499582-6

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82012

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers (Continued)

No. of Positions	Housing Style	Post Type	Post Length	Plating Type	Part Numbers
30	4 Sided	Straight	.110 2.79	A	102153-7
				B	102154-7
			.155 3.94	A	102155-7
				B	102156-7
		Right Angle	.110 2.79	A	102159-7
				B	102160-7
	3 Sided	Right Angle	.110 2.79	B	746143-7
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-7
				B	499582-7
34	4 Sided	Straight	.110 2.79	A	102153-8
				B	102154-8
			.155 3.94	A	102155-8
				B	102156-8
		Right Angle	.110 2.79	A	102159-8
				B	102160-8
	3 Sided	Right Angle	.110 2.79	B	746143-8
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-8
				B	499582-8
40	4 Sided	Straight	.110 2.79	A	102153-9
				B	102154-9
			.155 3.94	A	102155-9
				B	102156-9
		Right Angle	.110 2.79	A	102159-9
				B	102160-9
	3 Sided	Right Angle	.110 2.79	B	746143-9
	4 Sided	Straight ACTION PIN	.174 4.42	A	499984-9
				B	499582-9
50	4 Sided	Straight	.110 2.79	A	1-102153-0
				B	1-102154-0
			.155 3.94	A	1-102155-0
				B	1-102156-0
		Right Angle	.110 2.79	A	1-102159-0
				B	1-102160-0
	3 Sided	Right Angle	.110 2.79	B	1-746143-0
	4 Sided	Straight ACTION PIN	.174 4.42	A	1-499984-0
				B	1-499582-0
60	4 Sided	Straight	.110 2.79	A	1-102153-1
				B	1-102154-1
			.155 3.94	A	1-102155-1
				B	1-102156-1
		Right Angle	.110 2.79	A	1-102159-1
				B	1-102160-1
	3 Sided	Right Angle	.110 2.79	B	1-746143-1
	4 Sided	Straight ACTION PIN	.174 4.42	A	1-499984-1
				B	1-499582-1
64	4 Sided	Straight	.110 2.79	A	1-102153-2
				B	1-102154-2
			.155 3.94	A	1-102155-2
				B	1-102156-2
		Right Angle	.110 2.79	A	1-102159-2
				B	1-102160-2
	3 Sided	Right Angle	.110 2.79	B	1-746143-2
	4 Sided	Straight ACTION PIN	.174 4.42	A	1-499984-2
				B	1-499582-2

A–.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.
B–.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

Latches for Ejection Style Pin Headers and Pinless Headers

Material: Black thermoplastic, 94V-0 rated.

Latch Part No. 102320-1

Latch Part No. 102186-1
For use with Recessed Cover and Strain Relief

Latch Part No. 102312-1

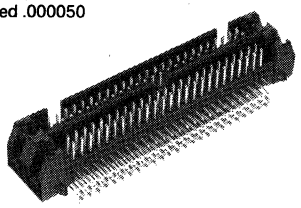
Latch Part No. 102185-1
For use with Recessed Cover

Latch Part No. 746469-1
For use with Shielded Receptacle with .240 [6.1] wide cover

Stacked Pin Header, Right Angle Ejection Style, Dual and Center Polarized .100 x .100 [2.54 x 2.54] Centers, .025 [0.64] Sq. Posts

Material and Finish:

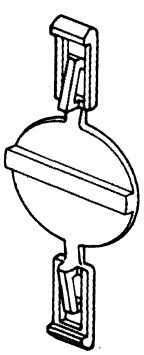
Housing—Black glass-filled, polyester, 94V-0 rated
Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin or bright tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel.



Stacked Headers

No. of Positions	Part Number
40	111391-4
52	111391-6
68	111391-8
80	111391-9
100	1-111391-0
120	1-111391-1

Polarizer, Snap-In (for Pin Connectors, Universal Pin and Pinless Headers and Low Profile Pin Headers)

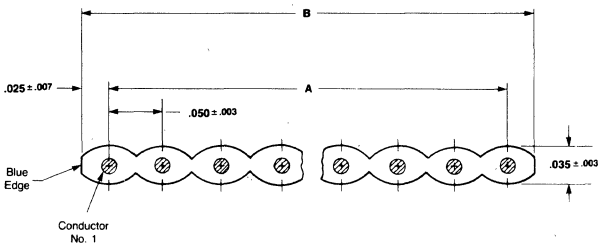


The snap-in polarizer provides military polarization for pin connectors (without detent windows), Universal pin and pinless headers and Low Profile pin headers.

Material: Black thermoplastic, 94V-0 rated

Part Nos.:
499991-2 (Packaged 50 per bag)
499991-3 (Packaged 1000 per box)

Planar Ribbon Cable



Conductors: 28 AWG [0.08-0.09 mm²] tinned copper, 7/36 stranded
Insulation: standard gray PVC, flame retardant; with blue edge on Conductor No. 1 side.
Temperature Rating: −20°C to +105°C
Voltage Rating: 300 volts
Insulation Resistance: 10,000 megohms/10 ft [3.05 m]

Typical Electrical Values:	**GND-SIG-GND**
Characteristic Impedance	104-106 ohms
Capacitance	13.5 pf/ft
Time Delay	1.44 ns/ft

Crosstalk (per 9.84 ft [3 m] section):

	0.5 ns Rise Time	1 ns Rise Time	2 ns Rise Time	5 ns Rise Time
Near End	2.8-3%	2.8-3%	2.8-3%	2.8-3%
Far End	19%	14.5%	9%	4%

No. of Conductors	Dimensions A	Dimensions B	Reel Part No.*
10	**.450** 11.43	**.500** 12.7	499116-7
14	**.650** 16.51	**.700** 17.78	499116-1
16	**.750** 8.57	**.800** 9.14	499116-2
18	**.850** 9.72	**.900** 10.29	1-499116-7
20	**.950** 10.86	**1.000** 11.43	499116-3
24	**1.150** 13.14	**1.200** 13.71	1-499116-1
25	**1.200** 13.71	**1.250** 14.29	1-499116-8
26	**1.250** 14.29	**1.300** 14.86	499116-4
30	**1.450** 16.57	**1.500** 17.15	1-499116-2
34	**1.650** 18.86	**1.700** 19.43	499116-8
36	**1.750** 20.00	**1.800** 20.57	1-499116-6
37	**1.800** 20.57	**1.850** 21.15	1-499116-9
40	**1.950** 22.29	**2.000** 22.86	499116-5
50	**2.450** 28.00	**2.500** 28.58	499116-6
60	**2.950** 33.72	**3.000** 34.29	499116-9

*100 ft. continuous (splice-free) reel. Blue #1 marked.

Note: 1. CSA certified cable also available in 250' continuous reels.
2. Other sizes available, consult AMP Incorporated.

HDF-20 Low Profile Metal Shell and All Plastic Connectors (for Round Conductor Flat Ribbon Cable)

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

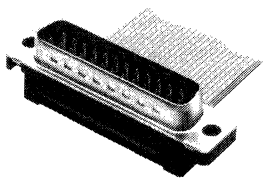
For more information request Catalog 82012

Material and Finish:

Front Shell—Steel; tin plated
Housing, Cover & Strain Relief—Black Thermoplastic, 94V-0 Rated
Threaded Inserts—Brass; unplated
Pin Contacts—Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

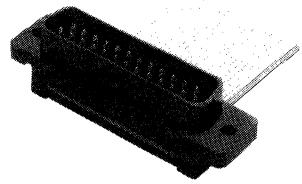
Plug Assemblies

Metal Shell Connectors (with Grounding Indents)



Housing and Cover are Preassembled; Strain Relief is Separate

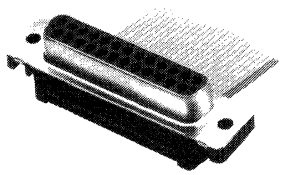
All Plastic Connectors



Housing and Cover are Preassembled; Strain Relief is Separate

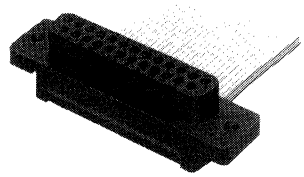
Receptacle Assemblies

Metal Shell Connectors



Housing and Cover are Preassembled; Strain Relief is Separate

All Plastic Connectors



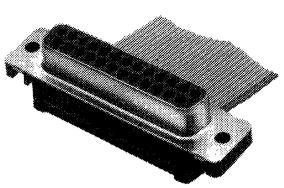
Housing and Cover are Preassembled; Strain Relief is Separate

No. of Contact Positions (Shell Size)	Metal Shell Connectors				All Plastic Connectors			
	Plug Assembly Part No.		Receptacle Assembly Part No.		Plug Assembly Part No.		Receptacle Assembly Part No.	
	Without Strain Relief With Standard Mounting Holes	With Strain Relief With Threaded Inserts	Without Strain Relief With Standard Mounting Holes	With Strain Relief With Threaded Inserts	Without Strain Relief With Standard Mounting Holes	With Strain Relief With Threaded Inserts	Without Strain Relief With Standard Mounting Holes	With Strain Relief With Threaded Inserts
9 (1)	747306-4	747043-4	747303-4	747052-4	747321-4	–	747318-4	–
15 (2)	747306-3	–	747303-3	747052-3	747321-3	–	747318-3	–
25 (3)	747306-2	–	747303-2	747052-2	747321-2	747053-2	747318-2	747051-2
37 (4)	747306-1	747043-1	747303-1	747052-1	747321-1	747053-1	747318-1	–

HDF-20 Low Profile Metal Shell Connectors

Material and Finish:

Front Shell—Steel, tin-plated
Housing, Cover & Cable Stabilizer—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Threaded Self-Locking Insert—Brass, color coded red
Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated



Receptacle

Shell Size	No. of Contact Pos.	Connector Part No.	
		With Threaded Inserts	With Self-Locking Inserts
		Receptacle	Receptacle
1	9	–	746861-4
2	15	–	746861-3
5	50	746789-1	–

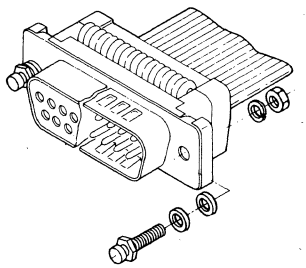
Notes: 1. All connectors are supplied with housing assembly and cover preassembled.
2. These connectors terminate flat ribbon cable with conductors on .050 [1.27] centers and in sizes 30 AWG solid, 28 AWG solid or stranded and 26 AWG solid or stranded.

Note: Other configurations available, contact AMP Incorporated.

For more information request Catalog 82012

Accessories

4-40 Locking Post Assemblies (for HDF-20 Metal-Shell and All Plastic Connectors)

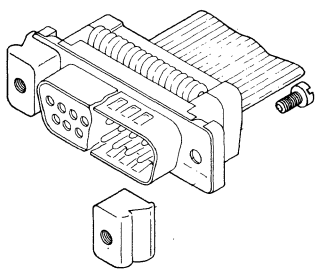


Material and Finish:

All Parts—Cold rolled steel, zinc plated (yellow chromate)

Locking Post Assembly Kit No.	
Individual	Bulk Packed
206514-1	206514-3

Latching Blocks with Threaded Holes



Material: Zinc

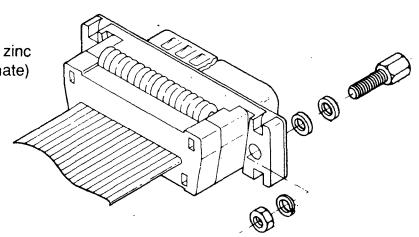
Shell Size (No. of) Contact Pos.)	Flange Mounting Dimension	Thread Size	Front Panel Latching Block Part No.	
			Individual	Bulk Packed*
1 thru 4 (9 thru 37)	.250 6.35	M3 (Metric)	—	208101-2
		4-40	208101-8	208101-9

*Bulk packed for multiple part orders.

Female Screwlocks (for HDF-20 Metal-Shell and All Plastic Connectors)

Material and Finish:

All Parts—Cold rolled steel; zinc plated (clear or yellow chromate)



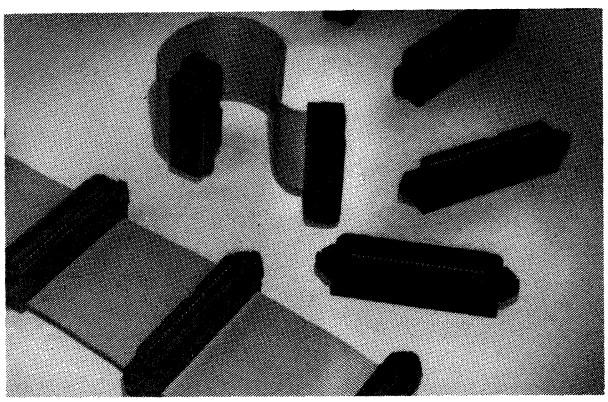
Thread Length	Thread Size	Finish	Standard Female Screwlock		Long Female Screwlock
			Individual	Bulk Packed*	Individual
.312 7.92	4-40	Yellow Chromate	—	205817-2	—
		Clear Chromate	205817-3	205817-4	—
	M3 (Metric)	Yellow Chromate	207872-1	—	—
.560 14.22	4-40	Yellow Chromate	—	—	207719-1
		Clear Chromate	—	—	207719-3

*Each part is individually bulk packed for multiple kit orders.

Notes: 1. All parts are packed unassembled.
2. Each kit includes two female screwlocks, lockwasher and hex nuts, and four flat washers.
3. One or two flat washers may be required for panel thicknesses less than .060 [1.52]
4. 2-56 is the male thread size. The female thread is 4-40.

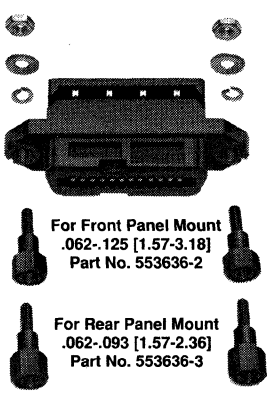
CHAMP Latch Connectors for .050 [1.27] Ribbon Cable

Low Profile Connectors—Standard



Number of Positions	Part Numbers				
	Bail Lock Plug Assembly	Screw Lock Plug Assembly	Screw Lock Receptacle Assembly	Panel Mount Plug Assembly	Panel Mount Receptacle Assembly
14	—	553596-1	—	—	—
24	—	—	553599-1	—	554088-1
36	554084-1	—	553601-1	554104-1	554089-1
50	554085-1	553602-1	553603-1	554105-1	554090-1

Cable-to-Panel Hardware Kits



Metric Screw Lock Hardware Kit for 24-Position IEEE-488

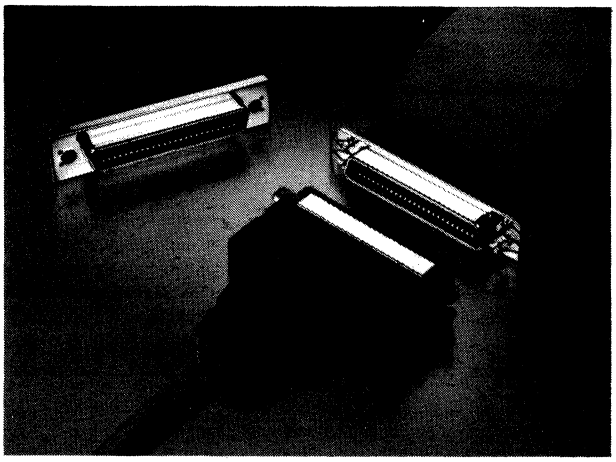
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82008

Shielded CHAMP Latch Panel Mount Connectors

Material:

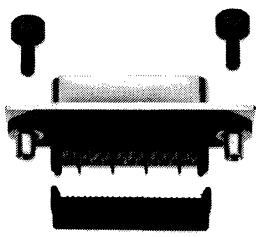
Housing and Strain Relief Clip—Thermoplastic (black)
Terminals—Gold over nickel plated high strength copper alloy on mating face and gold flash over nickel plate on terminating side
EMI Shield—Nickel plated die casting



Number of Positions	Preassembled	
	Bail Lock	Screw Lock
	Part Number 4-40 Hole	Part Number 6-32 Hole
24	—	554434-1[3]
36	554346-2	—
50	554347-2[2]	—
	554902-1[1,2]	

[1]Does not have boss feature.
[2]SCSI applicable.
[3]Can be used with Interface Bus Applications per IEEE-488.

Preassembled Shield



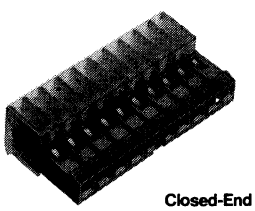
Part No. 554808-1
(Metric Screw Lock Hardware Kit for 24-Position IEEE-488, Preassembled, Part No. 554808-1 Rear Panel Mount Only)

MTA-100 Receptacles .100 Centers

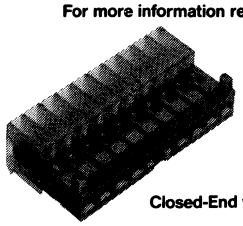
Material:

Housing—Thermoplastic 94V-2 rated
Contacts—Tin plated phosphor bronze

For more information request Catalog 82056



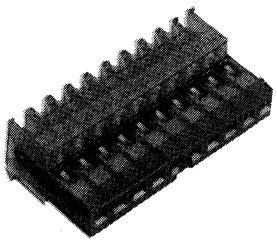
Closed-End without Polarizing Tabs



Closed-End with Polarizing Tabs

Circuits	Without Polarizing Tabs				With Polarizing Tabs		
	28 AWG	26 AWG	24 AWG	22 AWG	26 AWG	24 AWG	22 AWG
2	640443-2	640442-2	640441-2	640440-2	643815-2	643814-2	643813-2
3	640443-3	640442-3	640441-3	640440-3	643815-3	643814-3	643813-3
4	640443-4	640442-4	640441-4	640440-4	643815-4	643814-4	643813-4
5	640443-5	640442-5	640441-5	640440-5	643815-5	643814-5	643813-5
6	640443-6	640442-6	640441-6	640440-6	643815-6	643814-6	643813-6
7	640443-7	640442-7	640441-7	640440-7	643815-7	643814-7	643813-7
8	640443-8	640442-8	640441-8	640440-8	643815-8	643814-8	643813-8
9	640443-9	640442-9	640441-9	640440-9	643815-9	643814-9	643813-9
10	1-640443-0	1-640442-0	1-640441-0	1-640440-0	1-643815-0	1-643814-0	1-643813-0
11	1-640443-1	1-640442-1	1-640441-1	1-640440-1	1-643815-1	1-643814-1	1-643813-1
12	1-640443-2	1-640442-2	1-640441-2	1-640440-2	1-643815-2	1-643814-2	1-643813-2
13	1-640443-3	1-640442-3	1-640441-3	1-640440-3	1-643815-3	1-643814-3	1-643813-3
14	1-640443-4	1-640442-4	1-640441-4	1-640440-4	1-643815-4	1-643814-4	1-643813-4
15	—	—	1-640441-5	1-640440-5	—	—	—
16	—	—	1-640441-6	1-640440-6	—	—	—
18	—	—	1-640441-8	1-640440-8	—	—	—
19	—	—	1-640441-9	1-640440-9	—	—	—
20	—	—	2-640441-0	2-640440-0	—	—	—
21	—	—	—	2-640440-1	—	—	—
24	—	—	2-640441-4	2-640440-4	—	—	—

Feed-Thru Receptacle Without Polarizing Tabs

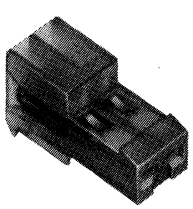


Circuits	Without Polarizing	
	24 AWG	22 AWG
2	640621-2	640620-2
3	640621-3	640620-3
4	640621-4	640620-4
5	640621-5	640620-5
6	640621-6	640620-6
7	640621-7	640620-7
8	640621-8	640620-8
9	640621-9	640620-9
10	1-640621-0	1-640620-0
11	1-640621-1	1-640620-1
12	1-640621-2	1-640620-2
13	1-640621-3	1-650620-3
14	1-640621-4	1-640620-4

Special Connectors for .014-.020 Diameter or Square Leads

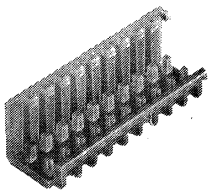
Material:

Housing—Thermoplastic 94V-2 rated
Contacts—Tin plated phosphor bronze



Wire Size AWG	Closed-End Receptacles	
	2 Pos.	3 Pos.
26	641536-2	641536-3
24	641535-2	641535-3
22	641534-2	641534-3

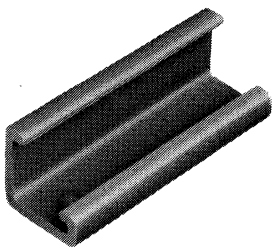
Strain Relief Covers and Dust Covers



Closed End Strain Relief Cover

Material:

Thermoplastic, 94V-2 rated, natural



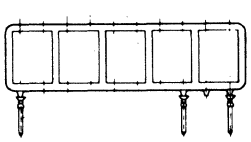
Closed End Dust Cover

Material:

Thermoplastic, 94V-0 rated, natural

No. of Circuits	Closed-End Strain Relief Covers	Closed-End Dust Covers
2	643075-2	—
3	643075-3	640550-3
4	643075-4	640550-4
5	643075-5	640550-5
6	643075-6	640550-6
7	643075-7	640550-7
8	643075-8	640550-8
9	643075-9	640550-9
10	1-643075-0	1-640550-0
12	1-643075-2	1-640550-2
14	1-643075-4	1-640550-4
15	1-643075-5	1-640550-5
20	—	2-640550-0

Keying Plug with Carrier Strip



Material:

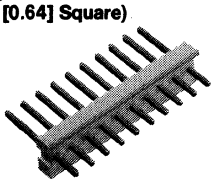
Thermoplastic, 94V-2 rated, natural
Part No. 641994-1

MTA-100 Post Headers .100 [2.54] Centers, .200 [5.08] Wide Flat Header

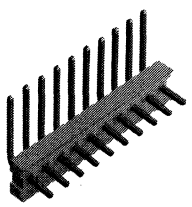
Material:

Polyester 94V-0 rated, natural
Posts—Tin plated copper alloy

Straight Post (.025 [0.64] Square)



Right Angle Post (.025 [0.64] Square)



No. of Pos.	Straight Post	Right Angle Post
2	640452-2	640453-2
3	640452-3	640453-3
4	640452-4	640453-4
5	640452-5	640453-5
6	640452-6	640453-6
7	640452-7	640453-7
8	640452-8	640453-8
9	640452-9	640453-9
10	1-640452-0	1-640453-0
11	1-640452-1	1-640453-1
12	1-640452-2	1-640453-2
13	1-640452-3	1-640453-3
14	1-640452-4	1-640453-4

Right Angle Post (.095 [2.41] Wide)

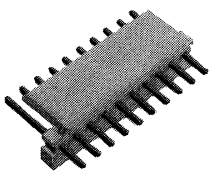
No. of Pos.	Straight Post	Right Angle Post
2	644456-2	644457-2
3	644456-3	644457-3
4	644456-4	644457-4
5	644456-5	644457-5
6	644456-6	644457-6
7	644456-7	644457-7
8	644456-8	644457-8
9	644456-9	644457-9
10	1-644456-0	1-644457-0
11	1-644456-1	1-644457-1
12	1-644456-2	1-644457-2
13	1-644456-3	1-644457-3
14	1-644456-4	1-644457-4

MTA-100 Post Headers .100 [2.54] Centers Polarized Header with Polarized Notches

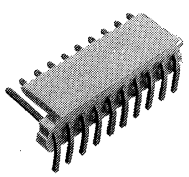
Material:

Housing—Polyester 94V-0 rated, natural
Post—Tin plated copper alloy

Straight Post (.025 [0.64] Square)



Right Angle Post (.025 [0.64] Square)



No. of Pos.	Straight Post	Right Angle Post
2	640454-2	640455-2
3	640454-3	640455-3
4	640454-4	640455-4
5	640454-5	640455-5
6	640454-6	640455-6
7	640454-7	640455-7
8	640454-8	640455-8
10	1-640454-0	1-640455-0
11	1-640454-1	1-640455-1
12	1-640454-2	1-640455-2
14	1-640454-4	1-640455-4
15	—	1-640455-5
20	2-640454-0	—

Note: Other configurations and gold plating available, contact AMP Incorporated.

MTA-156 Receptacles .156 Centers

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

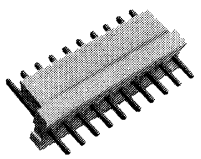
For more information request Catalog 82056

MTA-100 Post Header .100 [2.54] Centers Friction Lock Header with Polarizing Notches

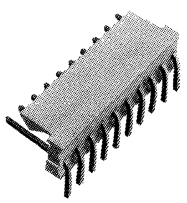
Material:

Housing—Polyester 94V-0 rated, natural
Posts—Tin plated copper alloy

Straight Post (.025 [0.64] Square)



Right Angle Posts (.025 [0.64] Square)

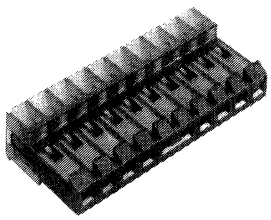


No. of Pos.	Straight Post	Right Angle Post
2	640456-2	640457-2
3	640456-3	640457-3
4	640456-4	640457-4
5	640456-5	640457-5
6	640456-6	640457-6
7	640456-7	640457-7
8	640456-8	640457-8
9	640456-9	640457-9
10	1-640456-0	1-640457-0
11	1-640456-1	1-640457-1
12	1-640456-2	–
13	1-640456-3	–
14	1-640456-4	–
15	1-640456-5	1-640457-5
16	1-640456-6	–
18	1-640456-8	1-640457-8
20	2-640456-0	–
22	2-640456-2	–
24	2-640456-4	2-640457-4
25	–	2-640457-5

Closed End With Lock, Without Polarizing Tab

Material:

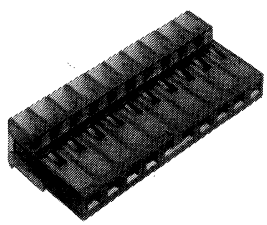
Housing—Thermoplastic 94V-2 rated
Contacts—Tin plated phosphor bronze



No. of Circuits	Without Polarizing Tabs		
	24 AWG	22 AWG	18 AWG
2	640429-2	640428-2	640426-2
3	—	640428-3	640426-3
4	—	640428-4	640426-4
5	—	640428-5 643193-5*	640426-5
6	640429-6	640428-6	640426-6
7	640429-7	640428-7	640426-7
8	—	640428-8	640426-8
9	—	640428-9	640426-9
10	—	1-640428-0	1-640426-0
11	—	1-640428-1	1-640426-1
12	—	1-640428-2	1-640426-2
13	—	—	1-640426-3
14	—	—	1-640426-4
15	—	—	1-640426-5

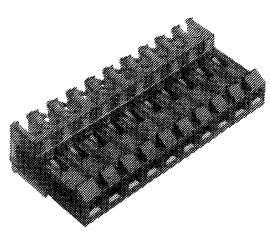
*High Force Connector

Closed End Without Lock, Without Polarizing Tabs



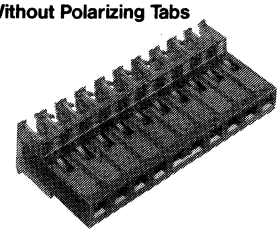
No. of Circuits	Without Lock and Polarizing Tabs	
	22 AWG	18 AWG
3	640433-3	640431-3
4	—	640431-4
5	640433-5	640431-5
6	640433-6	640431-6
7	640433-7	640431-7
8	640433-8	640431-8
9	640433-9	640431-9
10	1-640433-0	1-640431-0
11	1-640433-1	1-640431-1
12	1-640433-2	1-640431-2
13	1-640433-3	1-640431-3
15	1-640433-4	1-640431-5
17	—	1-640431-7
18	—	1-640431-8
20	—	2-640431-0

Feed-Thru With Lock, Without Polarizing Tabs



No. of Circuits	18 AWG
3	640599-3
5	640599-5
6	640599-6
9	640599-9

Feed-Thru Without Lock, Without Polarizing Tabs



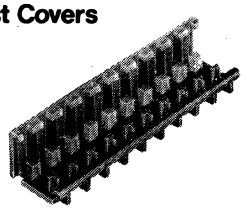
No. of Circuits	22 AWG	18 AWG
6	640606-6	640604-6

Strain Relief Covers and Dust Covers

Closed-End Strain Relief

Material:

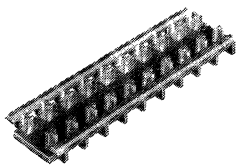
Thermoplastic, 94V-2 rated, natural



Feed-Thru Strain Relief Covers

Material:

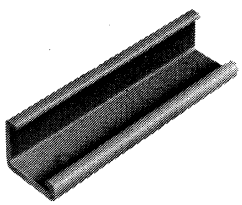
Thermoplastic, 94V-2 rated, natural



Closed-End Dust Covers

Material:

Thermoplastic, 94V-0 rated, natural



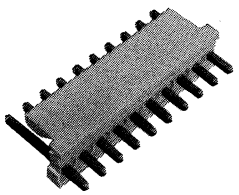
No. of Circuits	Closed-End Strain Relief Covers .095 [2.41] Max. O.D.	Feed-Thru Strain Relief Covers .095 [2.41] Max. O.D.	Closed End Dust Covers
2	643067-2	643071-2	—
3	643067-3	643071-3	640551-3
4	643067-4	643071-4	640551-4
5	643067-5	643071-5	640551-5
6	643067-6	643071-6	640551-6
7	643067-7	643071-7	640551-7
8	643067-8	643071-8	—
9	—	643071-9	640551-9
10	—	1-643071-0	1-640551-0
12	1-643067-2	—	1-640551-2
13	—	—	1-640551-3
15	1-643067-5	1-643071-5	—
16	—	—	1-640551-6

MTA—156 Post Header
.156 [3.96] Centers
Friction Lock Header with Polarizing Notches

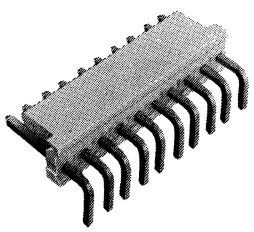
Material:

Housing—Polyester 94V-0 rated, natural
Posts—Tin plated copper alloy

Straight Post
(.045 [1.14] Square and Round)



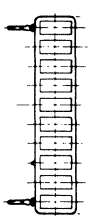
Right Angle Post
(.045 [1.14] Square)



No. of Positions	Straight Posts Friction Lock		Right Angle Posts
	Square Posts	Round Posts	
2	640445-2	640388-2	640389-2
3	640445-3	640388-3	640389-3
4	640445-4	640388-4	640389-4
5	640445-5	640388-5	640389-5
6	640445-6	640388-6	640389-6
7	640445-7	640388-7	640389-7
8	640445-8	640388-8	640389-8
9	640445-9	640388-9	640389-9
10	1-640445-0	1-640388-0	1-640389-0
11	1-640445-1	1-640388-1	1-640389-1
12	1-640445-2	1-640388-2	1-640389-2
13	1-640445-3	—	1-640389-3
14	1-640445-4	—	1-640389-4
15	1-640445-5	1-640388-5	1-640389-5
16	1-640445-6	1-640388-6	—
20	—	—	2-640389-0

Loose Piece Keying Plug
Part No. 640629-1 (flush)
used with Keyed Headers

Keying Plug on Carrier Strip
Part No. 641623-1 (flush)
10 per strip

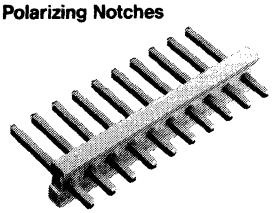


For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

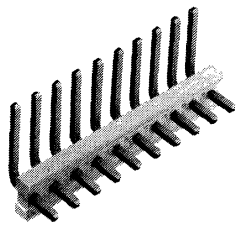
For more information request Catalog 82056

MTA-156 Post Headers .156 [3.96] Centers

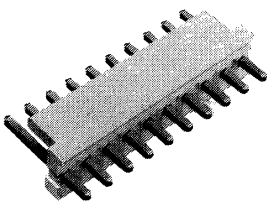
Flat Header and Polarized Header with Polarizing Notches



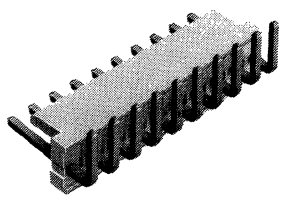
Flat Header Straight Posts (.045 [1.14] Square and Round)



Flat Header Right Angle Posts (.045 [1.14] Square)



Polarized Header with Polarizing Notches Straight Post (.045 [1.14] Square and Round)



Polarized Header with Polarizing Notches Right Angle Post (.045 [1.14] Square)

Material:

Housing—Polyester 94V-0 rated, natural
Posts—Tin plated copper alloy

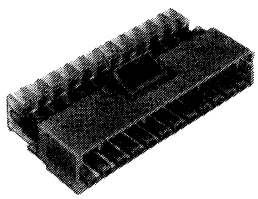
No. of Positions	Flat Header		Polarized Header With Polarizing Notches	
	Straight Posts Square Posts	Right Angle Posts	Straight Posts Square Posts	Right Angle Posts
2	640383-2	640385-2	640444-2	640387-2
3	640383-3	640385-3	640444-3	640387-3
4	640383-4	640385-4	640444-4	640387-4
5	640383-5	640385-5	640444-5	640387-5
6	640383-6	640385-6	640444-6	640387-6
7	640383-7	640385-7	640444-7	640387-7
8	640383-8	640385-8	640444-8	640387-8
9	640383-9	640385-9	640444-9	640387-9
10	1-640383-0	1-640385-0	1-640444-0	1-640387-0
12	1-640383-2	1-640385-2	1-640444-2	1-640387-2
13	1-640383-3	—	1-640444-3	—
14	1-640383-4	—	—	—
15	1-640383-5	—	—	—
16	—	—	1-640444-6	—
17	1-640383-7	—	—	—
18	1-640383-8	1-640385-8	1-640444-8	—
24	—	—	2-640444-4	—

Note: Other configurations and gold plating available, contact AMP Incorporated.

MTA-156 Cable-to-Cable Posted Connectors .156 [3.96] Centers

Material:

Housing—Thermoplastic, 94V-2 rated
Contacts—Tin plated copper alloy



No. of Circuits	22 AWG
2	641437-2
3	641437-3
4	641437-4
6	641437-6

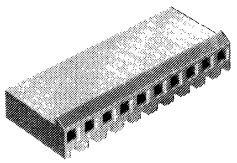
SL .156
Wire-to-Board Receptacle Housing Assemblies .156 [3.96] Centers

For more information request Catalog 82056

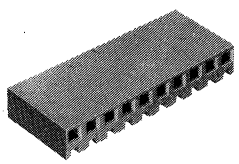
Housing with and without Locking Ramp

Material:

Thermoplastic, 94V-0 rated



With Locking Ramp

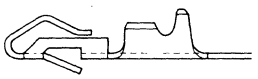


Without Locking Ramp

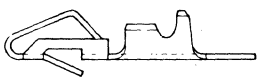
No. of Positions	Part Numbers	
	With Locking Ramp	Without Locking Ramp
1	—	640251-1
2	640250-2	640251-2
3	640250-3	640251-3
4	640250-4	640251-4
5	640250-5	640251-5
6	640250-6	640251-6
7	640250-7	640251-7
8	640250-8	640251-8
9	640250-9	640251-9
10	1-640250-0	1-640251-0
11	1-640250-1	1-640251-1
12	1-640250-2	1-640251-2
13	1-640250-3	1-640251-3
14	1-640250-4	1-640251-4
15	1-640250-5	1-640251-5
16	—	1-640251-6
17	1-640250-7	1-640251-7
19	—	1-640251-9

Contacts

Wire Range: 24-18 AWG
Insulation Diameter: .100 [2.54]



A
High Force



B
Low Force

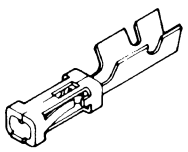
Contact	Material	Finish	Part Numbers	
			Strip	Loose Piece
A	.012 0.30	Brass, Bright Tin Plated	640252-1	640706-1
	.012 0.30	Pre-Tin Brass	640252-2	—
B	.012 0.30	Brass, Bright Tin Plated	350980-1	640707-1
	.012 0.30	Pre-Tin Brass	350980-2	—
	.012 0.30	Brass, Gold Plated	350980-3	770258-1
	.012 0.30	Pre-Tin Brass	770476-1	—
	.012 0.30	Phosphor Bronze	—	770522-1

AMPMODU Receptacles for .025 [0.64] Square or Round Posts

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82187

Mod. IV Receptacle Contacts



Wire Crimp Receptacle with Insulation Support, Snap-In

Wire Size Range AWG	Wire Size Range mm²	Material	Plating	Part Numbers: Standard Pressure Strip Form	Standard Pressure Loose Piece	Intermediate Pressure Strip Form	Intermediate Pressure Loose Piece	High Pressure* Strip Form	High Pressure* Loose Piece
32-27	0.30-0.1	Cu-Sn-Ph Bz	B	102316-6	–	–	–	–	–
		Be Cu	E	102917-1	102917-2	102918-1	–	–	–
26-22	0.12-0.4	Cu-Sn-Ph Bz	A	87756-6	87756-7	–	–	87809-2*	102128-2*
		Cu-Sn-Ph Bz	B	1-87756-2	1-87756-6	–	–	–	–
		Cu-Sn-Ph Bz	C	1-87756-7	1-87756-8	103171-4	103171-5	–	–
		Be Cu	A	87666-3	87667-3	–	–	–	–
		Be Cu	D	87666-5	87667-5	102548-1	102548-3	–	–
		Be Cu	E	87666-2	87667-2	–	–	87809-1*	102128-1*
24-20	0.2-0.6	Cu-Sn-Ph Bz	A	87523-5	87523-6	–	–	87309-8*	1-87309-3*
		Cu-Sn-Ph Bz	B	1-87523-5	1-87523-6	–	–	–	–
		Cu-Sn-Ph Bz	C	1-87523-8	1-87523-9	2-87195-0	2-87195-1	–	–
		Be Cu	A	85969-9	86016-3	86492-9	87046-4	–	–
		Be Cu	D	85969-6	86016-5	86492-2	87046-1	–	–
		Be Cu	E	85969-8	86016-2	86492-6	87046-3	87309-9*	1-87309-4*

*Material: Phosphor Bronze

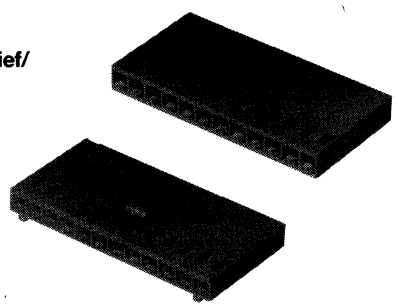
A–Bright tin .000100-.000200 [0.00254-0.00508] over nickel .000030 [0.00076]
B–Duplex plated .000015 [0.00038] gold in contact area, tin plated in crimp area, with entire contact underplated .000050 [0.00127] nickel.
C–Duplex plated .000030 [0.00076] gold in contact area, tin plated in crimp area, with entire contact underplated .000050 [0.00127] nickel.
D–.000015 [0.00038] gold in contact area, with gold flash over .000050 [0.00127] nickel on entire contact.
E–.000030 [0.00076] gold in contact area, with gold flash over .000050 [0.00127] nickel on entire contact.

.100 [2.54] Centers Mod. IV Contact Housings– Wire Applied, Single Row

Non-Polarized Without Strain Relief/ Pull Tab

Material:

Black Thermoplastic, flame retardant



Polarized (with Detent Latching)

No. of Positions	Non-Polarized Stamped²	Non-Polarized Unstamped¹	Polarized Unstamped²
1	7-87499-1	–	–
2	87499-3	87499-4	–
3	87499-5	87499-6	102241-1
4	87499-7	87499-8	102241-2
5	87499-9	–	102241-3
6	1-87499-1	–	102241-4
7	87499-1	87499-2	102241-5
8	1-87499-3	–	102241-6
9	1-87499-5	1-87499-6	102241-7
10	1-87499-7	1-87499-8	102241-8
12	2-87499-1	2-87499-2	1-102241-0
14	2-87499-5	2-87499-6	1-102241-2
16	2-87499-9	–	1-102241-4
20	3-87499-7	–	1-102241-8
22	–	–	2-102241-0

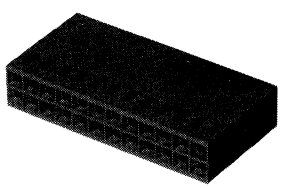
¹Cavity identification, AMP, Part No. and date code stamped on housing where size permits.
²No marking on housing.

.100 [2.54] Centers Mod. IV Contact Housings– Wire Applied, Double Row

Non-Polarized (With and Without Strain Relief/Pull Tab)

Material:

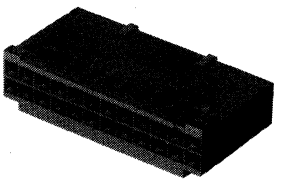
Black Thermoplastic, flame retardant



No. of Pos.	Depth .600 [15.24] Without Strain Relief Stamped¹	Depth .600 [15.24] Without Strain Relief Unstamped¹
2	–	5-87456-3
4	5-87456-0	4-87456-9
6	87456-2	87456-1
8	87456-4	87456-3
10	87456-6	87456-5
12	87456-8	87456-7
14	1-87456-0	87456-9
16	1-87456-2	1-87456-1
18	1-87456-4	–
20	1-87456-6	1-87456-5
24	2-87456-0	–
26	2-87456-2	2-87456-1
28	2-87456-4	–
30	2-87456-6	–
34	3-87456-0	2-87456-9
40	3-87456-6	3-87456-5
50	4-87456-0	3-87456-9

¹Cavity identification, AMP, Part No. and date code stamped on housing where size permits.

Polarized with Detent Latching (with and without Strain Relief/Pull Tab)



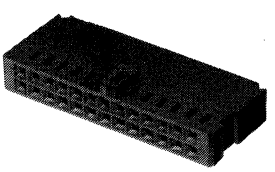
Material:

Black Thermoplastic, flame retardant

No. of Positions	No. of Detents	Part Numbers		
		Without Strain Relief		With Strain Relief
		Stamped[1]	Unstamped[2]	Stamped[1]
6	1	87631-2	87631-1	–
8	1	87631-4	87631-3	–
10	1	87631-6	87631-5	87922-1
12	1	87631-8	87631-7	87922-2
14	1	1-87631-0	87631-9	87922-3
16	1	1-87631-2	1-87631-1	87922-4
18	1	1-87631-4	1-87631-3	87922-5
20	2	1-87631-6	1-87631-5	87733-1
22	2	–	1-87631-7	–
24	2	2-87631-0	1-87631-9	87733-3
26	2	2-87631-2	2-87631-1	87733-4
28	2	2-87631-4	2-87631-3	–
30	2	2-87631-6	2-87631-5	–
32	2	–	2-87631-7	–
34	2	–	2-87631-9	87733-8
36	2	–	3-87631-1	–
40	2	3-87631-6	3-87631-5	1-87733-1
50	2	4-87631-2	4-87631-1	1-87733-4

[1]Cavity identification, AMP, Part No. and date code stamped on housing and/or strain relief where size permits.
[2]No marking on housing or strain relief.

Center Polarized (mate with AMP-LATCH Universal Ejection Headers—.576 [14.63] Eject Latches)



Material:

Black Thermoplastic

No. of Positions	Part Number
10	102387-1
14	102387-2
16	102387-3
20	102387-4
24	102387-5
26	102387-6
34	102387-8
40	102387-9
50	1-102387-0
60	1-102387-1

Keying Plugs

Material:

Natural Color Nylon
Part No. 87077-2
(for .600 [15.24] Housings)
(Plug directly into Housing)

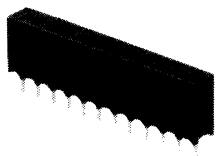
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82187

.100 [2.54] Centers Mod. IV Receptacle Assemblies— Board Mounted, Single Row (mate with .025 [0.64] Sq. or Round Posts)

Material:

Housing—Black Thermoplastic, flame retardant
Contacts—Copper alloy



No. of Pos.	Low Profile, Single Tine	Low Profile, Dual Tine	
	Top Entry Duplex Plated[3]	Top Entry Gold/Nickel Plating[1]	Bottom Entry Gold/Nickel Plating[2]
4	535541-2	3-87334-6	–
6	535541-4	87334-1	87879-3
7	535541-5	1-87334-9	–
8	535541-6	87334-2	–
9	535541-7	2-87334-0	87879-5
10	535541-8	87334-3	87879-2
11	535541-9	–	87879-6
12	1-535541-0	87334-4	87879-7
13	1-535541-1	2-87334-2	–
14	1-535541-2	87334-5	87879-9
15	1-535541-3	2-87334-3	–
16	1-535541-4	87334-6	–
17	1-535541-5	–	–
18	1-535541-6	87334-7	–
20	1-535541-8	87334-8	–
22	2-535541-0	87334-9	–
24	2-535541-2	1-87334-0	–
30	2-535541-8	1-87334-3	2-87879-5

[1].000030 [0.00076] gold on contact area, with gold flash over .000030 [0.00076] nickel.
[2].000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact.
[3].000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area with entire receptacle underplated .000050 [0.00127] nickel.

.100 x .100 [2.54 x 2.54] Centers Mod. IV Receptacle Assemblies— Board Mounted, Double Row (mate with .025 [0.64] Sq. or Round Posts)

Material:

Housing—Black Thermoplastic, flame retardant
Contacts—Copper alloy

Low Profile, Bottom Entry	
No. of Pos.	Gold/Nickel Plating[1]
2	102261-1
12	102261-6
14	102261-7
20	1-102261-0
28	1-102261-4
30	1-102261-5
34	1-102261-7
40	2-102261-0
50	2-102261-5
60	3-102261-0

[1].000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact.

.100 x .100 [2.54 x 2.54] Centers Mod. II Receptacle Assemblies— Board Mounted, Double Row (mate with .025 [0.64] Sq. or Round Posts

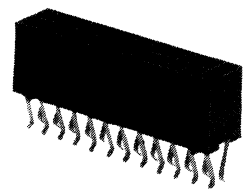
Pc Board Edge Mount
End Stackable

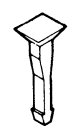
Material:

Housing—Brown Thermoplastic, flame retardant
Contacts—Copper alloy

No. of Positions	Gold/Nickel Plating[1]
24	1-87331-6
26	1-87331-7
50	87331-8

[1].000030 [0.00076] gold on contact area, gold flash over .000050 [0.00127] nickel on entire contact.

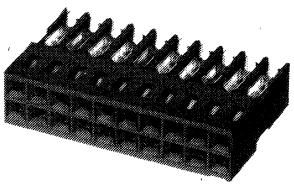




Keying Plug
Part No. 86286-1

Double Row MT Receptacle Connectors

Housings Preloaded with Standard Pressure Contacts



Material and Finish:

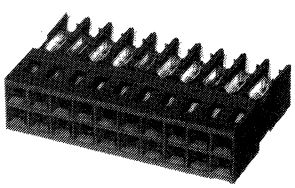
Housing and Cover—Black thermoplastic, flame retardant
Contacts—Copper alloy, duplex plated with .000030 [0.00076] gold on mating area, .000050 [0.00127] min. tin-lead on termination area, all over .000050 [0.00127] nickel

Insulation Wall Thickness: .015 [0.038] max.
Insulation Diameter: .050 [1.27] max.
Mating Post Length: .222-.273 [5.64-6.94] max.

Number of Positions	Part Numbers (Stamped[1])		
	Wire Size		
	30-26 AWG [0.05-0.15 mm²]	26-22 AWG [0.12-0.3 mm²]	22-20 AWG [0.3-0.6 mm²]
6	102393-1	102398-1	102448-1
8	102393-2	102398-2	–
10	102393-3	102398-3	102448-3
12	–	102398-4	–
14	102393-5	102398-5	102448-5
16	102393-6	102398-6	102448-6
18	–	102398-7	102448-7
20	102393-8	102398-8	102448-8
22	102393-9	102398-9	–
24	1-102393-0	1-102398-0	1-102448-0
26	1-102393-1	1-102398-1	1-102448-1
28	1-102393-2	1-102398-2	1-102448-2
30	1-102393-3	1-102398-3	–
32	1-102393-4	1-102398-4	–
34	1-102393-5	1-102398-5	1-102448-5
40	1-102393-8	1-102398-8	1-102448-8
50	2-102393-3	2-102398-3	2-102448-3
60	2-102393-8	2-102398-8	–

[1]Cavity identification—every fifth cavity (one side)—AMP Part No. and date code stamped on housing where size permits.

Housings Preloaded with High Pressure Contacts



Material and Finish:

Housing and Cover—Black thermoplastic, flame retardant
Contacts—Copper alloy, duplex plated with .000030 [0.00076] gold on mating area, .000050 [0.00127] min. tin-lead on termination area, all over .000050 [0.00127] nickel

Insulation Wall Thickness: .015 [0.038] max.
Insulation Diameter: .050 [1.27] max.
Mating Post Length: .200-.273 [5.08-6.94] max.

Number of Positions	Part Numbers (Stamped[1])	
	Wire Size	
	26-22 AWG [0.12-0.3 mm²]	22-20 AWG [0.3-0.6 mm²]
6	102694-1	102695-1
8	102694-2	102695-2
10	102694-3	–
12	102694-4	–
14	102694-5	–
16	102694-6	–
20	102694-8	–

[1]Cavity identification—every fifth cavity (one side)—AMP Part No. and date code stamped on housing where size permits.

Double Row MT Receptacle Connectors
(Continued)

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

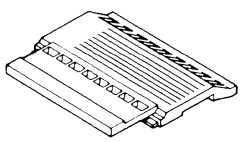
For more information request Catalog 82104

Low Profile Covers for Double Row Connectors

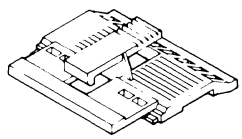
Material:

Black thermoplastic, flame retardant

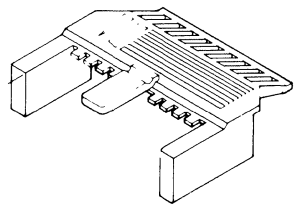
Front Covers



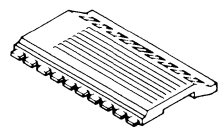
A–Polarizing Cover



B–Latching Cover



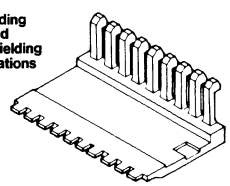
C–Ejection Cover



D–Non-Polarizing Cover

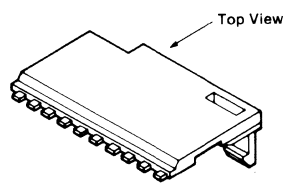
E–Back Cover

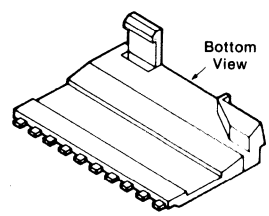
Shielding and Non-Shielding Applications



F–Hermaphroditic Cover

(2 Covers Required Per Connector)





Number of Positions	Low Profile Covers					Standard Profile Covers
	A Polarizing	B Latching	C* Ejection	D Non-Polarizing	E Back Cover	F Hermaphroditic
6	102540-1	–	–	102541-1	102536-1	102396-1
8	102540-2	–	–	102541-2	102536-2	102396-2
10	102540-3	–	102537-3	102541-3	102536-3	102396-3
12	102540-4	102681-1	–	102541-4	102536-4	102396-4
14	–	102681-2	–	102541-5	102536-5	102396-5
16	–	102681-3	–	102541-6	102536-6	102396-6
18	–	102681-4	–	102541-7	–	–
20	–	102681-5	102537-8	102541-8	102536-8	102396-8
26	–	102681-8	1-102537-1	1-102541-1	1-102536-1	1-102396-1
30	–	–	1-102537-3	–	1-102536-3	–
34	–	–	1-102537-5	1-102541-5	1-102536-5	1-102396-5
40	–	–	1-102537-8	1-102541-8	1-102536-8	1-102396-8
50	–	–	2-102537-3	2-102541-3	2-102536-3	2-102396-3
60	–	–	–	2-102541-8	2-102536-8	–

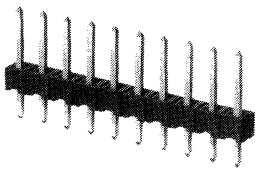
Note: Some cover sizes exist (where a housing assembly size may not) for end-to-end stacking purposes only.

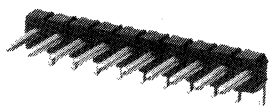
*Mates with AMP-LATCH Universal Ejection Headers with Latching Ears **Part No. 102185-2** (with push tabs) or **Part No. 102312-2** (without push tabs).

AMPMODU .025 [0.64] Breakaway Headers

Features

- Headers may be purchased in full sticks or in desired sizes from your local distributor.
- Design and inventory versatility—headers can be broken into any size needed.
- Substantial time labor savings—install all posts at one time.
- Vertical and right-angle versions available in single- or double-row configurations.
- Popular sizes: 1 thru 40 positions (single row); 2 thru 80 positions (double row).
- Copper alloy, drawn wire posts.
- Choice of gold duplex or bright tin plated posts.
- Post lengths include .230" (5.84 mm) and .318" (8.08 mm) for connector mating; .110" (2.79 mm), .120" (3.05 mm) and .125" 3.18 mm) for PC board soldering.
- Flame-retardant, black thermoplastic housings: 94V-0 rated.

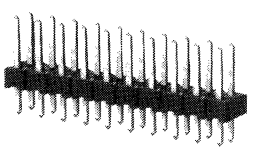


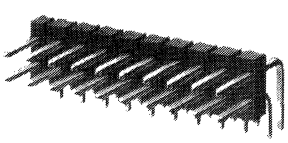


Single Row (.100 [2.54] Centerline)

Style	Post Tail A/B	Plating	Base Part Numbers Square Post
Straight	.318-.125 8.07-3.18	Tin†	103321
		Duplex#	102972
		Duplex§	102976
	.230-.120 5.84-3.05	Tin†	103327
		Duplex#	103185
		Duplex§	103239
Right Angle	.318-.110 8.08-2.79	Tin†	103323
		Duplex#	102974
		Duplex§	102978
	.230-.120 5.84-3.05	Tin†	103329
		Duplex#	103325
		Duplex§	103148

Ordering Information: Number of positions for single row header equals prefix-suffix combination (example—8 position single row is XXXXXX-8; 15 position is 1-XXXXXX-5).
†.000100-.000200" [0.00254-0.00508] bright tin over .000050" [0.00127] nickel.
#Duplex plated .000015" [0.00038] gold on mating area; matte tin-lead on solder area, with entire post underplated with .000050" [0.00127] nickel.
§Duplex plated .000030" [0.00076] gold on mating area; matte tin-lead on solder area, with entire post underplated with .000050" [0.00127] nickel.





Double Row (.100 x .100 [2.54 x 2.54] Centerline)

Style	Post Tail A/B	Plating	Base Part Numbers Square Post
Straight	.318-.125 8.07-3.18	Tin†	103322
		Duplex#	102973
		Duplex§	102977
	.230-.120 5.84-3.05	Tin†	103328
		Duplex#	103186
		Duplex§	103240
Right Angle	.318-.110 8.08-2.79	Tin†	103324
		Duplex#	102975
		Duplex§	102979
	.230-.120 5.84-3.05	Tin†	103330
		Duplex#	103326
		Duplex§	103149

Ordering Information: Number of positions for double row header equals prefix-suffix combination X2 (example—8 position double row is XXXXXX-4; 26 position is 1-XXXXXX-3).
†.000100-.000200" [0.00254-0.00508] bright tin over .000050" [0.00127] nickel.
#Duplex plated .000015" [0.00038] gold on mating area; matte tin-lead on solder area, with entire post underplated with .000050" [0.00127] nickel.
§Duplex plated .000030" [0.00076] gold on mating area; matte tin-lead on solder area, with entire post underplated with .000050" [0.00127] nickel.

AMPMODU Low Profile Shrouded Headers Double Row .100 x .100 [2.54 x 2.54] Centers .150 [3.81] End Dimension

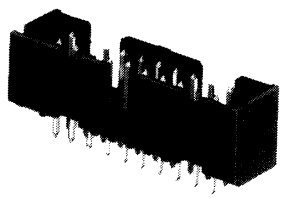
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

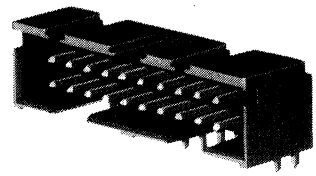
For more information request Catalog 82187

.025² [.04²] Straight and Right Angle Posts

Features

- Available in .000015" [0.00038] and .000030" [0.00076] gold duplex plated posts.
- Flame retardant, black thermoplastic housings; 94V-0 rated.
- Vertical and right-angle versions available.
- Available in .025" [0.64] square, four-sided, mateable, drawn wire posts.
- Wash out clearance for flux removal.
- Uses AMP-LATCH snap-in military polarization keys.





Number of Positions	Part Numbers			
	Straight Posts		Right Angle Post	
	Duplex¹	Duplex²	Duplex¹	Duplex²
10	103308-1	103309-1	103310-1	103311-1
14	103308-2	103309-2	103310-2	103311-2
16	103308-3	103309-3	103310-3	103311-3
20	103308-5	103309-5	103310-5	103311-5
26	103308-6	103309-6	103310-6	103311-6
34	103308-7	103309-7	103310-7	103311-7
40	103308-8	103309-8	103310-8	103311-8
50	1-103308-0	1-103309-0	1-103310-0	1-103311-0
60	1-103308-2	1-103309-2	1-103310-2	1-103311-2

1—.000015" (0.00038 mm) gold on mating area: .000100-.000200" (0.00254-.0.00508 mm) matte tin-lead on solder area, with entire post underplated with .000050" (0.00127 mm) nickel.
2—.000030" (0.00076 mm) gold on mating area: .000100-.000200" (0.00254-.0.00508 mm) matte tin-lead on solder area, with entire post underplated with .000050" (0.00127 mm) nickel.

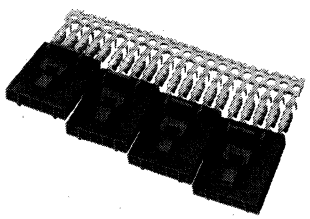
Material and Finish: Black thermoplastic, 94V-0 rated.
Contacts: Copper Alloy.

AMPMODU MTE Interconnection System

For more information request Catalog 82160

This system offers both wire-to-board and wire-to-wire connections using .025 sq. Post Technology.

Receptacle Assemblies— Strip Form Polarized/Latching, Single Row .100 [2.54] Centers



Material and Finish:

Housing—Black Thermoplastic, 94V-0 Rated
Contact—Copper alloy, duplex plated

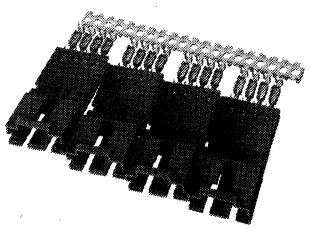
[1].000015 [0.00038] gold on mating area. .000050 [0.00127] min. tin-lead termination area with entire contact underplated .000050 [0.00127] nickel.

No. of Pos.	Housing Quantities Per Strip Segment	Unit Package Order Quantities	Strip Form Receptacle Assembly 26-22 AWG [0.12-0.3 mm²] Wire Duplex Plating[1]
2	10	110	103957-1
3	5	70	103957-2
4	5	55	103957-3
5	4	44	103957-4

Individual Assemblies

Number of Positions	Unit Package Order Quantities	Individual Receptacle Assembly 26-22 AWG [0.12-0.3 mm²] Wire
		Duplex Plating[1]
6	36	103644-5
8	26	103644-7

Pin Assemblies, Shrouded Polarized/Latching, Single Row .100 [2.54] Centers



Material and Finish:

Housing—Black thermoplastic, 94V-0
Contact—Copper alloy, plated tin or gold duplex.

No. of Pos.	Housing Quantities Per Strip Segment	Unit Package Order Quantities	Strip Form Pin Assembly 26-22 AWG [0.12-0.3 mm²] Wire Duplex Plating[1]
2	5	70	103945-1
3	5	55	103945-2
4	4	44	103945-3
5	4	36	103945-4

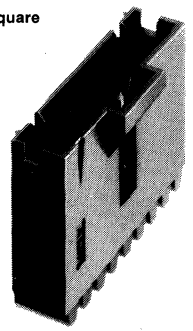
Individual Assembly

Number of Pos.	Unit Package Order Quantities	Individual Pin Assembly 26-22 AWG [0.12-0.3 mm²] Wire
		Duplex Plating[1]
6	30	103660-5
8	24	103660-7

[1].000015 [0.00038] gold on mating area, .000050 [0.00127] min. tin-lead termination area, with entire contact underplated .000050 [0.00127] nickel.

Header Assemblies, Shrouded— Polarized/Latching, Single Row .100 [2.54] Centers

.025 [0.64] Square Straight Post



Material and Finish:

Housing—Black Thermoplastic, 94V-0 Rated
Contact—Copper alloy, plated tin or gold duplex.

No. of Pos.	Unit Package Order Quantities	Header Assembly	
		With Hold Down Duplex Plating[1]	Without Hold Down Duplex Plating[1]
2	284	103670-1	103638-1
3	212	103670-2	103638-2
4	172	103670-3	103638-3
5	140	103670-4	103638-4
6	120	103670-5	103638-5
8	92	103670-7	103638-7

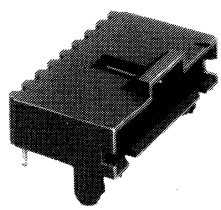
[1].000015 [0.00038] gold on mating area, .000050 [0.00127] min. tin-lead on termination area with entire contact underplated .000050 [0.00127] nickel.

Header Assemblies, Shrouded— Polarized/Latching, Single Row .100 [2.54] Centers

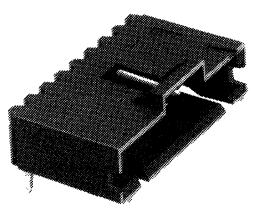
Material and Finish:

Housing—Black Thermoplastic, 94V-0 Rated
Contact—Copper alloy, plated tin or gold duplex.

.025 [0.64] Square Right Angle Post



With Hold Down



Without Hold Down

Individual Assemblies

No. of Pos.	Unit Package Order Quantity	Header Assembly	
		With Hold Down Duplex Plated[1]	Without Hold Down Duplex Plated[1]
2	284	103673-1	103635-1
3	212	103673-2	103635-2
4	172	103673-3	103635-3
5	140	103673-4	103635-4
6	120	103673-5	103635-5
8	92	103673-7	103635-7

[1].000015 [0.00038] gold on mating area. .000050 [0.00127] min. tin-lead termination area, with entire contact underplated .000050 [0.00127] nickel.

Subminiature D Commercial Connectors (AMPLIMITE)

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

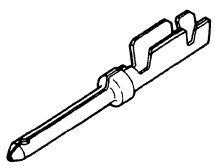
For more information request Catalog 82068

Precision Formed Crimp Snap-In Contacts, Size 22 DF

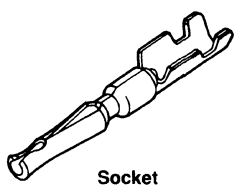
Material and Finish:

Pin—Brass

Finish—Duplex plated .000030 [0.00076] gold on mating end, tin-lead on crimp barrel, with entire contact nickel underplated



Pin



Socket

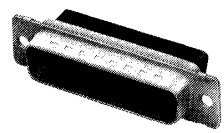
Wire Size AWG	Insulation Diameter Max.	Contact Part Numbers			
		Pin		Socket	
		Strip Form	Loose Form	Strip Form	Loose Form
22-28	.040	748333-2	748333-4	748610-2	748610-4

HDP-22 Crimp Snap-In Contact Connectors

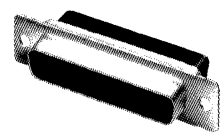
Material and Finish:

Shell—Steel, tin-plated

Insert—94V-0 rated thermoplastic, black



Plug



Receptacle

Shell Size	No. of Contact Positions	Part Numbers	
		Plug	Receptacle
1	15	748364-1	748565-1
2	26	748365-1	748566-1
3	44	748366-1	748567-1
4	62	748367-1	748568-1
5	78	748368-1	748569-1

HDE-20 All Plastic IDC Connectors

Material and Finish:

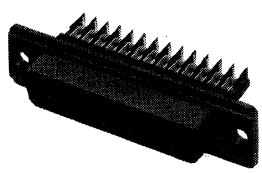
Housing—94V-0 rated thermoplastic, black

Contacts—Phosphor Bronze

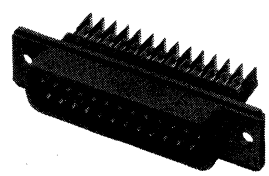
Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.



Receptacle



Plug

Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Connector Part Numbers					
			Contact Identification No. 1 for 30-26 AWG Wire		Contact Identification No. 2 for 26-22 AWG Wire		Contact Identification No. 3 for 22-20 AWG Wire	
			Plug	Receptacle	Plug	Receptacle	Plug	Receptacle
1	9	A	745203-1	745201-1	745203-2	745201-2	745203-3	745201-3
		B	745203-4	745201-4	745203-5	745201-5	745203-6	745201-6
2	15	A	745207-1	745205-1	745207-2	745205-2	745207-3	745205-3
		B	745207-4	745205-4	745207-5	745205-5	745207-6	745205-6
3	25	A	745211-1	745209-1	745211-2	745209-2	745211-3	745209-3
		B	745211-4	745209-4	745211-5	745209-5	745211-6	745209-6
4	37	A	745215-1	745213-1	745215-2	745213-2	745215-3	745213-3
		B	745215-4	745213-4	745215-5	745213-5	745215-6	745213-6

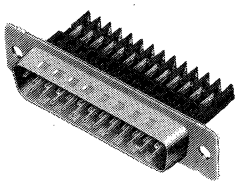
Notes: 1. All connectors are preloaded with insulation displacement crimp contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of .015 [0.38] and a max. wire insulation dia. of .060 [1.52].
2. HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
3. Individual conductor strands should be larger than .005 [0.13] inch diameter.
4. **Extraction Tool No. 91232-1** is used to remove pin or socket contacts.
5. For terminating more than one wire, or a drain wire, use crimp contacts.

HDE-20 Metal Shell IDC Connectors

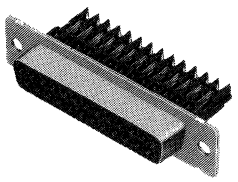
Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black
Contacts—Phosphor Bronze
Contact Finish—Duplex plated:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.



Plug



Receptacle

Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Connector Part Numbers			
			Contact Identification No. 1 for 30-26 AWG Wire		Contact Identification No. 2 for 26-22 AWG Wire	
			Plug	Receptacle	Plug	Receptacle
1	9	A	745492-1	745491-1	745492-2	745491-2
		B	745492-4	745491-4	745492-5	745491-5
2	15	A	745494-1	745493-1	745494-2	745493-2
		B	745494-4	745493-4	745494-5	745493-5
3	25	A	745496-1	745495-1	745496-2	745495-2
		B	745496-4	745495-4	745496-5	745495-5
4	37	A	745498-1	745497-1	745498-2	745497-2
		B	745498-4	745497-4	745498-5	745497-5

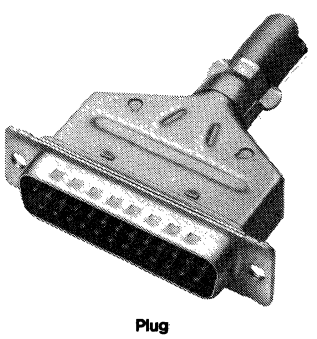
Notes: 1. All connectors are preloaded with insulation displacement contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of .015 [0.38] and a max. wire insulation dia. of .060 [1.52].
2. HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
3. Individual conductor strands should be .005 [0.13] diameter or larger.
4. **Extraction Tool No. 91232-1** is used to remove pin or socket contacts.

HDE-20 Basic Shielding Hardware Kits

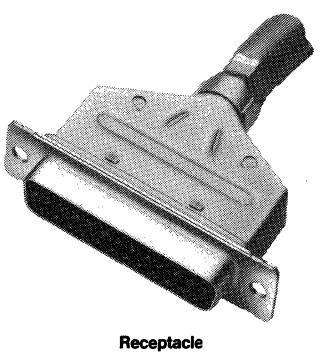
Material and Finish:

Connector Shell—Steel, tin plated
Connector Insert—94V-0 rated thermoplastic, black
Shield—Steel, tin plated
Contacts—Phosphor Bronze
Contact Finish—Duplex plated:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.



Plug



Receptacle

Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Connector Part Numbers					
			Contact Identification No. 1 for 30-26 AWG Wire		Contact Identification No. 2 for 26-22 AWG Wire		Contact Identification No. 3 for 22-20 AWG Wire	
			Plug	Receptacle	Plug	Receptacle	Plug	Receptacle
1	9	A	747515-1	747516-1	747515-2	747516-2	747515-3	747516-3
		B	747515-4	747516-4	747515-5	747516-5	747515-6	747516-6
2	15	A	747531-1	747532-1	747531-2	747532-2	747531-3	747532-3
		B	747531-4	747532-4	747531-5	747532-5	747531-6	747532-6
3	25	A	747547-1	747548-1	747547-2	747548-2	747547-3	747548-3
		B	747547-4	747548-4	747547-5	747548-5	747547-6	747548-6
4	37	A	747563-1	747564-1	747563-2	747564-2	747563-3	747564-3
		B	747563-4	747564-4	747563-5	747564-5	747563-6	747564-6

Notes: Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

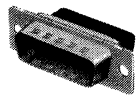
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

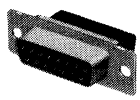
For more information request Catalog 82068

HDP-20 Crimp Snap-In Contact Connectors

Material and Finish:

Shell—Steel, zinc or tin plated
Insert—94V-0 rated thermoplastic, black or 94V-1 rated thermoplastic, beige





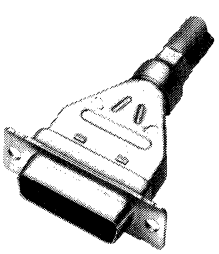
Shell Size	No. of Contact Positions	Mounting Method	Insert Material	Plug Part Numbers			Receptacle Part Numbers	
				Zinc Plated Shell	Tin Plated Shell		Zinc Plated Shell	Tin Plated Shell
					Without Grounding Indents	With Grounding Indents		
1	9	Standard	94V-0	205204-1	205204-3	205204-4	205203-1	205203-3
		Clinch Nut	94V-0	—	745906-1	745906-2	—	745907-1
		Standard	94V-1	747983-1	747983-2	747983-3	747982-1	747982-2
2	15	Standard	94V-0	205206-1	205206-2	205206-3	205205-1	205205-2
		Clinch Nut	94V-0	—	745908-1	745908-2	—	745909-1
		Standard	94V-1	747985-1	747985-2	747985-3	747984-1	747984-2
3	25	Standard	94V-0	205208-1	207464-1	207464-2	205207-1	207463-1
		Clinch Nut	94V-0	—	745036-1	745036-2	—	207516-3
		Standard	94V-1	747987-1	747987-2	747987-3	747986-1	747986-2
4	37	Standard	94V-0	205210-1	205210-2	205210-3	205209-1	205209-2
		Clinch Nut	94V-0	—	—	745135-2	—	207661-3
		Standard	94V-1	747989-1	747989-2	747989-3	747988-1	747988-2
5	50	Standard	94V-0	205212-1	205212-2	205212-3	205211-1	205211-2
		Clinch Nut	94V-0	—	—	745883-2	—	745884-1
		Standard	94V-1	747991-1	747991-2	747991-3	747990-1	747990-2

Note: Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.

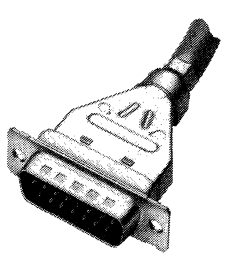
HDP-20 Basic Shielding Hardware Kits

Material and Finish:

Connector Shells—Steel, tin plated
Connector Insert—94V-0 rated thermoplastic, black
Shields—Steel, tin plated



Receptacle



Plug

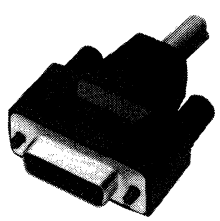
Shell Size	No. of Contact Pos.	Kit Numbers	
		Plug	Receptacle
1	9	747522-1	747523-1
2	15	747538-1	747539-1
3	25	747554-1	747555-1
4	37	747570-1	747571-1
5	50	747577-1	747578-1

Notes: 1. Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.
2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

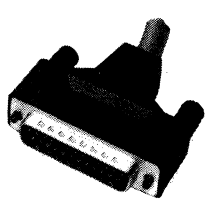
HDP-20 Shielding Hardware Enclosure Kits

Material and Finish:

Connector Shells—Steel, tin plated
Connector Insert—94V-0 rated thermoplastic, black
Shields—Steel, tin plated
Enclosure—94V-0 rated thermoplastic, black
Jackscrews—Zinc alloy



Receptacle



Plug

Shell Size	No. of Contact Pos.	Kit Numbers	
		Plug	Receptacle
1	9	747952-1	747951-1
2	15	747954-1	747953-1
3	25	747956-1	747955-1
4	37	747958-1	747957-1
5	50	747960-1	747959-1

Notes: 1. Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.
2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

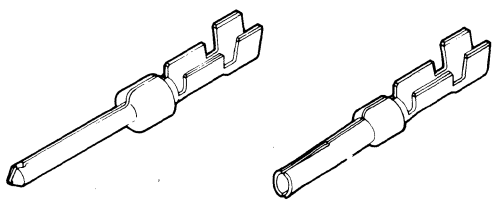
HDP-20 Connector Contacts, Precision Formed

Crimp Snap-In Contacts

Contact Size 20 DF
Pin Diameter .040 [1.02]

Material and Finish:

Pin—Brass
Socket—Phosphor Bronze
Plated:
B—Duplex—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.
D—Duplex—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.



Pin Socket

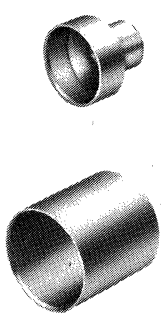
With Insulation Support

Wire Size Range AWG	Ins. Dia. Max.	Contact Finish (Plating Code)	Contact Part Numbers			
			Pin		Socket	
			Strip Form	Loose Form	Strip Form	Loose Form
28-24	.040 1.02	B	3-66507-0	5-66507-7	6-66505-0	6-66505-2
		D	3-66507-1	5-66507-9	5-66505-7	5-66505-9
	.060 1.52	B	66682-9	1-66682-1	1-66683-0	1-66683-2
		D	66682-6	66682-8	66683-7	66683-9
26-22	.050 1.27	B	1-745254-4	1-745254-6	1-745253-4	1-745253-6
		D	1-745254-1	1-745254-3	1-745253-1	1-745253-3
24-20	.060 1.52	B	2-66506-4	5-66506-7	5-66504-9	6-66504-0
		D	2-66506-5	5-66506-9	5-66504-6	5-66504-7

Ferrules for Shielding Hardware Kits

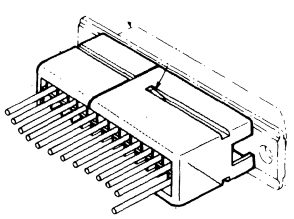
Material and Finish:

Copper (annealed), tin plated



Shell Size	Cable Diameter	Ferrule Part Number
1-3	.165-.190 4.19-4.82	747579-8
1-3	.190-.217 4.82-5.52	747579-8
1-3	.217-.246 5.52-6.25	747579-8
1-3	.246-.284 6.25-7.21	1-747579-0
1-3	.284-.324 7.21-8.23	1-747579-0
1-3	.324-.375 8.23-9.53	1-747579-1
1-3	.375-.435 9.53-11.05	1-747579-2
4-5	.338-.385 8.59-9.78	747580-8

Slide-On Back Cover

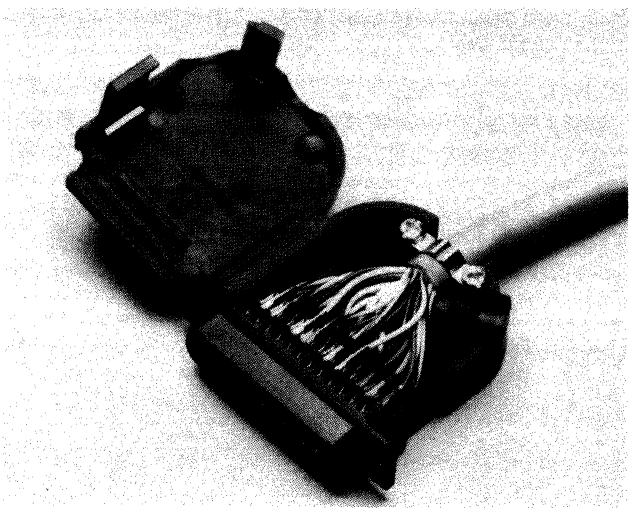


Shell Size	Kit Number Individual
1	745530-1
2	745530-2
3	745530-3

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

All-Plastic Quik-Snap Backshell Kit



Material and Finish:

Cover—Polypropylene, black
Strain Relief Clip—Stainless steel
Retainer Clip—Stainless steel
Screws—Carbon steel, zinc plated

Shell Size	No. of Positions	Kit Number with Retainer Clip	Kit Number without Retainer Clip	
1	9	749914-1 749914-2	750100-2 750100-1	Bulk Pkg. Unit Kit
2	15	749915-1 749915-2	750101-2 750101-1	Bulk Pkg. Unit Kit
3	25	749626-1 749626-2	750078-2 750078-1	Bulk Pkg. Unit Kit
4	37	749916-1 749916-2	— —	Bulk Pkg. Unit Kit

Unshielded Box and Lid Straight/90 Exit Cable Clamp Kits

Material and Finish:

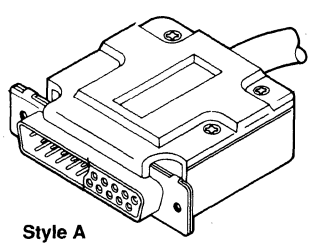
Cable Clamp Housing—Thermoplastic, black with textured finish
Gates—Thermoplastic, black
Flat Head Screws—Steel, black zinc plated

Shell Size	Cable Dia. Max. (Ref.)		Style A	Style B
	Straight Cable Exit	90° Cable Exit	Kit Number	Kit Number
1	**.160** 4.06	**.160** 4.06	207467-1	207908-1
2	**.320** 8.13	**.320** 8.13	207470-1	207908-4
3	**.390** 9.9	**.390** 9.9	207345-1	207908-7
4	**.640** 16.3	**.405** 10.29	207473-1	1-207908-0
5	**.490** 12.45	**.490** 12.45	207476-1	1-207908-3

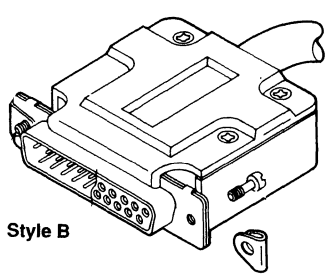
Unshielded Box and Lid Straight/90° Exit Cable Clamp Kits with Male Screw Retainers

Material and Finish:

Cable Clamp Housing—Thermoplastic, black with textured finish
Gates—Thermoplastic, black
Flat Head Screws—Steel, zinc plated
Male Screw—Steel, zinc plated yellow chromate
Retaining Clip—Steel, zinc plated yellow chromate



Style A



Style B

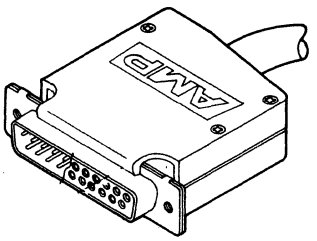
Unshielded Clam Shell Straight/45° Exit Cable Clamp Kits

Material and Finish:

Cable Clamp Housing—Thermoplastic, black with textured finish

Gates—Thermoplastic, black

Pan Head Screws, 6-32 Set Screw and 6-32 Square Nut—Steel, zinc plated



Style A

Unshielded Clam Shell Straight/45° Exit Cable Clamp Kits with Male Screw Retainers

Material and Finish:

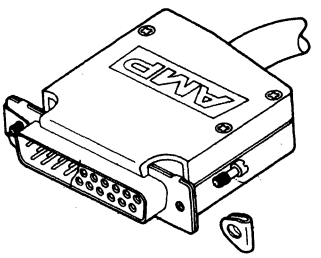
Cable Clamp Housing—Thermoplastic, black with textured finish

Gates—Thermoplastic, black

Pan Head Screws, 6-32 Set Screw and 6-32 Square Nut—Steel, zinc plated

Male Screw—Steel, zinc plated yellow chromate

Retaining Clip—Steel, zinc plated yellow chromate



Style B

Shell Size	Cable Dia. Max.	Style A		Style B
		Short Cable Clamp Part Number	Standard Cable Clamp Part Number	Standard Cable Clamp Part Number
1	.256 6.5	—	205729-1	206478-1
2	.320 8.13	206393-1	205730-1	206478-2
3	.420 10.67	206390-1	205718-1	206478-3
4	.490 12.45	—	205731-1	206478-4
5	.600 15.24	—	205732-1	206478-5

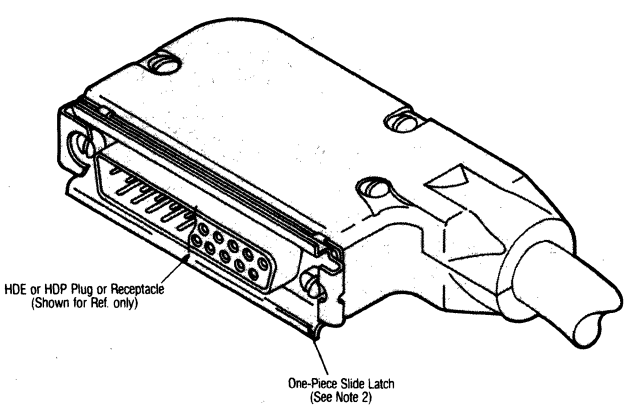
Shielded 90° Exit RFI/EMI Die Cast Shields for Jacketed Cable (Two-Piece)

Material and Finish:

Shield—Zinc alloy, plated nickel over copper

4-40 Pan Head Screws & Slide Latch Screws—Steel, zinc plated

One-Piece Slide Latch—Stainless steel



Shell Size	Cable Dia. (Max.)	Shield with Slide Latch Kit Numbers (See Note 2)	Shield without Slide Latch Kit Numbers (See Note 3)
2	.225 5.71	745652-4	745918-4
	.300 7.62	745652-3	745918-3
	.375 9.52	745652-2	745918-2
	.430 10.92	745652-1	745918-1
3	.280 7.11	745653-5	—
	.355 9.02	745653-4	—
	.430 10.91	745653-3	747194-3
	.480 12.19	745653-2	—
	.530 13.46	745653-1	—

Notes: 1. All parts are packaged unassembled.
2. Each kit includes a two-piece shield with three pan head screws and a slide latch with two 4-40 slide latch screws. Side latches may be purchased separately in kit form.
3. Each kit includes a two-piece shield with three pan head screws.

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

Slide Latches

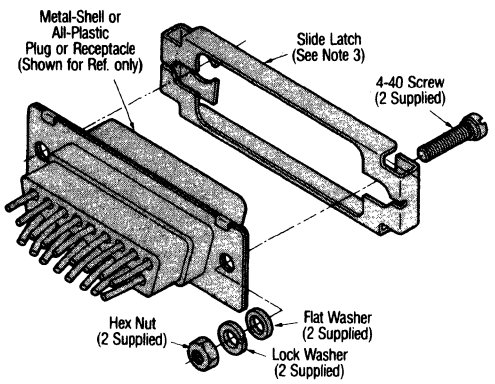
Material and Finish:

4-40 Screws, Washers & Hex Nuts—Steel, zinc plated yellow chromate

2-56 Screws, Washers & Hex Nuts—Steel, zinc plated clear chromate

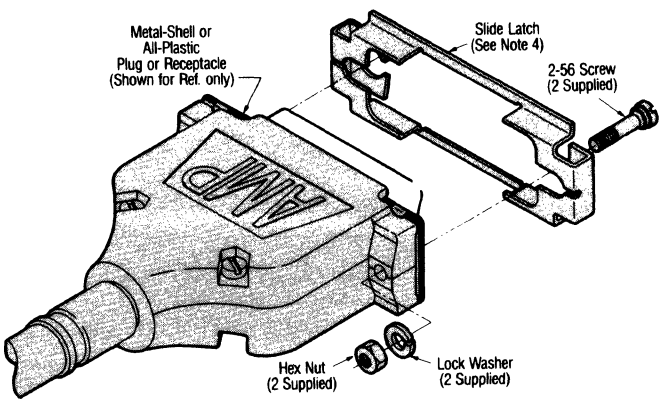
Slide Latch—Stainless steel

Style I



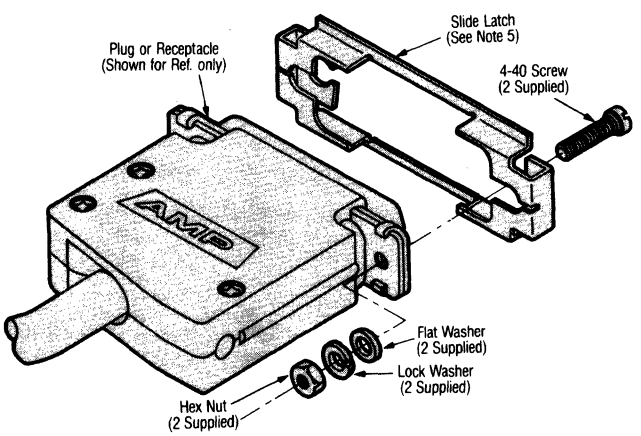
For Shell Sizes 1, 2 and 4

Style II



For Shell Sizes 2, 3 and 5

Style III



For Shell Sizes 2, 3 and 5

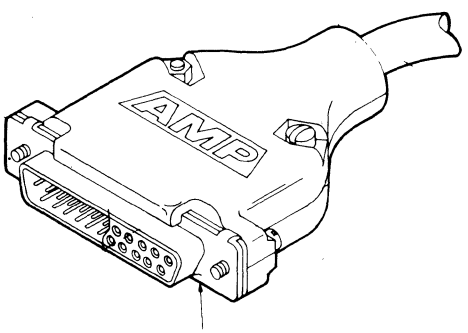
Shell Size	Style	Slide Latch Kit Numbers	
		Individual	Bulk Packed*
1	I	745404-1	745404-2
2	II	745583-1	745583-2
	III	745583-5	745583-6
3	II	745584-1	745584-2
	III	745584-3	745584-4
4	I	745407-1	745407-2
5	II	745578-1	745578-2
	III	745578-3	745578-4

*Each part is individually bulk packed for multiple kit orders.

Notes:
1. All parts are packaged unassembled.
2. Each kit includes a slide latch and two screws, flat washers (if required), lock washers and hex nuts. Style I slide latches are also furnished as part of cable clamp kits.
3. Style I slide latches can be used with cable clamps that do not extend beyond the front flange of the connector or on connectors without cable clamps.
4. Style II slide latches can be used with any cable clamp that has the mounting ear configuration as shown above.
5. Style III slide latches can be used on connectors without cable clamps or with cable clamps that do not have the mounting ear configuration shown with Style II above.
6. Slide latches mate with locking posts.

Shielded Cable Clamps

Straight Exit RFI/EMI Shields for Jacketed Cable (Two-Piece)



HDE or HDP Plug or Receptacle
(Shown for Ref. only)

This RFI/EMI shield allows cable to be fully prepared and terminated to the connector before the shield is installed. During installation, the shield of the jacketed cable is folded back and compressed into the cable opening of the RFI/EMI shield. For greater cable support and/or shielding effectiveness, split-ring and crimp ferrules are available.

Material and Finish:

Die Cast Shield—Zinc alloy, plated bright nickel over bright copper
Metal-Plated Plastic Shield—Thermoplastic, plated nickel over copper
Plastic Shield—Black thermoplastic
4-40 Fillister Head Screws and Hex Nuts—Steel, zinc plated
4-40 Mounting Screws—Steel, zinc plated
Jackscrews—Steel, zinc plated clear chromate

Shell Size	Cable O.D. (Max.)	Die Cast Shield Kit Numbers	Metal-Plated Plastic Shield Kit Numbers	Grommet Sets		
				Cable O.D. Range	No. of Grommets Per Set	Part Number
1	.200 5.08	745171-2	745854-5	–	–	–
	.250 .635	745171-1	745854-3	–	–	–
	.370 9.4	745171-5	745854-1	.185-.320 4.7-8.13	4	747746-1
2	.225 5.72	745172-3	747099-7	–	–	–
	.300 7.62	745172-2	747099-5	–	–	–
	.375 9.53	745172-1	747099-3	.185-.320 4.7-8.13	4	747746-1
	.430 10.92	1-745172-3	747099-1	–	–	–
3	.280 7.11	745173-5	745833-9	–	–	–
	.350 8.89	745173-4	745833-7	–	–	–
	.430 10.92	745173-3	735833-5	–	–	–
	.480 12.19	745173-2	745833-3	–	–	–
	.530 13.46	745173-1	745833-1	.255-.470 6.48-11.94	6	747973-1
4	.350 8.89	745174-5	747100-9	–	–	–
	.425 10.8	745174-4	747100-7	–	–	–
	.500 12.7	745174-3	747100-5	–	–	–
	.530 13.46	2-745174-7	1-747100-1	.255-.470 6.48-11.94	6	747973-1
	.575 14.61	745174-2	747100-3	–	–	–
	.650 16.51	745174-1	747100-1	–	–	–
5	.375 9.53	745175-6	1-747098-1	–	–	–
	.450 11.43	745175-5	747098-9	–	–	–
	.525 13.34	745175-4	747098-7	.255-.470 6.48-11.94	6	747973-1
	.600 15.24	745175-3	747098-5	–	–	–
	.675 17.15	745175-2	747098-3	–	–	–
	.750 19.05	745175-1	747098-1	–	–	–

Cable Clamp Kits with Grommets

Shell Size	Cable O.D. Range	No. of Grommets Per Set	Kit Numbers		
			Die Cast Shield With Grommets	Metal-Plated Plastic Shield With Grommets	Plastic Shield With Grommets
1	.185-.320 4.7-8.13	4	748676-1	748677-1	748678-1
2	.185-.320 4.7-8.13	4	748676-2	748677-2	748678-2
3	.255-.470 6.48-11.94	6	748676-3	748677-3	748678-3
4	.255-.470 .648-11.94	6	748676-4	748677-4	748678-4
5	.255-.470 6.48-11.94	6	748676-5	748677-5	748678-5

Notes: 1. All parts are packaged unassembled.
2. Jackscrews must be purchased separately.

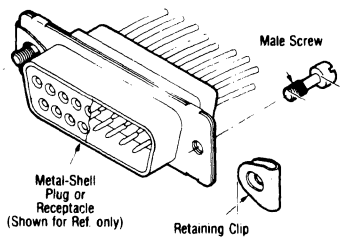
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

Male Screw Retainers for Metal-Shell Connectors (HDE and HDP)

Material and Finish:

Male Screw—Steel, zinc plated clear or yellow chromate
Retaining Clip—.012 [0.3] steel, zinc plated or stainless steel**



Male Screw Finish	Thread Size	Male Screw Retainer Kit Number	
		Individual	Bulk Packed*
Yellow Chromate	4-40	205980-1	205980-3
	4-40	745136-1**	745136-2**
Clear Chromate	4-40	205980-4	205980-5

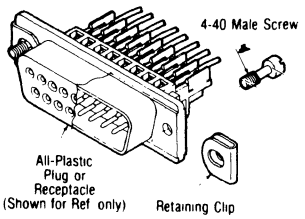
*Each part is individually bulk packed for multiple kit orders.
**Retaining clips are stainless steel for Male Screw Retainer Series 745136.

Male Screw Retainer for All-Plastic Connectors (HDE)

Material and Finish:

Male Screw—Steel, zinc plated yellow chromate
Retaining Clip—.012 [0.3] steel, zinc plated yellow chromate

Kit Number 745647-1
Kit is comprised of two 4-40 male screws and two retaining clips.

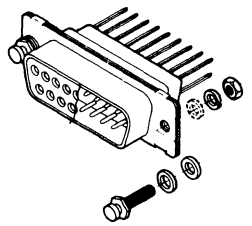


Locking Posts

Material and Finish:

All Parts—Cold rolled steel, zinc plated yellow chromate

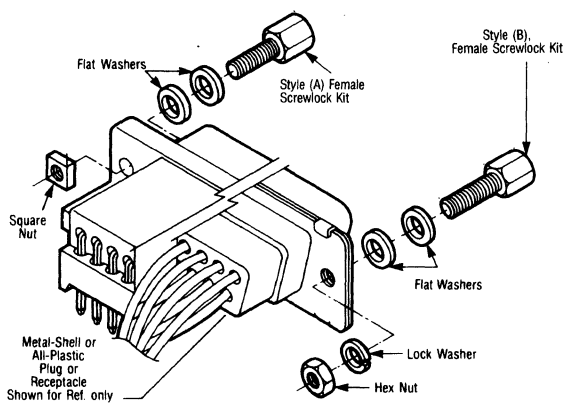
Individual Kit **Part No. 206514-1**
Bulk Packed Kit **Part No. 206514-3**



Female Screwlocks for Metal-Shell and All-Plastic Connectors (HDE, HDF, HDP)

Material and Finish:

All parts—Cold rolled steel, zinc plated clear or yellow chromate



Connector Used With	Style	Finish	Kit Numbers	
			Individual	Bulk Packed*
HD All-Plastic Right-Angle Plug and Receptacle	Style (A)	Yellow Chromate	207952-1	–
		Clear Chromate	207952-3	–
HDE Metal-Shell or All-Plastic Plug and Receptacle	Style (B)	Yellow Chromate	745563-1	745563-2
HDP or HDF Metal-Shell or All-Plastic Plug and Receptacle	Style (B)	Yellow Chromate	205817-1	205817-2
		Clear Chromate	205817-3	205817-4
		Yellow Chromate	207872-1**	207872-2
HD All-Plastic Plug and Receptacle with Integral Standoffs	Style (B)	Yellow Chromate	207719-1	207719-2
		Clear Chromate	207719-3	207719-4

*Each part is individually bulk packed for multiple kit orders.
**M3 (metric).

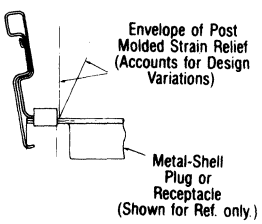
Spring Latches for Post Molded Strain Relief (Two-Piece)

Material:

Stainless Steel

Part No. 745779-2 (two per package)
Part No. 745779-3 (bulk packed)*

*Two-piece spring latches are individually bulk packed for multiple part orders.

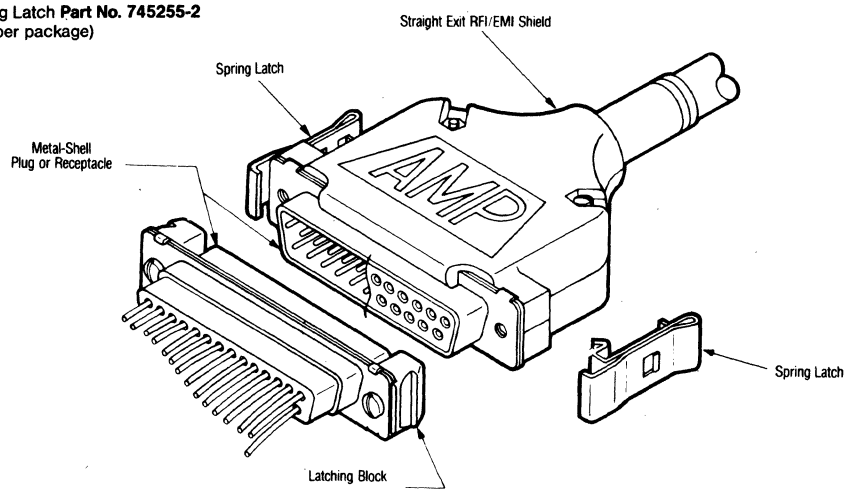


Spring Latches (Two-Piece)

Material:

.015 [0.38] Stainless steel

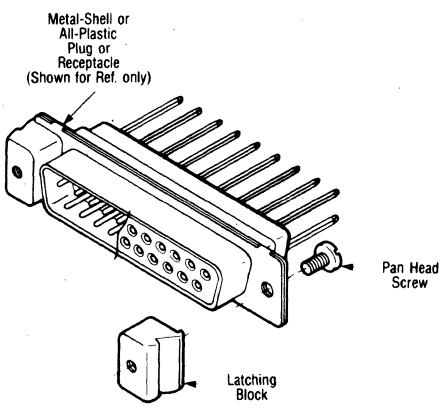
Spring Latch **Part No. 745255-2**
(two per package)



Latching Blocks with Threaded Hole

Material and Finish:

Latching Blocks—Zinc
Pan Head Screws—Steel, zinc plated



Shell Size	Thread Size	Front Panel Latching Block Part Number		Front Panel Latching Block Kit Number
		Individual**	Bulk Packed*	
1 thru 4	M3 (Metric)	–	208101-2	745007-1
	4-40	208101-8	208101-9	745007-5

*Bulk packed for multiple orders.
**Individual kits contain two latching blocks per package.

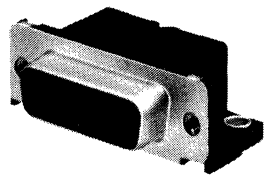
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

HD-22 Front Metal Shell Right-Angle Posted Connectors 350 Mount

Material and Finish:

Front Shell—Steel, tin plated
Housing—94V-0 rated thermoplastic, black
Eyelets—Brass, tin or tin-lead plated
Threaded Inserts—Zinc
Female Screwlocks—Zinc
Socket Contacts (Posted)—Phosphor bronze
Contact Finish—Duplex plated
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact underplated with .000050 [0.00127] nickel.



Receptacle

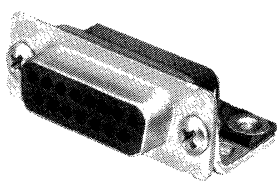
Shell Size	No. of Contact Positions	Boardlock	Solderable Eyelets
		Threaded Inserts	Threaded Inserts
1	15	748390-5	1-748390-4
2	26	748481-5	1-748481-4
3	44	748482-5	1-748482-4
4	62	748394-5	1-748394-4
5	78	748483-5	1-748483-4

Notes: 1. All receptacle connectors are preloaded with size 22 DF posted socket contacts.
2. Recommended pc board thickness is .062 [1.57] for connectors with boardlock and .093 [2.36] max. for all others.

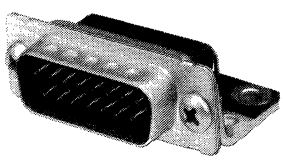
HDP-20 Full Metal-Shell Right-Angle Posted Connectors 454 Mount

Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black
Contacts (Posted):
Pin—Brass
Socket—Phosphor bronze
Contact Plating:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, entire contact underplated with .000050 [0.00127] nickel.
B—Gold flash on mating end, tin-lead on termination end, both over .000030 [0.00076] nickel.



Receptacle



Plug with Grounding Indents

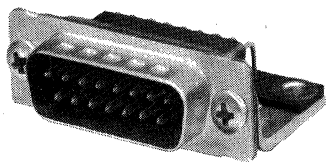
Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Post Length	Plug Part Numbers With Grounding Indents	Receptacle Part Numbers
1	9	A	.125 .318	745434-8	745438-4
		B		745434-7	745438-3
		A	.220 .559	745434-4	745438-2
		B		745434-3	745438-1
2	15	A	.125 .318	745435-8	745439-4
		B		745435-7	745439-3
		A	.220 .559	745435-4	745439-2
		B		–	745439-1
3	25	A	.125 .318	745436-8	745440-4
		B		745436-7	745440-3
		A	.220 .559	745436-4	745440-2
		B		745436-3	745440-1
4	37	A	.125 .318	745437-8	745441-4
		B		745437-7	745441-3
		A	.220 .559	745437-4	745441-2
		B		745437-3	745441-1

Notes: 1. All connectors are preloaded with size 20 DF posted contacts, plugs with pin contacts and receptacles with socket contacts.
2. .125 [3.18] post length is recommended for pc board thickness of .093 [2.36] max.; .220 [5.59] post length is recommended for pc board thickness of .125 [3.18] max.

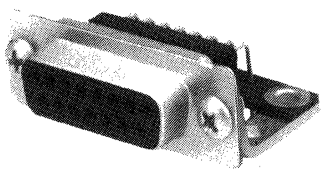
HDP-20 Full Metal-Shell Right-Angle Posted Connectors 545 Mount

Material and Finish:

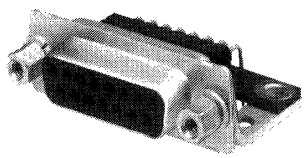
Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black
Female Screwlock—Steel, zinc plated
Pin Contacts (Posted)—Brass
Socket Contacts (Posted)—Phosphor bronze
Contacts duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, entire contact underplated with .000050 [0.00127] nickel.
B—Gold flash on mating end, tin-lead on termination end, entire contact underplated with .000030 [0.00076] nickel.



Plug with Grounding Indents



Receptacle with Standard Mounting Screws



Receptacle with Female Screwlocks

Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Plug Part Numbers	Receptacle Part Numbers	
			With Grounding Indents		
			With Standard Mounting Screws	With Standard Mounting Screws	With Female Screwlocks
1	9	A	745351-4	745112-2	747020-2
		B	745351-3	745112-1	747020-1
2	15	A	745352-4	745113-2	747021-2
		B	745352-3	745113-1	747021-1
3	25	A	745353-4	745114-2	745536-2
		B	745353-3	745114-1	745536-1
4	37	A	745354-4	745115-2	745964-2
		B	745354-3	745115-1	745964-1
5	50	A	745355-4*	745116-2	747193-2
		B	745335-3	745116-1	747193-1

*This plug can be made available with female screwlocks, consult AMP Incorporated.

Notes: 1. All plugs and receptacles are preloaded with size 20 DF posted pin or socket contacts.
2. Recommended pc board thickness is .093 [2.36] max.
3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

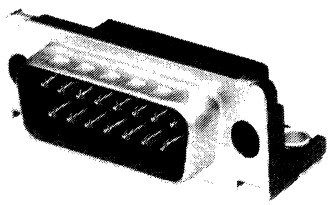
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

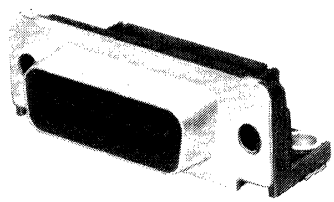
HD-20 Front Metal-Shell Right-Angle Posted Connectors 318 Mount

Material and Finish:

Front Shell—Steel, tin plated
Housing—94V-0 rated thermoplastic, black
Eyelets—Brass, tin plated
Threaded Inserts—Zinc
Female Screwlocks—Zinc
Boardlocks—Copper alloy, tin-lead plated
Pin Contacts (Posted)—Brass
Socket Contacts (Posted)—Phosphor bronze
Contacts duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.
B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.



Plug with Grounding Indents and Grounding Straps



Receptacle with Grounding Straps

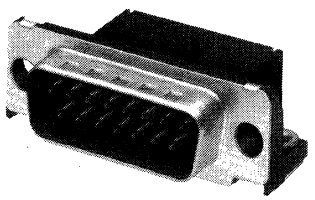
Shell Size	No. of Positions	Contact Finish (Plating Code)	Plug Part Numbers		Receptacle Part Numbers				
			Without Boardlocks	With Boardlocks	Without Boardlocks			With Boardlocks	
			With Threaded Inserts	With Threaded Inserts	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Threaded Inserts	With Fixed Female Screwlocks
1	9	A	747250-4	747840-4	745781-2	745781-4	745781-6	747844-4	747844-6
		B	747250-3	747840-3	745781-1	745781-3	745781-5	747844-3	747844-5
2	15	A	747236-4	747841-4	745782-2	745782-4	745782-6	747845-4	747845-6
		B	747236-3	747841-3	745782-1	745782-3	745782-5	747845-3	747845-5
3	25	A	747238-4	747842-4	745783-2	745783-4	745783-6	747846-4	747846-6
		B	747238-3	747842-3	745783-1	745783-3	745783-5	747846-3	747846-5
4	37	A	747252-4	747843-4	745784-2	745784-4	745784-6	747847-4	747847-6
		B	747252-3	747343-3	745784-1	745784-3	745784-5	747847-3	747847-5

Notes: 1. All plugs and receptacles are preloaded with size 20 DF posted pin or socket contacts.
2. Recommended pc board thickness is .062 [1.57] for connectors with boardlocks and .093 [2.36] max. for all others.
3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

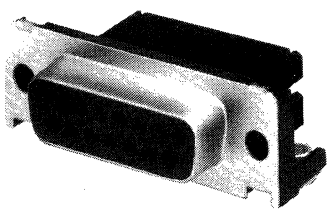
HD-20 Front Metal-Shell Right-Angle Posted Connectors 590 Mount

Material and Finish:

Front Shell—Steel, tin plated
Housing—94V-0 rated thermoplastic, black
Eyelets—Brass, tin plated
Threaded Inserts—Zinc
Female Screwlocks—Zinc
Boardlocks—Copper alloy, tin-lead plated
Pin Contacts (Posted)—Brass
Socket Contacts (Posted)—Phosphor bronze
Contacts duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.
B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.



Plug with Grounding Indents and Grounding Straps



Receptacle with Grounding Straps

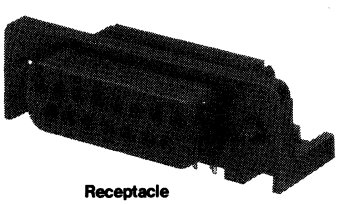
Shell Size	No. of Positions	Contact Finish (Plating Code)	Plug Part Numbers			Receptacle Part Numbers			
			Without Boardlocks		With Boardlocks	Without Boardlocks		With Boardlocks	
			With Threaded Inserts	With Fixed Female Screwlocks	With Fixed Female Screwlocks	With Threaded Inserts	With Fixed Female Screwlocks	With Threaded Inserts	With Fixed Female Screwlocks
1	9	A	745990-4	745990-6	747832-6	745988-4	745988-6	747836-4	747836-6
		B	745990-3	745990-5	747832-5	745988-3	745988-5	747836-3	747836-5
2	15	A	745986-4	745986-6	747833-6	745984-4	745984-6	747837-4	747837-6
		B	745986-3	745986-5	747833-5	745984-3	745984-5	747837-3	747837-5
3	25	A	745994-4	745994-6	747834-6	745992-4	745992-6	747838-4	747838-6
		B	745994-3	745994-5	747834-5	745992-3	745992-5	747838-3	747838-5
4	37	A	745998-4	745998-6	747835-6	745996-4	745996-6	747839-4	747839-6
		B	745998-3	745998-5	747835-5	745996-3	745996-5	747839-3	747839-5

Notes: 1. All plugs and receptacles are preloaded with size 20 DF pin or socket contacts.
2. Recommended pc board thickness is .062 [1.57] for connectors with boardlocks and .093 [2.36] max. for all others.
3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

HD-20 All-Plastic Right-Angle Posted Connectors 318 Mount (Front Load)

Material and Finish:

Housing—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Female Screwlocks—Brass, nickel plated
Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.
B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.



Receptacle

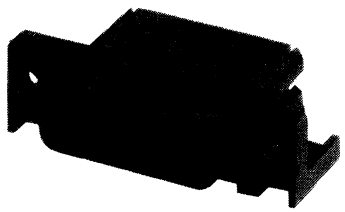
Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Receptacle Part Numbers		
			With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	A	745131-2	745394-2	745395-2
		B	745131-1	745394-1	745395-1
2	15	A	745271-2	745393-2	745396-2
		B	745271-1	745393-1	745396-1
3	25	A	745132-2	745392-2	745397-2
		B	745132-1	745392-1	745397-1
4	37	A	–	747724-2	747725-2
		B	–	747724-1	747725-1

Notes: 1. All receptacles are preloaded with size 20 DF posted socket contacts.
2. Recommended pc board thickness is .093 max.
3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

HD-20 All-Plastic Right-Angle Posted Connectors 590 Mount (Front Load)



Receptacle

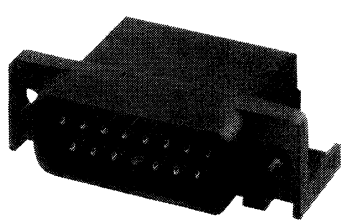
Material and Finish:

Housing—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Female Screwlocks—Brass, nickel plated
Contacts (Posted)—
Socket—Phosphor bronze
Contacts duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.
B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated.

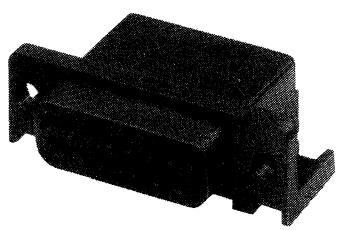
Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Receptacle Part Numbers		
			With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	A	747459-2	747459-4	747459-6
		B	747459-1	747459-3	747459-5
2	15	A	747460-2	747460-4	747460-6
		B	747460-1	747460-3	747460-5
3	25	A	747461-2	747461-4	747461-6
		B	747461-1	747461-3	747461-5
4	37	A	747462-2	747462-4	747462-6
		B	747462-1	747462-3	747462-5

Notes: 1. All connectors are preloaded with size 20 DF posted socket contacts.
2. Recommended pc board thickness is .093 [2.36] max.
3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

HD-20 All-Plastic Right-Angle Posted Connectors 590 Mount (Rear Load)



Plug



Receptacle

Material and Finish:

Housing—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Female Screwlocks—Brass, nickel plated
Contacts (Posted):
Pin—Brass
Socket—Phosphor bronze
Contacts plated as follows:
A—.000030 [0.00076] gold on mating end, gold flash on remainder of contact, tin-lead on termination end, with entire contact nickel underplated.
B—Gold flash on mating end.

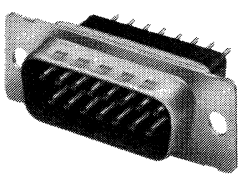
Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Plug Part Numbers			Receptacle Part Numbers		
			With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	A	207081-2	745091-2	745101-2	207084-2	745092-2	745102-2
		B	207081-1	745091-1	745101-1	207084-1	745092-1	745102-1
2	15	A	206913-2	745093-2	745103-2	206914-2	745094-2	745104-2
		B	206913-1	745093-1	745103-1	206914-1	745094-1	745104-1
3	25	A	206604-2	207870-2	745105-2	206584-2	207869-2	745106-2
		B	206604-1	207870-1	745105-1	206584-1	207869-1	745106-1
4	37	A	206816-2	745097-2	745107-2	206817-2	745098-2	745108-2
		B	206816-1	745097-1	745107-1	206817-1	745098-1	745108-1
5	50	A	206971-2	745099-2	–	206973-2	745100-2	745110-2
		B	206971-1	–	–	206973-1	745100-1	745110-1

Notes: 1. All connectors are preloaded with size 20 DF posted contacts; plugs with pin contacts and receptacles with socket contacts.
2. Recommended pc board thickness is .093 [2.36] max.
3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

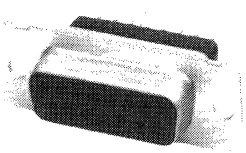
HDP-20 Full Metal Shell Straight Posted Connectors

Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black
Contacts (Posted)—
Pin—Brass
Sockets—Phosphor bronze
Contacts plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, entire contact underplated with .000050 [0.00127] nickel.
B—Gold flash on mating end, tin-lead on termination end, entire contact underplated with .000030 [0.00076] nickel.



Plug



Receptacle

Shell Size	No. of Contact Positions	Contact Finish (Plating Code)†	Plug Part No. With Grounding Indents	Receptacle Part No. With Standard Mounting Holes	Receptacle Part No. With Clinch Nuts
1	9	A	745410-1	745183-1	747190-2
		B	745410-2	745183-2	747190-1
		A	745410-7*	745183-7*	745190-4*
2	15	A	745411-1	745185-1	745820-1
		B	745411-2	745185-2	745820-2
		A	745411-7*	745185-7*	745820-7*
3	25	A	745412-1	745187-1	745886-1
		B	745412-2	745187-2	745886-2
		A	745412-7*	745187-7*	745886-7*
4	37	A	745413-1	745189-1	747315-1
		B	745413-2	745189-2	747315-2
5	50	A	745414-1	745191-1	747302-1

*Post length is .188 [4.78].

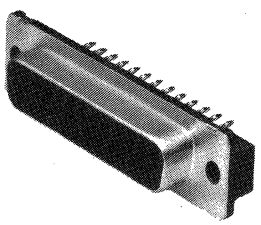
†.125 [3.18] post length is for recommended pc board thickness of .062-.093 [1.57-2.36]; .188 [4.78] post length is for recommended pc board thickness of .125 [3.18].

Notes: 1. All connectors are preloaded with size 20 DF posted contacts.
2. Special loading of contacts can be arranged upon request.

HD-20 Front Metal-Shell Straight Posted Connectors with ACTION PIN Contacts

Material and Finish:

Front Shell—Steel, tin plated
Housing—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Female Screwlocks—Brass, nickel plated
ACTION PIN Contacts—Copper alloy, duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on ACTION PIN post surface, with entire contact nickel underplated.



Receptacle

For .093 [2.36] to .125 [3.18] Thick Pc Boards

Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Receptacle Part Numbers With Standard Mounting Hole	With Threaded Inserts	With Fixed Female Screwlocks
3	25	A	745922-2	745925-2	745928-2
4	37	A	747713-2	747714-2	747715-2
5	50	A	747143-2	747144-2	747145-2

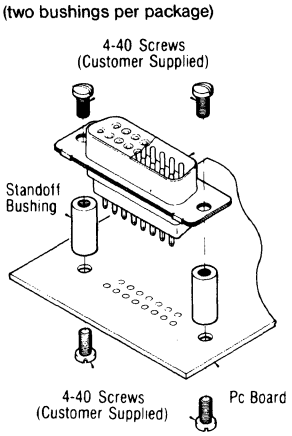
Notes: 1. All receptacles are preloaded with straight posted ACTION PIN socket contacts.
2. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.
3. Consult AMP Incorporated for replacement contact numbers.

Standoff Bushings for Full Metal Shell Straight Posted Connectors.

Material:

Aluminum

Kit Number 205933-3
(two bushings per package)



Keying Plug (for Size 20 Socket Contacts)

Material:

Polyphenylene oxide

Part No. 206509-1

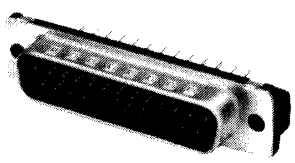
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

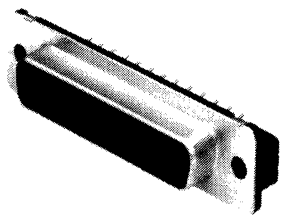
HD-20 Front Metal Shell Straight Posted Connectors

Material and Finish:

Shell—Steel, tin plated
Housing—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Female Screwlocks—Zinc
Pin Contacts (Posted)—Brass
Socket Contacts (Posted)—Phosphor bronze
Contact Finish—Duplex plated
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, entire contact underplated with .000050 [0.00127] nickel.
B—Gold flash on mating end, tin-lead on termination end, entire contact underplated with .000030 [0.00076] nickel.



Plug with Grounding Indents



Receptacle

Shell Size	No. of Contact Positions	Post Length C*	Contact Finish (Plating Code)	Plug Part Numbers			Receptacle Part Numbers		
				With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	.125 3.18	A	747871-2	747871-8	–	747150-2	747150-8	1-747150-4
			B	747871-1	–	1-747871-3	747150-1	747150-7	1-747150-3
		.170 4.32	A	747871-4	–	1-747871-6	747150-4	–	1-747150-6
			B	747871-3	–	1-747871-5	–	747150-9	1-747150-5
2	15	.125 3.18	A	747872-2	747872-8	1-747872-4	747299-2	747299-8	1-747299-4
			B	–	–	–	747299-1	747299-7	1-747299-3
		.170 4.32	A	747872-4	1-747872-0	1-747872-6	747299-4	1-747299-0	1-747299-6
			B	–	–	1-747872-5	–	–	1-747299-5
		.250 6.35	A	–	–	–	747299-6	–	–
3	25	.125 3.18	A	745968-2	745968-8	1-745968-4	745967-2	745967-8	1-745967-4
			B	745968-1	745968-7	1-745968-3	745967-1	745967-7	1-745967-3
		.170 4.32	A	745968-4	–	1-745968-6	745967-4	1-745967-0	1-745967-6
			B	745968-3	745968-9	1-745968-5	745967-3	745967-9	1-745967-5
		.250 6.35	A	–	1-745968-2	–	745967-6	–	–
			B	–	–	–	–	1-745967-1	–
4	37	.125 3.18	A	747375-2	747375-8	–	747301-2	747301-8	1-747301-4
			B	–	747375-7	1-747375-3	747301-1	747301-7	–
		.170 4.32	A	747375-4	1-747375-0	–	747301-4	–	1-747301-6
			B	–	–	1-747375-5	747301-3	747301-9	1-747301-5
		.250 6.35	A	–	–	–	747301-6	–	–

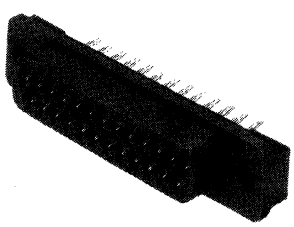
*125 [3.18] post length is for recommended pc board thickness of .062-.093 [1.57-2.36] max.; .170 [4.32] post length is for recommended pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications.

Notes: 1. All plugs are preloaded with size 20 DF posted pin contacts and all receptacles are preloaded with size 20 DF posted socket contacts.
2. Special loading of contacts can be arranged upon request.
3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

HD-20 All-Plastic Straight Posted Connectors with ACTION PIN Contacts

Material and Finish:

Housing—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Female Screwlocks—Brass, nickel plated
ACTION PIN Contacts—Copper alloy, duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on ACTION PIN post surface, with entire contact nickel underplated.



Receptacle (Low Profile)

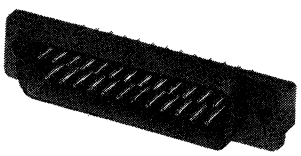
Shell Size	No. of Contact Positions	Contact Finish (Plating Code)	Receptacle Part Numbers	
			For .093-.125 [2.36-3.18] Thick Pc Boards	For .062 [1.57] Thick Pc Boards
			With Fixed Female Screwlocks	With Standard Mounting Hole
2	15	A	745456-2	745587-2
3	25	A	745458-2	745588-2

Notes: 1. All receptacles are preloaded with straight posted ACTION PIN socket contacts.
2. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.
3. Consult AMP Incorporated for replacement contact numbers.

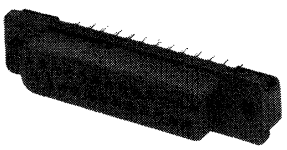
HD-20 All-Plastic Straight Posted Connectors

Material and Finish:

Housing—94V-0 rated thermoplastic, black
Threaded Inserts—Brass, unplated
Female Screwlocks—Brass nickel plated
Pin Contacts (Posted)—Brass
Socket Contacts (Posted)—Phosphor bronze
Contacts plated as follows:
A—.000030 [0.00076] gold on mating end, tin-lead on termination end, entire contact underplated with .000050 [0.00127] nickel.
B—Gold flash on mating end, tin-lead on termination end, entire contact underplated with .000030 [0.00076] nickel.



Plug



Receptacle

Shell Size	No. of Contact Positions	Post Length	Contact Finish (Plating Code)	Plug Part Numbers			Receptacle Part Numbers		
				With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	.125 3.18	A	208006-2	745051-2	745071-2	207826-4	207841-4	745076-4
			B	208006-1	745051-1	745071-1	207826-3	207841-3	745076-3
		.170 4.32	A	208006-4	745051-4	745071-4	207826-6	207841-6	745076-6
2	15	.125 3.18	A	208007-2	745052-2	745072-2	207827-4	745057-4	745077-4
			B	208007-1	745052-1	745072-1	207827-3	745057-3	745077-3
3	25	.125 3.18	A	208008-2	745053-2	745073-2	207828-4	745058-4	745078-4
			B	208008-1	745053-1	745073-1	207828-3	745058-3	745078-3
		.170 4.32	A	208008-4	745053-4	745073-4	207828-6	745058-6	745078-6
			B	208008-3	745053-3	745073-3	207828-5	745058-5	745078-5
4	37	.125 3.18	A	208009-2	745054-2	745074-2	207829-4	745059-4	745079-4
			B	208009-1	745054-1	745074-1	207828-3	745059-3	745079-3
5	50	.125 3.18	A	208010-2	745055-2	745075-2	207830-4	745060-4	745080-4
			B	208010-1	745055-1	745075-1	207830-3	745060-3	745080-3

*.125 [3.18] post length is for recommended pc board thickness of .062-.093 [1.57-2.36] max.; .170 [4.32] post length is for recommended pc board thickness of .093-.125 [2.36-3.18].

Notes: 1. All plugs and receptacles are preloaded with size 20 DF posted contacts.
2. It is recommended that these connectors be secured with appropriate hardware to a pc board and/or panel.
3. Male screw retainers are used as mating hardware with 4-40 female screwlocks.

Shielded AMPLIMITE .050 Series Connectors (.050 x .100 [1.27 x 2.54] Centerlines)

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

Small Computer Systems Interface (SCSI) and RS-232 Cable Assemblies

Note: .050 centerline ribbon cable assemblies are available in single or double ended versions. These assemblies are made using AMPLIMITE .050 Series panel mount connectors, AMPLIMITE .050 Series all-plastic connectors and AMP-LATCH Novo receptacle. Consult AMP Incorporated.

Application	Assembly	Part Numbers		
		2 Feet	2 Meters	3 Meters
SCSI-2	50 pos. .050 Series Plug to 50 pos. .050 Series Plug	750254-1	750254-2	750254-3
SCSI-1 to SCSI-2	50 pos. CHAMP Conn. to 50 pos. .050 Series Plug	750342-3	750342-5	—
RS-232 (Alternate)	26 pos. .050 Series Plug to 26 pos. .050 Series Plug	750255-1	750255-2	750255-3
RS-232 to RS-232 Alt.	Std. 25 pos. AMPLIMITE Plug to 26 pos. .050 Series Plug	750257-1	750257-2	—

Intelligent Peripheral Interface (IPI-2) and High Performance Parallel Interface Cable Assemblies

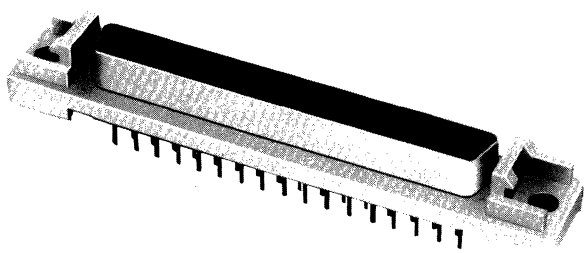
Application	Assembly	Part Numbers		
		5 Meters	15 Meters	25 Meters
IPI-2 and HIPPI	100 pos. .050 Series Plug to 100 pos. .050 Series Plug	749755-2	749755-3	749755-4

Vertical Receptacle Headers With Rails And Latch Blocks

.125 [3.18] Solder Tail Length

Materials:

Housing—Thermoplastic, 94V-0 rated, black
Shell—Steel, plated .000200 [0.00508] min. bright tin over .000050 [0.00127] min. copper
Bracket—Zinc, plated nickel over copper
Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; .000120 [0.00304] min. tin-lead on solder end; all under-plated .000050 [0.00127] min. nickel



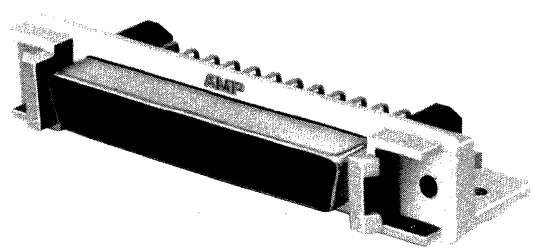
No. of Pos.	Part No.
20	749069-1
26	749069-2
28	749069-3
40	749069-4
50	749069-5
60	749069-6
68	749069-7
80	749069-8
100	749069-9
120	1-749069-0

Right-Angle Receptacle Headers With Rails And Latch Blocks

.125 [3.18] Solder Tail Length

Materials:

Housing—Thermoplastic, 94V-0 rated, black
Shell—Steel, plated .000200 [0.00508] min. bright tin over .000050 [0.00127] min. copper
Bracket—Zinc, plated nickel over copper
Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; .000120 [0.00304] min. tin-lead on solder end; all under-plated .000050 [0.00127] min. nickel



No. of Pos.	Part No.
20	749075-1
26	749075-2
28	749075-3
40	749075-4
50	749075-5
60	749075-6
68	749075-7
80	749075-8
100	749075-9
120	1-749075-0

.050 Series Cable Plug Connectors (.050 x .100 [1.27 x 2.54] Centerline)

Shielded Plugs

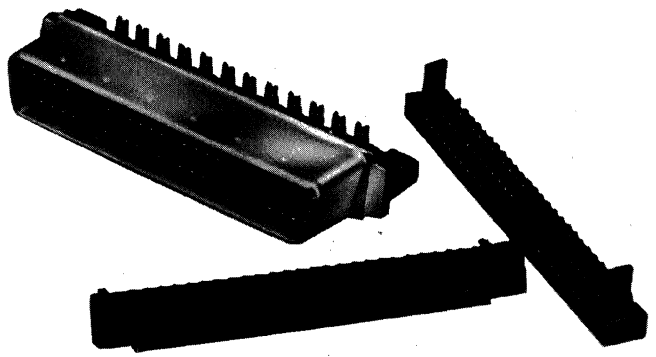
Materials:

Housing — Thermoplastic, 94V-0 rated, black

Contacts — Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; .000050 [0.00127] min. tin-lead on termination end; all underplated .000050 [0.00127] min. nickel

Shell — Steel, plated .000200 [0.00508] min. bright tin-lead over .000050 [0.00127] min. copper

Recommended wire size is 28 AWG [0.08–0.09 mm]. Maximum insulation diameter is .036 [0.91].



Unassembled Termination Cover

No. of Pos.	Part Number
20	749621-1
26	749621-2
28	749621-3
40	749621-4
50	749621-5

No. of Pos.	Part Number
60	749621-6
68	749621-7
80	749621-8
100	749621-9
120	1-749621-0

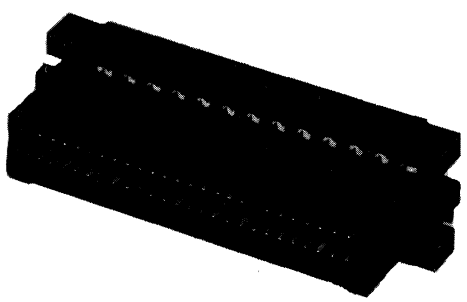
Note: Plug connector requires backshell kits for a complete assembly. Refer to page 17 for backshell part numbers.

Unshielded Plugs

Materials:

Housing and Termination Covers — Thermoplastic, 94V-0 rated, black

Contacts — Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; .000050 [0.00127] min. bright tin-lead on termination area, all underplated .000050 [0.00127] nickel



No. of Pos.	Part Number
20	749925-1
28	749925-7
40	749925-2
50	749925-3
60	749925-4
68	749925-5
100	749925-6

.050 Series Connector Shielded Backshell Kits

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82068

Materials:

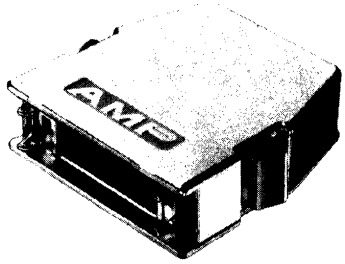
Backshell — Zinc, plated nickel over copper

Spring Latch — Stainless steel

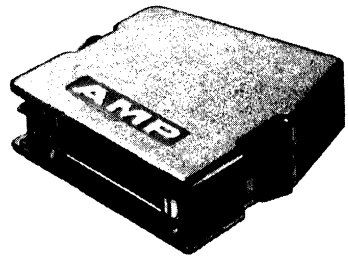
Strain Relief Staple — Steel, plated tin-lead over nickel

Jackscrews — Steel, plated black zinc

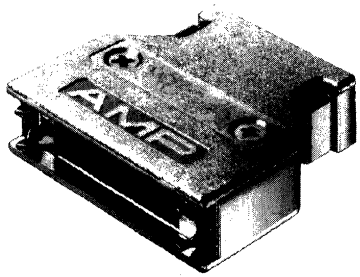
2-56 Screws — Stainless steel



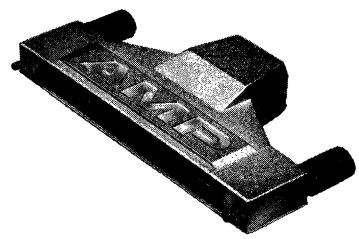
Style A Straight Exit with Latches



Style A Angled Exit with Latches



Style B Straight Exit with Latches



Style C Straight Exit with Jackscrews (Male Jackscrews Shown)

Straight and Angled Exit RFI/EMI Shields for Jacketed Cable (Two-Piece)

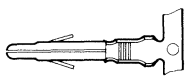
No. of Pos.	Style	Max. O.D.	Straight with Latches	Straight Male Jackscrews	Straight Female Jackscrews	Angled with Latches
20	A	.270	749190-1	—	—	749199-1
26	B	.270	749608-1	—	—	—
26	A	.270	—	—	—	749609-1
28	A	.295	749191-1	—	—	749200-1
40	A	.320	749192-1	—	—	749201-1
50	A	.355	749193-1	—	—	749202-1
50	A	.400	749193-2	—	—	749202-2
50	B	.480	749889-3	—	—	—
50	C	.400	—	749080-1	749082-1	—
60	A	.380	749194-1	—	—	749203-1
68	A	.400	749195-1	—	—	749204-1
68	A	.440	749195-2	—	—	749204-2
80	A	.420	749196-1	—	—	749205-1
80	A	.500	749196-2	—	—	—
100	A	.500	749197-1	—	—	749206-1
100	C	.500	—	749081-1	749083-1	—
120	A	.550	749198-1	—	—	749207-1

Note: Each backshell kit includes upper and lower backshells, two spring latches OR two male jackscrews OR two female jackscrews, one strain relief staple and two 2-56 screws. All are packaged unassembled.

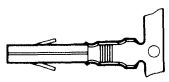
Soft Shell
Pin and Socket Connectors

Universal MATE-N-LOK Connectors

Contacts—Pin Diameter .084 [2.13]



Pin



Socket

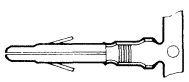
Wire Size Range AWG	Inside Dia. Range	Material and Finish	Contact Part Numbers			
			Pin		Socket	
			Strip Form	Loose Piece	Strip Form	Loose Piece
30-26	**.030-.057** 0.81-1.45	Brass, Pre-tin	–	–	350925-1	–
24-18	**.040-.100** 1.02-2.54	Brass, Pre-tin	350561-1	350690-1	350851-1 350570-1[1]	350689-1[1]
		Brass, Gold	350561-2	350690-2	350851-2 –	640347-2 350689-2[1]
		Brass, Select Gold	350561-7	350690-7	– 350570-7[1]	350689-7[1]
		Phos. Brz. Pre-tin	350561-3	–	350570-3[1]	350689-3[1]
		Phos. Brz. Select Gold	–	–	350570-6[1]	–
20-14	**.060-.130** 1.52-3.3	Brass, Pre-tin	350218-1	350547-1	350536-1	350550-1
		Brass, Gold	350218-2	–	350536-2	350550-2
		Brass, Select Gold	350218-7	–	350536-7	350550-7
		Phos. Brz. Pre-tin	350218-3	350547-3	350536-3	350550-3
		Phos. Brz. Select Gold	350218-6	–	350536-6	–
20-14	**.130-.200** 3.3 -5.08	Brass, Pre-tin	350538-1	350552-1	350537-1	350551-1
		Brass, Gold	–	–	350537-2	–
		Brass, Select Gold	–	–	350537-7	–
		Phos. Brz. Pre-tin	350538-3	350552-3	350537-3	350551-3
		Phos. Brz., Select Gold	–	–	350537-6	–
18-14[2]	**.130-.200** 3.3 -5.08	Brass, Pre-tin	350873-1	–	350874-1	–
		Phos. Brz., Pre-tin	350873-3	350918-3	350874-3	350919-3
12-10	**.200** 5.08 Max.[3]	Phos. Brz., Pre-tin	350922-3	640309-3	350923-3	640310-3

Notes: 1. Socket contact—.010 [0.25] stock thickness. All other .012 [0.30].
2. Recommended for predominant use of 14 AWG wire.
3. There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing.

Grounding Pin

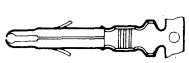
(.100 [2.54] longer than standard pin). Can be used in either plug or cap housing.

24-18 AWG, .040-.100 [1.02-2.54] Ins. Dia. Range, Brass, Pre-tin, **Strip Form Part No. 770210-1**
20-14 AWG, .060-.130 [1.52-3.3] Ins. Dia. Range, Brass, Pre-tin, **Strip Form Part No. 350654-1**
Loose Piece Part No. 350669-1



Split Pins

Can be used in either plug or cap housings.



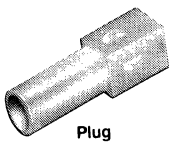
Wire Size Range AWG	Inside Dia. Range	Material and Finish	Contact Part Numbers	
			Strip Form	Loose Piece
24-18	**.040-.100** 1.02-2.54	Brass, Pre-tin	350699-1	–
		Brass, Gold	350699-2	–
		Brass, Select Gold	350699-7	350706-7
20-14	**.060-.130** 1.52-3.3	Brass, Pre-tin	350687-1	–
		Brass, Gold	350687-2	–
		Brass, Select Gold	350687-7	–
20-14	**.130-.200** 3.3 -5.08	Brass, Pre-tin	350700-1	–
		Brass, Select Gold	350700-7	–

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

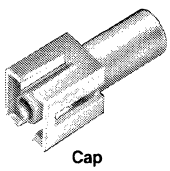
For more information request Catalog 82181

Housings

1 Circuit Free-Hanging

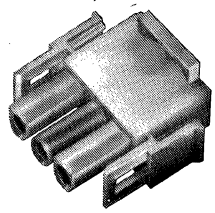


Plug

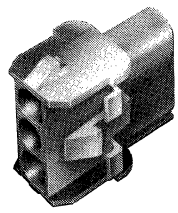


Cap

2, 3, 4, 5, 6, 8 and 10 Circuit Panel Mount, In-Line

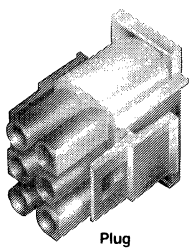


Plug

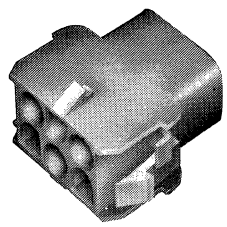


Cap

6 Circuit Panel Mount Matrix

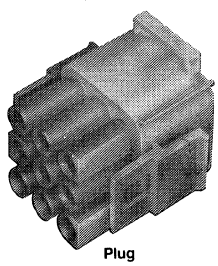


Plug

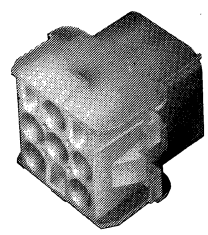


Cap

9, 12 and 15 Circuit Panel Mount, Matrix



Plug



Cap

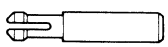
Number of Circuits	Housing Part Numbers			
	Plug		Cap	
	94V-2 Nylon	94V-0 Nylon	94V-2 Nylon	94V-0 Nylon
1	1-350867-0	350865-1	1-350868-0	350866-1
2	1-480698-0*	350777-1*	1-480699-0*	350778-1*
3	1-480700-0*	350766-1*	1-480701-0*	350767-1*
4	1-480702-0*	350779-1*	1-480703-0*	350780-1*
5	1-480763-0*	350809-1*	1-480764-0*	350810-1*
6	640585-1*	640581-1*	—	—
	1-480704-0	350715-1	1-480705-0	350781-1
8	640586-1*	640582-1*	—	—
9	1-480706-0	350720-1	1-480707-0	350782-1
12	1-480708-0	350735-1	1-480709-0	350783-1
15	1-480710-0	350736-1	1-480711-0	350784-1

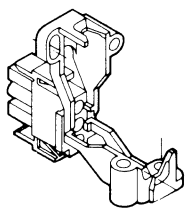
*In-line version.

Notes: 1. 94V-2 nylon material is natural color, 94V-0 nylon material is brick red color.
2. Contacts are on .250 [6.35] centerlines.

Keying Plug

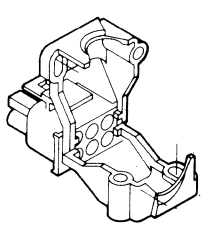
94V-2 Nylon material, natural color
Part No. 1-640415-1
94V-0 Nylon material, brick red color
Part No. 1-640415-0





Plug Housing Strain Reliefs

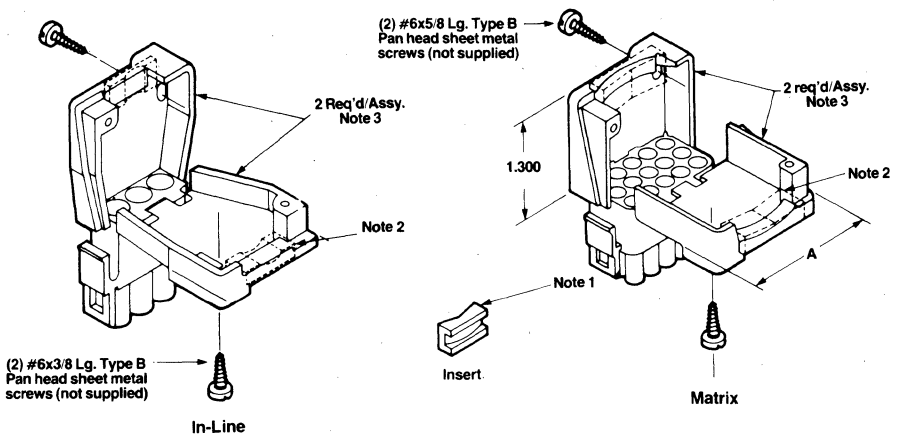
2, 3, 4, 5 and 8 Circuit, In-Line
94V-2 Nylon material, natural color
Part No. 1-350589-0
94V-0 Nylon material, brick red color
Part No. 350811-1



6, 9, 12 and 15 Circuit, Matrix
94V-2 Nylon material, natural color
Part No. 1-350590-0
94V-0 Nylon material, brick red color
Part No. 350812-1

Cap Housings Strain Reliefs

2, 3, 4, 5, 6, 9, 12 and 15 Circuit (Enclosed)

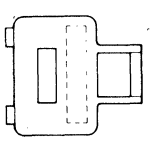


Type	Number of Circuits	Insert Supplied	Part Numbers	
			94V-2 Nylon, Natural	94V-0 Nylon, Brick Red
In-Line	2	Yes	1-640719-0	640713-1
	3	Yes	1-640720-0	640714-1
	3	No	641763-1	641945-1
	4	Yes	641775-1	641776-1
	4	No	641775-2	641776-2
	5	Yes	643030-3	643030-1
	6	Yes	643585-1	643313-1
Matrix	6	Yes	1-640721-0	640715-1
	9	Yes	1-640722-0	640716-1
	12	Yes	1-640723-0	640717-1
	15	Yes	1-640724-0	640718-1

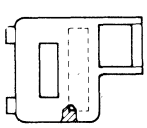
Notes: 1. Cable clamping insert comes attached to strain relief. It can be used to provide additional adjustment for small wire bundles or discarded.
2. Inserts to be positioned as shown by dotted lines.
3. Strain relief part numbers represent one-half of a strain relief. Two of a part number are required for one connector.

Cap Housing Adapters

For all positions except 2 and 6 Circuits
94V-2 Nylon, natural color
Part No. 641777-1
94V-0 Nylon, brick red color
Part No. 641778-1



For 2 and 6 Circuit Cap Housing Only
94V-2 Nylon, natural color
Part No. 643182-1
94V-0 Nylon, brick red color
Part No. 643182-2



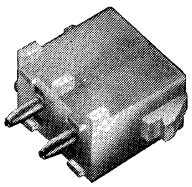
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82181

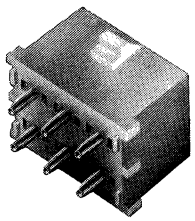
Printed Circuit Board Vertical Pin Headers

Material and Finish:

Housing—94V-2 Nylon, natural color
94V-0 Nylon, brick red color
Contacts—Phosphor bronze



2, 3, 4, 5, 6 and 8 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix

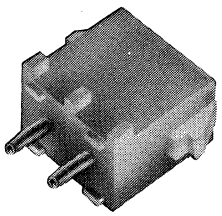
Number of Circuits	Housing Material	Pin Finish[3]	2, 3, 4, 5, 6 and 8 Circuit In-Line Pin Header Part Numbers			6, 9, 12 and 15 Circuit, Matrix Pin Header Part Numbers		
			Standard Tail[1]	Standard Tail Polarized[1]	Long Tail[2]	Standard Tail[1]	Standard Tail Polarized[1]	Long Tail[2]
2	94V-2	Pre-tin	350428-1	—	—	—	—	—
		Gold	350428-2	—	—	—	—	—
	94V-0	Pre-tin	350786-1	—	350787-1	—	—	—
		Gold	350786-2	—	—	—	—	—
3	94V-2	Pre-tin	350429-1	—	350583-1	—	—	—
		Gold	350429-2	—	—	—	—	—
	94V-0	Pre-tin	350789-1	641966-1	3507901	—	—	—
		Gold	350789-2	—	—	—	—	—
4	94V-2	Pre-tin	350430-1	—	—	—	—	—
		Gold	350430-2	—	—	—	—	—
	94V-0	Pre-tin	350792-1	641968-1	35073-1	—	—	—
		Gold	350792-2	—	350793-2	—	—	—
5	94V-2	Pre-tin	640466-1	—	—	—	—	—
	94V-0		640900-1	—	—	—	—	—
6	94V-2	Pre-tin	641832-1	—	—	350431-1	—	350585-1*
	94V-0	Pre-tin	641831-1	643408-1	—	350711-1	—	350732-1
		Gold	350792-1	—	—	350711-2	—	350732-2
8	94V-2	Pre-tin	641825-1	—	—	—	—	—
	94V-0		641828-1	—	—	—	—	—
9	94V-2	Pre-tin	—	—	—	350432-1	—	350586-1
		Gold	—	—	—	350432-2	—	350742-1
	94V-0	Pre-tin	—	—	—	350712-1	—	350742-1
		Gold	—	—	—	350712-2	—	350742-2
12	94V-2	Pre-tin	—	—	—	350733-1	—	350587-1
	94V-0	Pre-tin	—	—	—	350713-1	641974-1	350737-1
15	94V-2	Pre-tin	—	—	—	350434-1	—	350738-1
	94V-0	Pre-tin	—	—	—	350714-1	—	350738-1

[1]Use Standard Tail for .062 [1.58] thick pc board.
[2]Use Long Tail for .125 [3.18] thick pc board.
[3]Gold finish—Plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel.
*Mates with Plug Housing Part Number (using pin contacts).

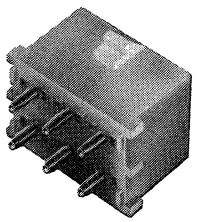
Printed Circuit Board Vertical Socket Headers

Material:

Housing—94V-2 Nylon, natural color
94V-0 Nylon, brick red color
Contacts—Phosphor bronze



2, 3, 4 and 5 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix

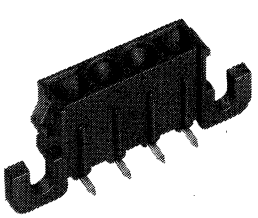
Number of Circuits	Housing Material	Pin Finish[3]	2, 3, 4 and 5 Circuit, In-Line Pin Header Part Numbers		6, 9, 12 and 15 Circuit, Matrix Pin Header Part Numbers		
			Standard Tail[1]	Standard Tail Polarized[1]	Standard Tail[1]	Standard Tail Polarized[1]	Long Tail[2]
2	94V-2	Pre-tin	350759-4	–	–	–	–
	94V-0	Pre-tin	350824-1	–	–	–	–
3	94V-2	Pre-tin	350760-4	–	–	–	–
	94V-0	Pre-tin	350825-1	643414-1	–	–	–
4	94V-2	Pre-tin	350761-4	–	–	–	–
	94V-0	Pre-tin	350826-1	–	–	–	–
5	94V-2	Pre-tin	640467-1	–	–	–	–
6	94V-2	Pre-tin	–	–	350762-4	–	–
	94V-0	Pre-tin	–	–	350827-1	643424-1	350834-1
9	94V-2	Pre-tin	–	–	350763-4	–	350990-4
	94V-0	Pre-tin	–	–	350828-1	–	350835-1
12	94V-2	Pre-tin	–	–	350764-4	–	–
		Gold	–	–	–	–	350991-3
	94V-0	Pre-tin	–	–	350829-1	–	–
15	94V-2	Pre-tin	–	–	350765-4	–	–
	94V-0	Pre-tin	–	–	350830-1	–	350837-1

[1]Use Standard Tail for .062 [1.58] thick pc board.
[2]Use Long Tail for .125 [3.18] thick pc board.
[3]Gold finish—Plated .000030 [0.00076] gold over .000050 [0.00127] min. nickel.

Printed Circuit Board Right-Angle Pin and Socket Headers

Material:

Housing—94V-0 Nylon, brick red color
Contacts—Phosphor bronze



Number of Circuits	Contact Finish*	Part Numbers	
		Pin Header	Socket Header
2	Pre-tin	1-350942-0	–
	Gold	2-350942-0	–
3	Pre-tin	1-350943-0	643228-1
	Gold	2-350943-0	–
4	Pre-tin	1-350944-0	643230-1
	Gold	2-350944-0	–
5	Pre-tin	1-350945-0	–
6	Pre-tin	640583-1	–
	Gold	640583-2	–
8	Pre-tin	640584-1	–
	Gold	640584-2	–

*Gold finish—Plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel.

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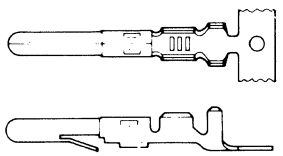
For more information request Catalog 82181

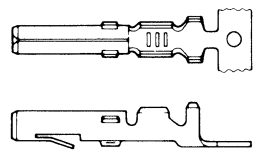
Commercial MATE-N-LOK Connectors

Contacts

Pin Diameter–.084 [2.13]



Pin

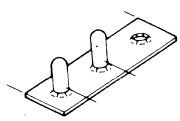


Socket

Wire Size Range AWG	Inside Dia. Range	Material and Finish	Contact Part Numbers			
			Pin		Socket	
			Strip Form	Loose Piece	Strip Form	Loose Piece
30-22	**.075** 1.9	Brass, tin	350079-1	61174-1	350078-1	61173-1
		Phos. Brz., tin	–	–	350078-4	–
24-18	**.100** 2.54	Brass, tin	61116-1	60618-1	61314-1	60617-1
		Phos. Brz., tin	61116-4	–	61314-4	60617-4
		Brass[1]	–	–	61314-5	60617-5
		Brass[2]	61116-7	–	61314-7	–
20-14	**.130** 3.3	Brass, tin	61118-1	60620-1	61117-1	60619-1
		Phos. Brz., tin	–	60620-4	61117-4	60619-4
		Brass[1]	–	60620-5	61117-5	–
		Phos. Brz.[1]	–	–	61117-6	60619-7
		Brass[2]	–	–	61117-7	–
(2) 18 or (1) 18 & (1) 16	(2) **.115** 0.38 (Stacked)	Brass, tin	350558-1	–	–	–
		Phos. Brz., tin	–	–	350557-4	–

[1].000030 [0.00076] gold in mating area and inside wire barrel over nickel plating on entire contact.
[2].000030 [0.00076] gold in mating area over nickel plating on entire contact.

Commoning Tabs



Material and Finish:

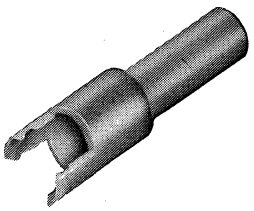
Brass, tin plated

2 Circuit Part No. 60843-1
(used to common any 2 adjacent contacts)

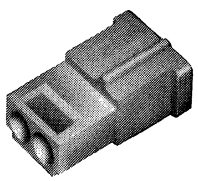
Commercial MATE-N-LOK Connectors

Free-Hanging Connectors

Material:
94V-2 Nylon, natural color



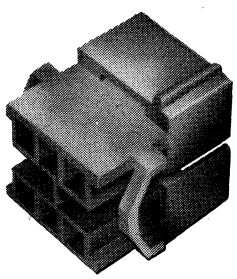
1 Circuit Housing



2, 3 and 4 Circuit Housings, In-Line

No. of Circuits	Part Numbers	
	Pin Housing	Socket Housing
1	1-480350-0[1]	1-480349-0
1	1-480351-0[2]	—
2	1-480319-0	1-480318-0[3]
3	1-480305-0	1-480303-0[3]
4	1-480426-0	1-480424-0[3]
6	1-480340-0	—
8	1-480345-0	—

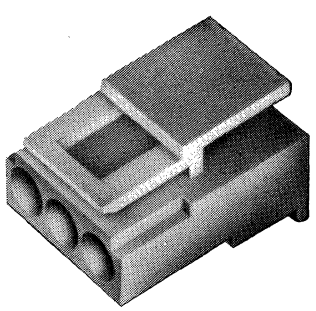
[1]Detent Lock.
[2]Positive Lock.
[3]Housing accepts double wire applications where individual insulation diameters do not exceed .115 [2.93].



6, 8 and 10 Circuit Housings, Matrix

Free-Hanging Connectors

Material:
94V-2 Nylon, natural color

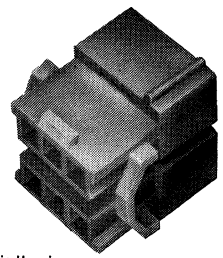


2, 3 and 4 Circuit Positive Lock Socket Housing

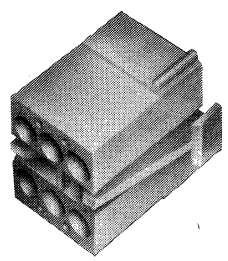
No. of Circuits	Socket Housing Part Numbers
2	1-480720-0
3	1-480721-0
4	1-480722-0

Motor Mount Connectors

Material:
94V-2 Nylon, natural color



Pin Housing



Socket Housing

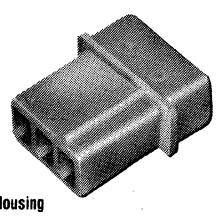
No. of Circuits	Part Numbers	
	Pin Housing	Socket Housing
6	1-480271-0	1-480270-0*
8	1-480284-0	1-480283-0*
10	—	1-480285-0*
12	—	1-480287-0
16	1-480439-0	1-480438-0

*Housing accepts double wire applications where individual insulation diameters do not exceed .115 [2.93].

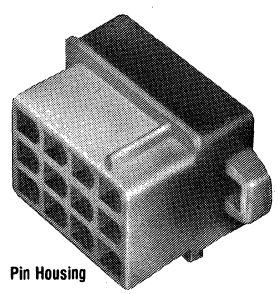
6, 8, 10, 12 and 16 Circuit Housings, Matrix

Panel Mount Connectors

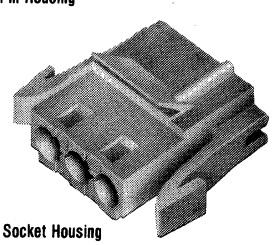
Material:
94V-2 Nylon, natural color



Pin Housing



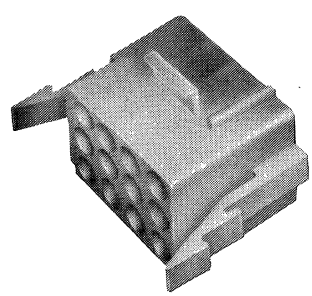
Pin Housing



Socket Housing

3 and 4 Circuit Housings, In-Line

No. of Circuits	Part Numbers	
	Pin Housing	Socket Housing
3	1-480305-0	1-480304-0
4	1-480426-0	1-480425-0
6	1-480276-0	1-480273-0
9	1-480277-0	1-480274-0
12	1-480278-0	1-480275-0
15	1-480324-0	1-480323-0



Socket Housing

6, 9, 12 and 15 Circuit Housings, Matrix

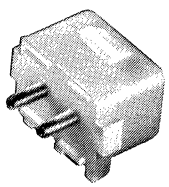
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82181

Printed Circuit Board Pin Headers

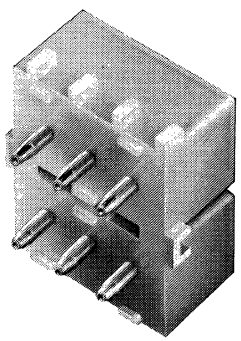
Material:

Housing—94V-2 Nylon, natural color
Contacts—Copper Alloy



Number of Circuits	Finish	Part Numbers			
		With Positive Lock		With Detent Lock	
		Standard Pin*	Long Pin**	Standard Pin*	Long Pin**
2	Tin Plated	350539-1	–	350209-1	–
3	Tin Plated	350541-1	–	350210-1	–
4	Tin Plated	350543-1	–	350211-1	350424-1

*Use Standard Pin for .062 [1.58] thick pc board.
**Use Long Pin for .125 [3.18] thick pc board.



6, 8, 10 and 12 Circuit, Matrix

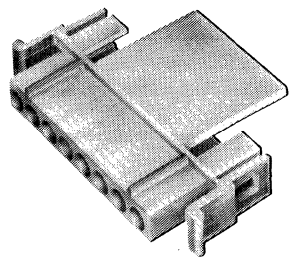
Number of Circuits	Finish	Part Numbers	Mates with Socket Housing Part Number
		Standard Pin*	
6	Tin Plated	1-380999-0	1-480270-0
8	Tin Plated	350212-1	–
10	Tin Plated	1-380991-0	–
12	Tin Plated	350213-1	–

*Use Standard Pin for .062 [1.58] thick pc board.
**Use Long Pin for .125 [3.18] thick pc board.

Flange Mount Connector

Material:

94V-2 Nylon, natural color

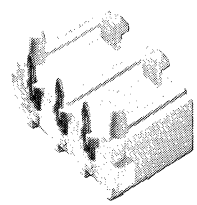


8 Circuit Pin Housing (Cap)
Part No. 1-480460-0

Right-Angle Mount Printed Circuit Board Headers

Material and Finish:

Phosphor bronze, pre-tin

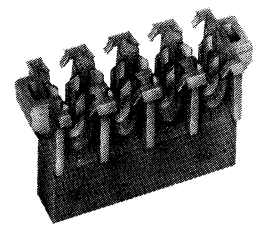


No. of Circuits	Housing Material	Part Numbers
3	94V-0 Nylon, Natural	643488-1
4	94V-2 Nylon, Natural	641737-1

Insulation Displacement Plug Assembly

Material and Finish:

Housing—94V-2 Nylon
Contact—Phosphor bronze, tin plated



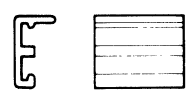
4 Circuit

Wire Size AWG	Housing Color	Part Number
18	Orange	770156-3
20	Yellow	770156-4
22	Red	770156-2

Dust Covers

Material:

94V-0 PBT, natural



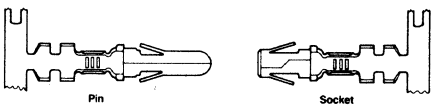
For Standard Wiring
Part No. 770232-1

For Feed Through Wiring
Part No. 770233-1

.140 MATE-N-LOK Connectors
Large Insulation .240 [7.] Centerline

Contacts

Pin Diameter—.140 [3.56]
Stock Thickness—.014 [0.36]

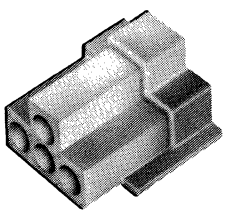


Wire Size Range AWG	Insulation Dia. Range	Material and Finish	Contact Part Numbers	
			Pin	Socket
			Strip Form	Strip Form
20-14	.100-.180 2.54-4.57	Brass, pre-tin	61627-1	61626-1
14-10	.100-.180 2.54-4.57	Brass, pre-tin	350201-1	350200-1

Housings

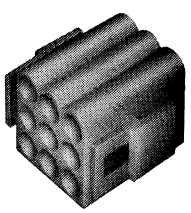
Material:
94V-2 Nylon, natural color

4 Circuit Free-Hanging

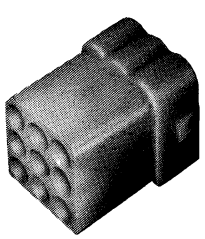


Pin Housing (Cap)
Part No. 1-480512-0

9 Circuit Free-Hanging



Socket Housing (Plug)
Part No. 1-480585-0



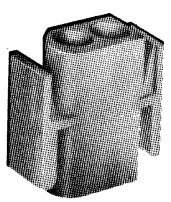
Pin Housing (Cap)
Part No. 1-480586-0

Housings

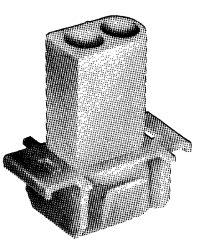
Material:
94V-2 Nylon, natural color

2, 3 and 9 Circuit Panel Mount

2 Circuit

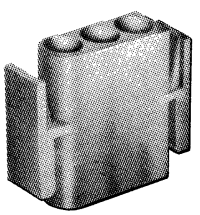


Socket Housing (Plug)
Part No. 1-350344-0

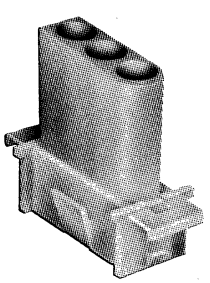


Pin Housing (Cap)
Part No. 1-350345-0

3 Circuit

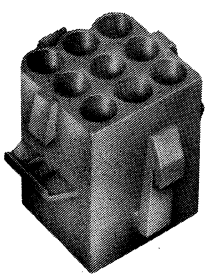


Socket Housing (Plug)
Part No. 1-350346-0

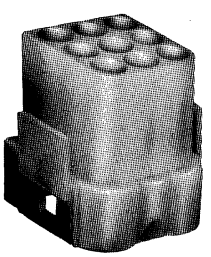


Pin Housing (Cap)
Part No. 1-350347-0

9 Circuit



Socket Housing (Plug)
Part No. 1-480672-0



Pin Housing (Cap)
Part No. 1-480673-0

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

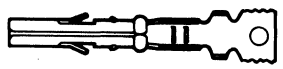
For more information request Catalog 82181

Pin and Socket Contacts (MR Connectors)

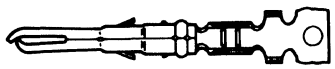
Material and Finish:

Phosphor bronze, pre-tin plated or .000050" [0.00127] nickel over entire contact and .000030" [0.00076] gold in contact area.

.008" [0.2] stock thickness.



Standard Socket



Live Split Pin

Cantilever Socket

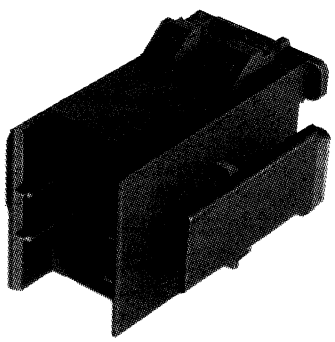
Wire Size Range (AWG)	Insulation Range	Contact Finish	Part Numbers					
			Live Split Pin		Standard Socket*		Cantilever Socket	
			Strip	Loose Piece	Strip	Loose Piece	Strip	Loose Piece
26-18	.050-.115 1.27-2.92	Pre-tin	350967-1	640545-1	641294-1	641300-1	350665-1	350666-1
		Gold	350967-2	640545-2	641294-2	641300-2	350665-2	350666-2

*Preferred combination is live split pin and standard socket.

Housings (MR Connectors)

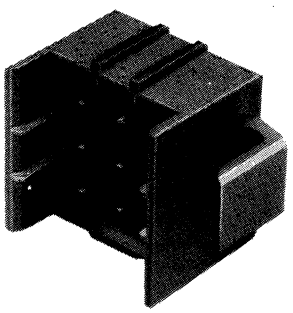
Material:

Nylon, 94V-0 rated, brick red



No. of Circuits	Part Numbers	
	Pin Housing	Socket Housing
2	1-640507-0	1-640517-0
3	1-640508-0	1-640518-0
4	1-640509-0	1-640519-0
6	1-640510-0	1-640520-0
9	1-640511-0	1-640521-0
12	1-640512-0	1-640522-0
15	1-640513-0	1-640523-0
20	1-640514-0	1-640524-0
24	–	1-640525-0
36	–	1-640526-0

Printed Circuit Board Pin Headers (MR Connectors)



Material:

Housings—Nylon, 94V-0 rated, brick red

Contacts—Plated tin or .000030" [0.00076] gold over .000050" [0.00127] nickel over contact length and matte tin on solder tail end.

Number of Circuits	Board Thickness	Part Numbers	
		Tin	Gold
3	.063 1.6	640498-1	640498-2
4	.063 1.6	640499-1	640499-2
5	.063 1.6	640500-1	640500-2
	.130 3.3	640500-3	640500-4
9	.063 1.6	640501-1	640501-2
	.130 3.3	–	640501-4
12	.063 1.6	640502-1	640502-2
15	.063 1.6	640503-1	640503-2
	.130 3.3	640503-3	–
20	.063 1.6	640504-1	–
24	.063 1.6	640505-1	–

Accessories (MR Connectors)

Keying Plug

Material:

Nylon, natural

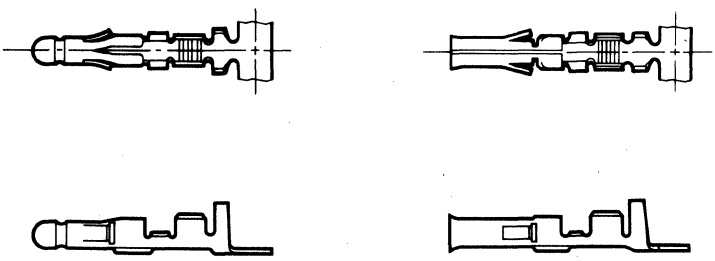
Part Number 350591-1

.093 [2.36] and .062 [1.57] Soft Shell Commercial Pin and Socket Connectors

Pin Diameter .093 [2.36]

.010 [0.25] Stock Thickness

Pin and socket contacts can be used in either plug or receptacle housings.



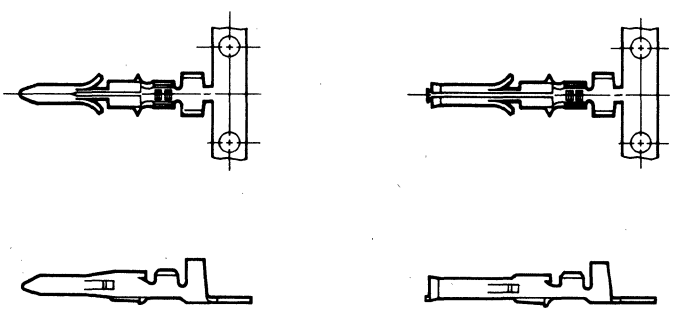
Pin Socket

Wire Size		Ins. Dia. (Max.)	Material & Finish	Part Numbers	
AWG	mm²			Pin	Socket
24-18	0.2-0.9	.110 2.79	Brass, Pre-tin	350418-1	350417-1
20-14	0.6-2	.140 3.56	Brass, Pre-tin	350416-1	350415-1

Pin Diameter .062 [1.57]

.008 [0.20] Stock Thickness

Pin and socket contacts can be used in either plug or receptacle housings.



Pin Socket

Wire Size		Ins. Dia. (Max.)	Material & Finish	Part Numbers	
AWG	mm²			Pin	Socket
24-18	0.2-0.9	.050-.110 1.27-2.79	Brass, Pre-tin	350629-1	350628-1
			Brass, Select Gold	350629-5	350628-2

Notes: 1. Phosphor bronze contacts should be used in high-temperature/humidity cycling applications.

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

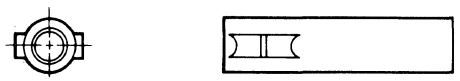
For more information request Catalog 82237

.198 [5.03] Centerline Housings For .093 [2.36] Contacts

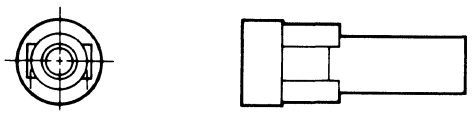
Material:

94V-2 nylon, natural color

1-Circuit Housing

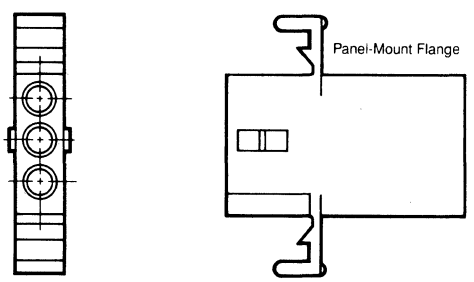


Receptacle

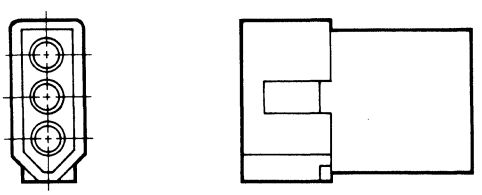


Plug

2, 3, and 4-Circuit Housings, In-Line



Receptacle



Plug

No. of Circuits	Receptacle Part Numbers		Plug Part Numbers
	Panel Mount With Detents	Free-Hanging With Detents	Free-Hanging
1	–	770063-1	770064-1
2	770066-1	770065-1	770069-1
3	770071-1	770070-1	770074-1
4	770076-1	770075-1	770078-1
5	–	770083-1	770084-1
9	770093-1	770092-1	770096-1

.145 [3.68] Centerline Housings For .062 [1.57] Contacts

Material:

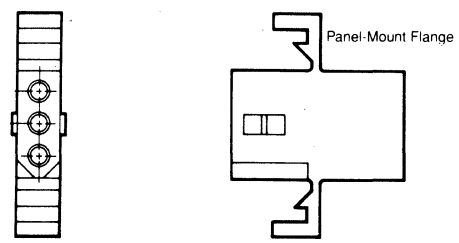
94V-2 nylon, natural color

1-Circuit Housing

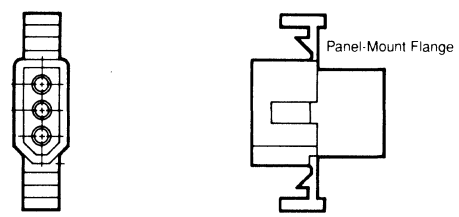
Receptacle

Plug

2, 3, and 4-Circuit Housings, In-Line



Receptacle



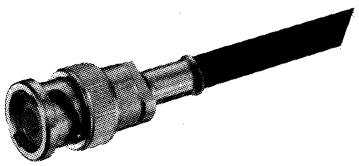
Plug

No. of Circuits	Receptacle Part Numbers		Plug Part Numbers
	Panel Mount	Free-Hanging	Free-Hanging
1	–	770277-1	770278-1
2	770343-1	770342-1	770340-1
3	770326-1	770333-1	770331-1
4 (In-Line)	770335-1	770274-1	770275-1

BNC and TNC Connectors for Coaxial Cable

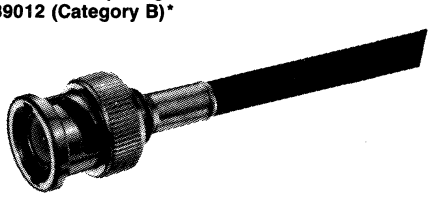
BNC Connectors, 50 Ohm Plugs

Standard Single Crimp Plugs



RG/U Cable	Part Numbers		
	Silver Plate Dielectric		Tarnish Resistant Plate
	Polypropylene	TEFLON	TEFLON Dielectric
58, 58A, 58B, 58C	2-329082-1	2-329444-1	225587-2
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	2-329083-1	2-329445-1	–
161, 179, 187	–	2-329446-1	–
180, 189, 195	–	2-329447-1	–
55, 55A, 55B, 223	–	2-329444-2	–
174, 188, 316	2-330058-1	2-330061-1	–
141, 141A	–	2-330358-1	–
142, 142A, 142B, 400	–	2-330358-2	–
178, 196	—	330876	1-225587-9

Mil Type Dual Crimp Plugs MIL-C-39012 (Category B)*

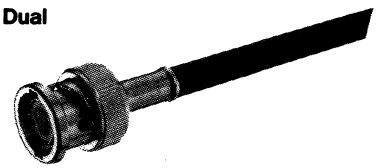


RG/U Cable	Silver Plate Standard AMP No.	Tarnish Resistant Plate Standard AMP No.
55, 55A, 55B, 223	—	225395-3
58, 58A, 58B, 58C, Belden 8219, 8262	2-331350-1	225395-1
59, 59A, 59B, 62, 62A, 62B, 124, 210, 240, Belden 9204, 9209,9269	331350	225395-2
142, 142A, 142B, 400	2-331350-9	225395-6
174, 188, 316, Belden 9239	2-331350-4	225395-7
179, 187, Belden 9221	2-331350-5	225395-8
180, 180A, 195	2-331350-6	225395-9
Belden 8218	2-331350-2	1-225395-0
8, 8A, 213	225886-1	2-225395-1
Belden 89292 Alpha 9847	225886-5	—
Weco, 724, Belden 3049, 8281 Amphenol 21-1060-7	4-331350-0	2-225395-9
Belden 8212, 9104, 9112, 9167, 9259	5-331350-3	2-225395-0
Brand Rex T209A	5-331350-5	—
Belden 9914	225886-7	—

[1]Overall length is .218 [5.54].

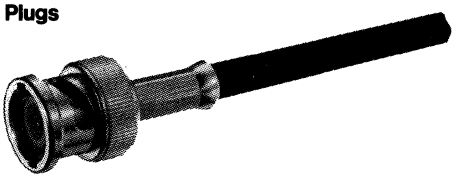
*Category A available for RG/U Cable–55, 58, 141, 142, 223, 400 **Part No. 221552-1** silver/nickel; **Part No., 221552-2** silver/silver.

Commercial Dual Crimp Plugs



RG/U Cable	Part Numbers	
	Center Contact Plating	
	Gold	Silver
58, 58A, 58B, 58C	227079-5	227079-9
55, 55A, 55B, 223	227079-6	—
59, 59A, 59B, 62, 62A, 124, 140, 210	227079-7	1-227079-1
Belden 9266, RG59-Type with 20 AWG C.C.	1-227079-3	—
174, 188, 316,	1-227079-6	1-227079-5
179, 187, Belden 9221	2-227079-2	2-227079-1
Belden 88240	4-227079-3	—
Belden 88241	4-227079-9	—

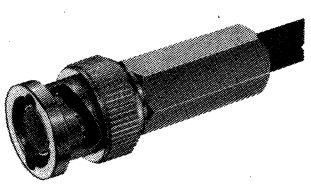
Commercial Hex Crimp Plugs



RG/U Cable	Part Numbers	
	Center Contact Plating	
	Gold	Silver
	Kit Pkg.	Bulk Pkg.
58, 58A, 58B, 58C	1-221128-0	221128-4
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	1-221128-1	221128-5*
Belden 8231, 9231, Western Electric 728B	221128-3	–

*Available in individual packages. Order **Part No. 1-221185-4.**

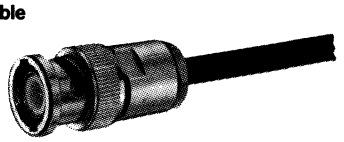
Commercial Twist-On-Plug



RG/U Cable*	Acetal Dielectric Material
58	221984-7
59, 62	221984-1

*Cable with solid center conductor only.

Commercial Field Serviceable Plugs (Category A)



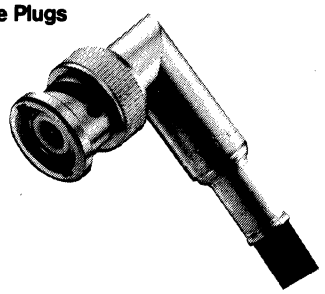
RG/U Cable	Tarnish Resistant Plate AMP No.
58, 58A, 58B, 58C, 141, 141A, 142, 142A, 142B, 55, 55A, 55B, 223, 400	1-221265-0
59, 59A, 59B, 62, 62A, 62B, 124, 210, 140, 71, 71A, 71B	1-221265-1
174, 316	1-221265-5

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82074

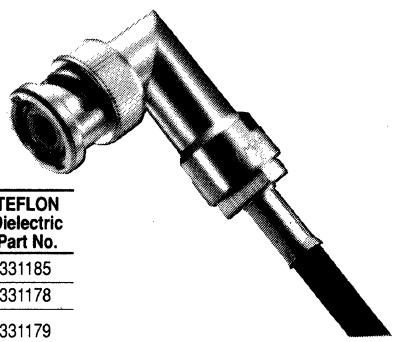
BNC Connectors 50 Ohm Right-Angle Plugs

Mil-Type Dual Crimp Right-Angle Plugs



RG/U Cable	Part Numbers	
	Silver Plate	Tarnish Resistant Plate
58, 58A, 58B, 58C	225073-1	225974-1
142, 142A, 142B	225073-4	–
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	225973-5	225974-5

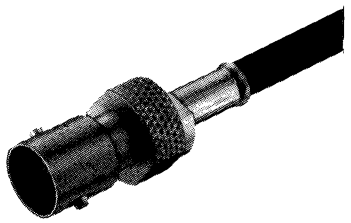
Mil-Type Single Crimp Right Angle Plugs



RG/U	TEFLON Dielectric Part No.
178, 196	331185
174, 188, 316	331178
179, 161, 187 Belden 9221	331179
180, 195	331180
58	331175
142, 400	331182
124, 140, 210	331176
Belden 8281 Western Electric 724, 728, 3049	50635

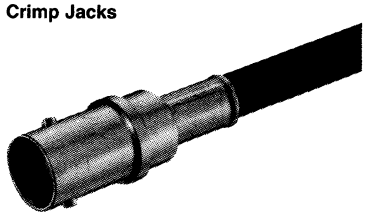
BNC Connectors, 50 Ohm Jacks

Mil-Type Single Crimp Jack



RG/U Cable	Part Numbers	
	Dielectric	
	Polypropylene	TEFLON
58, 58A, 58B, 58C	2-329065-1	2-329545-1
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	–	2-329453-1
55, 55A, 55B, 223	–	2-329452-2
174, 188, 316	2-330059-1	–

Commercial Dual Crimp Jacks MIL-C-39012 (Category B)

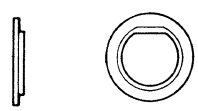


RG/U Cable	Tarnish Resistant Plate AMP No.
58, 58A, 58B, 58C	228979-5
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	228979-6
174, 188, 316,	228979-7
Belden 8281	228979-8

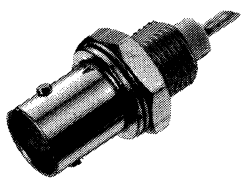
BNC Connectors 50-Ohm Panel Jacks

Commercial Panel Solder Jacks

(Includes lockwasher and jam nut.)

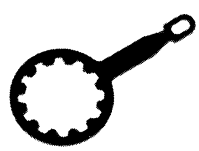


Insulating Bushing, Nylon Part No. 227223-1



Without Solder Terminal

Panel Thickness
Long .046-.250 [1.17-6.35]
Short .046-.125 [1.17-3.18]



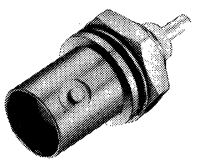
Solder Terminal Part No. 227260-2

Contact Material	Dielectric	Part Numbers	
		Long	Short
Tin	VALOX	227169-1	227754-1
Gold	VALOX	—	227754-2
Silver	VALOX	227169-9	227754-3
Silver	TEFLON	1-227169-0	227715-2

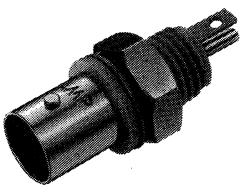
Standard BNC Panel Solder Jack

Part No. 228509-9

Gold contact without solder terminal

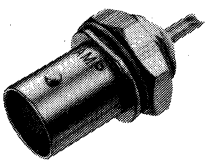


Isolated Solder Receptacle



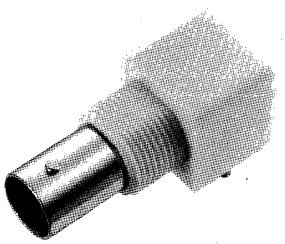
Part Nos.
227726-1 Tin
227726-2 Silver
227726-3 Gold

Commercial Panel Solder Jack—Low Profile

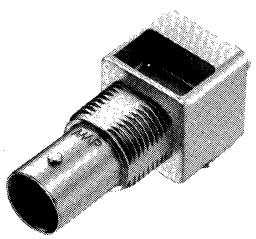


Commercial Right-Angle Pc Board/Panel Mount Jacks

VALOX Body

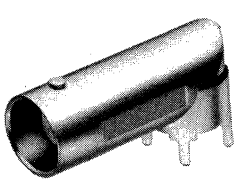


Metal Body



Style	Part Numbers					
	White Body (VALOX)		Black Body (VALOX)		Metal Body	
	Tin Contact	Gold Contact	Tin Contact	Gold Contact	Tin Contact	Gold Contact
Without Mounting Posts	226990-1	226990-3	226990-2	226990-6	227433-1	227676-1
With Mounting Posts	227161-1	227161-3	227161-2	227161-6	227661-1	227677-1
Low Height with Mounting Posts	227161-7	1-227161-1	227161-9	—	—	—

Right-Angle Pc Board Mount Jack



Impedance Value	Right-Angle Pc Board Jack
59	4113631-1
75	413558-1

Lockwasher and Jamp Nut

Part No.
1-329632-2

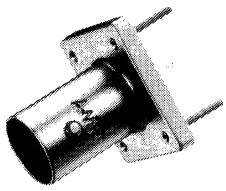
Part No
1-329631-2

BNC Connectors, 50 Ohm Jacks

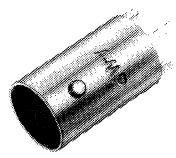
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82074

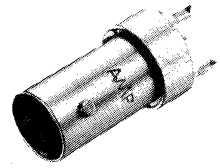
Commercial Vertical Metalized PCB Mount Jacks



Style A



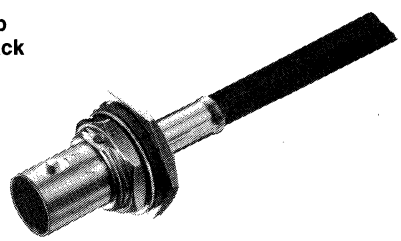
Style B



Press-Fit Terminal Part No. 222006-1

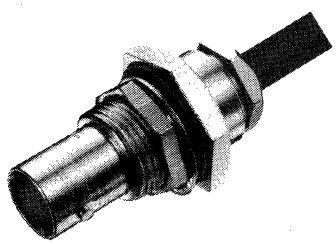
Style	Plating		
	Silver	Gold	Tin
A	227699-1	227699-2	227699-3
B	—	221123-2	221123-3

Mil-Type Single Crimp Bulkhead Jack



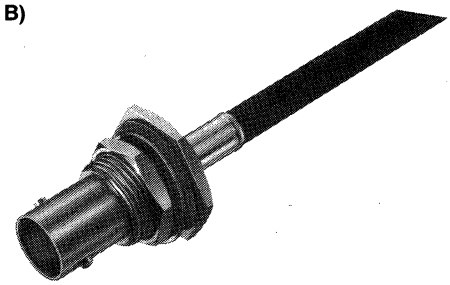
RG/U Cable	Part Numbers	
	Dielectric	
	Polypropylene	TEFLON
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	2-329091-1	2-329457-1
161, 179, 187	2-329092-1	2-329458-1
174, 188, 316	2-330060-1	2-330063-1
142, 142A, 142B	2-329090-2	2-329456-2
178, 196	—	331974

Mil-Type Field Serviceable Bulkhead Jack (Category A)



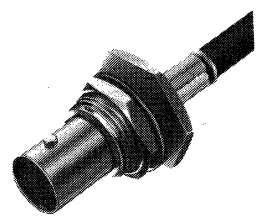
RG/U Cable	Silver Plate AMP No.
58, 58A, 58B, 58C 141A, 223, 55, 55A 55B, 142, 142A, 42B, 400	221313-1
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291 9209, 9268, 88241 Hi-Temp 62A, Times PL-62, Berk-Tek BTDC-59, BTDC-62, 302, 71, 71A, 71B	221313-2

Mil-Type Dual Crimp Bulkhead Jacks MIL-C-39012 (Category B)



RG/U Cable	Silver Plate Standard AMP Number	Tarnish Resistant Plate Standard AMP Number
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	—	225398-2
174, 188, 316	—	225398-7
179, 187	1-331693-3	225398-8
180, 180A, 195	—	225398-9
Belden 8218, Amphenol 21-597	—	1-225398-0
Brand Rex T209A, IBM 5353914	2-331693-5	—

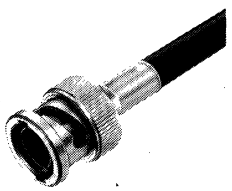
Commercial Dual Crimp Bulkhead Jacks



RG/U Cable	Part Number
58, 58A, 58B, 58C, 141, 141A	228980-5
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	228980-6
174, 188, 316	228980-7
Beldon 9907, 89907	1-228980-6
Beldon 8281	228980-8

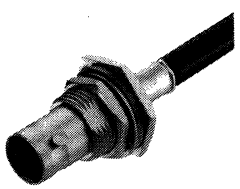
BNC Connectors, 75 Ohm Jacks

Commercial Dual Crimp Plugs



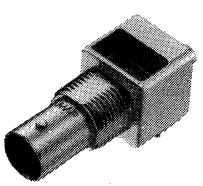
RG/U Cable	Part Number
59, 59A, 59B	221185-2
Belden 8281, 9231	221185-5
179, 179A, 179B, 187, 187A, Belden 9221	221185-8
Belden 9266, 9259, 940 (RG 59–Type with 20 AWG C.C.)	221185-9

Commercial Dual Crimp Bulkhead Jacks



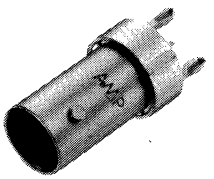
RG/U Cable	Part Number
59, 59A, 59B	221221-2
179, 179A, 179B, 187, 187A, Belden 9221	221221-5
Belden 9266, 9259, 9240 (RG 59–Type with 20 AWG C.C.)	221221-7

Commercial Right-Angle PCB/ Panel Mount Jack

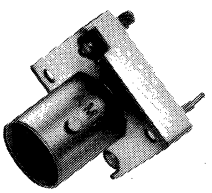


Part No. 222092-1

Commercial Vertical Metalized PCB Mount Jack (Press Fit)



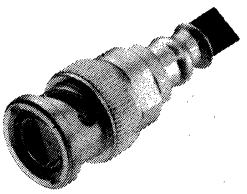
Part No. 222462-1



Part No. 221336-1
.093 [2.36] Max.
Pc Board Thickness

Twin BNC Connectors

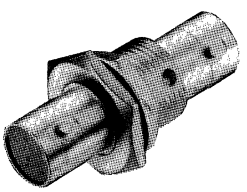
Plug



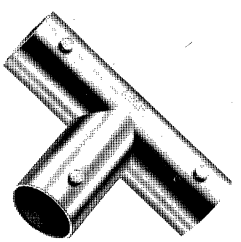
Plugs

RG/U Cable	Dielectric Material	Part Number
108, 108A	TEFLON	332225
Trompeter TWC-124-2	TEFLON	332225-3
108, 108A	Polypropylene	332225-5
ROLM 49D2401 Raychem 7824D0130	Polypropylene	332225-6

Bulkhead Jack



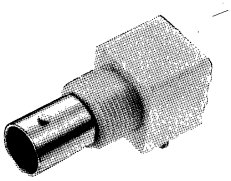
Bulkhead Jack Adapter
Part No. 332215



Tee Adapter
Part No. 228833-1

Right-Angle PCB/ Panel Mount Jack with Solder Mounting Posts

Part No. 228686-1

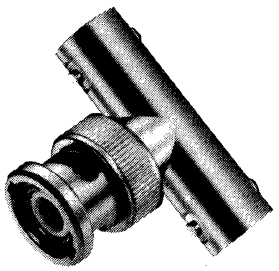


BNC Connector Accessories

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82074

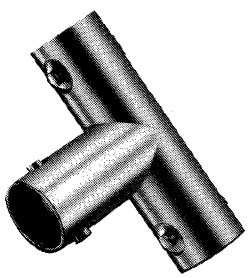
Standard Tee Adapters (Jack-Jack-Plug), 50 Ohm



Type	Body Plating	Contact Plating	Part Number
Mil-Type	Nickel	Gold	221543-2
Commercial	Nickel	Gold	413592-2

Standard Jack Tee Adapter (Jack-Jack-Jack) 50 Ohm

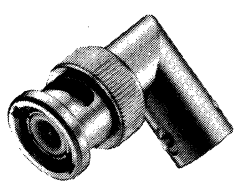
Contact—Silver
Body—Nickel



Part No. 221988-1

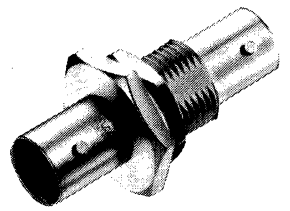
Standard Right-Angle Adapter (Jack-Plug) 50 Ohm

Contact—Gold
Body—Nickel



Part No. 222165-2

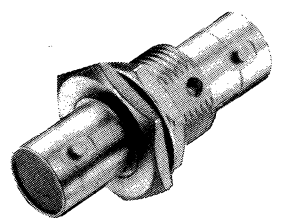
Bulkhead Jack Adapters, 50 Ohm



Body Plating	Contact Plating	Part Number
Silver	Silver	330024
Nickel	Gold	228226-1
Nickel	Silver	228226-2

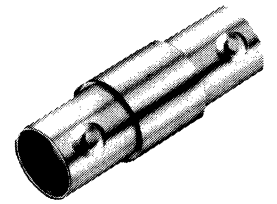
Bulkhead Jack Adapters Twin and Commercial, 75 Ohm

Contact—Gold
Body—Nickel



Part No. 222117-1

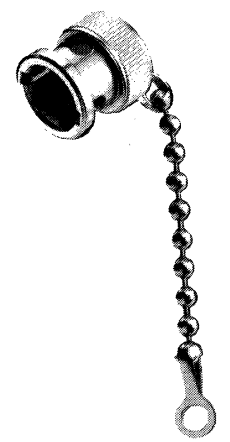
Standard Jack Feedthrough Adapter 50 Ohm



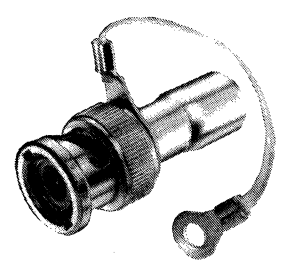
Part No. 221551-1—Silver/Nickel
Part No. 221551-3—Gold/Nickel

Jack Cover

Silver Plating
Part No. 330022



Commercial Terminator Plugs 50 and 75 Ohm Steel Stamp

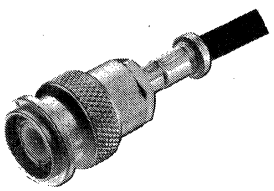


Resistor Specification	Part Numbers	
	With Tether	Without Tether
1 Watt, 50 Ohm	221629-1	221629-4
1 Watt, 75 Ohm	221629-2	221629-5

[1]Steel stamp.

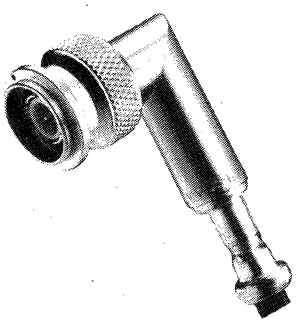
TNC Connectors
50 Ohm

Mil-Type
Single Crimp Plug



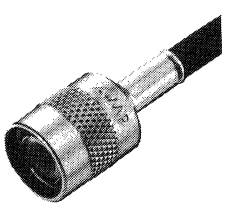
RG/U Cable	Weatherproof Knurled Body
142, 142A, 142B	2-330953-2
58	330953
59	331100

Standard Dual Crimp
Right-Angle Plug



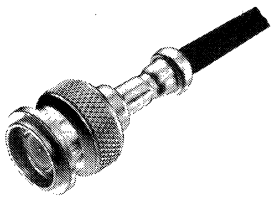
RG/U Cable	Tarnish Resistant Plate Part No.
9, 9A, 9B, 214	225559-9

Commercial
Dual Crimp Plugs



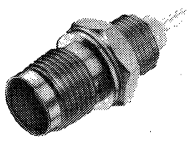
RG/U Cable	Center Contact	
	Plating Gold	Plating Silver
58, 58A, 58B, 58C, 141	227000-5	227000-9
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	227000-7	1-227000-1
Belden 88241	1-227000-9	—
Belden 88240	2-227000-2	—

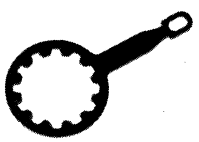
Mil-Type
Dual Crimp Plug
MIL-C-39012
(Category B)



RG/U Cable	Standard Silver Plate	Tarnish Resistant Plate	Weatherproof Silver Plate
55, 55A, 55B, 223	225345-1	225399-1	—
59, 59A, 59B, 62, 62A, 62B, 124, 140, 210	225345-3	—	—
9, 9A, 9B, 214	225345-8	—	—
225	—	—	1-225550-2
58	—	225555-2	225550-2
142	—	225555-6	225550-6

Commercial Panel
Solder Jack



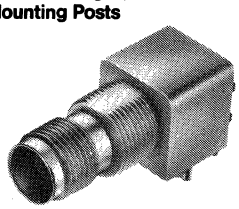


Solder Terminal
Part No. 227260-2

Contact Material	Dielectric Material	Receptacle Assembly
Tin	VALOX	—
Gold	VALOX	227758-2

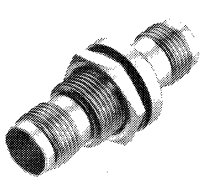
[1]Includes solder terminal and jam nut.
[2]Includes lockwasher and jam nut.

Commercial Right-Angle
PCB/Panel Mount Jack
without Flanges, with
Mounting Posts



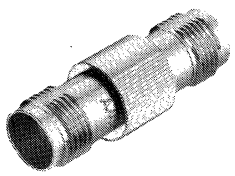
Part No. 227839-1
Metal Body, Gold Contact

Bulkhead Jack
Adapter—50 Ohm



Part No. 221500-1

Jack Adapter



Part No. 221325-1
Gold Center Contact

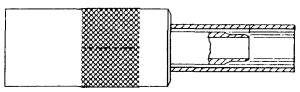
SMB Connectors

For **drawings, technical data or samples,** contact you local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

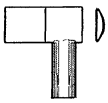
For more information request Catalog 82074

50 Ohm, Mil-Type Connectors

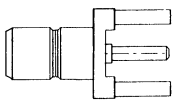
Cable Plugs Straight



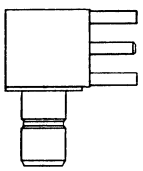
PC Board Jacks



Cable Plugs, Hex Crimp



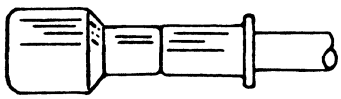
PC Board Jacks Right Angle



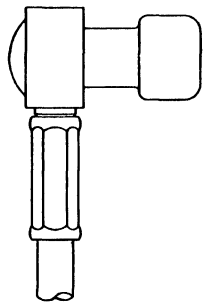
Cable Size RG/U	Type	Plate Finish Contact	Plate Finish Body	Part No.
Plugs				
178	Straight, Comm.	Gold	Nickel	228213-2
174/188	Straight, Mil Type	Gold	Gold	413985-1
174/188	Straight, Mil Type	Gold	Nickel	413985-3
178	Right Angle, Comm.	Gold	Nickel	228214-2
174/188	Right Angle, Mil Type	Gold	Gold	414002-1
174/188	Right Angle, Mil Type	Gold	Nickel	414002-3
Cable Jacks				
174/188	Straight, Mil-Type	Gold	Gold	414091-1
174/188	Straight, Blkhd, Mil Type	Gold	Gold	414092-1
PC Board Jacks				
—	Vertical, Comm.	Gold	Nickel	221111-1
—	Vertical, Mil Type	Gold	Gold	413990-1
—	Vertical, Mil Type	Gold	Nickel	413990-2
—	Right Angle, Mil-Type	Gold	Gold	413996-2
—	Right Angle, Mil-Type	Gold	Nickel	413996-4
—	Right Angle w/Pads, Mil-Type	Gold	Gold	414026-2
—	Right Angle w/Pads, Mil-Type	Gold	Nickel	414026-3
Bulkhead Jacks Receptacles, Solder Pot				
—	Front Mount, Comm.	Gold	Nickel	228216-1
—	Front Mount, Comm.	Gold	Gold	228216-2
—	Rear Mount, Comm.	Gold	Nickel	228215-1
—	Right Angle, Mil Type	Gold	Nickel	414022-4
Adaptors				
Blkhd, Jack to Jack		Gold	Nickel	228553-1
SMC Plug to SMB Plug		Gold	Gold	414025-2
SMB Jack to Jack		Gold	Gold	414029-2
SMB Tee Jack-Plug-Jack		Gold	Gold	414040-2
SMB Jack to BNC Jack Bkhd		Gold	Gold	414051-2
SMB Res Term 51Ohm/.5W Plug		Gold	Gold	414042-4

50 Ohm, Commercial Connectors

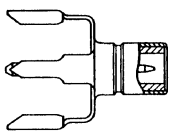
Straight Plugs



Right Angle Plugs

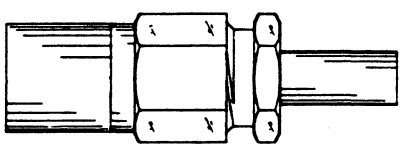


PC Board Jack

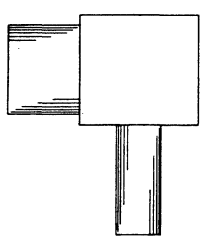


75 Ohm Connectors

Cable Plugs Straight



Cable Plugs Right Angle



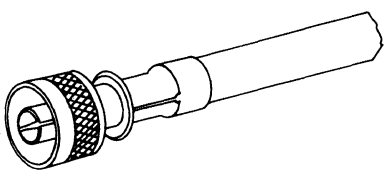
Cable Size RG/U	Type	Plate Finish Contact	Plate Finish Body	Part No.
Plugs				
179/187	Straight, Mil Type	Gold	Nickel	414047-6
180	Straight, Mil Type	Gold	Nickel	414047-8
179/187	Right Angle, Mil Type	Gold	Nickel	414048-6
180	Right Angle, Mil Type	Gold	Nickel	414048-8
Straight Cable Jacks				
179/187	Mil Type	Gold	Nickel	414074-2
180	Mil Type	Gold	Nickel	414074-4
Straight Bulkhead Cable Jacks				
179/187	Mil Type	Gold	Nickel	414075-2
180	Mil Type	Gold	Nickel	414075-4
PC Board Jacks				
—	Vertical, Comm.	Gold	Nickel	221114-1
—	Right Angle, Comm.	Gold	Nickel	211014-1
Bulkhead Jacks Receptacles, Solder Pot				
—	Front Mount, Comm.	Gold	Nickel	221225-1

AMP N Series Connectors

Commercial Plug Dual Crimp Connector

Materials and Finish

Body Components—Brass 70/30
Contact—Brass 70/30
Insulators—TEFLON
Crimp Ferrule—Copper
Gaskets—Silicone Rubber ZZ-R-765
Plating—Bright Nickel and Bright Tin

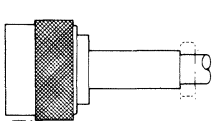


RG/U Cable	Gold Plated Center Contact
8	1-227086-0

Mil-Type Plug Dual Crimp

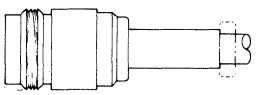
Materials and Finish

Brass: QQ-B-626
Beryllium Copper: QQ-C-530
TEFLON: MIL-P--19468
Copper, Annealed: QQ-C-576
Phosphor Bronze: QQ-B-750
Silicone Rubber: ZZ-R-765
Plating
Body: Silver per QQ-S-365 Tarnish Resistant—Nickel per QQ-N-290
Center Contact: Gold per MIL-G-45204



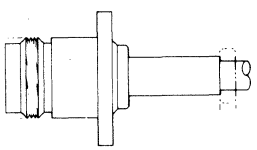
RG/U Cable	Part Number			
	Standard		Weatherproof	
	Tarn Res. Fin.	Silver Fin.	Tarn. Res. Fin.	Silver Fin.
214, 9, 9A, 9B	225661-1	51692-1	225662-1	225092-1
213, 8, 8A	225661-2	51692-2	225662-2	225092-2
393	—	—	1-225662-1	1-225092-1
58A, 58C	1-225661-2	225361-1	—	225392-7
55A, 223	—	225361-2	—	225392-1
142,142A,142B	1-225661-5	—	—	—

Mil-Type Jack Dual Crimp



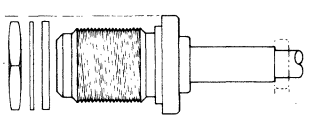
RG/U Cable	Weatherproof Silver Finish
58, 58A, 58B, 58C	225723-4
142, 142A, 142B, 400	225723-2
8, 8A, 213	225093-2
9, 9A, 9B, 214	225093-1

Panel Jack



RG/U Cable	Weatherproof Silver Finish
142, 142A, 142B	225606-2
8, 8A, 213	225089-2

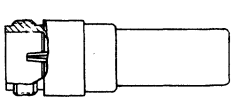
Bulkhead Jack



RG/U Cable	Standard Silver Finish	Weatherproof Tar. Res. Fin.
393	—	1-225668-1
142, 142A, 142B	225363-2	—

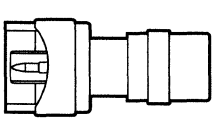
Terminator Jack

Standard Tarnish Resistant Finish
Part No. 227997-1



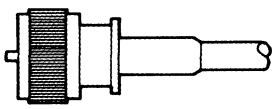
Terminator Plug

Standard Tarnish Resistant Finish
Part No. 227953-1



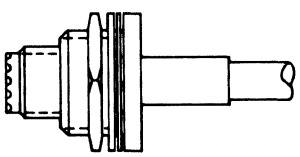
UHF Series Miniature Connector

Plug



RG/U Cable	Part Number
58, 58A 58B, 58C	226600-1

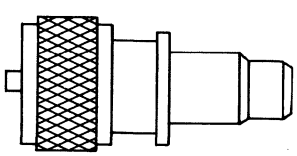
Bulkhead Jack



RG/U Cable	Part Number
188	228665-2

Economy UHF Series Connectors

Plug

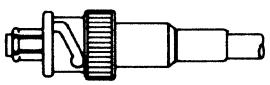


RG/U Cable	Nickel Plated Part Number
58	226208-3

COAXICON SHV Series

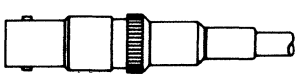
Materials
Beryllium Copper: QQ-C-530
Silicone Rubber: ZZ-R-765
Brass: QQ-B-626
Copper: QQ-C-576
TEFLON Insulation: MIL-P-19468
Plating: Silver—QQ-S-365

Plugs



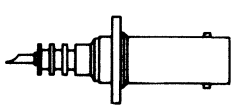
RG/U Cable	Silver Plate	Tarn. Res. Plate
58A, 58C	51426-1	51426-4
59, 59A, 59B 62, 62A, 62B	51426-2	51426-5

Jacks



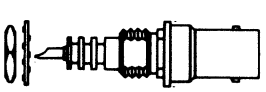
RG/U Cable	Tarn. Res. Plate
58, 58A, 58B, 58C	225087-4
59, 59A, 59B 62, 62A, 62B	225087-5

Panel Receptacle



Part No. 51421-1—Silver Plating
Part No. 51421-2—Tarnish-Resistant plating

Bulkhead Receptacle



Part No. 51494-1—Silver Plating
Part No. 51494-2—Tarnish-Resistant Plating

AMP Twin-Ax Interconnection System

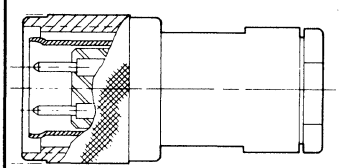
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82074

Materials
Brass: MIL-C-50
ASTM B-136
QQ-B-626
Beryllium Copper: QQ-C-530 and QQ-C-533
Copper Annealed: QQ-C-576
Phosphor Bronze: ASTM-B-140 (QQ-B-750)

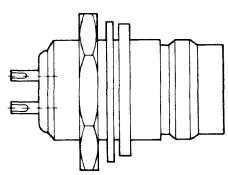
Plating:
Silver—QQ-S-365
Gold—MIL-G-45204
Nickel—QQ-N-290
Copper—MIL-C-14550
Zinc—QQ-Z-363
Tin—MIL-T-10727
Silicone Rubber: ZZ-R-765
Nylon: MIL-M-20693 Type I
TEFLON TFE: MIL-P-19468
Polypropylene: General purpose

Cable Plug



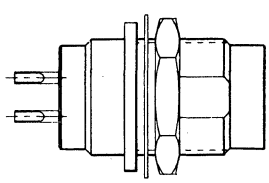
Contact	Part Number
Solder Type	227241-1
Crimp Type	227241-2
Captivated Solder Type	227241-3

Bulkhead Jack (Front Mount)



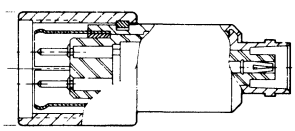
Part No. 228284-1

Bulkhead Jack (Rear Mount)



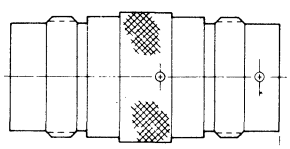
Part No. 228523-1

Twin-Ax/BNC Adapter (Transformer)



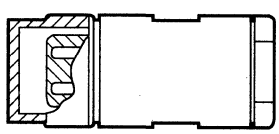
Part No. 227447-1

Cable Splice



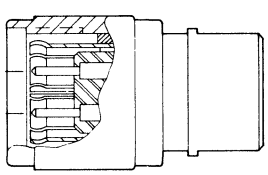
Part No. 227502-1

Cable Jack



Part No. 227682-1

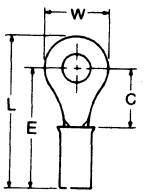
Terminator (Resistor)



50 Ohm—Part No. 227504-1
75 Ohm—Part No. 227504-2

Ring Tongue Terminals

PIDG

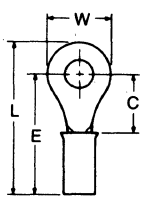


Material:

Insulation—Nylon
Terminal Body and Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

Wire Size Range		Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers	
AWG	CMA		C Min.	W	E Max.	L Max.					Loose Piece	Tape Mounted
26-22	202-810	2/M2	.121	.140	.452	.525	Yellow	.082	.020	.029	323912	2-323912-1
		6/M3.5	.211	.203	.542	.646	Yellow	.082	.020	.029	323915	2-323915-2
22-16	509-3,260	6/M3.5	.250	.281	.654	.797	Red	.125	.033	.061	36151	2-36151-2
			.250	.281	.654	.797	Red	.140	.033	.061	36152	2-36152-1
			.281	.312	.685	.844	Red	.125	.033	.061	323008	2-323008-1
		8/M4	.281	.312	.685	.844	Red	.140	.033	.061	31890	2-31890-1
			.250	.281	.654	.797	Red	.140	.033	.061	31886	2-31886-2
		10	.281	.312	.685	.844	Red	.140	.033	.061	36154	2-36154-2
			.250	.281	.654	.797	Red	.140	.033	.061	31887	2-31887-1
		¼/M6	.437	.469	.841	1.078	Red	.140	.033	.061	31894	2-31894-2
16-14	2,050-5,180	6/M3.5	.171	.250	.575	.703	Blue	.170	.033	.085	320619	2-320619-1
12-10	5,180-13,100	6/M3.5	.219	.281	.810	.953	Yellow	.250	.042	.129	35149	2-35149-1
		8/M4	.302	.375	.893	1.083	Yellow	.250	.042	.129	35108	2-35108-1
		10	.281	.343	.872	1.046	Yellow	.230	.042	.129	32883	1-32883-0
			.302	.312	.893	1.052	Yellow	.230	.042	.129	324918	1-324918-0
			.302	.375	.893	1.083	Yellow	.250	.042	.129	35109	2-35109-1
			.302	.375	.982	1.172	Yellow	.300	.042	.129	35364	2-35364-1
		¼/M6	.468	.531	1.054	1.322	Yellow	.250	.042	.129	35110	2-35110-1

PIDG Radiation Resistant



Material:

Insulation—Polyvinylidene Flouride (PVF_2)
Color—Natural
Terminal Body and Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

Wire Size Range		Stud Size	Dimensions				Terminal Insulation Color Stripe	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Part Numbers	
AWG	CMA		C Min.	W	E Max.	L Max.				Loose Piece	Tape Mounted
22-16	509-3,260	6/M3.5	.156	.218	.560	.672	Red	.125	.033	53406-1	–
		6/M3.5	.250	.250	.654	.782	Red	.125	.033	53407-1	–
		8/M4	.281	.312	.685	.844	Red	.125	.033	53408-1	–
		10	.281	.312	.685	.844	Red	.125	.033	53409-1	–
16-14	2,050-5,180	8/M4	.281	.312	.685	.844	Blue	.150	.033	53417-1	–
		10	.281	.312	.685	.844	Blue	.150	.033	53418-1	53418-2
12-10	5,180-13,100	8/M4	.302	.375	.893	1.083	Yellow	.230	.042	53424-1	53424-2
		10	.302	.375	.893	1.083	Yellow	.230	.042	53425-1	53425-2
		¼/M6	.468	.531	1.054	1.322	Yellow	.230	.042	53426-1	–

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

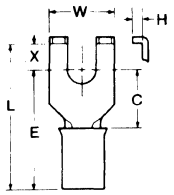
For more information request Catalog 82042

Flanged Spade Tongue Terminal

PIDG

Material:

Insulation—Nylon
Terminal Body and Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727



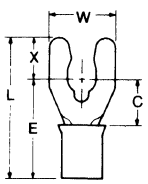
Wire Size Range AWG	Wire Size Range CMA	Stud Size	Dimensions C Min.	W	E Max.	L Max.	X	H	Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers Loose Piece	Part Numbers Tape Mounted
22-16	509-3,260	2/M2	.203	.182	.607	.727	.115	.046	Red	.140	.033	.061	324608	2-324608-1
		6/M3.5	.203	.296	.607	.737	.125	.046	Red	.125	.033	.061	32561	2-32561-1
			.203	.296	.607	.737	.125	.046	Red	.140	.033	.061	32562	2-32562-1
			.203	.250	.607	.737	.125	.046	Red	.125	.033	.061	322777	2-322777-1
16-14	2,050-5,180	6/M3.5	.203	.294	.607	.737	.125	.052	Blue	.170	.033	.085	320861	2-320861-1

Short Spring Spade Tongue Terminals

PIDG

Material:

Insulation—Nylon
Terminal Body—Phosphor Bronze
Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

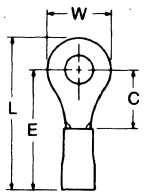


Wire Size Range AWG	Wire Size Range CMA	Stud Size	Dimensions C Min.	W	E Max.	L Max.	X	Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers Loose Piece	Part Numbers Tape Mounted
22-16	509-3,260	5/M3	.250	.250	.654	.799	.140	Red	.125	.033	.061	52928	52928-1
		6/M3.5	.250	.250	.654	.799	.140	Red	.125	.033	.061	52929	52929-1
		8/M4	.281	.375	.685	.860	.170	Red	.125	.033	.061	52930	52930-1
		10	.281	.406	.685	.908	.218	Red	.125	.033	.061	52931	52931-1
16-14	2,050-5,180	6/M3.5	.250	.250	.654	.799	.140	Blue	.170	.033	.085	52935	52935-1
			.250	.250	.654	.799	.140	Blue	.182	.033	.085	52935-2	52935-3
		8/M4	.281	.375	.685	.860	.170	Blue	.170	.033	.085	52936	52936-1
			.281	.375	.685	.860	.170	Blue	.182	.033	.085	52936-2	52936-3
		10	.281	.406	.685	.908	.218	Blue	.170	.033	.085	52937	52937-1
12-10	5,180-13,100	6/M3.5	.174	.250	.775	.959	.179	Yellow	.250	.042	.129	52941	52941-1
		8/M4	.276	.375	.877	1.052	.170	Yellow	.250	.042	.129	52942	52942-1
		10	.276	.406	.877	1.100	.218	Yellow	.250	.042	.129	52943	52943-1

PLASTI-GRIP

Material:

Insulation—Vinyl
Terminal Body—Copper per QQ-C-576
Plating—Tin per MIL-T-10727



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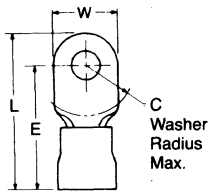


B

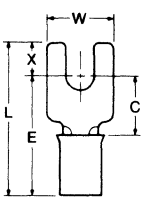
Wire Size Range AWG	Wire Size Range CMA	Stud Size	Style	Dimensions C Min.	W	E Max.	L Max.	Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers Loose Piece	Part Numbers Tape Mounted
22-16	509-3,260	6/M3.5	A	.250	.281	.666	.809	Red	.125	.033	.061	32947	2-32947-1
				.281	.312	.697	.856	Red	.125	.033	.061	32950	2-32950-1
		8/M4	A	.281	.312	.697	.856	Red	.125	.033	.061	32951	2-32951-1
		10	A	.281	.312	.697	.856	Red	.125	.033	.061	32952	2-32952-1
				.250	.281	.666	.809	Red	.125	.033	.061	32949	2-32949-1
16-14	2,050-5,180	8/M4	A	.250	.312	.666	.825	Blue	.170	.033	.085	328527	2-328527-1
		10	A	.281	.343	.697	.871	Blue	.140	.033	.085	32960	2-32960-1
8	13,100-20,800	10	B	.437	.431	1.358	1.576	Red	.325	.043	.172	52263-1	52263-3
6	20,800-33,100	10	B	.421	.468	1.482	1.719	Blue	.436	.048	.224	52265	52265-3
		¼/M6	B	.515	.500	1.591	1.844	Blue	.436	.048	.224	52042-1	52042-7

Spade Tongue Terminals

PIDG

Material:

Insulation—Nylon
Terminal Body and Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727



Wire Size Range AWG	Wire Size Range CMA	Stud Size	Dimensions C Min.	W	E Max.	L Max.	X	Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers Loose Piece	Part Numbers Tape Mounted
26-22	202-810	4	.211	.203	.542	.627	.080	Yellow	.082	.020	.029	321035	2-321035-1
22-16	509-3,260	6/M3.5	.203	.297	.607	.753	.141	Red	.125	.033	.061	34080	2-34080-1
			.312	.250	.716	.846	.125	Red	.140	.033	.061	34541	2-34541-1
16-14	2,050-5,180	6/M3.5	.203	.297	.607	.753	.141	Blue	.170	.033	.085	35559	2-35559-1
		8/M4	.203	.297	.607	.753	.141	Blue	.170	.033	.085	321233	2-321233-1

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

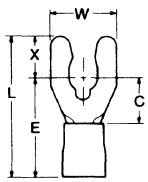
For more information request Catalog 82042

Short Spring Spade Tongue Terminals

PLASTI-GRIP

Material:

Insulation—Vinyl
Terminal Body—Phosphor Bronze per QQ-B-750
Plating—Tin per MIL-T-10727



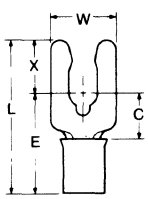
Wire Size Range AWG	Wire Size Range CMA	Stud Size	Dimensions C Min.	W	E Max.	L Max.	X	Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers Loose Piece	Part Numbers Tape Mounted
22-16	509-3,260	6/M3.5	.250	.250	.666	.811	.140	Red	.140	.033	.061	52949	52949-1
		8/M4	.281	.375	.697	.872	.170	Red	.140	.033	.061	52950	52950-1
			.281	.244	.697	.872	.170	Red	.140	.033	.061	53241-1	53241-2
16-14	2,050-5,180	6/M3.5	.250	.250	.666	.811	.140	Blue	.170	.033	.085	52955	52955-1
		8/M4	.281	.375	.697	.872	.170	Blue	.170	.033	.085	52956	52956-1
			.281	.244	.746	.921	.170	Blue	.170	.033	.085	53244-1	53244-2
		10	.281	.406	.697	.920	.218	Blue	.170	.033	.085	52957	52957-1
			.281	.406	.697	.920	.218	Blue	.250	.033	.085	52957-2	52957-3

Long Spring Spade Tongue Terminals

PIDG

Material:

Insulation—Nylon
Terminal Body—Phosphor Bronze per QQ-B-750
Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

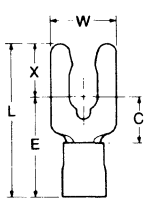


Wire Size Range AWG	Wire Size Range CMA	Stud Size	Dimensions C Min.	W	E Max.	L Max.	X	Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers Loose Piece	Part Numbers Tape Mounted
22-16	509-3,260	6/M3.5	.238	.250	.652	.938	.276	Red	.125	.033	.061	52409	52409-1
		8/M4	.270	.281	.684	.979	.290	Red	.125	.033	.061	52410	52410-1
		10	.283	.343	.697	1.005	.303	Red	.125	.033	.061	52411	52411-1
16-14	2,050-5,180	6/M3.5	.243	.250	.647	.928	.276	Blue	.170	.033	.085	52420-1	52420-3
		8/M4	.275	.281	.679	.974	.290	Blue	.170	.033	.085	52421-1	52421-3

PLASTI-GRIP

Material:

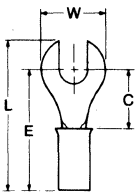
Insulation—Vinyl
Terminal Body—Phosphor Bronze per QQ-B-750
Plating—Tin per MIL-T-10727



Wire Size Range AWG	Wire Size Range CMA	Stud Size	Dimensions C Min.	W	E Max.	L Max.	X	Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers Loose Piece	Part Numbers Tape Mounted
22-16	509-3,260	8/M4	.270	.281	.696	.991	.290	Red	.140	.033	.061	52454	52454-1

Slotted Ring Tongue Terminals

PIDG



Material:

Insulation—N) on
Terminal Body and Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

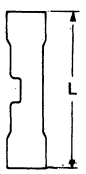
Wire Size Range		Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Tongue Material Thickness Max.	Barrel I.D. Min.	Part Numbers	
AWG	CMA		C Min.	W	E Max.	L Max.					Loose Piece	Tape Mounted
26-22	202-810	6/M3.5	.281	.250	.612	.719	Yellow	.082	.020	.029	323011	2-323011-2

Butt Splices

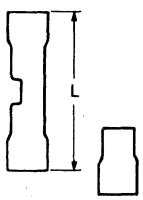
PIDG

Material:

Splice Body—Copper per QQ-C-576
Plating—Tin per MIL-T-10727
Insulation Support Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727
Insulation Sleeve—Standard and Step Down Assembly—Nylon Radiation Resistant—Polyvinylidene Fluoride (PVF_2)
Color—Natural



Standard and Radiation Resistant

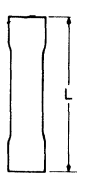


Step Down Assembly[1]

Wire Size Range		Style	Dimension L Max.	Splice Insulation Color	Wire Insulation Diameter Max.	Barrel I.D. Min.	Part Numbers	
AWG	CMA[2]						Loose Piece	Tape Mounted
16-14 to 22-16	2,050-5,180 to 509-3,260	Step Down Assembly	1.265	Blue	.150-.115	–	327583	–
12-10 to 16-14	5,180-13,100 to 2,050-5,180		1.656	Yellow	.220-.170	–	327638	–
12-10 to 22-16	5,180-13,100 to 509-3,260		1.656	Yellow	.220-.140	–	327639	–

[1]Includes adapter insert.
[2]When using two or more wires in either end of a butt splice, the combined cross sectional area must be within the (CMA) circular mil area range listed.

PLASTI-GRIP



Material:

Insulation—Vinyl
Splice Body—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

Wire Size Range		Dimension L Max.	Splice Insulation Color	Wire Insulation Diameter Max.	Barrel I.D. Min.	Part Numbers	
AWG	CMA[3]					Loose Piece	Tape Mounted
26-22[1]	202-810	.620	Yellow	.080	.029	321026	2-321026-1
22-16[2]	509-3,260	1.065	Red	.125	.061	34067	2-34067-1

[1]26-22 splices are 26-24 range in accordance with MIL-T-7928.
[2]22-16 splices are 22-18 range in accordance with MIL-T-7928.
[3]When using two or more wires in either end of a butt splice, the combined cross sectional area must be within the (CMA) circular mil range listed.

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82042

Parallel Splices

PLASTI-GRIP

Material:

Insulation—Vinyl
Splice Body—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

Wire Size Range		Dimension L Max.	Splice Insulation Color	Wire Insulation Diameter Max.	Part Number (Loose Piece)
AWG	CMA[1]				
22-16	509-3,260	.760	Red	.120	34131

[1]When using two or more wires in a parallel splice, the combined cross sectional area must be within the (CMA) circular mil range listed.

Knife Disconnect Splices

PIDG

Material:

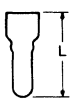
Insulation—Nylon
Body and Metallic Sleeve—Copper per QQ-C-576
Plating—Tin per MIL-T-10727

Wire Size Range		Dimension L Max.	Splice Insulation Color	Wire Insulation Diameter Max.	Part Number (Loose Piece)
AWG	CMA				
22-16	509-3,260	.878	Red	.140	32446

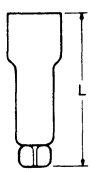
Closed End Splices and Tooling

ECN, EC Splice

VS, ECV BOMB-TAIL Splice



ECN, EC Splice



VS, ECV BOMB-TAIL Splice

UL Listed and CSA Certified Wire Size	AMP Wire Size	Insulation		L Max.	Opening Dia. Min.	Material	Plating	Splice Marking[1] (Voltage & Temp. Rating Code)	Part Numbers	
		Color	Material						Loose Piece	Tape Mounted
22-16	22-14	Purple	Vinyl	.740	.187	Copper	Tin	VS	36964	2-36964-2
		Trans.	Nylon	.680	.250	Copper	Tin	ECN	35115	1-35115-0
22-10	18-10	Trans.	Nylon	.775	.375	Copper	Tin	ECN	35653	2-35653-1
		Purple	Vinyl	1.125	.360	Copper	Tin	ECV	321519	2-321519-2
		Trans.	Nylon	.720	.375	Steel	Tin	EC	324067	2-324067-1

[1]Splice Marking:
VS—300 V, 90° C
ECV—600 V Max. Building Wiring—1000 V Max. Fixtures & Signs, 105° C UL, 90° C CSA
ECN—300 V, 105° C
EC—600 V Max. Building Wiring—1000 V Max. Fixtures & Signs, 105° C

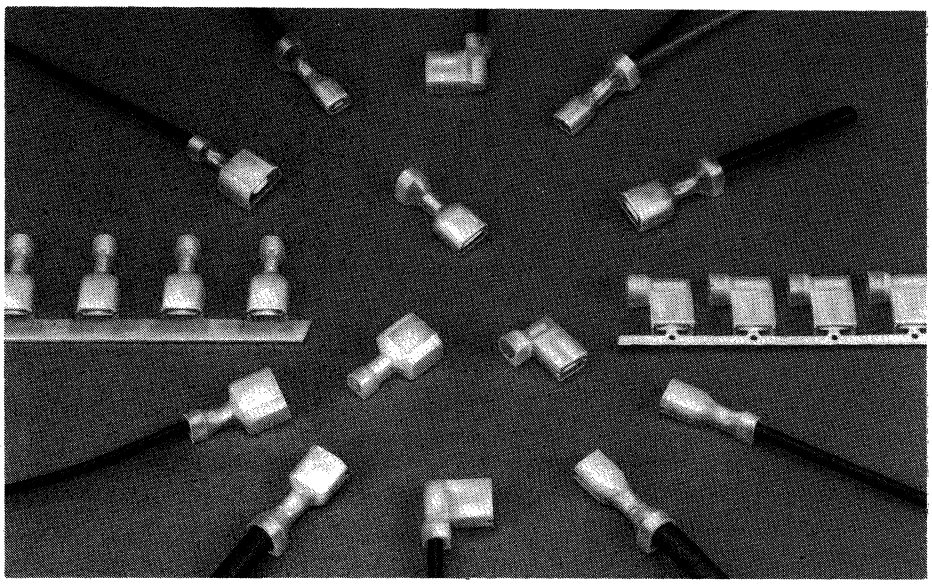
Ultra-Fast Fully Insulated FASTON Receptacle and Tab

Material:

Housing—Nylon type 6/6
Terminal—Tin-plated, copper alloy

Color Code (Translucent)

Violet—26-22 AWG [0.12-0.4 mm²]
Red—22-18 AWG [0.3-0.9 mm²]
Blue—16-14 AWG [1.25-2 mm²]
Yellow—12-10 AWG [3-6 mm²]



Receptacles

Description	Wire Range AWG	Ins. Dia. Max.	Mating Tab	Terminal Base Material	Part Numbers	
					Strip	Loose Piece
.110 [2.79] Series	26-22 0.12-0.4	.100 2.54	.020 x .110 0.51 x 2.79	Brass	7-520365-2[1]	7-520366-2[1]
	22-18 0.3-0.9	.120 3.05	.016 x .110 0.41 x 2.79	Brass	2-520080-2[1]	2-520081-2[1]
			.020 x .110 0.51 x 2.79	Brass	2-520083-2	2-520084-2
			.032 x .110 0.81 x 2.79	Brass	2-520272-2	2-520273-2
		.230 5.84	.020 x .110 0.51 x 2.79	Brass	2-520306-2	—
			.032 x .110 0.81 x 2.79	Brass	2-520310-2	—
	16-14 1.25-2	.260 6.6	.032 x .110 0.81 x 2.79	Brass	2-520370-2	—
.187 [4.75] Series	22-18 0.3-0.9	.135 3.43	.020 x .187 0.51 x 4.75	Brass	2-520181-2	2-520182-2
			.032 x .187 0.81 x 4.75	Brass	2-520193-2	2-520194-2
		.230 5.84	.020 x .187 0.51 x 4.75	Brass	2-520261-2	—
			.032 x .187 0.81 x 4.75	Brass	2-520274-2	2-520275-2
	16-14 1.25-2	.160 4.06	.020 x .187 0.51 x 4.75	Brass	3-350815-2	3-350816-2
			.032 x .187 0.81 x 4.75	Brass	3-520124-2	3-520125-2
		.260 6.6	.020 x .187 0.51 x 4.75	Brass	3-520150-2	3-520151-2
.250 [6.35] Series	22-18 0.3-0.9	.135 3.43	.032 x .250 0.81 x 6.35	Brass	2-520183-2	2-520184-2
				Phosphor Bronze	2-520183-4	2-520184-4
		.230 5.84	.032 x .250 0.81 x 6.35	Brass	2-520263-2	2-520264-2
				Phosphor Bronze	2-520263-4	—
	16-14 1.25-2	.160 4.06	.032 x .250 0.81 x 6.35	Brass	3-350819-2	3-350820-2
				Phosphor Bronze	3-520116-2	3-520117-2
		.260 6.6	.032 x .250 0.81 x 6.35	Brass	3-520140-2	3-520141-2
				Phosphor Bronze	3-520140-4	—
	12-10 3-6	.320 8.13	.032 x .250 0.81 x 6.35	Brass	4-520447-2	4-520448-2

[1]Special UL/CSA status. Contact AMP Incorporated.

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82004

Tabs

Description	Wire Range AWG	Ins. Dia. Max.	Tab Size	Terminal Base Material	Part Numbers	
					Strip	Loose Piece
.250 [6.35] Series	**22-18** 0.3-0.9	**.135** 3.43	**.032 x .250** 0.81 x 6.35	Brass	2-520102-2	2-520103-2
	16-14 1.25-2	**.160** 4.06			3-520106-2	3-520107-2

Flag Receptacle

Description	Wire Range* AWG	Ins. Dia. Max.	Tab Size	Terminal Base Material	Part Numbers	
					Strip	Loose Piece
.187 [4.75] Series	**22-18** 0.3-0.9	**.165** 4.19	**.020 x .187** 0.51 x 4.75	Brass	2-520334-2	2-520335-2
			.032 x .187 0.81 x 4.75	Brass	2-520336-2	2-520337-2
	16-14 1.25-2	**.185** 4.7	**.020 x .187** 0.51 x 4.75	Brass	3-520338-2	3-520339-2
			.032 x .187 0.81 x 4.75	Brass	3-520340-2	—
.250 [6.35] Series	**22-18** 0.3-0.9	**.165** 4.19	**.032 x .250** 0.81 x 6.35	Brass	2-520128-2	2-520129-2
		.230 5.84	**.032 x .250** 0.81 x 6.35	Brass	2-520856-2	—
	16-14 1.25-2	**.185** 4.7	**.032 x .250** 0.81 x 6.35	Brass	3-520132-2	3-520133-2

*Stranded wire only.

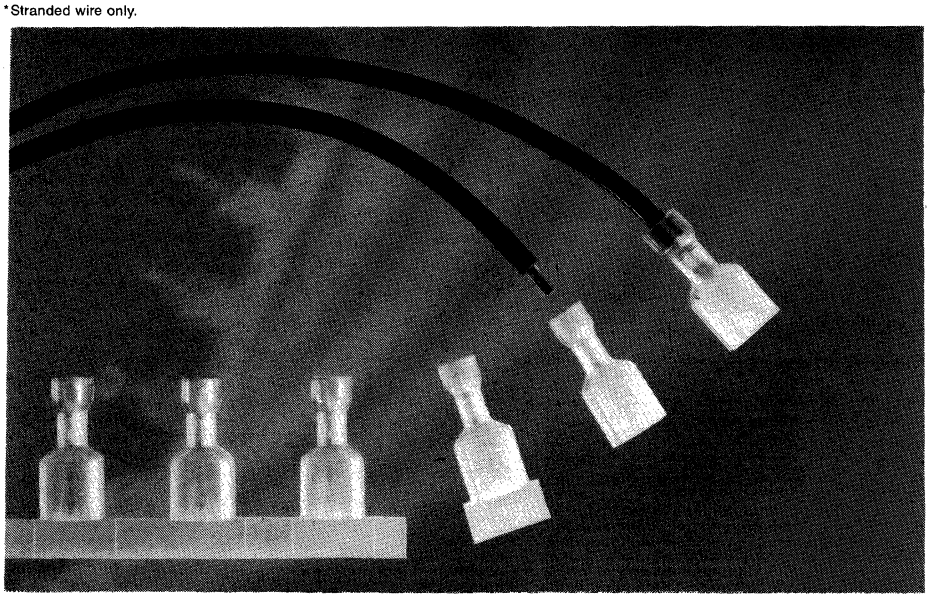
Ultra-Fast Plus— Fully Insulated FASTON Receptacles

Material:

Housing—Nylon
Terminal—Tin-plated, copper alloy

Color Code (Translucent)

Red—22-18 AWG [0.3-0.9 mm²]
Blue—16-14 AWG [1.25-2 mm²]

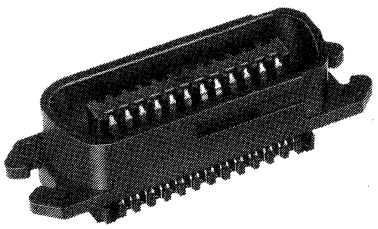


Description	Wire Range AWG	Ins. Dia. Max.	Mating Tab	Terminal Base Material	Part Numbers	
					Strip	Loose Piece
.110 [2.79] Series	**22-18** 0.3-0.9	**.060-.120** 1.5-3.05	**.020 x .110** 0.51 x 2.79	Brass	2-520932-2	—
.187 [4.75] Series	**22-18** 0.3-0.9	**.060-.135** 1.5-3.43	**.020 x .187** 0.51 x 4.75	Brass	2-520401-2	2-520409-2
			.032 x .187 0.81 x 4.75	Brass	2-520403-2	2-520411-2
	16-14 1.3-2	**.090-.160** 2.29-4.06	**.020 x .187** 0.51 x 4.75	Brass	3-520402-2	3-520410-2
.250 [6.35] Series	**22-18** 0.3-0.9	**.060-.135** 1.5-3.43	**.032 x .187** 0.81 x 4.75	Brass	3-520404-2	3-520412-2
			.032 x .250 0.81 x 6.35	Brass	2-520405-2	2-520407-2
	16-14 1.3-2	**.090-.160** 2.29-4.06	**.032 x .250** 0.81 x 6.35	Brass	3-520406-2	3-520408-2

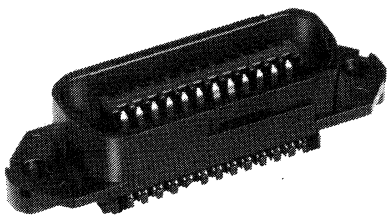
Miniature Ribbon Connector System (CHAMP)

CHAMP IDC Connectors

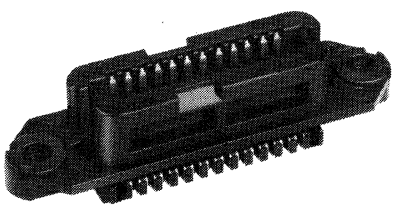
[1]Thick Flange connectors are typically for cable-to-cable screw lock applications.
[2]Thin Flange connectors are typically for panel mount applications.



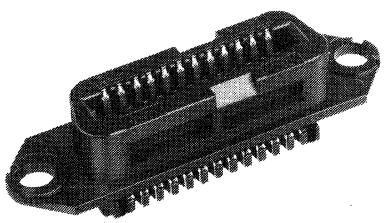
Plug, Style PB—
Plug, Bail Lock



Plug, Style PS—
Plug, Screw Lock (Thick Flange)[1]



Receptacle, Style RS—
Receptacle, Screw or Bail Lock
(Thick Flange)[1]



Receptacle, Style RP—
Receptacle, Panel Mount,
Screw or Bail Lock
(Thin Flange)[2]

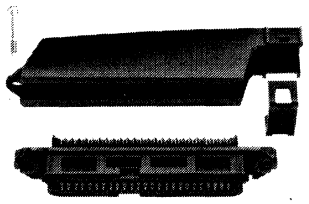
Number of Positions	Wire Size		Part Numbers			
	Solid	7 Strand	Plug		Receptacle	
	AWG	AWG	Style PS	Style PB	Style RS	Style RP
24	22	22	552301-1	—	552305-1	—
36	0.64	0.40	—	552318-1	552306-1	—
24			552283-1	552272-1	552313-1	2-552273-1
36	24-26	24	552284-1	552274-1	552314-1	2-552275-1
50	0.51-0.40	0.20	229974-1	552032-1	229975-1	2-552001-1
24			552443-1	552469-1	—	—
36	—	26-27-28	552444-1	552470-1	—	2-552475-1
50		0.14,0.10,0.09	552390-1	552471-1	552391-1	2-552476-1

Notes: 1. Plug connector **Part No. 552686-1** (B Slot) is available in thin flange housing with .187 [4.75] dia. mounting holes for panel mount applications. Available in 50 position only. Also available in Multiple Wire Plug Connectors.
2. For thin flange panel mount plug connectors all standard mounting hardware may be utilized with the exception of bail lock mounting hardware.
3. Acceptable connector insulations are polyvinyl chloride (PVC), polyethylene, irradiated polyethylene and polypropylene and Teflon. **Maximum insulation diameter .045 [1.14] for tools that mass terminate conductors on one side at a time. For tools that insert one conductor per side at a time .043 [1.09] insulation diameter is the maximum.** As a rule, for harder insulations, such as Teflon, smaller diameters are required.

For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82008

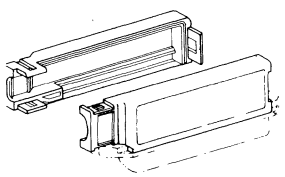
Cable-to-Cable Plug and Receptacle with Tapered Cover and Screws for 50 Position Connector Kits



Wire Size		Cable Dia. Range	Dust Cover	Color	Plug Kit Part Number	Receptacle Kit Part Number
Solid AWG	7 Strand AWG					
24-26 0.51-0.40	24 0.20	**.425-.500** 10.80-12.7	Yes	Black	3-229912-1	3-229913-1
			No	Black	2-229912-1	2-229913-1
		.350-.425 8.89-10.80	Yes	Black	1-229912-1	1-229913-1
			No	Black	229912-1	229913-1

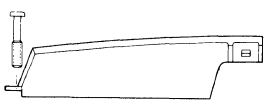
Cable-to-Cable Accessories

90° Snap-On Strain Relief Cover



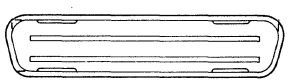
No. of Pos.	Cable Range Dia.	90° Part No.
50	**.415-.465** 10.54-11.81	552011-1

90° Tapered Slide-On Strain Relief Cover Kit (for 50 Position Only)



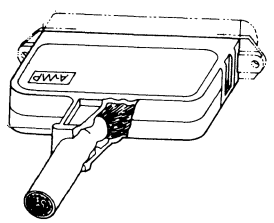
Cable Range Diameter	Part Numbers
.425 -.500 0.80-12.7	552560-5
.350 -.425 8.89 -10.8	552560-1

Dust Cover



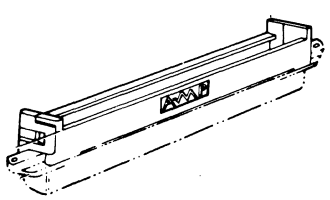
No. of Pos.	Plug Cover (Blue) Part No.	Receptacle Cover (Red) Part No.
24	—	229969-4
36	—	229969-3
50	229968-1	229969-1

180° Snap-On Strain Relief Cover



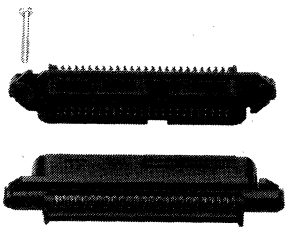
No. of Pos.	Cable Range Dia.	180° Part No.
24	**.230-.280** 5.84-7.11	552076-1
	.320-.380 8.13-9.65	2-552076-1
36	**.290-.360** 7.37-9.14	552073-1
	.360-.430 9.14-10.92	552073-5
	.430-.500 10.92-12.70	552073-6
50	**.380-.430** 9.65-10.92	2-552008-1
	.430-.490 10.92-12.45	552008-1
	.490-.550 12.45-13.97	4-552008-1

Snap-On Strain Relief

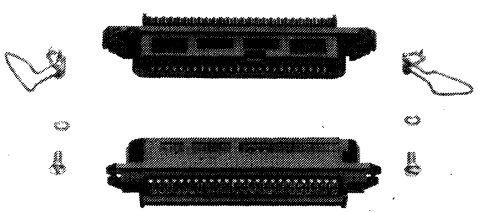


Number of Positions	Low Profile Part Number
24	1-552298-1
36	1-552297-1
50	1-552027-1

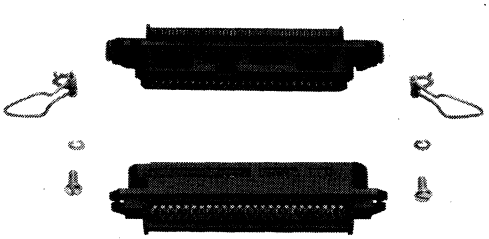
Cable-to-Cable Hardware Kits



Screw Lock Hardware Kit
Part No. 229911-1
(Two required per assembly)



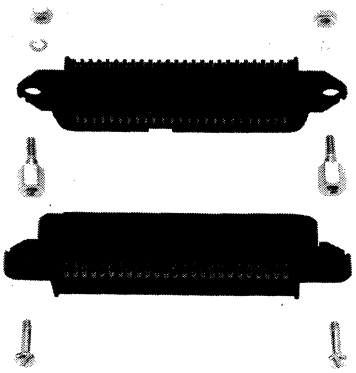
Bent Bail Lock Hardware Kit
Part No. 552561-4
(For use with 90° Strain Relief Cover–
One kit required per assembly)



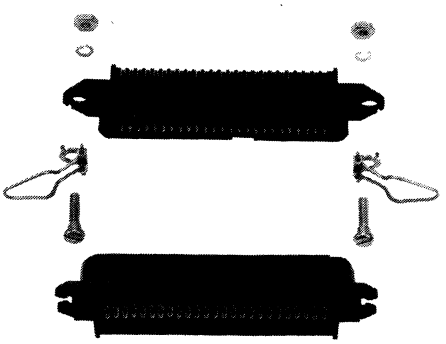
Bail Lock Hardware Kit
Part No. 552561-3
(One kit required per assembly)

Only fastening hardware supplied,
other items shown for reference purposes.

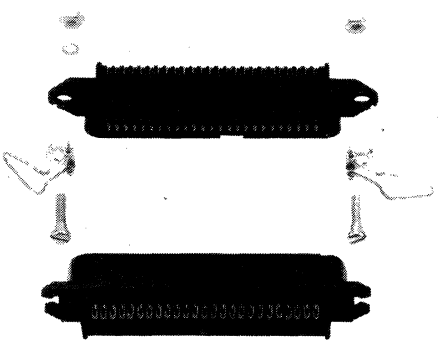
Cable-to-Panel Hardware Kits



Screw Lock Hardware Kit
Part No. 552568-1 (For thin flange receptacle)
Part No. 552568-2 (For thick flange receptacle,
panel mount connector).



Bail Lock Hardware Kit
Part No. 552567-1 (as shown)
Part No. 552567-3 for thick flange
receptacle, panel mount connector
(One kit required per assembly)



Bent Bail Lock Hardware Kit
Part No. 552567-2
(For use with 90° strain relief cover–
One kit required per assembly)

J-Hook Latch Part No. 552655-1

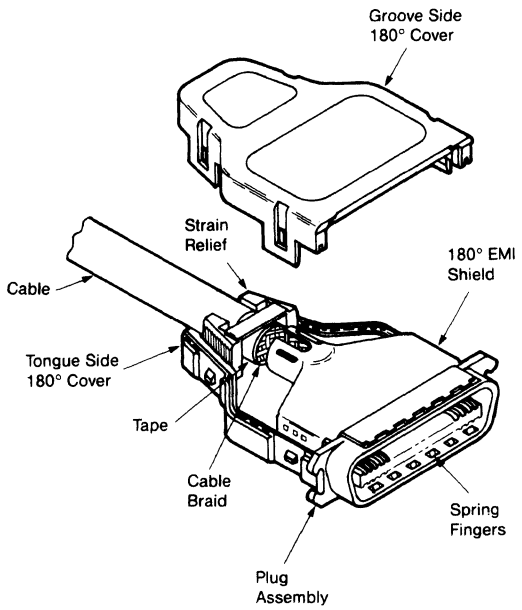
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82008

Shielded Cable Connectors

Material and Finish:

Housing and Cover—Thermoplastic, black
Terminals—Gold over nickel plated high strength copper alloy
Shield—Bright nickel plated carbon steel
Strain Relief—Flame retardant nylon, black
Female—Copper alloy
Hardware—Zinc plated steel
Metric Shoulder Screw—Black oxide plated, carbon steel



Plug Connectors Kits

Number of Pos.	Cable Range	Part Numbers			
		Shielded Plug Kit		Shielded Receptacle Kit	Cover Kits
		Bail Lock	Bail Lock	Screw or Bail Lock	
		B Slot	E Slot	E Slot	
36	.250-.500 6.35-12.7	554950-2	554950-1	—	554945-1
50	.350-.625 8.89-15.88	554953-2	554953-1[1]	554955-1[1]	554946-1[2]

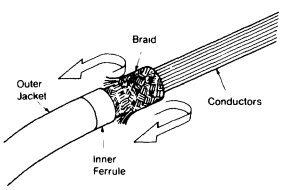
[1]SCSI applicable.
[2]For cable diameter .500 [12.7] or less.
B-Slot—24 AWG [0.51 mm] and 26 AWG [0.40 mm] (solid) or 24 AWG [0.20 mm²] (7 strand).
E-Slot—26, 27, 28 AWG [0.12, 0.10, 0.09 mm²] (7 strand) wire

Ferrule Part Numbers

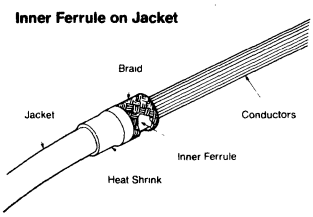
.350 [8.89] Inside Dia. 554725-3
.400 [10.16] Inside Dia. 554725-4

Inner Ferrule
(Sold Separately)

Inner Ferrule on Braid

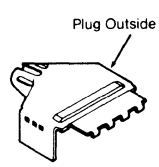


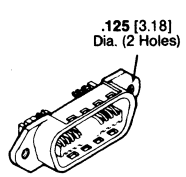
Inner Ferrule on Jacket

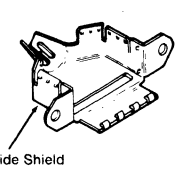


Screw or Bail Lock Connector Kit

Standard Connector Kit

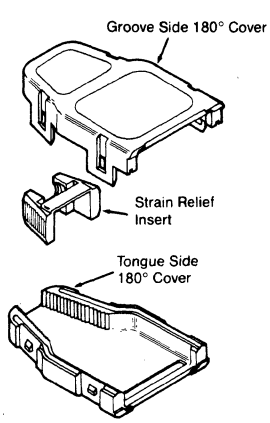






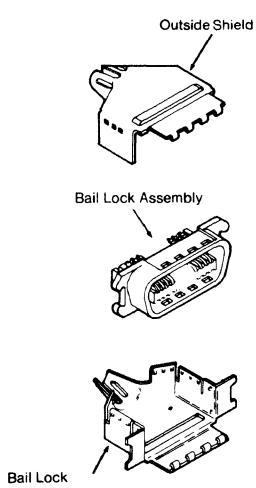
Accessories

Cover Kit
(Sold Separately)



Bail Lock

Connector Kit

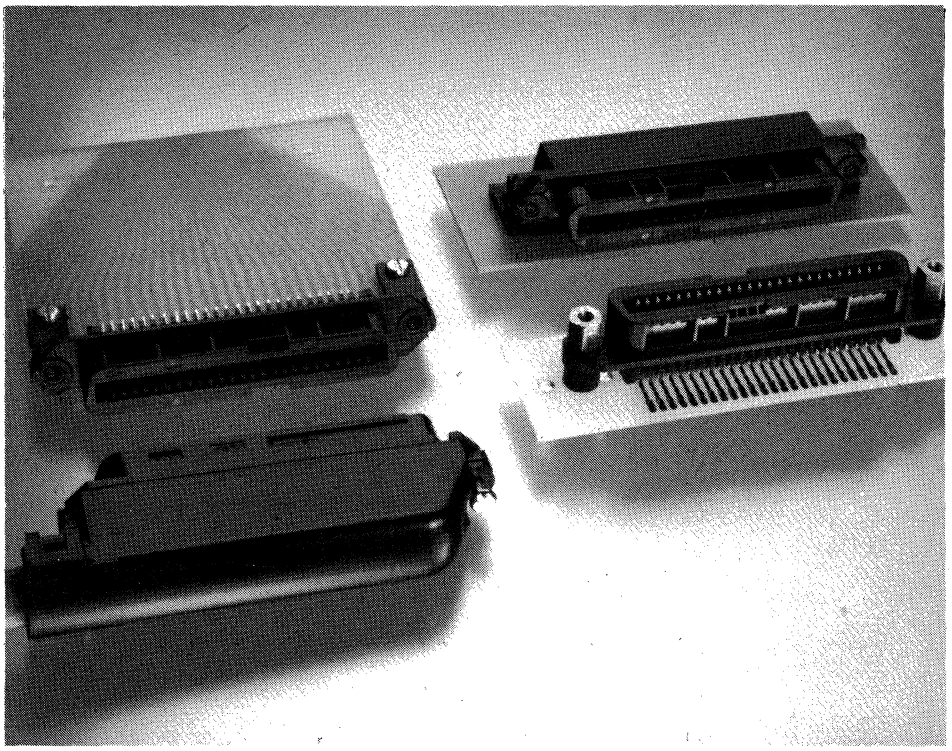


CHAMP Printed Circuit Board Connectors

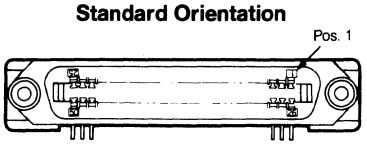
Right Angle Connector

Material:

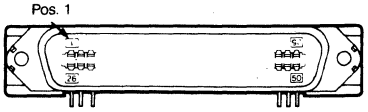
Housing, bracket, plate and comb—Black thermoplastic, 94V-0 rated
Terminal—Selectively plated gold over nickel plated high strength copper alloy, tin plated tails.



Standard Orientation

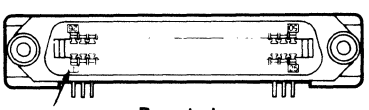


Receptacle

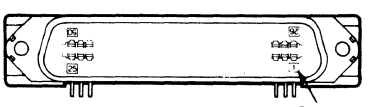


Plug

Reverse Orientation

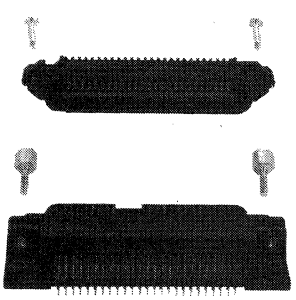


Receptacle



Plug

Screw Lock Right Angle Mount Hardware Kit



Screw Lock Hardware Kit
Part No. 552631-1
Rear panel mount only
(One kit required per assembly)
For pc board-to-panel applications
(Panel thickness .062 [1.57] max.)

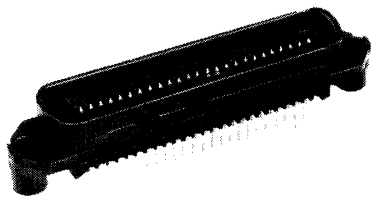
Number of Positions	Self Tapping Part Numbers			
	Standard Orientation		Reverse Orientation	
	Receptacle	Plug	Receptacle	Plug
24	552791-1[1]	—	552791-2[1]	—
36	552742-1	552743-1	552742-2	—
50	552725-1	552726-1	552725-3	552726-3

[1]For IEEE-488 applications.

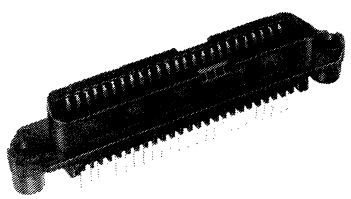
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82008

Vertical Mount Connectors



Vertical Mount
Style PV—Plug, Screw Lock

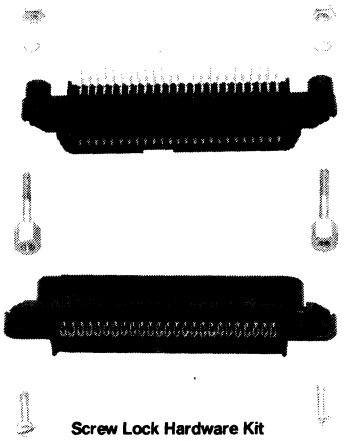


Style RV—Receptacle,
Screw or Bail Lock

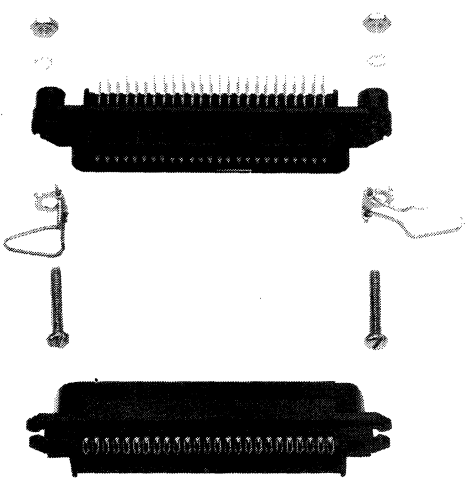
Number of Positions	Part Numbers	
	Plug	Receptacle
24	552221-1	552224-1[1]
36	552232-1	552235-1
50	552116-1	552118-1

[1].189 [4.80] Diameter Mounting Hole.

Vertical Mount Connector Hardware Kits



Screw Lock Hardware Kit
Part No. 552563-1
(One kit required per assembly)



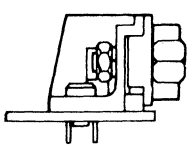
Bent Bail Lock Hardware Kit
Part No. 552562-2
(One kit required per assembly)

IEEE-488 Right Angle Mount Hardware Kit

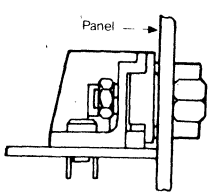
For Standard Mount
Part No. 552633-3

For Rear Panel Mount
Part No. 552633-4

Standard Mount

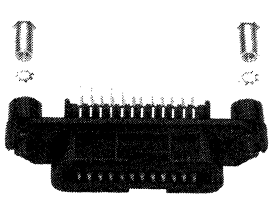


Rear Panel Mount



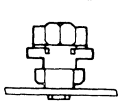
IEEE-488 Vertical Mount Screw Lock Hardware Kits For Standard Mount

(One kit required per assembly)

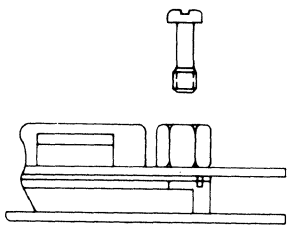


Part No. 552767-1

Standard Mount

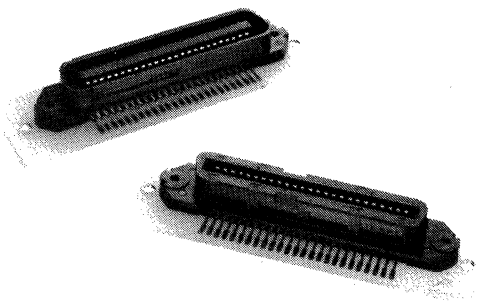


ACTION PIN Connector Hardware



Screw Lock Hardware Kit
Part No. 552631-1
(Rear panel mount applications)
(One kit required per assembly)

ACTION PIN Connectors



No. of Pos.	Part Numbers	
	Plug	Receptacle
50	554758-1	554753-1

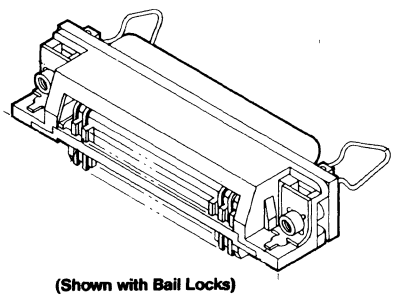
For **drawings, technical data or samples,** contact your local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82008

Shielded Right Angle Rear Panel Mounted Connectors with Boardlocks

Material and Finish:

Housing, Bracket, Adapter Comb and Terminal Support Plate—Polyester, black
Bail Clip—Passivated stainless steel
Receptacle Shield—Bright nickel over copper plated die casting
Terminals—Selectively plated gold over nickel plated high strength copper alloy, tin plated tails
Ground Bracket—Tin-lead plated carbon steel



(Shown with Bail Locks)

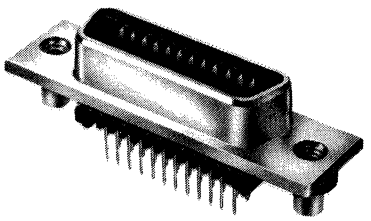
Number of Positions	Preassembled Hardware Type	Screw Size	Part Numbers	
			Standard	Reverse
24	Screw Lock	6-32	554923-2	554923-1
36	Bail Lock	4-40	555119-1	—

Maximum pc board thickness is .062 [1.57].

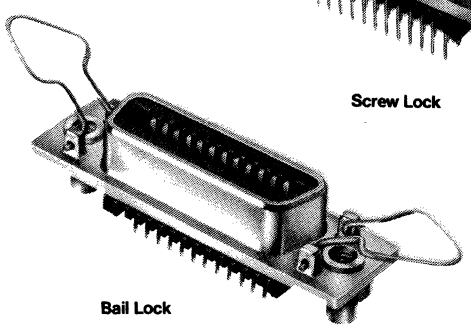
Shielded Vertical Mount Connectors

Material and Finish:

Housing—Thermoplastic, black
Terminals—Selectively plated gold over nickel plated high strength copper alloy, tin plated tails
EMI Shield—Nickel plated die casting



Screw Lock



Bail Lock

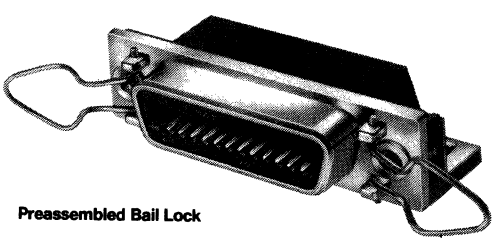
Number of Positions	Screw Lock		Bail Lock 4-40 Hole
	6-32 Hole	4-40 Hole	
24	554501-1[3]	—	—
50	—	—	554216-3[2]
	—	554217-4[1]	—

[1]SCSI applicable with use of Bail Lock Hardware Kit **Part No. 554818-2.**
[2]SCSI applicable.
[3]Can be used with Interface Bus Applications per IEEE-488.

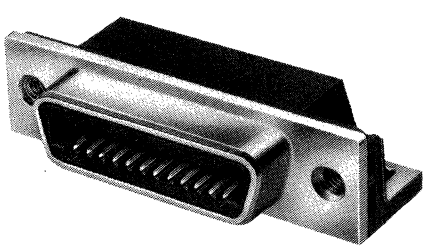
Shielded Right Angle Connectors

Material and Finish:

Housing, bracket, connector comb and terminal support plate—Thermoplastic (black)
Terminals—Selectively plated gold over nickel plated high strength copper alloy, tin plated tails.
EMI Shield—Nickel plated die casting



Preassembled Bail Lock



Preassembled Screw Lock

Number of Positions	Part Numbers	
	Preassembled Screw Lock	Presassembled Bail Lock
24	553811-1[3]	—
36	—	553815-3
50	553813-3[1]	554901-1[2]

[1]SCSI applicable with use of bail lock hardware kit. **Part No. 554818-2.**
[2]SCSI applicable.
[3]Can be used with Interface Bus Application per IEEE-488.

Modular Interconnection System

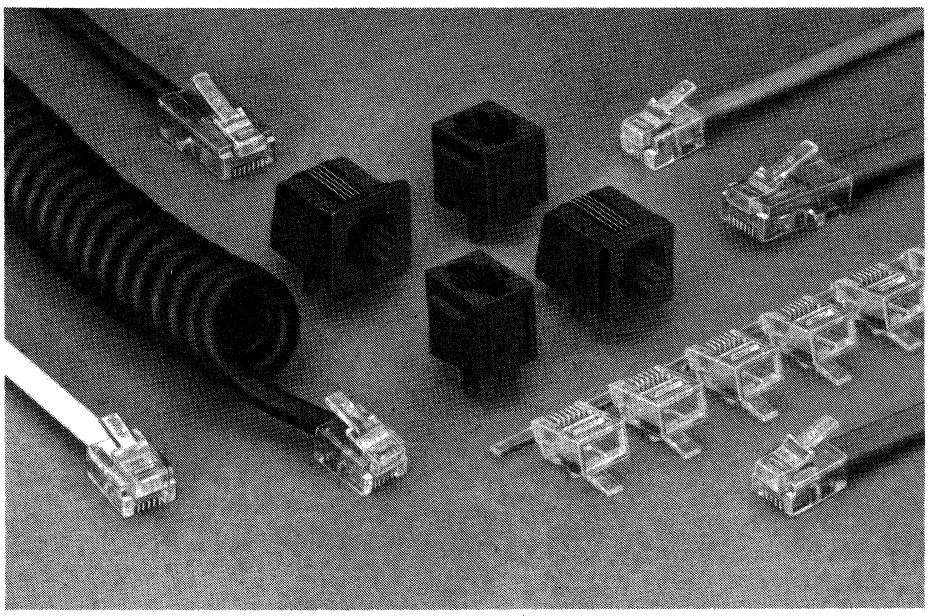
For more information request Catalog 82066

Printed Circuit Board Modular Jacks Standard Profile

With Center Latch and Offset Latch

Material and Finish:

Housing—Polyester (wave solder compatible)
Contact—.014 [0.36] thick phosphor bronze; plated .000050 [0.00127] gold in contact area and .000080 [0.00203] tin-lead on solder tails, over .000050 [0.00127] nickel underplate



AMP Modular Plugs

Material and Finish:

Housing—Polycarbonate
Contact—.014 [0.36] thick phosphor bronze; plated .000050 [0.00127] gold in contact area and gold flash on remainder of contact, over .000050 [0.00127] nickel underplating.

Description	Plug Part Numbers (1,000/box)
4-Position Handset	5-641334-2
4-Position Line	5-641335-2
6-Position Line	5-641337-2*
8-Position Line	5-554739-2
8-Position Round Cable	5-554720-2

*6-Position Line also available in 100/box, 10 boxes/carton. Order **Part No. 5-641337-3.**
•Listed by Underwriters Laboratories, Inc. File No. E81956, CSA Certified, File No. LR82669.

Printed Circuit Board Modular Jacks

Description	No. of Positions	No. of Contacts	Jack Part Number	Mating Plug	USOC
Side Entry Flanged	8	8	520243-4	8 Pos.	—
Side Entry with Panel Stops	4	4	520249-2	4 Pos. Handset	—
	4	4	520249-3*	4 Pos. Handset	—
	6	2	520250-1	6 Pos.	—
	6	4	520250-2	4 Pos.	RJ11C, RJ1W, RJ13C RJ13W, RJ14C, RJ14W
	6	6	520250-3	6 Pos.	RJ12C, RJ12W
	8	8	520251-4	8 Pos.	—
	8 Keyed	8	520252-4	8 Pos. Keyed	—
Top Entry with Panel Stops	4	4	520257-2	4 Pos. Handset	—
	6	4	520258-2	4 Pos.	RJ11C, RJ11W, RJ13C, RJ13W, RJ14C, RJ14W
	6	6	520258-3	6 Pos.	RJ12C, RJ12W
	8	8	520259-4	8 Pos.	—
	8 Keyed	8	520260-4	8 Pos. Keyed	—
Top Entry Without Panel Stops	6	6	520425-3	6 Pos.	RJ12C, RJ12W
Side Entry w/Panel Stops Offset Latch-Gray	6	6	555003-1	6 Pos.	—
Top Entry w/Panel Stops Offset Latch-Gray	6	6	554990-1	6 Pos.	—

*Housing—Gray color

Other standard profile configurations are available, as well as low profile, surface mount and shielded/unshielded versions. Contact AMP Incorporated.

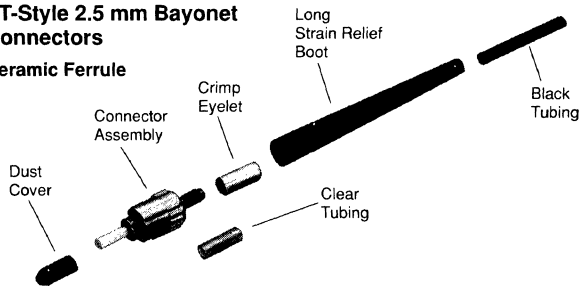
OPTIMATE Fiber Optic Interconnect System

For **drawings, technical data or samples,** contact you local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

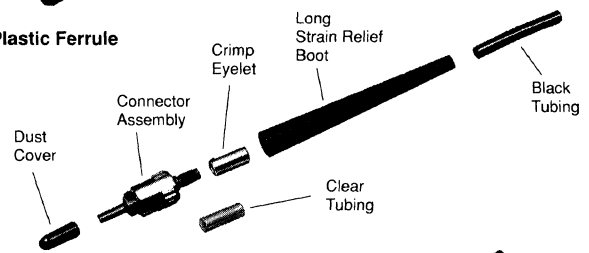
For more information request Catalog 82188

ST-Style 2.5 mm Bayonet Connectors

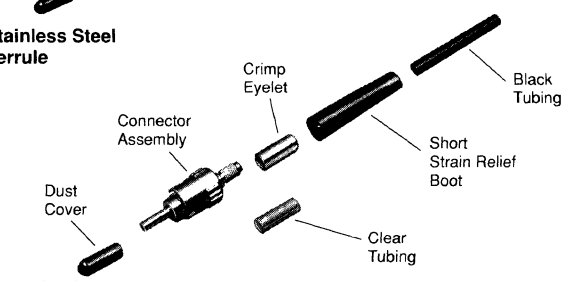
Ceramic Ferrule



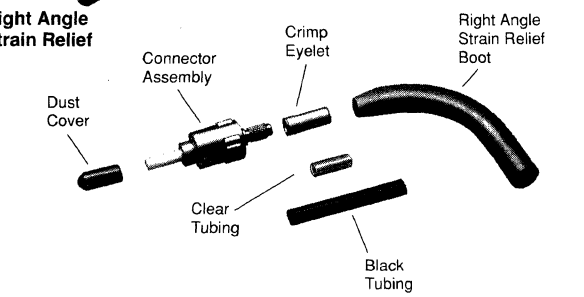
Plastic Ferrule



Stainless Steel Ferrule



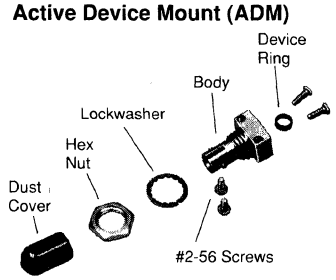
Right Angle Strain Relief



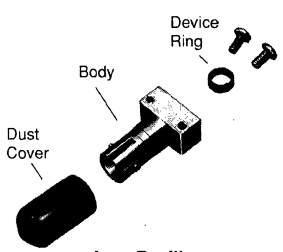
Ferrule Type	Strain Relief	Cable Size (µm)	Part Number
Multimode			
Ceramic-Zirconium Oxide	Long Boot (Black)	125	501380-5
Ceramic-Aluminum Oxide	Long Boot (Black)	125	501380-1
	Long Boot (Black)	140	501380-2
	Short Boot (Blue)	125	1-501380-1
	Short Boot (Beige)	140	1-501380-2
Plastic	Long Boot (Black)	125	502160-1
	Long Boot (Black)	140	502160-2
	Long Boot (Black)	230	502160-3
	Long Boot (Black)	500	502160-4
	Long Boot (Black)	1000	502160-5
Stainless Steel	Short Boot (Blue)	125	502575-1
	Short Boot (Blue)	140	502575-2
Ceramic-Aluminum Oxide	Right Angle Boot (Black)	125	502674-1
	Right Angle Boot (Black)	140	502674-2
Stainless Steel	Right Angle Boot (Blue)	125	502675-1
	Right Angle Boot (Blue)	140	502675-2
Plastic	Right Angle Boot (Black)	125	502668-1
	Right Angle Boot (Black)	140	502668-2
Single Mode			
Ceramic	Long Boot (Yellow)	125	502579-1
	Long Boot (Yellow)	126	502579-2
	Long Boot (Yellow)	127	502579-3

Note: All AMP 2.5 mm Bayonet products are intermateable with ST-Style I and ST-Style II.

Active Device Mount (ADM)



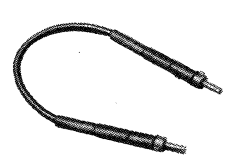
Standard Profile
Part No. 501474-1



Low Profile
Part No. 502585-2

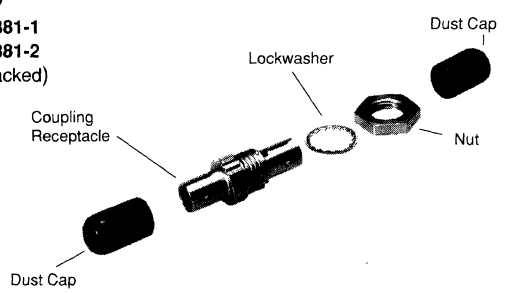
2.5 mm Bayonet Loopback Cable Assembly (0-6 dB)

Part No. 502642-1



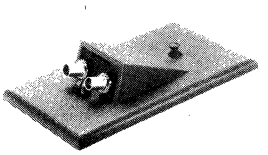
Receptacle Coupling (Multimode)

Part No. 501381-1
Part No. 501381-2
(1000-Bulk Packed)



ST-Style Wall Outlets

Wall Plate Color	Part Numbers
Black	501734-1
Ivory	501734-2
Gray	501734-3

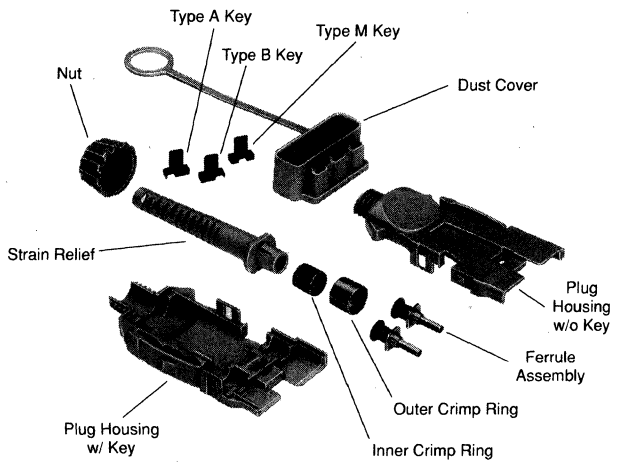


ST-Style Tools

Description	Part Number
Termination Kit w/Economy Hand Tool	501282-9
Termination Kit w/OPTIMATE Hand Tool	501282-7
Installers Kit, All Connectors	501258-7, -8, -9
PRO-CRIMPER Hand Tool	58433-4

Fixed Shroud Duplex (FSD) System

FSD Plugs

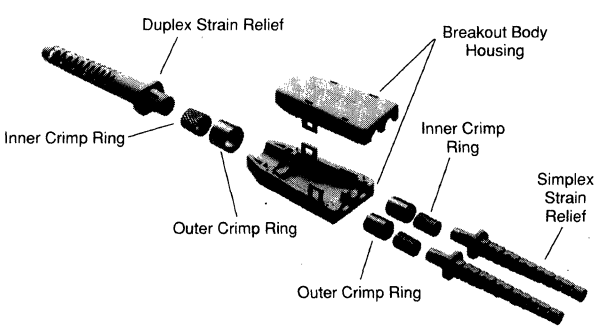


Cable Size (μm)	Plug Part Numbers		Replacement Ferrules
	Cable Type		
	DUALAN	Light Duty Dual	
125	501780-1	502015-1	501779-1*
140	501780-2	502015-2	501779-2*

*Part number is for individual ferrule

FSD DUALAN Cable Breakout Kit

Part No. 502020-1 (Kit also includes 1 meter length of breakout tubing and 1 each receive and transmit labels)

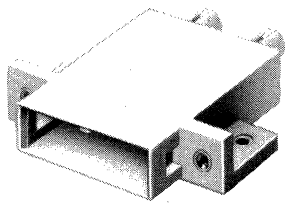


Tooling

Hand Tool	Type	Dies
58190-6	OPTIMATE	58393-1 58404-1
220190-1	Economy	58397-1 58409-1

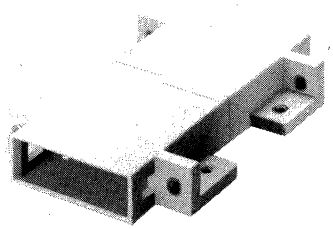
FSD Receptacles

FSD Bulkhead Adapter



Housing Material	Threaded Insert Size	Part Numbers			
		Keying Type			
		A	B	M	S
Plastic	4-40	501798-1	501798-2	501798-3	501798-4
Plastic	M3	501933-1	501933-2	501933-3	501933-4
Zinc	4-40	501799-1	501799-2	501799-3	501799-4
Zinc	M3	501932-1	501932-2	501932-3	502932-4

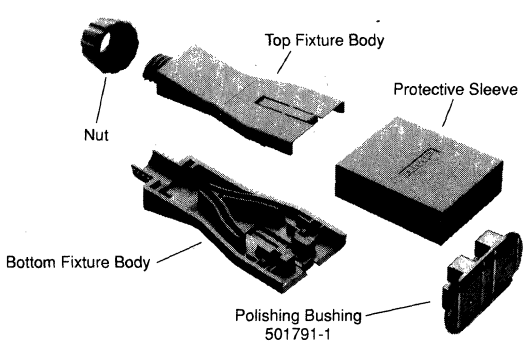
FSD Duplex-to-Duplex Coupling



Style	Threaded Insert Size	Part Numbers	
		Keying Type	
		A to B	M to S
With Mounting Ears	4-40	501926-1	501926-2
	M3	501931-1	501931-3
Without Mounting Ears	—	501805-1	501805-2

FSD Duplex Assembly Fixture Kit

Part No. 501795-1 (with polishing bushing)
Part No. 502023-1 (without polishing bushing)

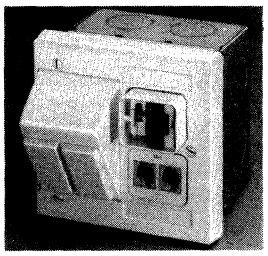


For **drawings, technical data or samples,** contact you local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

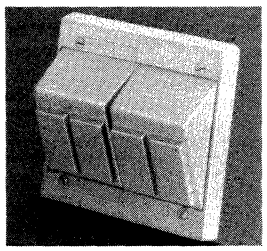
For more information request Catalog 82188

FSD Wall Outlets

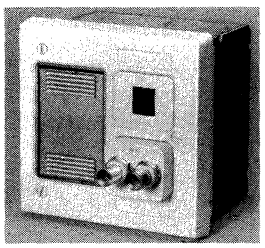
Description	Keying	With Receptacle Box	Without Receptacle Box
FSD Wall Outlet	A	501810-1	502199-1
	B	501810-2	502199-2
	M	501810-3	502199-3
	S	501810-4	502199-4
FSD/AMP Communications Outlet Wall Outlet	A		502334-1
	B		502334-2
	M		502334-3
	S		502334-4
Dual FSD Wall Outlet	A-B	502377-1	502376-1
	M-S	502377-2	502376-2
1 Port FSD to 2.5 mm Bayonet Wall Outlet	A		502572-1
	B		502572-2
	M		502572-3
	S		502572-4
1 Port FSD to 2.5 mm Bayonet/AMP Communications Outlet Wall Outlet	A		502571-1
	B		502571-2
	M		502571-3
	S		502571-4
2 Port FSD to 2.5 mm Bayonet Wall Outlet	A-B	502484-1	502486-1
	M-S	502484-2	502486-2
	A		502486-3
	B		502486-4
	M		502486-5
	A-M		502486-6
2 Port FSD to 2.5 mm Bayonet Wall Outlet with 2 2.5 mm Bayonet Connector Kits (501380-3)	A-B		502507-1
	M-S		502507-2
	A		502507-3
	B		502507-4
	M		502507-5
	A-M		502507-6
2 Port FSD to 2.5 mm Bayonet/AMP Communications Outlet Wall Outlet	A-B	502502-1	502503-1
	MS	502502-2	502503-2
4 Port FSD to 2.5 mm Bayonet Wall Outlet	A-B	502485-1	502487-1
	M-S	502485-2	502487-2
4 Port 2.5 mm Bayonet Wall Outlet			502603-1
2 Port 2.5 mm Bayonet Wall Outlet			502603-2
4 Port 2.5 mm Bayonet/ AMP Communications Outlet Wall Outlet			502604-1
2 Port 2.5 mm Bayonet/ AMP Communications Outlet Wall Outlet			502604-2



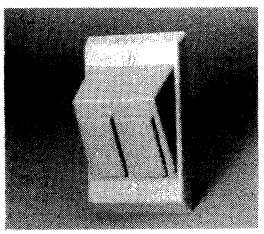
2 Port FSD to 2.5 mm Bayonet/AMP Communications Outlet Wall Outlet



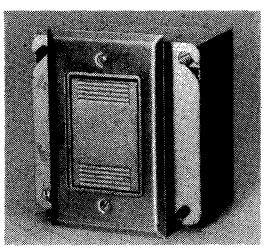
4 Port FSD to 2.5 mm Bayonet Wall Outlet



FSD/AMP Communications Outlet Wall Outlet



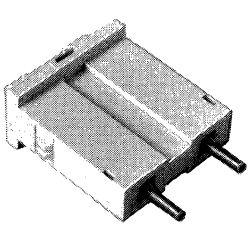
2 Port FSD to 2.5 mm Bayonet Wall Outlet



FSD Wall Outlet

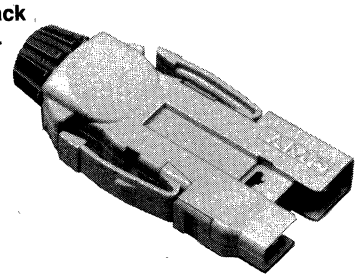
FSD Loopback Connector 5 ± 5 dB

Part No. 502641-1



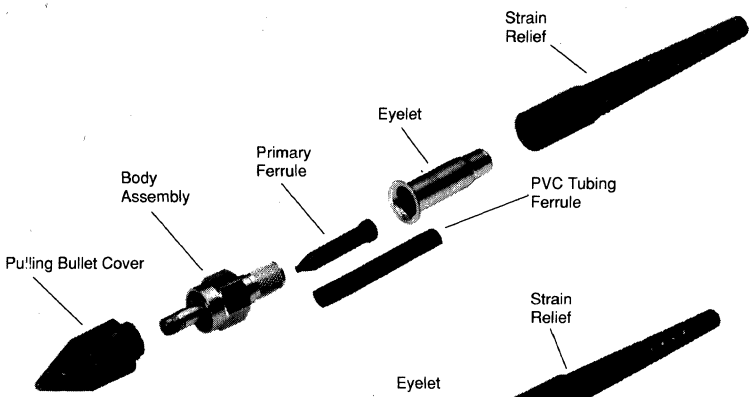
FSD Low Loss Loopback Connector 1.5 dB Max.

Part No. 502556-1

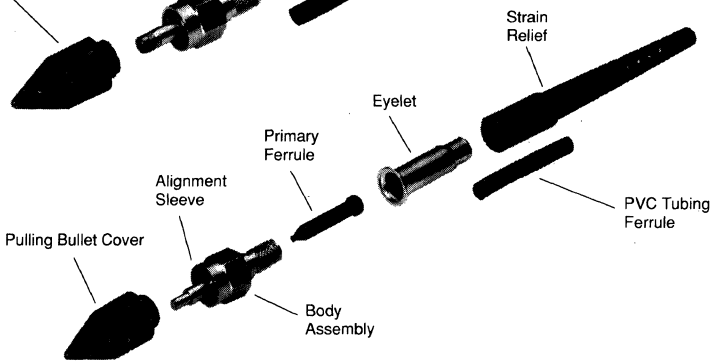


FSMA Connectors
Standard Version

FSMA-I
(905 STYLE)



FSMA-II
(906 STYLE)



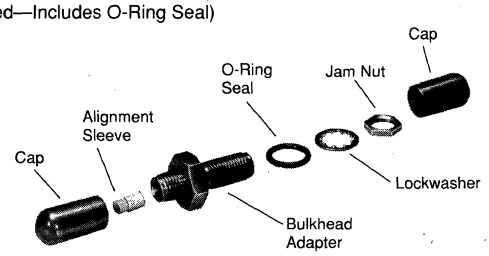
Connector Body Material	Fiber Diameter[1] (μm)	Part Numbers: Nominal Jacket O.D. Less Than 3.0 w/o Strength Members		Nominal Jacket O.D. 3.0 w/ Strength Members[2]		Nominal Jacket O.D. 3/8 w/ Strength Members	
		FSMA-I	FSMA-II	FSMA-I	FSMA-II	FSMA-I	FSMA-II
Nickel Plated Brass	125	501002-1	—	501003-1	—	501004-1	—
	140	501002-2	—	591003-2	—	501004-2	—
	230	501002-4	—	501003-4	—	501004-4	—
	500	501002-8	—	501003-8	—	501004-9	—
	1000	1-501002-1	—	1-501003-1	—	1-501004-1	—
Stainless Steel	125	—	501029-1	—	501030-1	—	501031-1
	140	—	501029-2	—	501030-2	—	501031-2
	230	—	501029-4	—	501030-4	—	501031-4
	1000	—	501029-8	—	501030-8	—	501031-8

[1]Nominal cable jacket O.D.
[2]Spacer tube included with these kits

FSMA Receptacle—Coupling Bushing

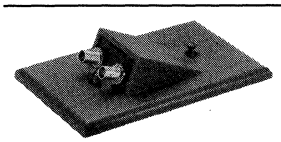
Part No. 501049-1
(Unsealed)

Part No. 501050-1
(Sealed—Includes O-Ring Seal)



FSMA Wall Outlets

Wall Plate Color	Part Number
Black	501428-1
Ivory	501428-2
Gray	501428-3



FSMA Active Device Mount (ADM)

Part No. 501055-1
Stainless Steel

Part No. 502136-1
Nickel Plated Die Cast

FSMA Tools and Accessories

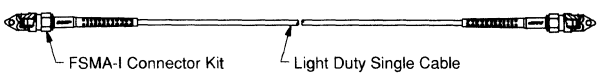
Description	Part Number
Termination Kit w/Economy Hand Tool	501282-1
Termination Kit w/OPTIMATE Hand Tool	501282-4
Installers Kit for all AMP Connectors	501258-7,-8,-9

Multimode Cable Assemblies

For **drawings, technical data or samples,** contact you local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82188

A



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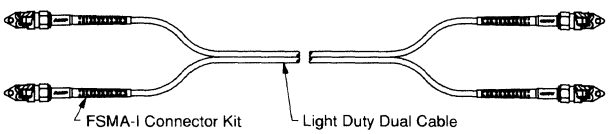

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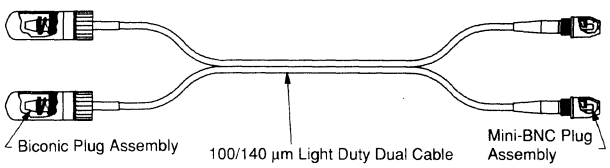

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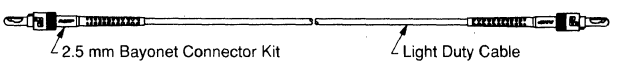

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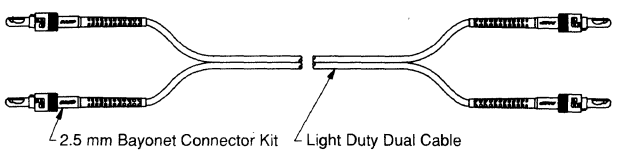

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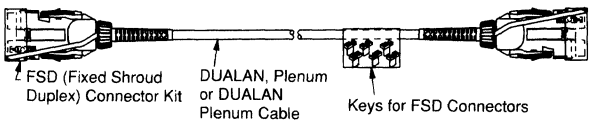

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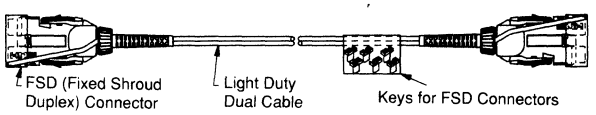

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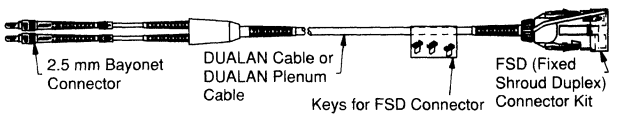

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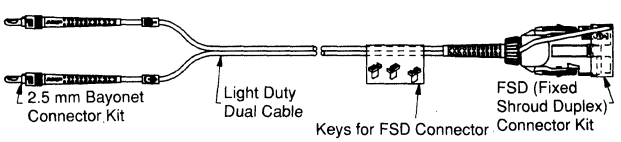

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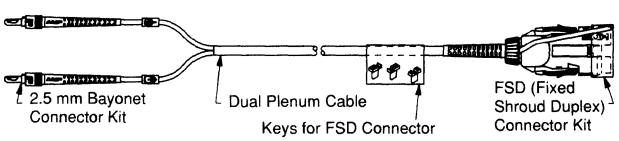


Description Code	Cable Type Code	Cable Size (µm)	Part Numbers Length (m) 1	2	2.4	3	5	6	8	10	15
A	LDS	50/125	502148-1	—	—	502148-2	502148-3	502148-4	—	502148-5	—
		62.5/125	502149-2	—	—	502149-2	502149-3	502149-4	—	502149-5	—
		100/140	502150-1	—	—	502150-2	502150-3	502150-4	—	502150-5	—
B	LDD	50/125	502151-1	—	—	502151-2	502151-3	502161-4	—	502151-5	—
		62.5/125	502152-1	—	—	502152-2	502152-3	502152-4	—	502152-5	—
		100/140	502153-1	—	—	502153-2	502153-3	502153-4	—	502153-5	—
C	LDD	100/140	—	—	502154-1	—	—	—	—	—	—
D	LDS	50/125	502143-1	—	—	502143-2	502143-3	502143-4	—	502143-5	—
		62.5/125	502144-1	—	—	502144-2	502144-3	502144-4	—	502144-5	—
		100/140	502145-1	—	—	502145-2	502145-3	502145-4	—	502145-5	—
E	LDD	50/125	502146-1	—	—	502146-2	502146-3	502146-4	—	502146-5	—
		62.5/125	501833-2	—	—	501833-3	501833-4	501833-5	—	501833-6	—
		100/140	502147-1	—	—	502147-2	502147-3	502147-4	—	502147-5	—
F	DU DUP PLDD	62.5/125	502121-1	502121-2	—	502121-3	502121-4	—	502121-5	502121-6	502121-7
		62.5.125	502123-1	502123-2	—	502123-3	502123-4	—	502123-5	502123-6	502123-7
		62.5/125	502124-1	502124-2	—	502124-3	502124-4	—	502124-5	502124-6	502124-7
G	LDD	62.5/125	502122-1	502122-2	—	502122-3	502122-4	—	502122-5	502122-6	502122-7
H	DU	62.5/125	501955-3	501955-4	—	501955-5	501955-2	—	—	501955-6	—
	DUP	62.5/125	502126-1	502126-2	—	502126-3	502126-4	—	502126-5	502126-6	502126-7
I	LDD	62.5/125	502125-1	502125-2	—	502125-3	502125-4	—	502125-5	502125-6	502125-7
J	PLDD	62.5/125	502127-1	502127-2	—	502127-3	502127-4	—	502127-5	502127-6	502127-7

Cable Type Code:

LDS = Light Duty Single; LDD = Light Duty Dual; DU = DUALAN; DUP = DUALAN Plenum; PLDD = Plenum Light Duty Dual

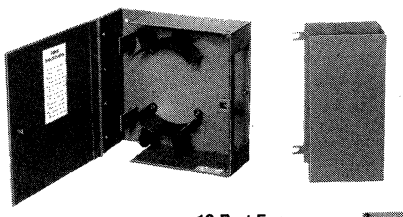
Fiber Optic Distribution Products

Wall Mount Distribution Enclosures

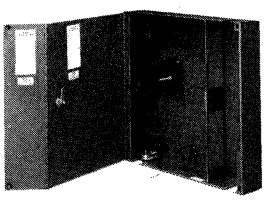
- Double hinged door allows the cable routing side to be locked while the customer side is closed with quarter-turn fasteners (except on economy model)
- Cable routing rings provided for cable management
- Accepts splice organizer trays or splice holders
- Blue enamel finish

Fiber Ports	Length Width Depth (in.)	Part Number	Accessory
12	9x12x3	502533-1[1]	Splice Holder
12	9x9x3	502533-2[2]	Splice Holder
12	9x12x3	502513-1	Splice Holder
24	16x16x3	502553-1	Organizer Trays
48	16x16x5	502554-1	Organizer Trays

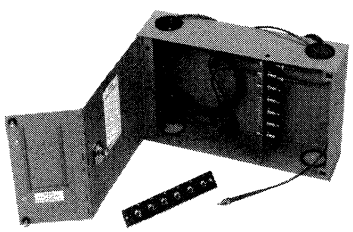
[1]Economy enclosure, no lock
[2]Economy enclosure, no lock, no cover



12-Port Economy



24 Port



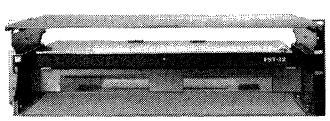
12 Port

Rack-Mount Distribution Enclosures

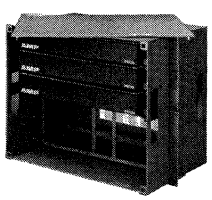
- Sliding splice trays for easy acess to individual splices
- Tray can rest at 30° angle or be removed totally for easy access
- Each splice tray comes with routing rings for greater cable management
- Cable tie down bars and/or grounding clamps included for support of main fiber cable
- Fits 19-inch or 23-inch racks
- Blue enamel finish

Fiber Ports	FSD Capacity	Splice Trays	Splice Capacity	Height (in.)	Part Number
12	4	1 x 12	12	5.25	502518-1
24	8	1 x 24	24	7	502519-1
48	24	2 x 24	48	10.44	502520-1
72	36	3 x 24	72	14	502534-1
144	72	6 x 24	144	28	502535-1

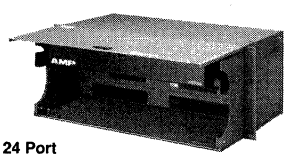
Note: Splice trays are included. Order splice holders and adapter plates separately.



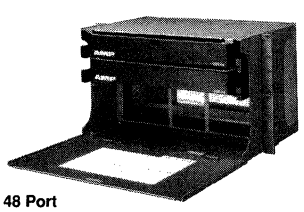
12 Port



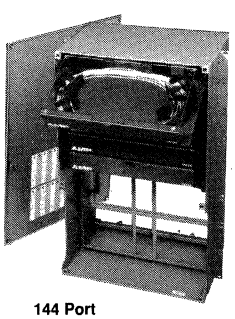
72 Port



24 Port



48 Port

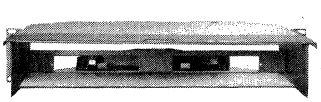


144 Port

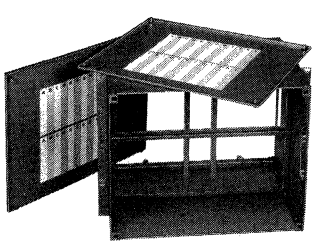
Rack-Mounted Patch Panel Enclosures

- Cable tie down bars and/or grounding clamps included for support of main fiber cable
- Fits into 19-inch or 23-inch racks
- Blue enamel finish

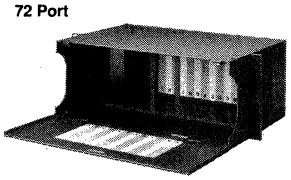
Fiber Ports	FSD Capacity	Height (in.)	Part Number
12	4	3.5	502522-1
36	16	5.25	502523-1
72	32	7	502524-1
144	72	14	502525-1



12 Port



144 Port



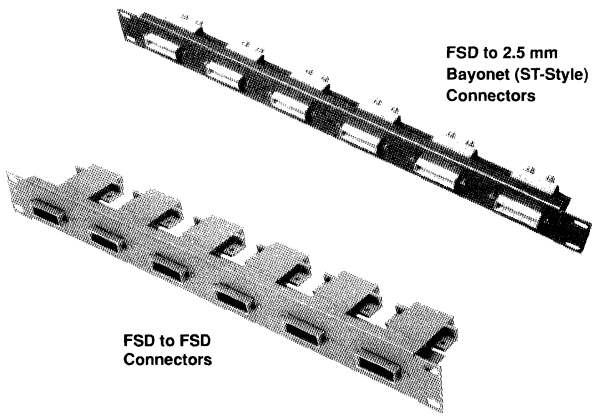
72 Port

For **drawings, technical data or samples,** contact you local AMP distributor, your AMP sales engineer or call the AMP Product Information Center **1-800-522-6752.**

For more information request Catalog 82188

Patch Panels

Type	Keying	Panel Color	Part Number
FSD to ST-Style	S	Blue	502043-1
		Beige	502043-2
FSD to FSD	M&S (3 ea.)	Blue	502044-1
		Beige	502044-2
FSD to FSD	A&B (3 ea.)	Blue	502044-4
		Beige	502044-3
FSD to ST-Style	A&B (ea.)	Blue	502043-3
		Beige	502043-4



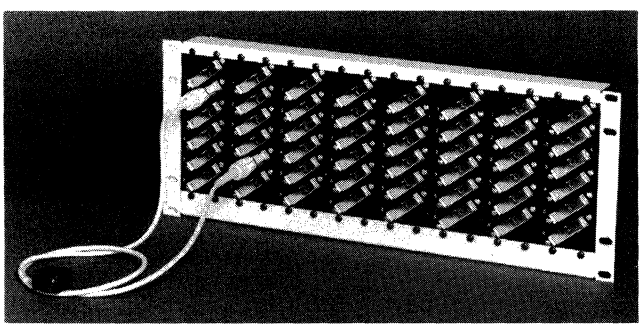
FSD to 2.5 mm Bayonet (ST-Style) Connectors

FSD to FSD Connectors

High Density Patch Panels, Fully Loaded

- Beige finish on all except 36 port model which is blue enamel finish
- High density at low cost
- Fits into 19-inch racks

Fiber Ports	Keying	Height (in.)	Part Number
96 ST-Style to ST-Style	—	7	502563-1
48 FSD to 965 ST-Style	A&B	7	502499-1
48 FSD to 96 ST-Style	M&S	7	502499-2
48 FSD to 96 ST-Style	S	7	502499-3
48 FSD to 96 ST-Style	A	7	502499-4
48 FSD to 96 ST-Style	B	7	502499-5
64 FSD to 128 ST-Style	A&B	8.69	502566-1
64 FSD to 128 ST-Style	M&S	8.69	502566-2
64 FSD to 128 ST-Style	S	8.69	502566-3
64 FSD to 128 ST-Style	A	8.69	502566-4
64 FSD to 128 ST-Style	B	8.69	502566-5



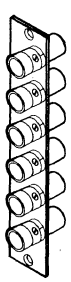
Adapter Plates (6-Pack)

502512-6 Blank

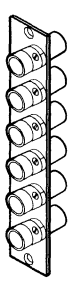
502512-5 M/M FSMA-I & FSMA-II

502512-4 M/M & S/M 2.0 mm Threaded

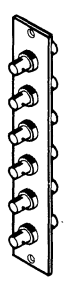
502512-3 M/M & S/M 2.5 mm Threaded



502512-2 Singlemode Biconic



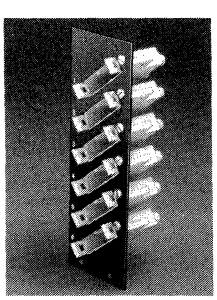
502512-1 Multimode Biconic



502512-7 M/M 3/6 mm Bayonet

Adapter Plates (6-Pack) FSD to ST-Style

Ports	Keying	Part Number
2/4	A	502532-1
	B	501532-1
	M	502532-3
	S	502532-4
6/12	A	502497-1
	B	502497-2
	M	502497-3
	S	502497-4



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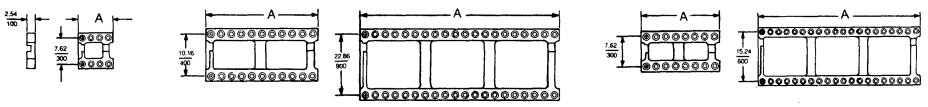
NEW — 70 Page Catalog

Series 101 — Standard Dip Socket (open frame)

Series 102 — Dip Socket without Crossbars (open frame)



PIN	DIM "A"	
6	7.62 300	306 -
8	10.16 400	308 -
10	12.70 500	310 -

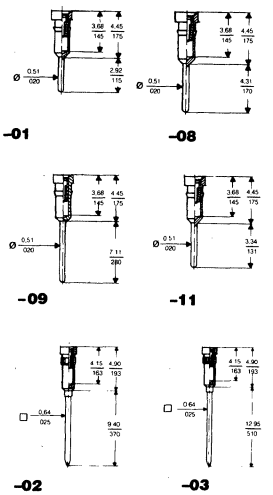
6,8 and10-pin wafers are allways without middle bars.

PIN	DIM "A"	
16	20.32 800	416 -
22	27.94 1.100	422 -
24	30.48 1.200	424 -

PIN	DIM "A"	
50	63.05 2.500	950 -
52	66.04 2.600	952 -
64	81.28 3.200	964 -

PIN	DIM "A"	
14	17.78 700	314 -
16	20.32 800	316 -
18	22.86 900	318 -
20	25.40 1.000	320 -
22	27.94 1.100	322 -
24	30.48 1.200	324 -
28	35.56 1.400	328 -

PIN	DIM "A"	
24	30.48 1.200	624 -
28	35.56 1.400	628 -
30	38.10 1.500	630 -
32	40.64 1.600	632 -
36	45.72 1.800	636 -
40	50.80 2.000	640 -
48	60.96 2.400	648 -



ORDERING CODE

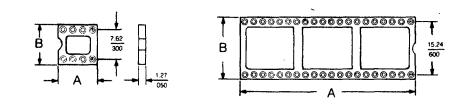
XXX · XXX · XXX · PXX

Series
101 = with middle bars
102 = without middle bars
DIP-Spacing
No. of pins
Terminal Style
Plating
-P29 = gold / tin
-P15 = gold / gold
-P32 = tin / tin

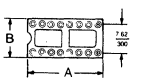
Other terminal styles available.
Please consult factory.

Series 103 — Low Profile Dip Socket (open frame)

Series 104 — Ultra Low Profile Dip Socket (open frame)

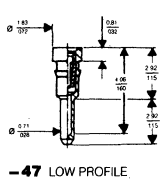


PIN	DIM "A"	DIM "B"	Order-Code
6	7.62 300	10.16 400	306 -
8	10.16 400		308 -

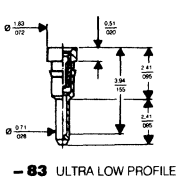


PIN	DIM "A"	DIM "B"	Order-Code
14	17.78 700	10.16 400	314 -
16	20.32 800		316 -
18	22.86 900		318 -
20	25.40 1.000		320 -
24	30.48 1.200		324 -
28	35.56 1.400		328 -

PIN	DIM "A"	DIM "B"	Order-Code
24	30.48 1.200	17.78 700	624 -
28	35.56 1.400		628 -
30	38.10 1.500		630 -
32	40.64 1.600		632 -
36	45.72 1.800		636 -
40	50.80 2.000		640 -

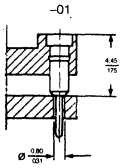


-47 LOW PROFILE

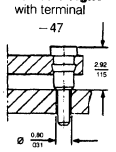


-83 ULTRA LOW PROFILE

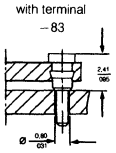
Standard height above PCB with terminal -01



34% reduced height with terminal -47



46% reduced height with terminal -83



ORDERING CODE

XXX · XXX · XXX · PXX

Series
103 = LOW PROFILE
104 = ULTRA LOW
DIP SPACING
No. of pins
Terminal Style
Plating
-P29 = gold / tin
-P15 = gold / gold
-P32 = tin / tin
Other platings available

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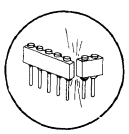
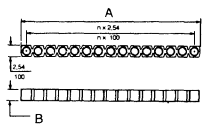
NEW — 70 Page Catalog

Series 301 / Series 302 — Sip Socket (snap) / Sip Socket (solid)

Series 405 — Sip Socket (laminate wafer)

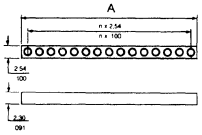
Series 301
SNAP
Insulator breakable





PIN	DIM "A"	DIM "B"	Order-Code
20	50.80 2.000	2.30 .091	020–
32	81.28 3.200	2.54 .100	032–

Series 302
SOLID
Insulator solid



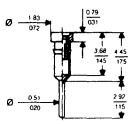
PIN	DIM "A"	Order-Code
2	5.08 .200	002–
3	7.62 .300	003–
4	10.16 .400	004–
5	12.70 .500	005–
6	15.24 .600	006–
7	17.78 .700	007–
8	20.32 .800	008–
9	22.86 .900	009–
10	25.40 1.000	010–
11	27.94 1.100	011–
12	30.48 1.200	012–
13	33.02 1.300	013–
14	35.56 1.400	014–
15	38.10 1.500	015–
16	40.64 1.600	016–
17	43.18 1.700	017–
18	45.72 1.800	018–
20	50.80 2.000	020–
22	55.88 2.200	022–
24	60.96 2.400	024–
25	63.50 2.500	025–
30	76.20 3.000	030–

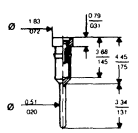
ORDERING CODE

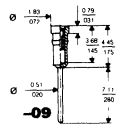
XXX - XXX - XXX - PXX

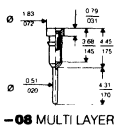
- Plating
- Terminal Style
  - **–P29** = gold / tin
  - **–P15** = gold / gold
  - **–P32** = tin / tin
  - Other platings available
- No. of pins
- Series
  - **301** = SNAP
  - **302** = SOLID
  - **405** = WAFER

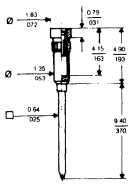
For contacts with
* low force
-xxL
* standard force
-xxS
* high force
-xxH

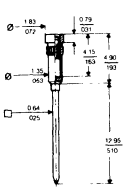


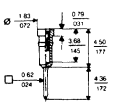


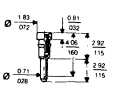








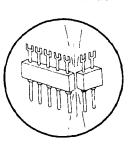


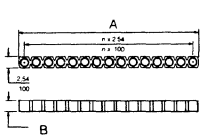


Series 305 — SIP Component Adapter (snap)

Series 306 — SIP Component Adapter (solid)

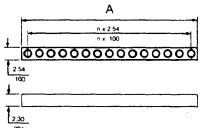
Series 305
SNAP
Insulator breakable





PIN	DIM "A"	DIM "B"	Order-Code
20	50.80 2.000	2.30 .091	020–
32	81.28 3.200	2.54 .100	032–

Series 306
SOLID
Insulator Solid



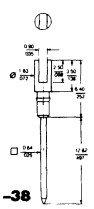
PIN	DIM "A"	Order-Code
2	5.08 .200	002–
3	7.62 .300	003–
4	10.16 .400	004–
5	12.70 .500	005–
6	15.24 .600	006–
7	17.78 .700	007–
8	20.32 .800	008–
9	22.86 .900	009–
10	25.40 1.000	010–
11	27.94 1.100	011–
12	30.48 1.200	012–
13	33.02 1.300	013–
14	35.56 1.400	014–
15	38.10 1.500	015–
16	40.64 1.600	016–
17	43.18 1.700	017–
18	45.72 1.800	018–
20	50.80 2.000	020–
22	55.88 2.200	022–
24	60.96 2.400	024–
25	63.50 2.500	025–
30	76.20 3.000	030–

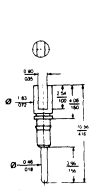
ORDERING CODE

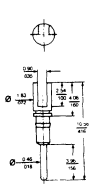
XXX – XXX – XXX – XXX

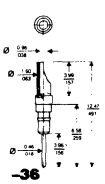
- Series
  - **305** = SNAP
  - **306** = SOLID
- No. of pins
- Terminal Style
- Plating
  - **–G10** = gold
  - **–T02** = tin

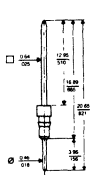
Header Terminals











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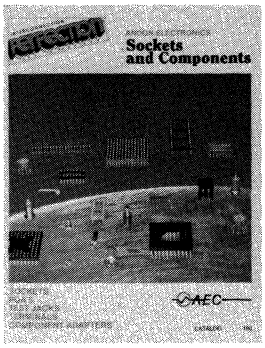
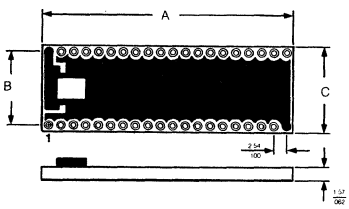
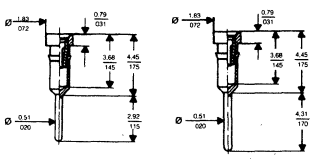


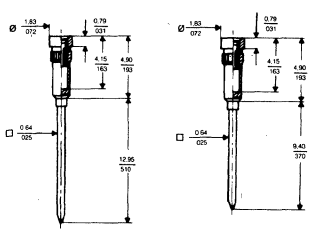
Series 451 — DIP Decoupling Capacitor Socket (laminate wafer)



PIN	DIMENSION "A"	"B"	"C"	Order-Code
6	7.62 .300			– 306 –
8	10.16 .400			– 308 –
10	12.27 .500			– 310 –
14	17.78 .700			– 314 –
16	20.32 .800	7.62 .300	10.16 .400	– 316 –
18	22.86 .900			– 318 –
20	25.40 1.000			– 320 –
22	27.94 1.100			– 322 –
24	30.48 1.200			– 324 –
28	35.56 1.400			– 328 –

PIN	DIMENSION "A"	"B"	"C"	Order-Code
22	27.94 1.100	10.16 .400	12.70 .500	– 422 –
24	30.48 1.200			– 424 –
24	30.48 1.200			– 624 –
28	35.56 1.400			– 628 –
30	38.10 1.500			– 630 –
32	40.64 1.600	15.24 .600	17.78 .700	– 632 –
36	45.72 1.800			– 636 –
40	50.80 2.000			– 640 –
48	60.96 2.400			– 648 –

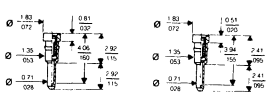




ORDERING CODE

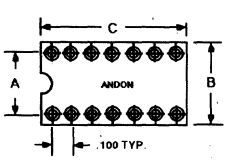
451 XXX - XXX - XXX - X

- Series: 451
- DIP - Spacing: XXX
- No. of pins: XXX
- Terminal Style: XXX
- Plating: –P29 = gold / tin; –P15 = gold / gold; –P32 = tin / tin
- Capacitor value: X



HI-TEMP SOCKETS — 200°C CLOSED FRAME IC

SERIES H10 — DIP SOCKETS w/o STANDOFFS



PART #	FIGURE #	# OF PINS	A	B	C
H10-306-D01H-P15	1	6	.300	.395	.295
H10-308-D01H-P15	1	8	.300	.395	.395
H10-310-D01H-P15	1	10	.300	.395	.495
H10-314-D01H-P15	1	14	.300	.395	.695
H10-316-D01H-P15	1	16	.300	.395	.795
H10-318-D01H-P15	1	18	.300	.395	.895
H10-320-D01H-P15	1	20	.300	.395	.995
H10-422-D01H-P15	1	22	.400	.495	1.095
H10-624-D01H-P15	1	24	.600	.695	1.195
H10-628-D01H-P15	1	28	.600	.695	1.395
H10-640-D01H-P15	1	40	.600	.695	1.995

PART #	FIGURE #	# OF PINS	A	B	C
H10-306-D02H-P15	2	6	.300	.395	.295
H10-308-D02H-P15	2	8	.300	.395	.395
H10-310-D02H-P15	2	10	.300	.395	.495
H10-314-D02H-P15	2	14	.300	.395	.695
H10-316-D02H-P15	2	16	.300	.395	.795
H10-318-D02H-P15	2	18	.300	.395	.895
H10-320-D02H-P15	2	20	.300	.395	.995
H10-422-D02H-P15	2	22	.400	.495	1.095
H10-624-D02H-P15	2	24	.600	.695	1.195
H10-628-D02H-P15	2	28	.600	.695	1.395
H10-640-D02H-P15	2	40	.600	.695	1.995

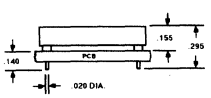


FIGURE 1

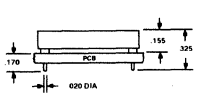
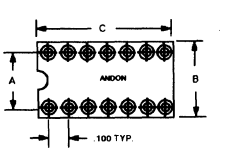


FIGURE 2

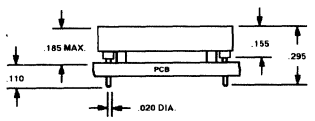
SERIES H11 — DIP SOCKETS w/ STANDOFFS



SPECIAL FEATURES AND BENEFITS:

- Dual-in-line sockets for low profile, high density packaging.
- Sockets accept packages with round or flat leads.
- Cut out on one end of socket for indexing orientation.
- Molded in rigid solder terminal will not bend when installing onto PC Board.
- High temperature Diallyl Phthalate per MIL-M-14G, Type SDG-F, flame retardant, temperature range up to 250°C.

PART #	STAND-OFFS	# OF PINS	A	B	C
H11-306-D01H-P15	4	6	.300	.395	.295
H11-308-D01H-P15	4	8	.300	.395	.395
H11-310-D01H-P15	4	10	.300	.395	.495
H11-314-D01H-P15	4	14	.300	.395	.695
H11-316-D01H-P15	4	16	.300	.395	.795
H11-318-D01H-P15	4	18	.300	.395	.895
H11-320-D01H-P15	4	20	.300	.395	.995
H11-422-D01H-P15	4	22	.400	.495	1.095
H11-624-D01H-P15	4	24	.600	.695	1.195
H11-628-D01H-P15	4	28	.600	.695	1.395
H11-640-D01H-P15	4	40	.600	.695	1.995



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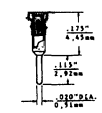
PGA SOCKETS — PULL-OFF CARRIER™ SOCKET ASSEMBLY

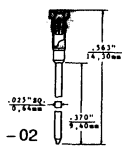
SERIES 575, 550, 540 & 510

STANDARD



– 01

2 LEVEL WIRE WRAP



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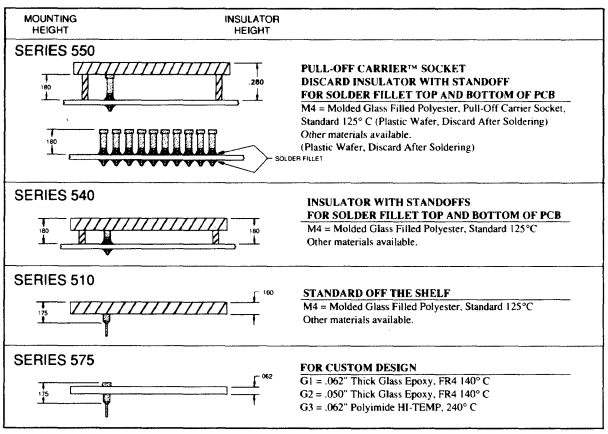
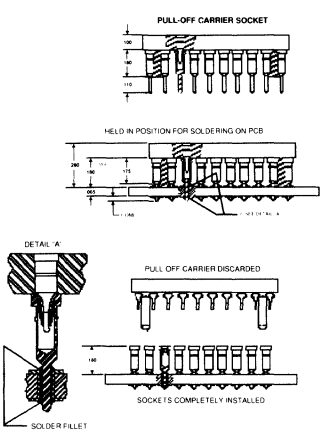
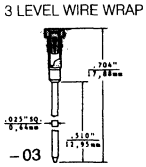


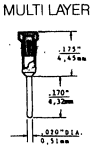


3 LEVEL WIRE WRAP



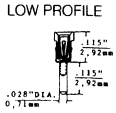
– 03

MULTI LAYER



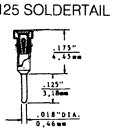
– 08

LOW PROFILE



– 47

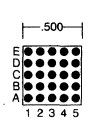
.125 SOLDERTAIL



– 94

PGA SOCKET FOOTPRINTS

5X5



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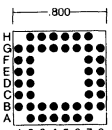

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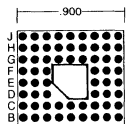

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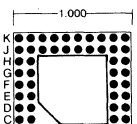

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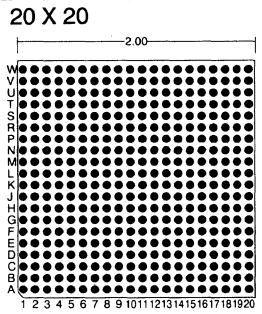
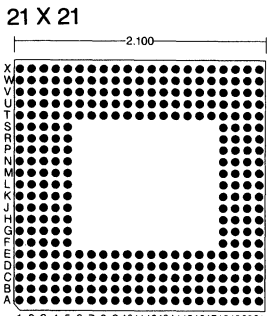
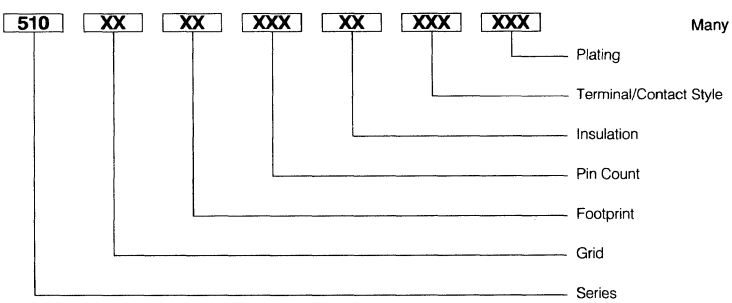


21 X 21



Part Number Ordering Information

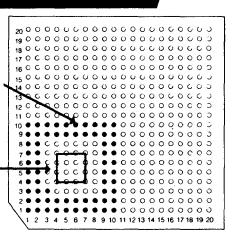


Many other standard footprints available. Please consult factory or catalog.

CUSTOM PGA

The contact configuration is to be marked as follows.

If you wish an open frame, please mark it as follows.



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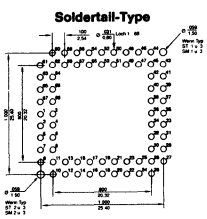
NEW — 70 Page Catalog

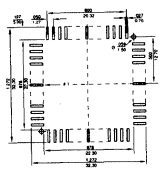
Series 651 — Leaded Chip Carrier Sockets

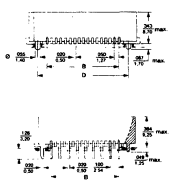
Andon's Leaded Chip Carrier Sockets are also available in 28-Pin, 32-Pin, 44-Pin, 52-Pin and 84-Pin Configurations.

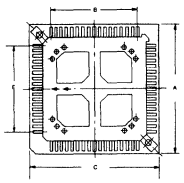
PC-Board Layout

Soldertail-Type **68-pin** **SM-Type**







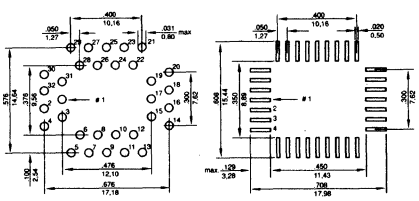


No. of Pins	Dimensions A	B	C	D	E
68	1.193 30,30	.800 20,32	1.193 30,30	1.000 25,40	.800 20,32

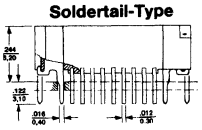
Series 652 — Leadless Chip Carrier Sockets

Andon's Leadless Chip Carrier Sockets are also available in a 44-Pin Configuration.

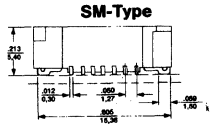
PC-Board-Layout **32-pin**



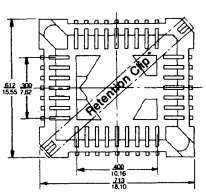
Soldertail-Type



SM-Type



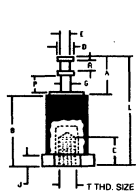
closed version "C" for automatic assembly



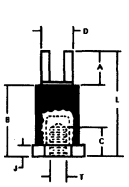
TERMINALS — PRESSIT™ & THREADED — STANDOFFS & FEED-THRUS

SERIES T10, T14, T16, T21, T27

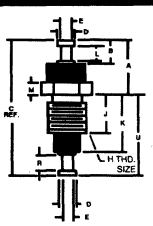
Andon's **Pressit™** Terminals and Test Jacks have been designed for flat or curved mounting surfaces.



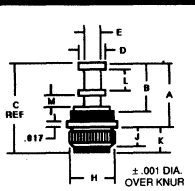
TYPE T10



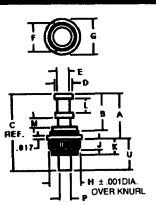
TYPE T14



TYPE T16



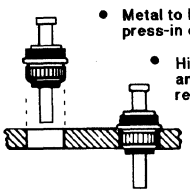
TYPE T21



TYPE T27

Features include:

- **Metal to Metal press-in design**
- **Highest radial and axial pull-out resistance**
- **Solid Molded construction**



Many other terminal configurations available. Please consult factory.

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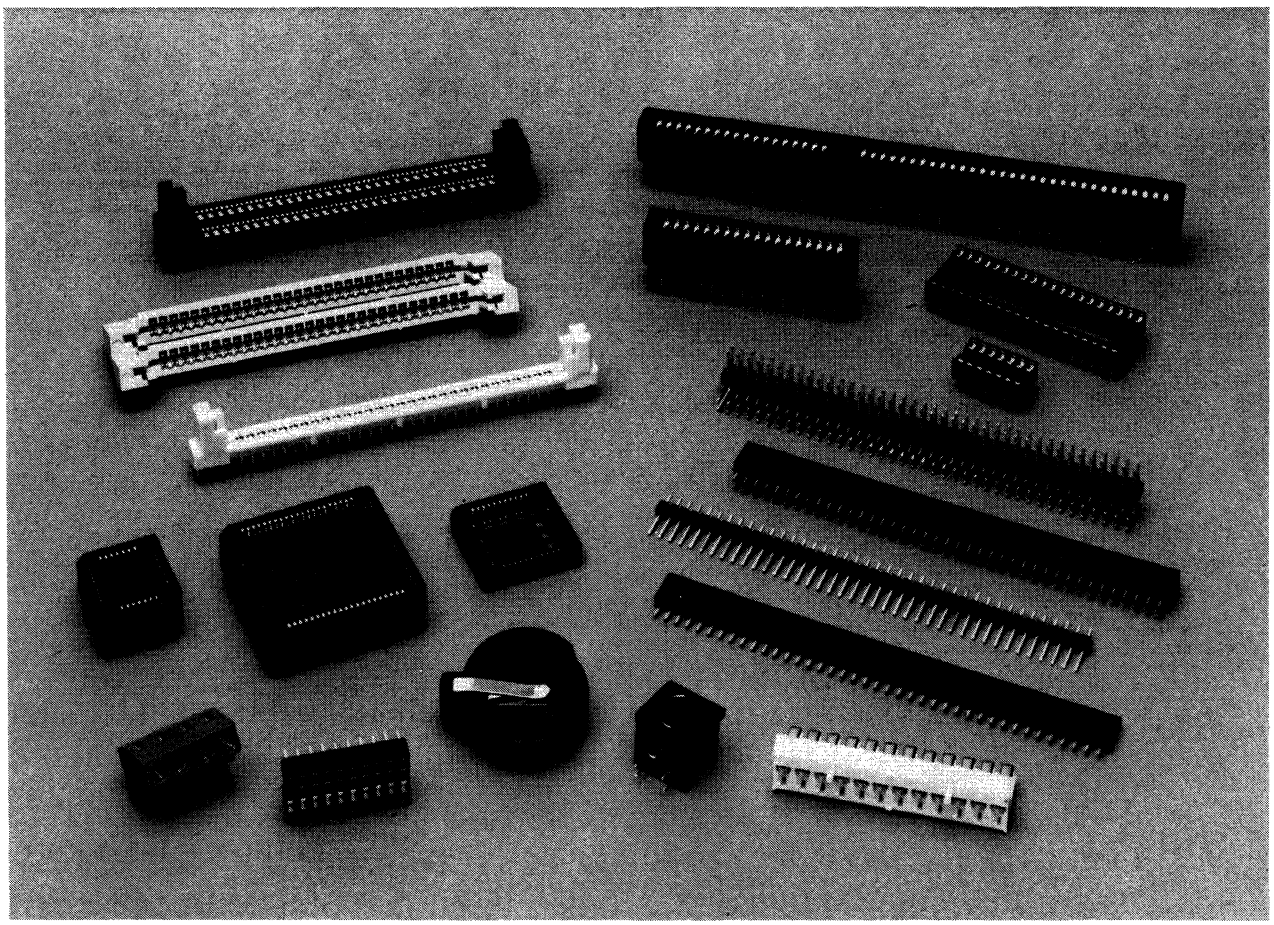
Economy Grade

PLCC, SIMM, DIP, and DRAM Sockets, Pin Headers & Connectors



ANDON'S ECONOMY GRADE STAMPED AND FORMED SOCKETS AND EDGE CARD CONNECTORS ARE STOCKED FOR IMMEDIATE DELIVERY.

Andon's economy grade sockets and edge card connectors are designed for commercial applications and compliment our line of precision screw machine products. Our economy grade product line includes;

- **PLCC Sockets:**
  available in 20, 28, 32, 44, 52, 68, 84 and 100-pin patterns in soldertail and surface mount configurations.
- **DRAM Option Sockets:**
  designed for future upgrade of memory chips. Available DRAM's include; 34, 38, (for upgrading an 18-pin 1MB chip to a 20-pin 4 MB chip), 42, 46 and 54-pin configurations.
- **Standard DIP Sockets:**
  .300 centers include 6, 8, 14, 16, 18, 20, 22, 24, and 28-pin patterns.
  .600 spacing includes 24, 28, 32, 40, 42, and 48-pin configurations.
- **Coin cell battery holders**
- **Mini DIN Connectors**
- **Terminal Blocks**
- **6 and 12-pin Power Wafer Sockets, and Edge Card Connectors**
- **30 and 60-pin single and dual vertical and angled SIMM Sockets:**
  in two types of materials, Poly Butylene Terephthalate (PBT) and Liquid Crystal Polymer (LCP).
- **Single and dual straight and right angle Pin Headers and Box Headers:**
  Single headers are available in 5, 10, 15, 20, 25, 30, 35, and 40-pin configurations. Dual headers come in 10, 20, 30, 40, 50, 60, 70 and 80-pin configurations.

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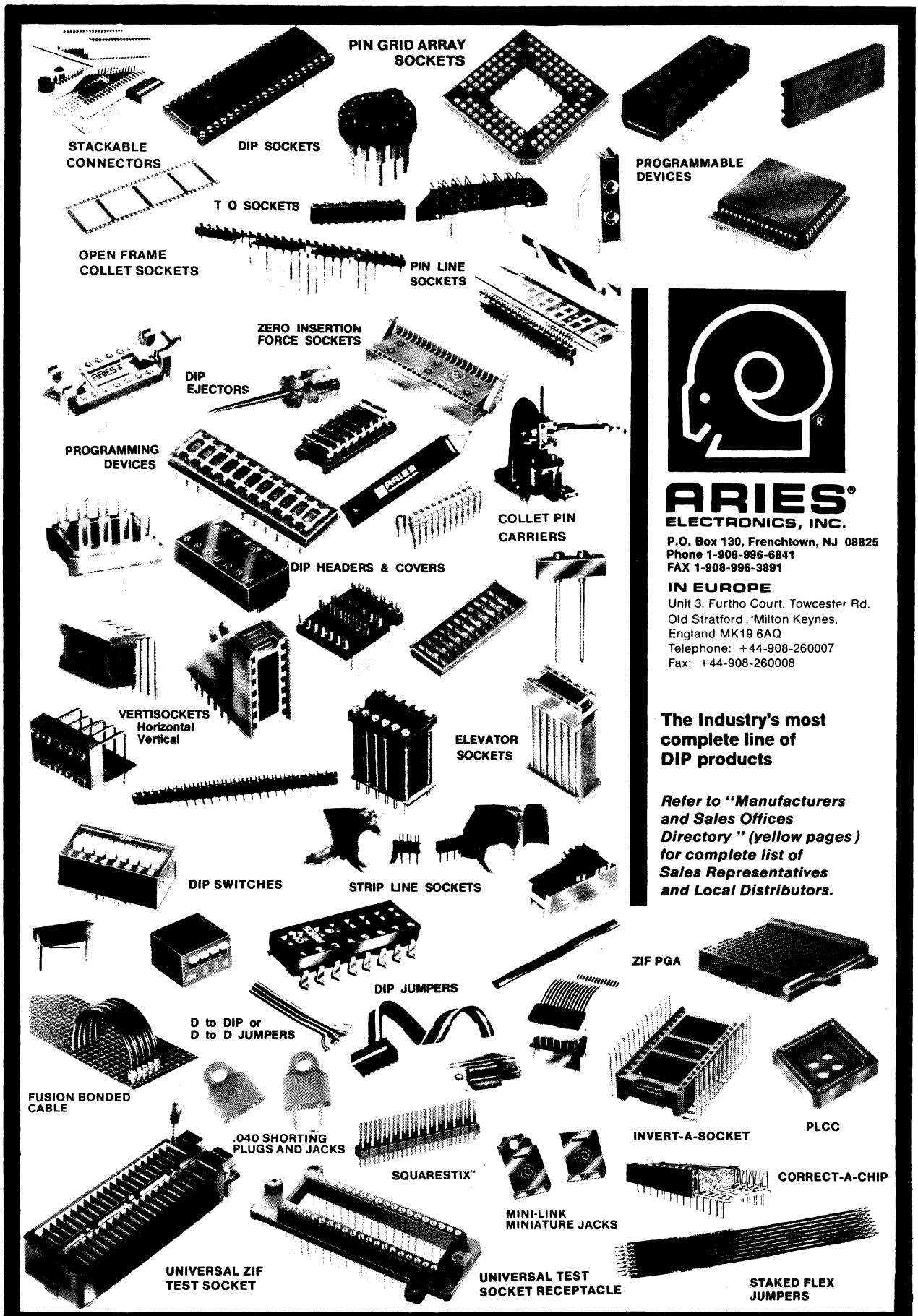

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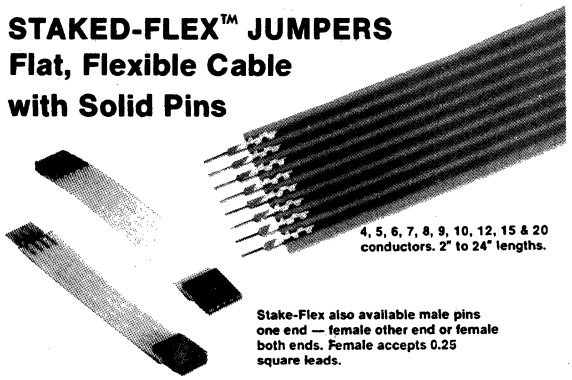
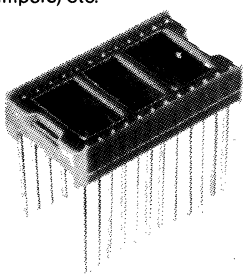
STAKED-FLEX™ JUMPERS
Flat, Flexible Cable with Solid Pins



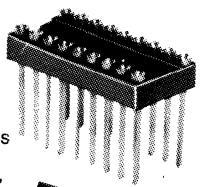
Staked-Flex Flat Pin Flex Jumpers combine thin, flexible, solid copper conductors (between layers of tough, flexible, flame retardant polyester film insulation) and thin solid pins which are crimped to the conductors for interconnection. The flat, solid pins offer easy insertion into p.c. board holes or other connection hardware. The crimped connection forms a gas tight electrical connection. Staked-Flex jumpers qualify to MIL C 543A, NASA 729 and VL Style 2643.

DIP SOCKETS—6 STYLES

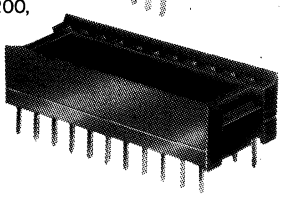
DIP SOCKETS
For mounting IC's, logic jumpers (see DIP-R-LOGIC Jumpers) etc.



SERIES 501
Wire Wrap* Type Pins with Aries bifurcated contacts. Available: 8-10-14-16-18-20-22-24-28-32-34-36-38-40-48 Pins on .200, .300, .400 and .600 centers.

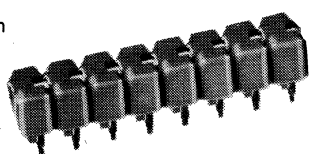


SERIES 503
LO-PRO®file Sockets—Wire wrap pins with collet style contacts. Available 2 to 64 pins in increments of 2 on .200, .300, .400, .600 or .900 centers.

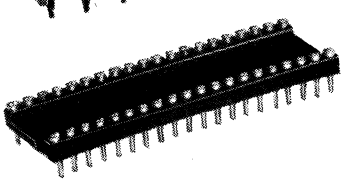


SERIES 511
Solder Type Pins with Aries bifurcated contacts. Available: 8-10-14-16-18-20-22-24-28-32-36-40 Pins on .200, .300, .400 and .600 centers.

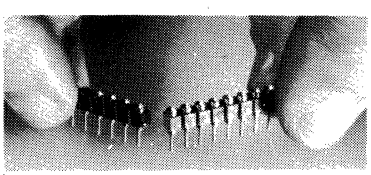
SERIES 0520 and 0525
Single row in-line sockets with "Breakable" feature. Uses stamped single beam face-grip contacts. 40 solder tail pins to a strip. Body breaks off cleanly to any desired number of contacts. Series 0525 mates with .025 square pins.



SERIES 513 and 518
Lo-PRO™ file Collet Style Sockets. Available 6 to 64 pins on .200, .300, .400, .600 and .900 centers. Series 518 is open frame.



STRIP LINE SOCKETS SERIES 0513, 0503
with "break" feature for any desired number of positions (1 to 25 pins). Available solder tail, 2 and 3 wrap pins.



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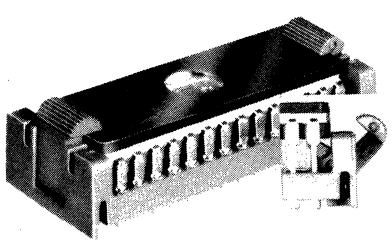
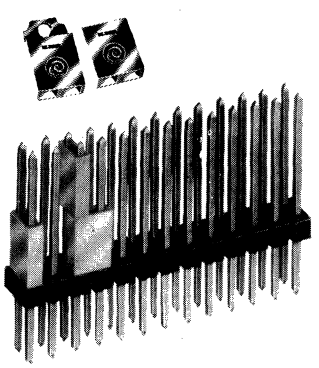
Molded of anti-static material...ideal for MOS devices susceptible to static damage.

Collet EJECT-A-DIP Sockets
Rugged, solderable DIP socket with unique latch to lock-in jumpers, ICs, etc. Latch also ejects DIP packages without damage to pins. Ideal for high vibration environments or applications in which device leads get bent during removal. High reliability collet contacts accept round or rectangular pins. Available solder tail or wire wrap in 14, 16, 24, 28 and 40 pin sizes. Locking latch heights available for many manufacturers' connectors. Consult factory for specials.

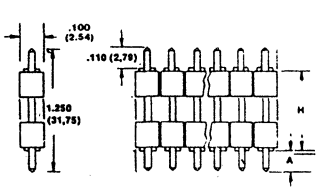


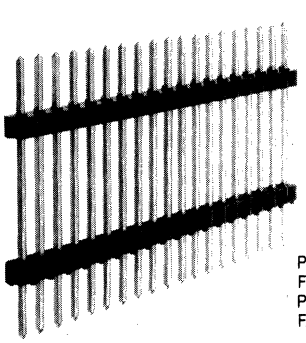
MINI-LINK™ and SQUARESTIX™
Miniature jacks and a complete line of single and dual row .025 square pin products. Squarestix available up to 40 pins single row and 80 pins dual rows, both straight and right angle.



*TM—Gardner-Denver

STAX-STIX
Stax-Stix are p.c. board spacers. The plastic is UL94VO rated. Pins are standard .025 (0,63) square.





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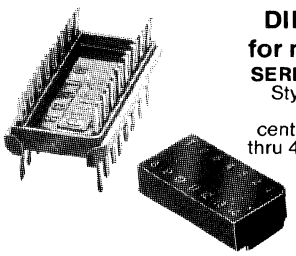
The Industry's most complete line of DIP products

DIP HEADERS and COVERS – 5 STYLES and SPECIALS

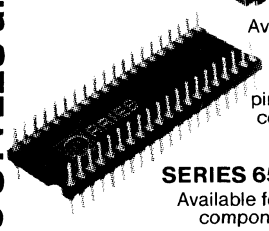


DIP HEADERS & COVERS for mounting components.

SERIES 600 with coined contacts. 2 Styles of Terminals: Post and Fork. Available 2 thru 20 pins on .300 centers; 22 pins on .400 centers; 24 thru 40 pins on .600 centers. Contact styles shown below.

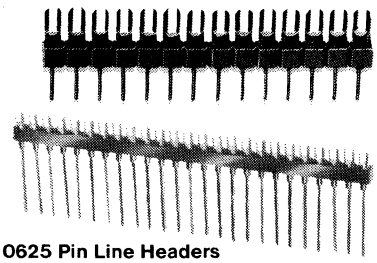
SERIES 625 with screw machine terminals. 5 Styles of Terminals. Available 2 to 40 pins—.200, .300, .400 and .600 centers.

SERIES 8625 with screw machine terminals. Available in 14-16-18-32 pins in single and double rows on .800 centers. Terminal styles shown below.



SERIES 650 COVERS: FOR HEADERS

Available for 8-14-16-24-40 pin sizes to accept components of 1/8", 3/8", 1/2", or 3/4" high.



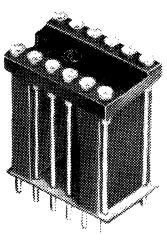
"BREAK" to length desired.

SERIES 0600 and 0625 Pin Line Headers

A single header strip both end and side stackable on .100 centers. (0600 with coined contacts). (0625 with screw machine terminals). Available: 1 to 25 pins on .100 centers.

ELEVATOR SOCKETS

Useful to bring device to level required. Available from 1/4" to 1-1/4" high. Standard heights in stock; specials 3 weeks.

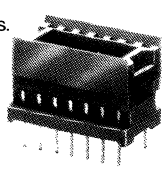


SERIES 8XXX (XXX=height)

Available 14 or 16 pin. Aries bifurcated pins on .300 centers.

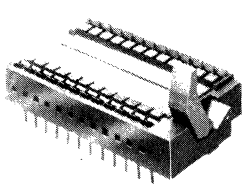
COLLET STYLE CONTACTS

2 to 64 pin. Any height 1/4" to 1-1/4"



SERIES 526 LO-PRO® ZIF SOCKET

A complete line of sizes, 24, 28, 40 and 48 pin, low profile ZIF (zero insertion force) sockets provides a low cost solution for a test socket with a height of only .319 and even with handle in open position, measures just .554. • Cam operation with socket normally in open position. • Cam is lightweight, strong and rigid cast metal for uniform action over entire contact area. • When closed the dual contact pin provides the excellent electrical characteristics of a gas tight seal. • Test point openings provided to reach all pins. • Dual contact pin is spring temper beryllium copper, tin plated. Other plating available. • Body is precision molded UL94VO rated plastic.

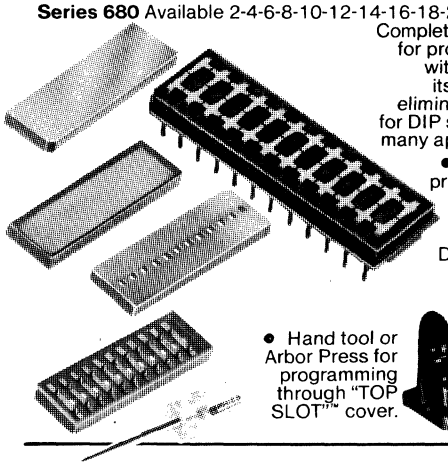


DIP PROGRAM HEADERS and COVERS

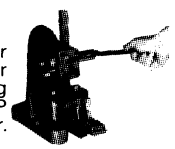
TOP-SLOT Programmable Headers and Covers

Series 680 Available 2-4-6-8-10-12-14-16-18-20-24 pins. Complete versatility for programming within header itself . . . thus eliminating need for DIP switches in many applications.

• Available pre-programmed from Aries Stocking Distributors.

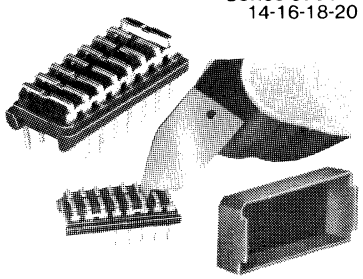


• Hand tool or Arbor Press for programming through "TOP SLOT™" cover.



Series 675 Available 2-4-6-8-10-12-14-16-18-20 Pins on .300 centers

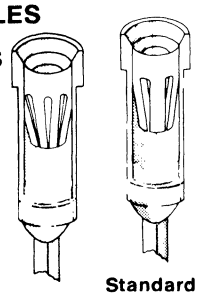
Program the header! Available pre-programmed or can be programmed by customer with needle-nose pliers or Aries Program Header Tool.



ARIES PIN CONTACT STYLES

ARIES COLLET CONTACT PINS

These high quality, high performance-to-cost ratio contacts use gold plated beryllium copper contacts within a brass socket body available either tin or gold plated. Collet contacts accept .015-.022 dia. round leads.

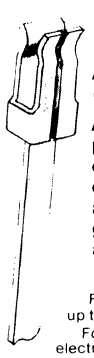


Standard

Low Insertion

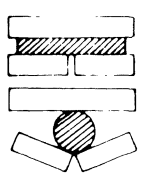
ARIES SINGLE BEAM FACE-GRIP CONTACT

Excellent electrical performance for a competitively priced production socket. Spring design and copper alloy (688) material assure long life performance of contacts.



ARIES BIFURCATED CONTACT PIN

Aries bifurcated contacts produce superior electrical contact characteristics, as well as firm physical spring grip. A secure mating is assured.



For flat leads up to .020 thick. For maximum electrical contact, grip is on thickness.

Redundant 3 point round leads up to .020 dia. contact for

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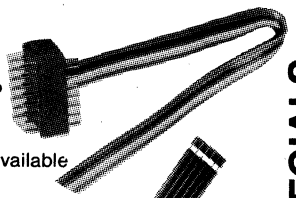
DIP JUMPERS – 10 STANDARD STYLES and SPECIALS

DIP JUMPERS

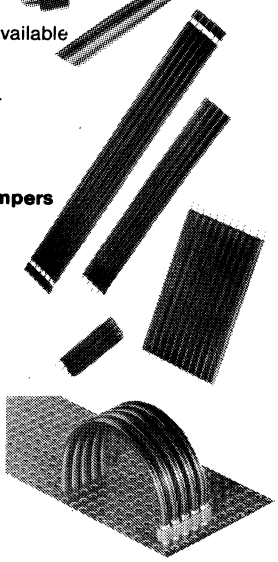
SERIES 100—DIP board to DIP board.
Available 4 thru 40 pins.
Any length cable.
Any connector orientation available 12 standard configurations.

Also available with twisted pair cable or flat conductor cable.



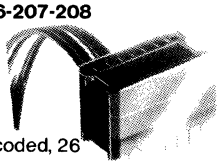
SERIES 152FB
Fusion Bonded Cable Jumpers

Available in 1" to 12" lengths in ¼" increments.
Conductors: 4 thru 12 on .100" centers.
Flexible, extruded PVC insulation on 26 gauge stranded wire conductors which are fusion bonded with an over-coat of tin for easy solderability and/or pluggability.
Fusion Bonded Cable Jumpers can be soldered directly to p.c. board or pluggable into Aries pin line sockets (Series 0513) or low cost (Series 0520).



DIP-ER LOGIC SOCKET/JUMPER
SERIES 206-207-208

Dip-er Logic Socket Jumpers saves the space on the board for a plug in position and can be used to impose two devices into one position.
Plugs into standard 8-14-16-24 and 40 position logic panels.
Any length cable. Cable—EIA color coded, 26 AWG (7 strands 34 AWG).
Type B—600 V 105° C.



D TO DIP JUMPERS
SERIES 225

Cable assemblies using "D" Series subminiature connectors (9, 15, 25, 37 and 50 pin) on one end and Aries DIP Headers on other ends. Other end can be furnished stripped and tinned also. Cable is EIA color coded 26 AWG. Other sizes and types of cable can be accommodated.

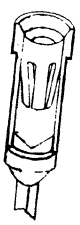
SPECIALS Aries will promptly respond to your special jumper requirements.

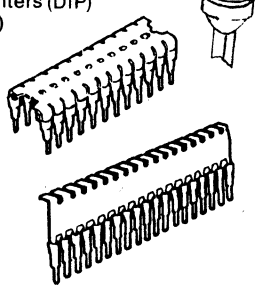
Series 540
COLLET PIN CARRIERS
DIP and Single Row

- 6 thru 24 pins on .300 centers
- 6 thru 48 pins on .600 centers (DIP)
- 2 thru 40 pins (single row)

Use Aries precision stamped collet pin insertion carriers and eliminate time consuming hand insertion of pins. Accurate alignment with the board hole pattern makes it fast and easy.

Collet sockets provide high reliability contacts to .015-.022 (.38 - .56) dia. leads or flat IC leads.

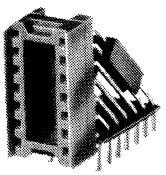




VERTISOCKETS 22 STYLES and SPECIALS

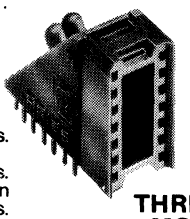
VERTISOCKETS®

For mounting LED Displays, Switches, Test Points. A complete line—from 2 pin for decimal to 40 pins for multiple displays.
Available for vertical, horizontal or edge card displays with optional mounting angles of 30°, 45°, 60° or 90°. Device mounting centers .200, .300 and .600.



VERTICAL MOUNTING

SERIES 2810— Available: 8-10 Pin (Aries bifurcated pins) on .200 centers.
SERIES 810—Available: 8-14-16 Pin (Aries bifurcated pins) on .300 centers.
SERIES 6810—Available: 8-10-14 Pin (Aries bifurcated pins) on .600 centers.

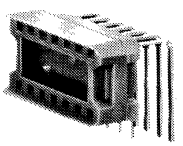


THRIFTY MODEL VERTISOCKET

High volume—low cost—bifurcated contacts 14 Pin—.300 centers
Cat. No. 14-810-90R

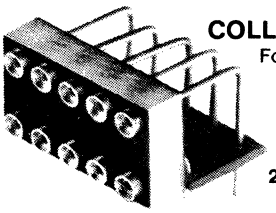
HORIZONTAL MOUNTING

SERIES 2820, 2822 and 2823—Available: 8-10 Pins (Aries bifurcated pins) on .200 centers.
SERIES 820, 822, 823—Available: 8-14-16-18 Pins (Aries bifurcated pins) on .300 centers.
SERIES 6823—Available: 8 to 40 Pins (Aries bifurcated pins) on .600 centers.
SERIES 822E (Economy Model)—Available: 8-14-16-18 Pins. (Aries bifurcated pins) on .300 centers. Note: One row of pins .025 x .006 with other row .025 sq.



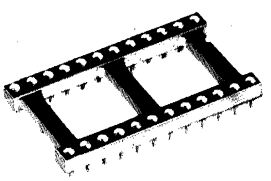
COLLET STYLE VERTISOCKET

For displays using round pins (Solder or Wire Wrap). Excellent for military applications. Can be provided with FR4 base material.

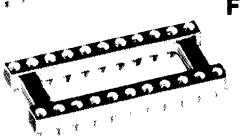


Horizontal
SERIES 2820C, 2822C, 2823C—Available: 8 and 10 pins on .200 centers.
SERIES 820C, 822C and 823C—Available: 8 to 20 pins on .300 centers in increments of two (2).

Vertical
8-10 pin on .200 centers
8-16 pin on .300 centers



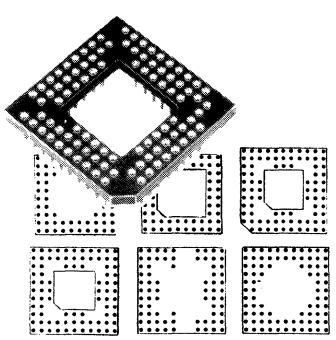
SURFACE MOUNT OPEN FRAME COLLET SOCKETS



- Low cost, high production sockets with Aries high reliability screw machined collet sockets.
- 6 to 64 positions available. .300, .400, .600 and .900 centers.
- Single and dual row. Single 2-40 position; Dual 2-80 position; .100 between rows.

PIN GRID ARRAY SOCKETS

Collet contacts on .100 centers in a square matrix for acceptance of components not on conventional DIP matrix. Available to meet any configuration of pin positions. Special low insertion force collet contacts are used to reduce insertion force of high pin count devices. Many standard sizes available from 64 to 289 pins in either tail or wire wrap styles.



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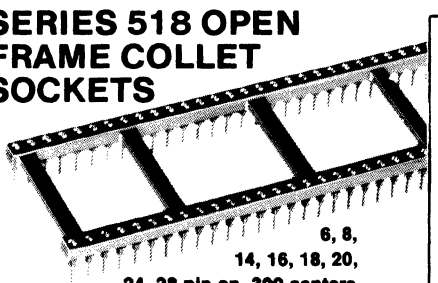
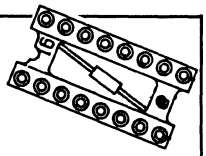
SERIES 518 OPEN FRAME COLLET SOCKETS

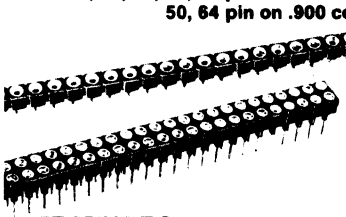


6, 8,
14, 16, 18, 20,
24, 28 pin on .300 centers
20, 22, 24 pin on .400 centers
24, 28, 32, 40, 48 pin on .600 centers
50, 64 pin on .900 centers



OPEN FRAME CAPACITOR SOCKETS

Capacitor sockets available with 1 mf or .33 mf capacitor welded to the solid contacts. Available for .300, .400 and .600 centers.

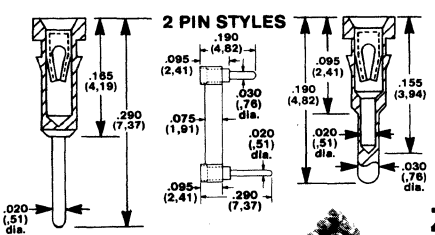


Series 0518

Single Row 2 to 40 pins
(strip breakable to desired number)
Dual Row 2 to 80 pins
pins on .100 centers

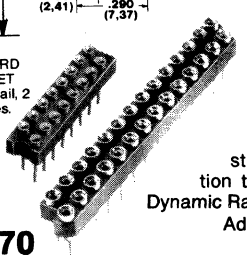
FEATURES

- Low cost, high production use sockets with Aries high reliability, screw-machined collet contacts. . . with four point contact redundancy and superior insertion-to-withdrawal ratios.
- Open frame allows more efficient utilization of board space.
- Open frame design for better cooling.
- Two pin styles: standard collet contact pins and new low profile midget pin to accept longer leads.
- Collet accepts .015-.022 diameter leads.
- Platform UL94V-O rated.



ARIES STANDARD COLLET SOCKET PINS in solder tail, 2 and 3 wrap types.

MIDGET (M) LOW PROFILE COLLET PIN SOCKET which accepts longer leads solder tail only.



ZIP SOCKET

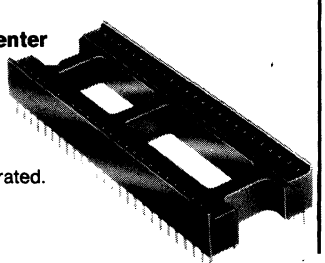
16, 20, 24 or 28 pin (staggered)

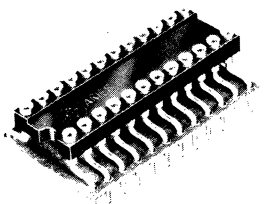
A .100 × .100 matrix in-line socket with collet pins staggered in zig-zag configuration to fit Mitsubishi, Fujitsu, etc., Dynamic Rams. There is also a ZIP DRAM Adaptor from zig-zag to standard .300 center p.c.b.

Series 570 .070 Pin to Pin Sockets for Shrink DIP Chips

20, 40 and 52 pin rows on .600 center
64 pin rows on .750 center

Micro-processor Shrink-pack IC's with .070 pin spacing (TI) (Hitachi, Mitsubishi) have extremely low insertion force for these high pin count devices. Body UL94VO rated.



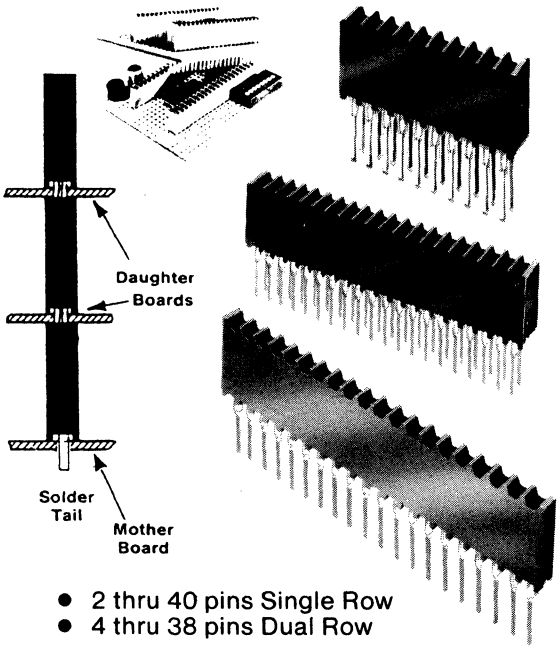


Adaptor Sockets

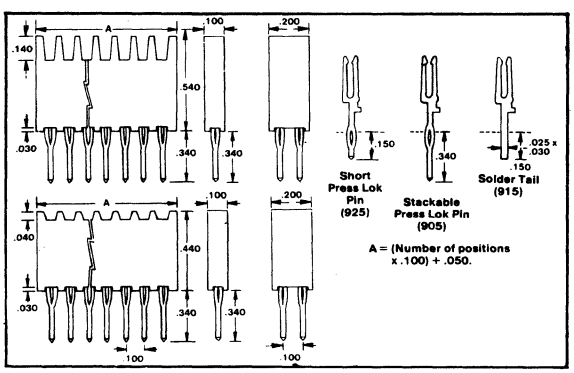
6 thru 40 pins .300 to .600
6 thru 48 pins .600 to .300

Allows use of .300 center devices when pcb is drilled for .600 or vice versa.

SERIES 900 PRESS-LOK™ STACKABLE CONNECTORS



- 2 thru 40 pins Single Row
- 4 thru 38 pins Dual Row



Hermaphroditic Stackable Connectors allow the stacking of 1/16 inch PCB's on .500 or .600 board centers. As many boards as desired may be stacked by soldering the solder tail version in the bottom mother board and then press fitting equivalent pin count units with the stackable style pin in the daughter boards. (Connectors with stackable pins can plug into each other or into the solder tail version in the mother board).

Connectors are available in standard 20 (single) and 40 pin (dual) row .100 x .100 grid. Other pin counts of 4 through 38 pin dual row or 2 through 19 pin single row are available as non-returnable specials.

These connectors are side-to-side stackable (for end-to-end stacking, skip one pin position). Phosphor bronze contact pins are available in tin, gold, or selective gold. The housing is glass filled thermoplastic with UL 94V-0 rating.

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Frenchtown, NJ 08825
Phone (908) 996-6841
FAX 908-996-3891

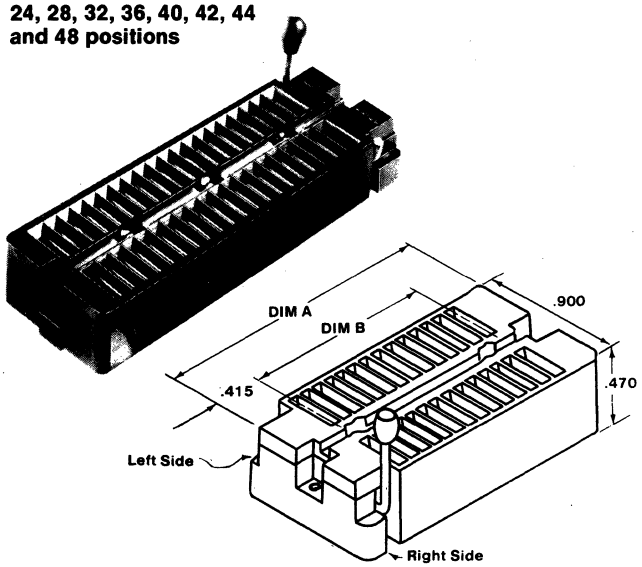
ARIES® ELECTRONICS, INC.

Complete information in Catalog 0591

The Industry's most complete line of DIP products

UNIVERSAL ZIF TEST SOCKET and RECEPTACLE

24, 28, 32, 36, 40, 42, 44 and 48 positions

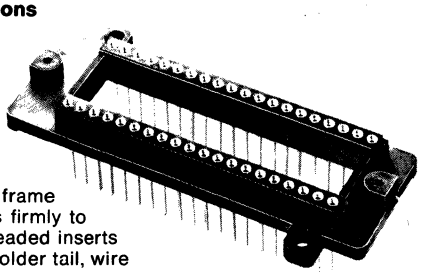


The new Aries Universal ZIF Socket is a direct replacement for other test sockets currently on the market, with a number of significant advantages:

- Priced 20% or more below competitive units!
- One socket accepts devices on either .300, .400 or .600 centers.
- All pin count sockets (24, 28, 32, 40, 48) go into p.c.b.'s with either .300 or .600 centers.
- Sockets can be soldered into p.c. boards or plugged into any socket. Socket fits into Aries or any competitive test socket receptacle.
- Contacts are normally closed to eliminate dependence on plastic to sustain contact.
- Accepts .015 to .045 wide leads.
- Contacts available tin plated (for up to 105°C) or gold plated (for up to 150°C) or nickel boron over CuNiSn spinodal alloy (for up to 200°C).
- Socket handle available UP or DOWN for closed position. Handle can also be reversed side-to-side (left or right hand).
- Available 24, 28, 32, 40, 48 pins in body of UL94VO rated polyphenylene sulfide.
- The unit is truly a Universal ZIF Socket. It accepts all pin counts from 6 thru 48 pins on .300, .400 or .600 centers!
- Insulation Resistance - 1000 megohms min.
- Dielectric withstanding voltage - 1000 VAC min.
- Contact rating - 1 amp.
- 25,000 - 50,000 cycles.

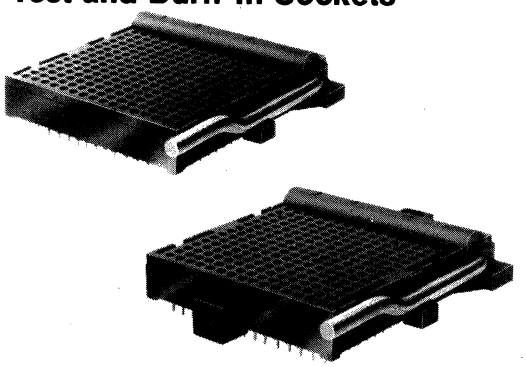
Test Socket Receptacle

24, 28, 32, 36, 40, 42, 44 and 48 positions

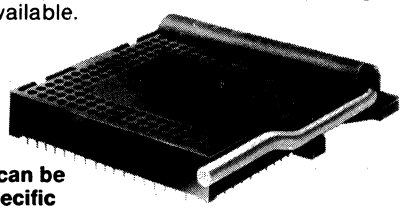


Sturdy, open frame socket mounts firmly to board and threaded inserts hold socket. Solder tail, wire wrap and solder cup pins available.

PGA ZIF Test and Burn-In Sockets



- Precision molded of tough, heat resistant PPS, UL94VO. Temperature rating -65° to 125°C.
- Stainless steel cam and actuator lever.
- Contacts normally closed. Eliminate dependency on plastic for contact force.
- Field replaceable pins.
- 15×15 footprint. Other footprints available (consult factory).
- Mounting ears optional.
- Beryllium copper contacts with various plating options available.



PGA ZIF's can be made to specific footprints like this 169 pin designed for the Intel P23N Math CoProcessor.

Order by Aries Part No.
169-PRS 17012-1X.

Fill in "X" for plating:
-10=Tin
-11=Gold
-12=Selective Gold (standard)

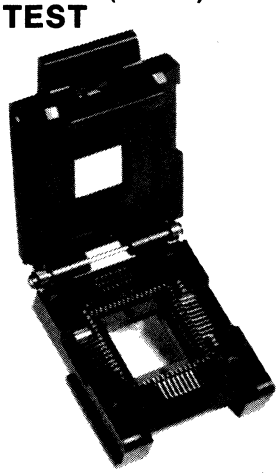
PLCC BURN-IN TEST ZIF SOCKETS

FEATURES:

- Zero Insertion Force
- Auto pick and place capability
- Corner posts provide positive package registration
- 30μ" Gold plating available
- 10,000 insertions min.

APPLICATION:

- JEDEC MO-047AC Plastic Chip carrier
- Can be shimmed to accept many Ceramic, Leadless and J-Bend



24, 44, 48 & 84 Pin Solder Tail Only

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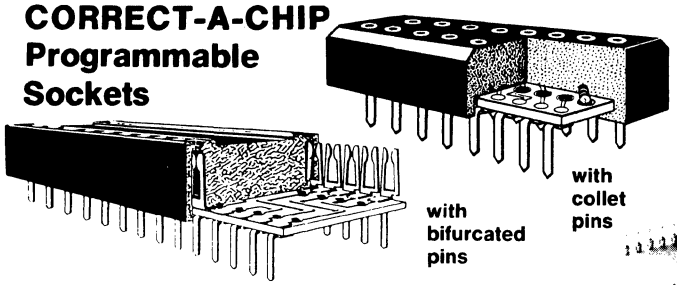
The Industry's most complete line of DIP products

CORRECT-A-CHIP Programmable Sockets



with bifurcated pins

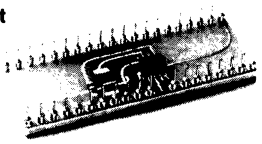
with collet pins

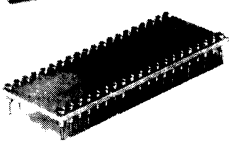
Circuit paths can be re-routed using the Aries Correct-A-Chip technology. The miniature printed circuit board inside the Correct-A-Chip provides circuit paths making the desired electrical connections and has high reliability collet contacts to accept devices and solder tail contacts for board insertion. Correct-A-Chip technology solves problems such as the need to use alternate IC's (availability, obsolescence or better performance, etc.) thus eliminating the need for new p.c. boards, jumper wires, cut traces or other alternatives. Full utilization of Correct-A-Chip technology may also incorporate both surface mount active and passive devices thus using available real estate to maximum advantage. The Correct-A-Chip is available with stamped pin or high reliability collet sockets.

Features:

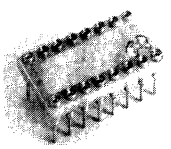
- **Available in standard sizes 14, 16, 18, 20, 24 and 28 pin on .300 (7,62) centers. (.600 [15,24] centers: consult factory.)**
- **Low profile — only .223 (5,66) height to seating plane.**
- **High reliability, redundant gold plated collet contacts or gold plated stamped contacts.**
- **Tin plated solder tails.**
- **Programmed to your wire list. . . fast.**
- **Tamper proof.**
- **Worksheet on page 38 of Aries Catalog can be used for programming your Correct-A-Chip requirement.**

Enhanced Sockets Correct-A-Chip™ Specials

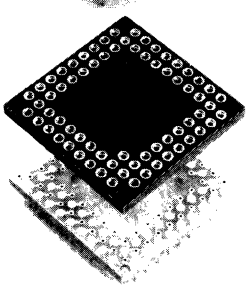




This special is a 40 pin collet socket, with a surface mount 7705 integrated circuit plus two surface mount resistors plus two capacitors all mounted on the socket. The effect of all this is that the socket becomes a hybrid, which is actually a reset monitor which constantly checks to make sure there is a minimum voltage to the microprocessor that will be plugged into the 40 pin socket. Although this was a special, designed for a specific application, it is quite possible that another customer may need to do the exact same thing. The Aries part number for this is 1107939.

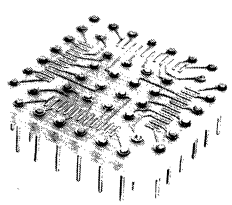


High-Voltage Transient Protection is incorporated into this special Aries Correct-A-Chip. DIP and SIP sockets easily lend themselves to this technology incorporating surface mount devices. In the sample shown transient suppressors have been surface mounted to protect 1488 or 89 IC from high voltage blow-out. The new Correct-A-Chip socket is retrofitable after a blow-out has occurred thus preventing future loss of 1488 or 89 IC's.

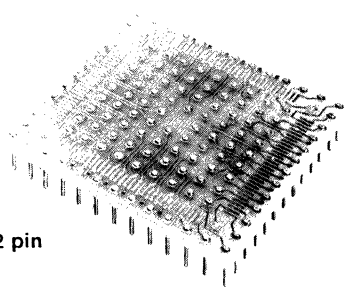


Pin Grid Array Adaptors using the Correct-A-Chip technology are solving many problems of IC pin/out incompatibility.

PQFP To PGA .025 (0,63) PITCH ADAPTORS



44 pin

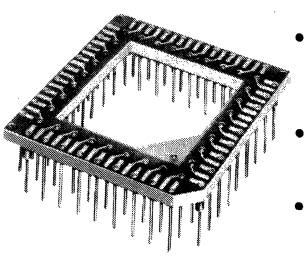


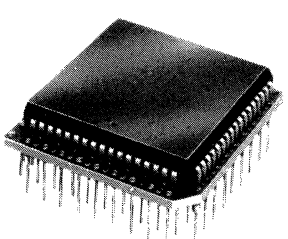
132 pin

PQFP To PGA .025 (0,63) PITCH ADAPTORS

PQFP devices can be converted to PGA footprints using these precision adaptors. .062 (1,57) FR-4 material is used for the body. Pins are 60/40 S_N P_b plated Brass. Both 44 pin and 132 pin count versions are available. Consult factory for other sizes.

Adaptors for JEDEC (.050" pitch) CHIP CARRIERS (Leaded Type A)





- Your present PLCC devices can be used in through-hole applications by soldering to Aries adaptors.
- Standard JEDEC footprints are converted to PGA footprints.
- P.C. boards have more space for conductor runs when converted to .100 spacing.
- Polarization option available.
- Standard test clip can be used.
- Body of adaptors is copper clad FR-4, solder plated.
- Pins are brass, tin/lead plated.

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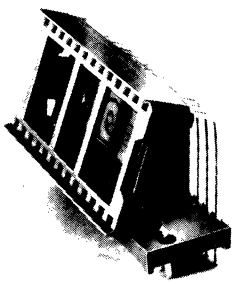
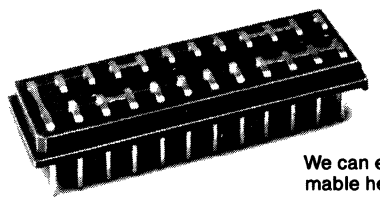
Bring Your *SPECIAL REQUIREMENTS* to Aries

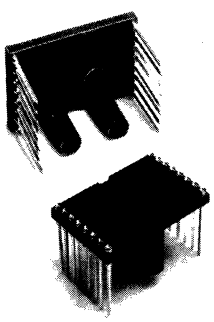
Aries is well known for its ability to fulfill special needs of customers. We can adapt or modify existing products or come up with entirely new designs incorporating one or many techniques, materials or production methods. Illustrated on this page are just a few "specials" that have solved problems for our customers. Our advantage is being able to see your problem with a fresh look...and then with good, experienced engineering capability...come up with a solution...quickly. If you need fast answers—don't hesitate—come to Aries.



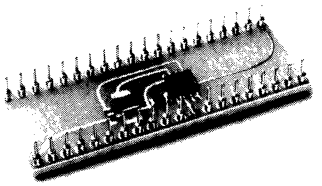
This customer needed a 26 pin on .600 socket that would 1) solder into the board on .300 centers, 2) elevate the display up off the board, and 3) tilt the display at a 70 degree angle so that it could precisely fit against the display window.



We can even combine a programmable header with a DIP header.



The customer had a very congested board, from which a display had to be elevated. The special display socket they wanted us to design had to have "feet" to hold the socket in position until the board went through soldering. The board was so congested that there were only three small areas where these "feet" could be located.



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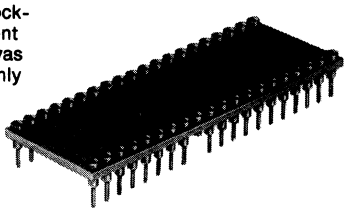
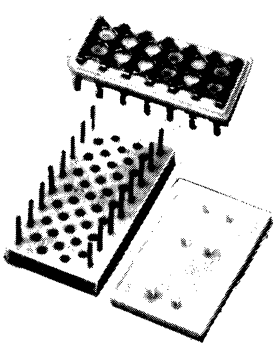
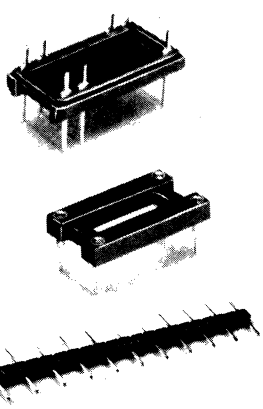
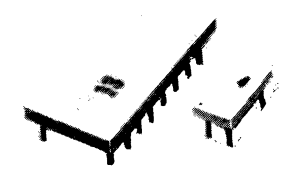




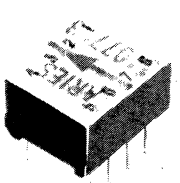
One customer needed a programmable device, similar to a 680 programmable header, with standard DIP pins on the bottom, but with *three* metal straps running lengthwise down the adjacent connection rows. This configuration allows a larger number of programming "permutations". This application was further complicated by the need for the device to be extremely thin—so thin that on initial designs, the pointed ends of the programming punch would crack the thin plastic after breaking the metal strap. A difficult plastic molding, which produced a hole under each one of the possible places that the metal straps could be broken, solved the problem.



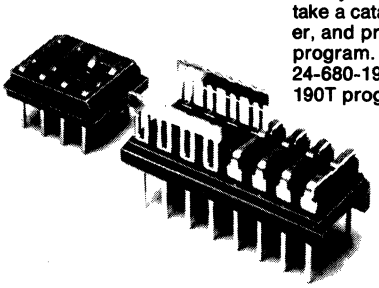
One of the most common requests is to selectively load the pins on a catalog part number. Pictured here are: a 14- 600-20 post style header, except with only eight pins selectively loaded in the corners; a 23-901-10 tin Squarestix, except with 12 pins selectively loaded in every other position; and a 14-3518-10 open frame collet socket, except with four pins selectively loaded in the corners. Selectively loaded sockets are frequently used for relays.



A very common modification is to take a catalog programmable header, and program it to a specific program. This is a programmed 24-680-190T, and a special 8-680-190T programmed.



We are often asked to take a Series 600 header and do something special with it. In this example, although you can't see it, there is a diode plus a wire soldered inside an 8-600-11, after which we pour in potting compound, seal on an 8-650-10 cover, and mark the cover.



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eem MINIGLOSSARY CONNECTORS

Connector terminology is often quite confusing. This confusion starts with the very names of connectors. The name of a connector may derive from its shape, application, type of conductor or even method of termination.

Shape—Circular, cylindrical, and rectangular.

Electrical application—High voltage, RF, microwave, input/output, etc.

Mechanical application—Printed circuit, rack & panel, cable, etc.

Conductor type—Coaxial, flat cable, ribbon cable, flex circuit, etc.

Termination method—Wirewrap, soldercup, solderless, etc.

Hardware such as clamps, hoods, and adapters are frequently used to convert cable connectors to rack and panel types. This adds to the name confusion. A very common telephone connector, for example (the "C" type) got its name from the model number of the original maker.

Contact: The part(s) of the connector that actually provides circuit continuity between its two sections—the parts which are normally mated. The back end of the connector should properly be called the *termination.* This is the point where the wires or PC board is attached to the connector.

Contact alignments: Often called *contact float.* Describes the amount of allowable contact movement within the connector body. Permits self-alignment.

Male vs. female: In the U.S. this describes the contact construction. In Europe this term is more often used to describe the outer shell mating action which may be the reverse of the contacts.

Closed entry: A female contact which prevents entry of a male contact larger than a specific size.

Open entry: A female contact designed for a specific size of male contact but which will allow entry of larger male contacts by spring action.

Hermaphrodite: Contacts or connector bodies which are the same configuration. Male/female designations do not apply. Bodies usually have some mechanical means for maintaining polarity.

Hermetic seal: Glass-to-metal seals at terminations. Often used improperly to describe vacuum-tight seals.

Waterproof seal: May or may not be truly *waterproof.* May prevent easy entrance of casual water by means of a rubber or other boot.

Printed circuit connector: Connectors which are used in conjunction with printed circuit boards. There are two distinctly different styles.

Edgeboard. May be called *edge* or *card.* The printed circuit (PC) board edge enters the connector.

Two-piece: One part of the connecting pair is physically attached to the PC board itself. The other part is attached to something else such as a cable or a motherboard.

Readout: Describes the arrangement at the terminating edge of a PC board. May be single or double. A double readout PC board has termination strips on each side not usually interconnected.

Ribbon connectors: A type of connector which allows flat "ribbon" cable to be attached to a round or rectangular connector but also used interchangeably for flat connectors to flat cable.

Ribbon contact connector: Describes the contacts in a rectangular connector which have a self-wiping mating action. Not the same as ribbon connector.

Solderless terminal: Any style of termination which does not require solder for a permanent connection. See *crimp* and *insulation displacement.*

Crimp termination: A stripped wire is inserted into a barrel or trough which is then crimped to the conductor with a suitable tool.

Insulation displacement: Unstripped insulated wire is fitted into a channel containing metal teeth which are forced through the insulation to make contact with the conductor.

Service rating: The maximum rated voltage and/or current which may be applied continuously. May be called *working voltage.* Can be confused with the term used to describe how many times a connector may be mated and separated.

Withstanding voltage: Also called *test voltage.* The voltage a connector must withstand for one minute without breakdown. Applied between connectors and between connectors and shell and any grounding devices of the connector.

AUGAT® Quality and Innovation
INTERCONNECTION PRODUCTS DIVISION

CUSTOMER SERVICE
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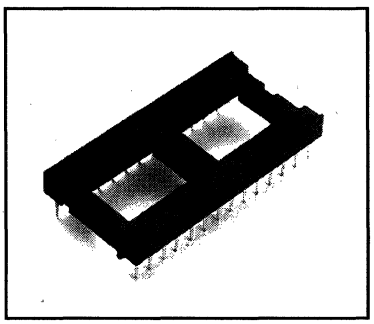
Tel. (508) 695-9800 FAX (508) 699-6717

200C SERIES - STAMPED SINGLE BEAM CONTACT DIP SOCKETS

PART NUMBER (Ex: 28-AG 19DC, 228-AG10DC)

2	X	X	-	A	G	X	X	D	C

- 200 SERIES
- CONTACT NUMBER
- CONTACT MATERIAL AND PLATING
  - 19 - Phos. Bronze Tin/Lead
  - 39 - BeCu Tin/Lead
  - * Exceptions: 22-24 and 28 Pin .300 Centers
    - 10 - Phos. Bronze Tin/Lead
    - 30 - BeCu Tin/Lead
- TAIL LENGTH
  - A - .100" - .110"
  - D - .125" - .135"
  - F - .145" - .155"



UL Recognized

- Closed bottom
- Protected open entry

MATERIALS

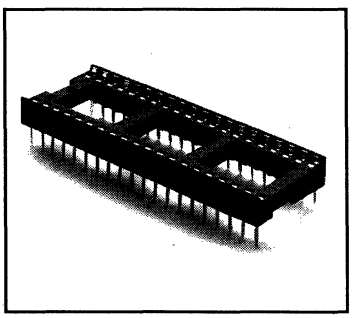
Insulator:	Thermoplastic Polyester Rated 94V-0
Contacts:	Phosphor Bronze CDA 521 (Per QQ-B-750)
	Beryllium Copper CDA 170 (Per QQ-C-533)
Plating:	90/10 Tin/Lead (Per MIL-P-81728)

300C SERIES - STAMPED DUAL WIPE CONTACT DIP SOCKETS

PART NUMBER EXAMPLE (324-AG19DC, 324-AG10DC)

3	X	X	-	A	G	X	X	D	C

- 300 Series
- Number of Contacts (6 - 42)
- CONTACT MATERIAL AND PLATING
  - 19 - Phos. Bronze Tin
  - * Exception: 24 Pins on .300" centers
    - 10 - Phos. Bronze Tin/Lead
- PC TAIL LENGTH
  - D - .125" - .135"



UL Recognized

- Closed bottom design prevents flux and solder contamination

800 SERIES - FOUR FINGERED CONTACT OPEN INSULATOR DIP SOCKETS

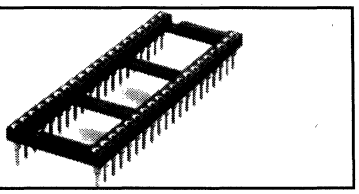
PART NUMBER

8	X	X	-	A	G	X	X	X	E	S	OR	E	S	L

- 800 Series
- Number of Contacts 8 - 64
- D PC termination
- F 3 Level Solderless wrap
- F2 2 Level Solderless wrap
- **Add for Augat Economy Series**

.125" PC Tail		.180" Tail	
All socket sizes and 24 position (.600" center)	10 - Gold/Gold 11 - Gold/Tin 12 - Tin/Tin	All socket sizes and 24 position (.600" center)	45 - Gold/Gold 11 - Gold/Tin 12 - Tin/Tin
Exceptions			
24 Position (.300" Center)	30 - Gold/Gold 31 Gold/Tin 32 Tin/Tin	24 Position (.300" Center)	48 - Gold/Gold 47 - Gold/Tin 46 - Tin/Tin
24 Position (.400" Center)	65 - Gold/Gold 66 - Gold/Tin 14 - Tin/Tin	24 Position (.400" Center)	448 - Gold/Gold 447 - Gold/Tin 446 - Tin/Tin

Examples:
828-AG11D-ES .125" PC Tail Gold Contact / Tin Sleeve
828-AG43D-ES .180" PC Tail Tin Contact / Tin Sleeve



- **Available in solid insulator (Ask for AUGAT 500 SERIES equivalent)**

Materials

Insulator	Thermoplastic Polyester Rated 94V-0
Outer Sleeve	Machined Brass/Formed Copper, Tin/Lead or Gold Plated.
Inner Contact	MachinedBeryllium Copper 30µ" Gold over Nickel, or Tin/Lead Plated ex. 8XX-AG11D
ES Contact	Stamped Beryllium Copper 30µ", Gold over Nickel, or Tin/Lead Plated ex. 8XX-AG11D-ES
ESL Contact	Stamped Beryllium Copper 10µ", Gold over Nickel ex. 8XX-AG11D-ESL

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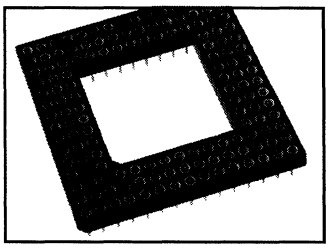
PGM SERIES - PIN GRID ARRAY SOCKETS



PART NUMBER IDENTIFICATION

P	G	M	X	X	X	-	1	A	X	X	X	X	-	V

- P G M: Molded Plastic Insulator
- X X X: Number of Pins
- 1: Pin Finish Tin-Lead 30 µ" Gold on contact
- A: Pin Selection .125" Tail
- X X: Board Size
- X X: Pin Grid Footprint Options
- V: Low Insertion Force Contact

POPULAR PIN GRID FOOTPRINTS

Device	Augat Part Number
Motorola MC 68000	PGM068-1A1006-V
Motorola MC 68020	PGM114-1A1345-V
Motorola MC 68030	PGM128-1A1359-V
Motorola MC 68040	PGM179-1A1814-V
Motorola DSP56001	PGM088-1A1373-V
Intel 80186	PGM068-1A1133-V
Intel 80286	PGM068-1A1133-V
Intel 80386	PGM132-1A1415-V
National NS32532	PGM175-1A1614-V
XiLinx XL3090	PGM175-1A1616-V
Intel 80486	PGM168-1A1715-V

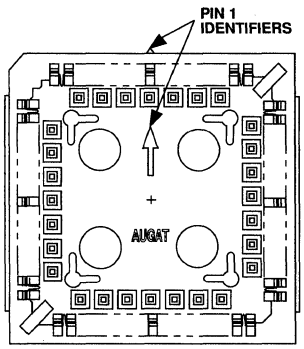
- Available with PC tails, wire wrap and adaptor pins
- Hundreds of footprints
- Molded plastic and hi-temp insulators
- Variety of plating options
- Custom design capabilities

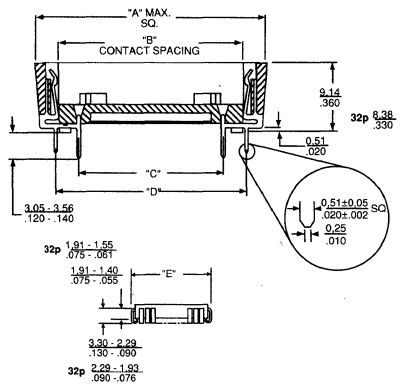
- Pin grid array sockets are available with capacitors, ask for Augat PGD Series

PCS SERIES - PLCC SOCKETS

PART NUMBER DESIGNATIONS

	A	B +0,20 +.008	C	D	E (SQ.)
PCS-020A-1	14,98 **.590**	9,14 **.360**	5,08 **.200**	10,16 **.400**	10,03/9,78 **.395/.385**
PCS-028A-1	17,52 **.690**	11,68 **.460**	7,62 **.300**	12,70 **.500**	12,57/12,32 **.495/.485**
PCS-044A-1	22,60 **.890**	16,76 **.660**	12,70 **.500**	17,78 **.700**	17,65/17,40 **.695/.685**
PCS-052A-1	25,15 **.990**	19,30 **.760**	15,24 **.600**	20,32 **.800**	20,19/19,94 **.795/.785**
PCS-068A-1	30,22 **1.190**	24,46 **.960**	20,32 **.800**	25,40 **1.000**	25,27/25,02 **.995/.985**
PCS-068A-1	35,31 **1.390**	29,54 **1.160**	25,40 **1.000**	30,48 **1.200**	30,35/30,10 **1.195/1.185**





PART NUMBER DESIGNATIONS (PCS-032A-1)

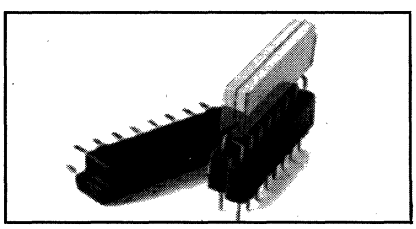
A		B +0,20 +.008		C		D		E	
Long Side	Short Side	Long Side	Short Side	Long Side	Short Side	Long Side	Short Side	Long Side	Short Side
20,07 **.790**	17,53 **.690**	14,33 **.564**	11,79 **.464**	10,16 **.400**	7,62 **.300**	15,24 **.600**	12,70 **.500**	15,11/14,86 **.595/.585**	12,57/12,32 **.495/.485**

2500 SERIES - ZIP SOCKETS

PART NUMBER

2	5	0	0	1	T	T	1	1	6

- 2 5 0 0: ZIP SOCKET SERIES
- 1: CONTACT MATERIAL — 1 - Phos. Bronze
- T: CONTACT PLATING — T - Tin/Lead (.100 µ" Minimum)
- T: PC TAIL PLATING — T - Tin-Lead (.100µ" Minimum)
- 1: ROW SPACING — 1 - .100"
- 1 6: NUMBER OF POSITIONS — 16, 18, 24, 28, 40



Beau® Barrier Terminal Strips

CONSIDER THE ADVANTAGES OF BEAU THERMOPLASTIC STRIPS

Beau thermoplastic strips offer many significant advantages. The strong, resilient barriers. The quality and uniformity of the product. Our determined commitment to engineering excellence. And, with our large selection, you're sure to find the strip you need.Design in or cross over to Beau thermoplastic strips — the advantage is yours.

BEND BARRIERS WITHOUT BREAKING

Resilient thermoplastic reduces breakage dramatically. Production line and in-field damage are virtually eliminated.

TERMINAL TAILS ENCLOSED

Cavities are eliminated around solder terminal tails. Allows mounting on PCB without affecting circuit isolation. Eliminates entrapment of foreign matter. Reduces solder wicking.

CLOSED-SIDE STRIPS OFFER EXTRA PROTECTION

Closed side serves as a wire stop. Permits mounting components close to strip without shorting. Wires or screwdrivers can't pass through closed side to contact other wires, leads or PCB components.

HIGHEST U.L. RATING

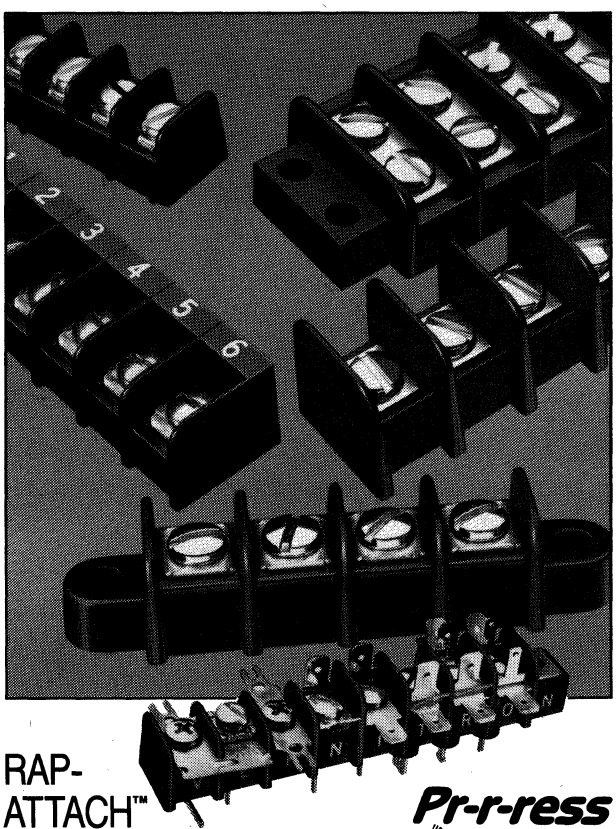
Our thermoplastic materials all carry the highest U.L. flame retardant rating: UL 94V-0 (self-extinguishing).

NEAT, ACCURATE MOUNTING ENDS

All our thermoplastic strips are molded to length. None are cut down from longer strips. They're neater, without ugly saw cuts. And they are precisely the same length every time.

WIDE VARIETY OF TERMINALS

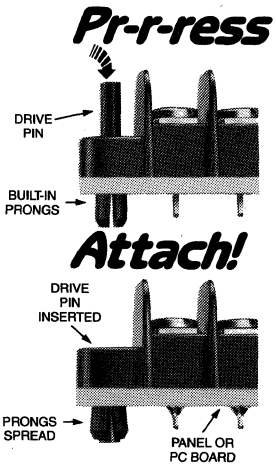
There is a broad selection of top-side and bottom terminals— including quick-connect terminals which speed assembly time, cut costs and improve connections.



RAP-ATTACH™ MOUNTS SAVE 40% OF INSTALLED COST

Rap-Attach mounts (option) are the rapid new way to attach barrier terminal strips to PCBs or panels. Just press in the drive pins. The built-in prongs spread like a blind rivet. It's so easy, you can cut installed cost dramatically.

Non-conductive mounting.
Strain-free joints.
Wave solderable.



U.L. RECOGNIZED. CSA CERTIFIED.

	SINGLE-ROW						SINGLE-ROW, CLOSED SIDE			DOUBLE-ROW		
Series No.	61	70	71	72	73	74	60	69	75	76	77	78
Terminal ctrs	¼"	.325"	⅜"	⅜"	7/16"	7/16"	¼"	.325"	⅜"	⅜"	⅜"	7/16"
Current (UL)	10A	20A	20A	20A	20A	20A	10A	20A	20A	20A	20A	20A
Volts rms (UL) Gen Indl	150	150	150	150	300	300	150	150	150	150	150	300
Comml	250	250	250	250	250	250	250	250	250	250	250	250
Width	.55"	.50"	.63"	.63"	.75"	.63"	.55"	.60"	.68"	.88"	.88"	1.13"
Height	.50"	.50"	.56"	.66"	.75"	.58"	.50"	.50"	.56"	.63"	.44"	.55"
No. circuits	1-32	1-30	1-26	1-26	1-30	1-30	1-32	1-30	1-26	2-30	2-30	1-30
Back types	Feed thru; closed						Feed thru; closed			Feed thru; closed		

VERNITRON CORPORATION

BEAU PRODUCTS DIVISION
Box 10, Laconia, New Hampshire 03247
FAX: (603) 524-1627

For immediate action, call:
(603) 524-5101

Beau® Barrier Terminal Strips

VERSATILE PHENOLIC STRIPS CROSS WITH THE POPULAR SIZES

Vernitron offers one of the widest lines of phenolic barrier terminal strips available anywhere—and we have a wide variety of options to go with them. We have all the most popular sizes and styles. Compare our quality, price and lead times — we think you'll cross over to Beau.

SINGLE-ROW STRIPS IN MANY STYLES

Series 12 and 13 have high-impact glass-filled phenolic bases for excellent breakage resistance; color, green. The other single-row series are made of general-purpose phenolic; color, black. All styles are available with a wide choice of terminals, marker/insulation strips, imprinting, with or without mounting ends, and many other options.

DOUBLE-ROW STRIPS RANGE FROM 10 TO 50 AMPS

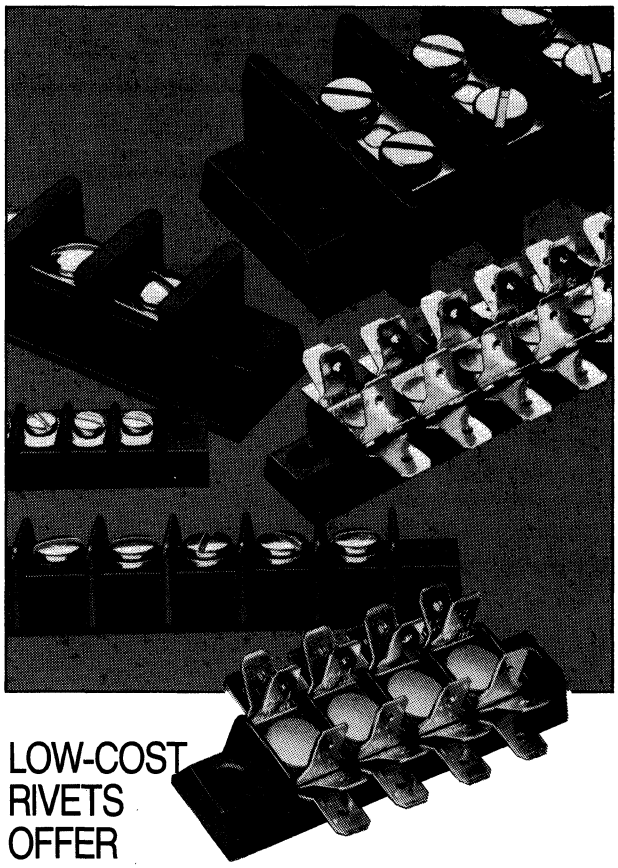
Available in general-purpose phenolic; color, black. Wide choice of terminal styles, marker/insulation strips, imprinting, with or without mounting ends, and many other options.

WIDE VARIETY OF TERMINALS

There is a broad selection of top-side and bottom terminals — including quick-connect terminals which speed assembly time, cut costs and improve connections.

OUR HIGHEST CURRENT STRIP

Series 28 is rated at 50A. It's our highest current strip. Series 28 is a direct cross with series 603.



LOW-COST RIVETS OFFER GREATER SECURITY

Three series of single-row strips come with either screw or rivet (option) construction. Low-cost rivets are vibration resistant and offer greater in-field security. These strips are exact replacements for the styles shown in the table below.

Beau Series	24	25	26
Replaces	599, 799	699, 899	812, 912

U.L. RECOGNIZED. CSA CERTIFIED.

AVAILABLE WORLDWIDE through agents in Canada, England, Europe, Japan, Taiwan, and other Far Eastern countries.

	SINGLE-ROW		SINGLE-ROW, SCREWS OR RIVETS			DOUBLE-ROW						
Series No.	12	13	24	25	26	10	14	18	19	21	21CB	28
Terminal ctrs	3/8"	7/16"	3/8"	7/16"	9/16"	1/4"	3/8"	7/16"	7/16"	9/16"	9/16"	1 1/16"
Current (UL)	15A	20A	15A	20A	30A	10A	15A	20A	20A	30A	30A	50A
Volts rms (UL)												
Gen Indl	150	150	150	150	150	150	150	300	300	600	600	150
Comml	250	250	250	250	250	250	250	250	250	600	600	250
Width	.57"	.73"	.56"	.69"	.75"	.63"	.88"	1.13"	1.13"	1.31"	1.31"	1.81"
Height	.44"	.55"	.41"	.50"	.72"	.31"	.41"	.50"	.55"	.63"	.66"	.75"
No. circuits	1-31	1-26	1-30	1-30	1-18	1-20	1-30	1-30	1-11	1-25	1-26	1-12
Back types	Feed thru; closed		Open			Open			Closed	Open	Closed	Open

VERNITRON CORPORATION

BEAU PRODUCTS DIVISION
Box 10, Laconia, New Hampshire 03247
FAX: (603) 524-1627

For immediate action, call:
(603) 524-5101

Beau® Eurostyle® Terminal Strips

SERIES 85 EUROSTYLE PC TERMINAL STRIPS PROVIDE HIGH CIRCUIT DENSITY

.197" (5mm) contact spacing provides 5 terminations in less than an inch.

Very small footprint. Takes very little PCB space.

Made in USA. A direct equivalent to European-style strips.

Touchproof. Recessed screws and terminals prevent accidental shorting.

Captive screws won't fall out. Furnished backed out, ready to wire.

Captive wire protectors hold wires securely. Assures a good connection and increases pullout strength.

Easy entry for stranded or multiple wires.

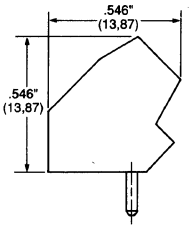
Imprinting can be provided, .070" high.

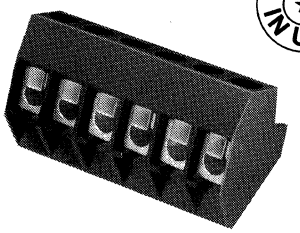
Wire stop. Wires can't pass thru to short out components. Saves space because components can be mounted closer.

U.L. RECOGNIZED. CSA CERTIFIED.

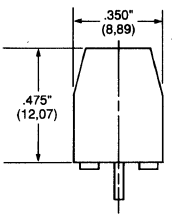
Terminal ctrs	.197" (5,0)
Current (UL)	15A
Insulator material	UL 94V-0 thermoplastic
No. of circuits	2-24
Volts rms (UL) Gen Indl Comml equip	 150 250
Wire size, AWG	12 (max); 30 (min)
Construction	Closed side, feed-thru

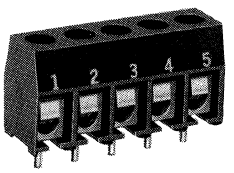
Style 4: 45° PC terminals



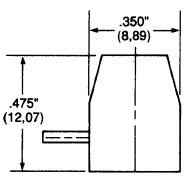


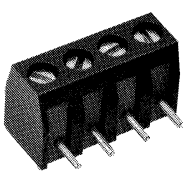
Style 5: Straight-thru PC terminals (Actual size)





Style 8: Right-angle PC terminals



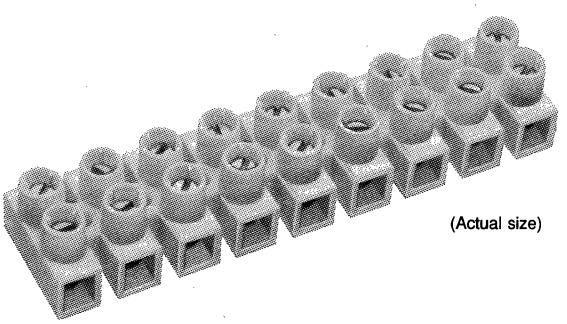


SERIES C TWO-SCREW STRIPS FEATURE MODULAR DESIGN

Strips can be cut into smaller sections with a utility knife. Maintains center-to-center spacing when installed end to end. 2 to 12 circuits, with mounting holes between each circuit. Made of Nylon 6.6.

Dead front design. Screws and terminals are recessed to avoid shock. Allows closer component mounting.

Options. Captive wire protectors. Low profile.



(Actual size)

U.L. RECOGNIZED. CSA CERTIFIED.

Series No.	C15	C40	C60	C100	C160
Terminal ctrs	.315" (8,0)	.394" (10,0)	.472" (12,0)	.591" (15,0)	.591" (15,0)
Current (UL)	10A	16A	25A	40A	40A
Volts rms (UL) Gen Indl Comml equip	 300 250	 300 250	 600 600	 600 600	 600 600
Wire size, AWG	12	10	8	8	8
Width x height	.630" x .646"	.787" x .748"	.866" x .906"	.984" x 1.102"	.984" x 1.102"

VERNITRON CORPORATION

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ELECTRONIC COMPONENTS

MIL-C-5015

GENERAL INFORMATION

BTC's hermetically sealed BA receptacles are designed to accommodate plugs per MIL-C-5015. Their mating dimensions are in accordance with MIL-C-5015 and they meet the environmental and electrical requirements of MIL-C-5015, such as thermal shock, air leakage, salt spray, vibration, physical shock, contact and insulation resistance.

The construction of the receptacles is the "all metal" type, and the hermetic sealing is accomplished by the use of individual pieces of vitreous material around each contact.

The receptacles meet the instrument service rating of MIL-C-5015 (1000 volts ac rms at sea level). Insert arrangements are shown on the following page. The index shows shell size, contacts, contact size and alternate insert positions. Receptacles with higher voltage ratings are available on special order, providing the insert layout will accommodate larger than normal individual glass inserts or if an "all glass" insert is available.

The standard BA receptacles are supplied with eyelet, solder cup and short solder cup contacts. They are supplied less the interfacial seal. Interfacial seals can be supplied upon request.

Various special materials and finishes for shell and contacts, as well as weld-mounts and thermocouple applications, are available.

STANDARD MATERIALS AND FINISHES

FERROUS ALLOY SHELLS

Material: Cold rolled steel per ASTM A 108.

Finish: Tin per MIL-T-10727, type I over cadmium per QQ-P-416, type I over copper per MIL-C-14550.

STAINLESS STEEL SHELLS

Material: Corrosion resistant steel per QQ-S-764, type 303.

Finish: Passivated.

CONTACTS

Material: Nickel-iron alloy per MIL-I-23011, class 2.

Finish: a—Used with ferrous alloy shells; tin per MIL-T-10727, type I over cadmium per QQ-P-416, type I over copper per MIL-C-14550.
b—Used with stainless steel shells; 50 microinches minimum gold per MIL-G-45204 over copper per MIL-C-14550.

INSERTS

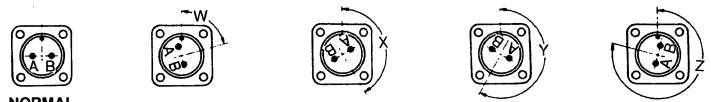
Material: Glass.

DESCRIPTION	BTC DESIGNATION	MILITARY DESIGNATION
BOX MOUNT	BA31-*-*P-20 BA31-*-*P-10 BA30-*-*P-20 BA30-*-*P-10	MS3142HS*C*P MS3142HS*Y*P MS3142HT*C*P MS3142HT*Y*P
SOLDER MOUNT CIRCULAR FLANGE	BA21-*-*P-20 BA21-*-*P-10 BA20-*-*P-20 BA20-*-*P-10	MS3143HS*C*P MS3143HS*Y*P MS3143HT*C*P MS3143HT*Y*P
SOLDER MOUNT FLANGELESS	BA10-*-*P-20 BA10-*-*P-10	NO CLASS H SPECIFIED
JAM NUT MOUNT	BA50-*-*P-20 BA50-*-*P-10	NO CLASS H SPECIFIED
MATING PLUG	MS3106 - MS3406 - MS3456	

INDEX OF INSERT ARRANGEMENTS

INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 16	12	8	4	0	ALTERNATE INSERT POSITIONS (DEGREES) W	X	Y	Z
8S-1	1	1								
10SL-3	3	3								
10SL-4	2	2								
12S-3	2	2					70	145	215	290
12S-10	4	4								
14S-2	4	4						120	240	
14S-5	5	5						110		
14S-6	6	6								
14S-7	3	3					90	180	270	
14S-9	2	2					70	145	215	290
16S-1	7	7					80			260
16S-5	3	3					70	145	215	290
16S-8	5	5						170	265	
16-9	4	2	2				35	110	250	325
16-10	3		3				90	180	270	
16-11	2		2				35	110	250	325
16-13	2		2				35	110	250	325
18-1	10	10					70	145	215	290
18-4	4	4					35	110	250	325
18-8	8	7	1				70			290
18-9	7	5	2				80	110	250	280
18-11	5		5					170	265	
18-22	3	3					70	145	215	290
20-4	4		4				45	110	250	
20-14	5		3	2			80	110	250	280
20-15	7		7				80			280
20-16	9	7	2				80	110	250	280
20-22	6	3		3			80	110	250	280
20-24	4	2		2			35	110	250	325
20-27	14	14					35	110	250	325
20-29	17	17					80			280
20-33	11	11								
22-2	3			3			70	145	215	290
22-14	19	19					80	110	250	280
22-22	4			4				110	250	
22-27	9	8		1			80		250	280
22-36	8		8				90		270	
24-2	7		7				80			280
24-7	16	14	2				80	110	250	280
24-10	7			7			80			280
24-22	4			4			45	110	250	
24-28	24	24					80	110	250	280
28-1	9		6	3			80	110	250	280
28-12	26	26					90	180	270	
28-17	15	15					80	110	250	280

ALTERNATE INSERT POSITIONS FRONT FACE OF PIN INSERT SHOWN



PART NUMBER EXPLANATION

B A 3 0 - 24 - 28 P W - 2 0 - 1B

INTERMATEABILITY
A–Intermateable with MIL-C-5015

SHELL STYLE
1–Solder mount (flangeless)
2–Solder mount (circular flange)
3–Box mount (square flange)
5–Jam nut mount

SHELL MATERIAL
0–Ferrous alloy
1–Stainless steel (type 303)

SHELL SIZE

INSERT ARRANGEMENT

FINISH
1A–Standard finish
1B–Fused tin over copper (25 hours salt spray)

CONTACT MATERIAL
0–Nickel-iron alloy

CONTACT STYLE
1–Eyelet
2–Solder cup
3–Short solder cup

ALTERNATE INSERT POSITION

CONTACT TYPE
P–Pin
S–Socket

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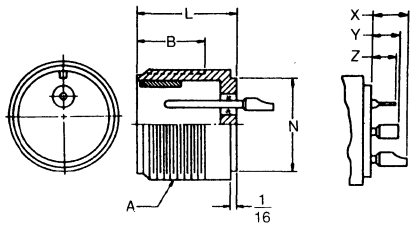
PHONE: 908-679-9300 FAX: 908-679-9311
TOLL FREE 1-800-526-2828

ELECTRONIC COMPONENTS

MIL-C-5015 (con't)

SOLDIER MOUNT FLANGELESS—BA10 RECEPTACLES

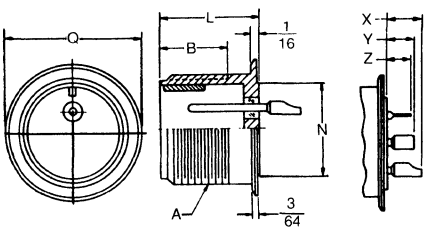
SIZE	PART NUMBER	A THREAD CLASS 2A	B MIN. USABLE THREAD	L +.005 −.010	N +.000 −.010
8S	BA10-8S-(**)P-(**)	.500-28 UNEF	3/8	23/32	.437
10SL	BA10-10SL-(**)P-(**)	.625-24 UNEF			.500
12S	BA10-12S-(**)P-(**)	.750-20 UNEF			.656
14S	BA10-14S-(**)P-(**)	.875-20 UNEF			.718
16S	BA10-16S-(**)P-(**)	1.000-20 UNEF			.844
16	BA10-16-(**)P-(**)	1.000-20 UNEF	5/8	29/32	.844
18	BA10-18-(**)P-(**)	1.125-18 NEF			.968
20	BA10-20-(**)P-(**)	1.250-18 NEF			1.156
22	BA10-22-(**)P-(**)	1.375-18 NEF			1.250
24	BA10-24-(**)P-(**)	1.500-18 NEF			1.375
28	BA10-28-(**)P-(**)	1.750-18 NS			1.625
32	BA10-32-(**)P-(**)	2.000-18 NS			1.875



CONTACT SIZE	X MAX	Y MAX	Z MAX
16	3/8	1/4	7/32
12	33/64	21/64	9/32
8	23/32	15/32	–

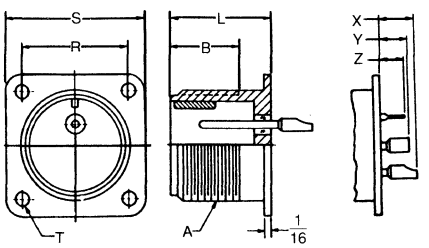
SOLDER MOUNT CIRCULAR FLANGE—BA20 RECEPTACLES (REF. MS3143)

SIZE	PART NUMBER	A THREAD CLASS 2A	B MIN. USABLE THREAD	L +.005 −.010	N +.000 −.010	Q ±.010
8S	BA20-8S-(**)P-(**)	.500-28 UNEF	3/8	23/32	.437	3/4
10SL	BA20-10SL-(**)P-(**)	.625-24 UNEF			.500	7/8
12S	BA20-12S-(**)P-(**)	.750-20 UNEF			.656	1
14S	BA20-14S-(**)P-(**)	.875-20 UNEF			.718	1 1/8
16S	BA20-16S-(**)P-(**)	1.000-20 UNEF			.844	1 1/4
16	BA20-16-(**)P-(**)	1.000-20 UNEF	5/8	29/32	.844	1 1/4
18	BA20-18-(**)P-(**)	1.125-18 NEF			.968	1 3/8
20	BA20-20-(**)P-(**)	1.250-18 NEF			1.156	1 1/2
22	BA20-22-(**)P-(**)	1.375-18 NEF			1.250	1 5/8
24	BA20-24-(**)P-(**)	1.500-18 NEF			1.375	1 3/4
28	BA20-28-(**)P-(**)	1.750-18 NS			1.625	2
32	BA20-32-(**)P-(**)	2.000-18 NS			1.875	2 1/4



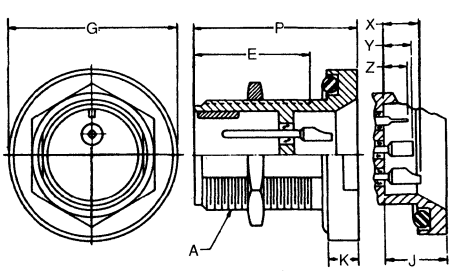
BOX MOUNT—BA30 RECEPTACLES (REF. MS3142)

SIZE	PART NUMBER	A THREAD CLASS 2A	B MIN. USABLE THREAD	L +.005 −.010	R ±.005	S ±1/32	T ±.005
8S	BA30-8S-(**)P-(**)	.500-28 UNEF	3/8	23/32	.594	7/8	.120
10SL	BA30-10SL-(**)P-(**)	.625-24 UNEF			.718	1	
12S	BA30-12S-(**)P-(**)	.750-20 UNEF			.812	13/32	
14S	BA30-14S-(**)P-(**)	.875-20 UNEF			.906	13/16	
16S	BA30-16S-(**)P-(**)	1.000-20 UNEF			.968	19/32	
16	BA30-16-(**)P-(**)	1.000-20 UNEF	5/8	29/32	.968	19/32	
18	BA30-18-(**)P-(**)	1.125-18 NEF			1.062	1 3/8	
20	BA30-20-(**)P-(**)	1.250-18 NEF			1.156	1 1/2	
22	BA30-22-(**)P-(**)	1.375-18 NEF			1.250	1 5/8	
24	BA30-24-(**)P-(**)	1.500-18 NEF			1.375	1 3/4	.147
28	BA30-28-(**)P-(**)	1.750-18 NS			1.562	2	
32	BA30-32-(**)P-(**)	2.000-18 NS			1.750	2 1/4	.173



JAM NUT MOUNT—BA50 RECEPTACLES

SIZE	PART NUMBER	A THREAD CLASS 2A	E MIN. USABLE THREAD	G ±.015	J REF.	K ±.010	P ±.015
8S	BA50-8S-(**)P-(**)	.500-28 UNEF	11/16	1.062	11/32	1/4	1 1/16
10SL	BA50-10SL-(**)P-(**)	.625-24 UNEF		1.187			
12S	BA50-12S-(**)P-(**)	.750-20 UNEF	21/32	1.312		9/32	
14S	BA50-14S-(**)P-(**)	.875-20 UNEF		1.437			
16S	BA50-16S-(**)P-(**)	1.000-20 UNEF		1.562			
16	BA50-16-(**)P-(**)	1.000-20 UNEF	13/32	1.562	19/32		1 1/2
18	BA50-18-(**)P-(**)	1.125-18 NEF		1.687			
20	BA50-20-(**)P-(**)	1.250-18 NEF		1.812			
22	BA50-22-(**)P-(**)	1.375-18 NEF		1.937			
24	BA50-24-(**)P-(**)	1.500-18 NEF		2.062			
28	BA50-28-(**)P-(**)	1.750-18 NS		2.312			
32	BA50-32-(**)P-(**)	2.000-18 NS		2.562			



ALTERNATE INSERT POSITION INDICATOR TO BE PLACED AFTER "P" NO INDICATOR REQUIRED FOR NORMAL POSITION

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TOLL FREE 1-800-526-2828

ELECTRONIC COMPONENTS

MIL-C-26482

GENERAL INFORMATION

BTC's hermetically sealed BC and BK receptacles are designed in accordance with MIL-C-26482, series 1 and 2 respectively and are the "quick disconnect" bayonet coupling type. The two series of connectors when intermated meet, the minimum requirements of series I connectors.

The construction of both series of receptacles is the "all glass" type, i.e., the hermetic sealing is accomplished by the use of one single piece of vitreous material.

BTC's standard BC receptacles (MIL-C-26482, series 1) are supplied with interfacial and peripheral seals as shown on pages 8 and 9. An "O" ring seal can be supplied upon request.

BTC's standard BK receptacles (MIL-C-26482, series 2) have a resilient seal bonded to the glass. The raised tapered barriers around each contact of this interfacial seal lock into the lead-in chambers of the plug insert, providing a positive seal between plug and receptacle.

Various special materials and finishes for shell and contacts, as well as weld-mounts and thermocouple applications, are available.

STANDARD MATERIALS AND FINISHES

FERROUS ALLOY SHELLS
Material: Cold rolled steel per ASTM A 108.
Finish: C receptacles (series 1)
K receptacles (series 2)
100 microinches minimum fused tin per MIL-T-10727, type 1 over a suitable underplate.

STAINLESS STEEL SHELLS
Material: Corrosion resistant steel per QQ-S-764, type 303.
Finish: Passivated.

CONTACTS
Material: Nickel-iron alloy per MIL-I-23011, class 2.
Finish: C receptacles (series 1) with ferrous alloy shells 100 microinches minimum tin per MIL-T-10727, type I over a suitable underplate.
C receptacles (series 1) with stainless steel shells 50 microinches minimum gold per MIL-G-45204 over copper per MIL-C-14550 over nickel per QQ-N-290.
K receptacles (series 2)
50 microinches minimum gold per MIL-G-45204 over copper per MIL-C-14550 over nickel per QQ-N-290.

BAYONET PINS
Material: Corrosion resistant steel per QQ-S-764, type 303.

INSERTS
Material: Glass

INTERFACIAL SEALS
Material: Fluorosilicone rubber per AMS3325

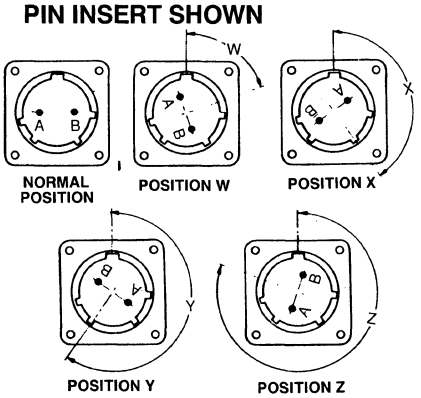
O-RINGS
Material: Silicone rubber per AMS3304

DESCRIPTION	BTC DESIGNATION	MILITARY DESIGNATION
SOLDER MOUNT	BC21-*-*P-20 BC21-*-*P-10 BC20-*-*P-20 BC20-*-*P-10	MS3113H*A*P MS3113G*B*P MS3113H*C*P MS3113H*Y*P
JAM NUT MOUNT	BC51-*-*P-20 BC51-*-*P-10 BC50-*-*P-20 BC50-*-*P-10	MS3113H*A*P MS3114H*B*P MS3113H*C*P MS3113H*Y*P
BOX MOUNT	BC30-*-*P-20 BC30-*-*P-10	NO CLASS H SPECIFIED
MATING PLUG		MS3116
SERIES 2		
BOX MOUNT	BK30-*-*PN-20	MS3440H*C*PN
BOX MOUNT (WIDE FLANGE)	BK30A-*-*PN-20	MS3442H*C*PN
SOLDER MOUNT	BK20-*-*PN-20	MS3443H*C*PN
JAM NUT MOUNT	BK50-*-*PN-20	MS3449H*C*PN
MATING PLUG		MS3476

INDEX OF INSERT ARRANGEMENTS

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 20	16	12	8	SERVICE RATING	ALTERNATE INSERT POSITIONS (DEGREES) W	X	Y	Z
8	8-2	2	2				I	58	122	—	—
	8-3	3	3				I	60	210	—	—
	8-4	4	4				I	45	—	—	—
	8-33	3	3				I	90	—	—	—
	8-98	3	3				I	—	—	—	—
10	10-6	6	6				I	90	—	—	—
	10-98	6	6				I	90	180	240	270
12	12-3	3		3			II	—	—	180	—
	12-8	8	8				I	90	112	203	292
	12-10	10	10				I	60	155	270	295
14	14-4	4			4		I	45	—	—	—
	14-5	5		5			II	40	92	184	273
	14-12	12	8	4			I	43	90	—	—
	14-15	15	14	1			I	17	110	155	234
	14-18	18	18				I	15	90	180	270
	14-19	19	19				I	30	165	315	—
16	16-8	8		8			II	54	152	180	331
	16-23	23	22	1			I	158	270	—	—
	16-26	26	26				I	60	—	275	338
18	18-8	8			8		I	180	—	—	—
	18-11	11		11			II	62	119	241	340
	18-30	30	29	1			I	180	193	285	350
	18-32	32	32				I	85	138	222	265
20	20-16	16		16			II	238	318	333	347
	20-39	39	37	2			I	63	144	252	333
	20-41	41	41				I	45	126	225	—
	20-90	15	3		12		I	18	60	240	270
22	22-21	21		21			II	16	135	175	349
	22-41	41	27	14			I	39	135	264	—
	22-55	55	55				I	30	142	226	314
24	24-61	61	61				I	90	180	270	324

ALTERNATE INSERT POSITION FRONT FACE OF PIN INSERT SHOWN



PART NUMBER EXPLANATION

B C 2 0 - 14 - 19 P W - 2 0 - 1H 1

INTERMATEABILITY
C–Intermateable with MIL-C-26482, series 1
K–Intermateable with MIL-C-26482, series 2

SHELL STYLE
2–Solder mount (circular flange)
3–Box mount (square flange)
5–Jam nut mount

SHELL MATERIAL
0–Ferrous alloy
1–Stainless steel (type 303)

SHELL SIZE

INSERT ARRANGEMENT

1–Supplied with O-ring only (series 1)

FINISH
1H–Standard finish (series 1 only)
8E–Standard finish (series 2 only)
1B–Fused tin over copper (25 hours salt spray)

CONTACT MATERIAL
0–Nickel-iron alloy

CONTACT STYLE
1–Eyelet
2–Solder cup

ALTERNATE INSERT POSITION

CONTACT TYPE
P–Pin
S–Socket

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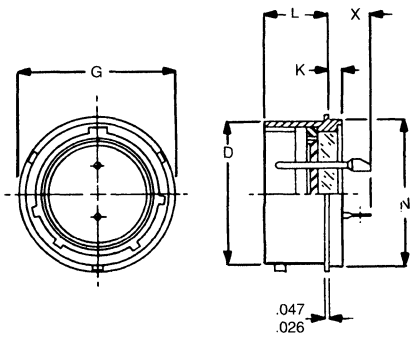
ELECTRONIC COMPONENTS

MIL-C-26482 (SERIES 1)

SOLDER MOUNT—BC20 RECEPTACLES (REF. MS3113)

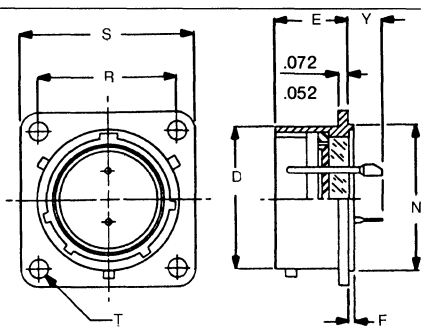
SIZE	PART NUMBER	D +.001 −.005	G ±.010	K ±.010	L ±.010	N +.000 −.005
8	BC20-8-(**)P-(..)-101	.473	.625	.094	.452	.562
10	BC20-10-(**)P-(..)-101	.590	.750			.672
12	BC20-12-(**)P-(..)-101	.750	.844			.781
14	BC20-14-(**)P-(..)-101	.875	.968			.906
16	BC20-16-(**)P-(..)-101	1.000	1.094			1.031
18	BC20-18-(**)P-(..)-101	1.125	1.218			1.156
20	BC20-20-(**)P-(..)-101	1.250	1.312		.514	1.250
22	BC20-22-(**)P-(..)-101	1.375	1.438	.125		1.375
24	BC20-24-(**)P-(..)-101	1.500	1.563		.547	1.500



CONTACT STYLE	X (MAX) CONTACT SIZE 20	16 & 20
EYELET	.273	.335
SOLDER POT	.380	.382

BOX MOUNT—BC30 RECEPTACLES (REF. MS3112)

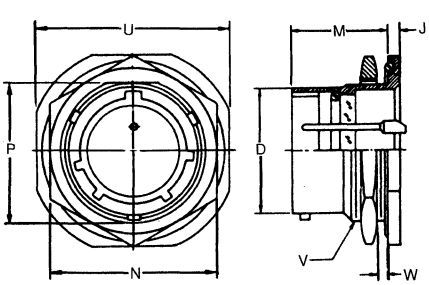
SIZE	PART NUMBER	D +.001 −.005	E ±.010	F ±.010	N +.000 −.005	R BSC	S ±.010	T −.005
8	BC30-8-(**)P-(..)-101	.473	.500	.047	.562	.594	.812	.120
10	BC30-10-(**)P-(..)-101	.590			.672	.719	.938	
12	BC30-12-(**)P-(..)-101	.750			.781	.812	1.031	
14	BC30-14-(**)P-(..)-101	.875			.906	.906	1.125	
16	BC30-16-(**)P-(..)-101	1.000			1.031	.969	1.219	
18	BC30-18-(**)P-(..)-101	1.125			1.156	1.062	1.312	
20	BC30-20-(**)P-(..)-101	1.250	.562		1.250	1.156	1.438	
22	BC30-22-(**)P-(..)-101	1.375		.078	1.375	1.250	1.562	
24	BC30-24-(**)P-(..)-101	1.500	.594		1.500	1.375	1.688	.147



CONTACT STYLE	Y (MAX) CONTACT SIZE 20	16 & 12
EYELET	.231	.293
SOLDER POT	.278	.340

JAM NUT MOUNT—BC50 RECEPTACLES (REF. MS3114)

SIZE	PART NUMBER	D +.001 −.005	N ±.016	J ±.015	M +.031 −.000	P +.000 −.010	U ±.010	V THREAD CLASS 2A	W PANEL THICKNESS MIN	MAX
8	BC50-8-(**)P-(..)-101	.473	.750	.117	.691	.530	.938	.5625-24 UNEF	.062	.125
10	BC50-10-(**)P-(..)-101	.590	.875			.655	1.062	.6875-24 UNEF		
12	BC50-12-(**)P-(..)-101	.750	1.062			.818	1.250	.8750-20 UNEF		
14	BC50-14-(**)P-(..)-101	.875	1.188			.942	1.375	1.0000-20 UNEF		
16	BC50-16-(**)P-(..)-101	1.000	1.312			1.066	1.500	1.1250-18 UNEF		
18	BC50-18-(**)P-(..)-101	1.125	1.438			1.191	1.625	1.2500-18 UNEF		
20	BC50-20-(**)P-(..)-101	1.250	1.562	.148	.879	1.316	1.812	1.3750-18 UNEF		.250
22	BC50-22-(**)P-(..)-101	1.375	1.688			1.441	1.938	1.5000-18 UNEF		
24	BC50-24-(**)P-(..)-101	1.500	1.812		.912	1.566	2.062	1.6250-18 UNEF		



ALTERNATE INSERT POSITION INDICATOR TO BE PLACED AFTER "P"
NO INDICATOR REQUIRED FOR NORMAL POSITION

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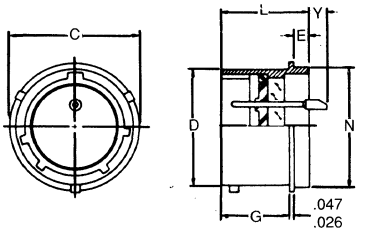
ELECTRONIC COMPONENTS

MIL-C-26482 (SERIES 2)

SOLDER MOUNT—BK20 RECEPTACLES (REF. MS3443)

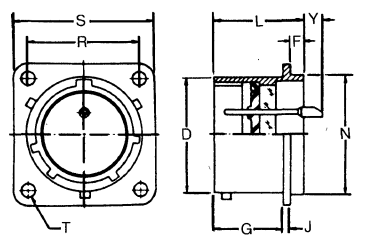
SIZE	PART NUMBER	C +.010	D +.001 −.005	E ±.020	G ±.010	L MAX REF	N +.001 −.005
8	BK20-8-(**)P-20	.6.25	.473	.136	.588	.801	.562
10	BK20-10-(**)P-20	.750	.590				.672
12	BK20-12-(**)P-20	.844	.750				.781
14	BK20-14-(**)P-20	.969	.875				.906
16	BK20-16-(**)P-20	1.094	1.000				1.031
18	BK20-18-(**)P-20	1.218	1.125				1.156
20	BK20-20-(**)P-20	1.312	1.250		.650	.863	1.250
22	BK20-22-(**)P-20	1.438	1.375	.168		.895	1.375
24	BK20-24-(**)P-20	1.564	1.500				1.500



CONTACT SIZE	Y (±.030) SHELL SIZES 8 - 20	22 - 24
20	.148	.116
16 & 12	.218	.186

BOX MOUNT—BK30 RECEPTACLES (REF. MS3440)

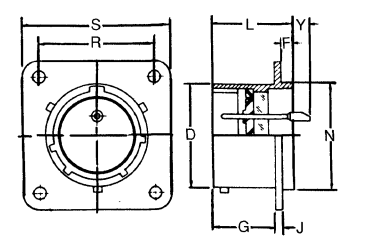
SIZE	PART NUMBER	D +.001 −.005	F ±.010	G ±.010	J ±.016	L MAX REF	N +.001 −.005	NARROW FLANGE R ±.005	S ±.015	T ±.005
8	BK30-8-(**)P-20	.473	.115	.588	.062	.801	.562	.594	.812	.120
10	BK30-10-(**)P-20	.590					.672	.719	.937	
12	BK30-12-(**)P-20	.750					.781	.812	1.031	
14	BK30-14-(**)P-20	.875					.906	.906	1.125	
16	BK30-16-(**)P-20	1.000					1.031	.968	1.218	
18	BK30-18-(**)P-20	1.125					1.156	1.062	1.312	
20	BK30-20-(**)P-20	1.250	.083	.650	.094	.863	1.250	1.156	1.437	
22	BK30-22-(**)P-20	1.375	.115			.895	1.375	1.250	1.562	
24	BK30-24-(**)P-20	1.500					1.500	1.375	1.687	.147



CONTACT SIZE	Y (±.030) SHELL SIZES 8 - 20	22 - 24
20	.148	.116
16 & 12	.218	.186

BOX MOUNT (WIDE FLANGE)—BK30A RECEPTACLES (REF. MS3442)

SIZE	PART NUMBER	D +.001 −.005	F ±.010	G ±.010	J ±.016	L MAX REF	N +.001 −.005	WIDE FLANGE R ±.005	S ±.008	T ±.005
8	BK30A-8-(**)P-20	.473	.115	.588	.062	.801	.562	.734	1.047	.150
10	BK30A-10-(**)P-20	.590					.672	.812	1.125	
12	BK30A-12-(**)P-20	.750					.781	.938	1.250	
14	BK30A-14-(**)P-20	.875					.906	1.031	1.344	
16	BK30A-16-(**)P-20	1.000					1.031	1.125	1.438	
18	BK30A-18-(**)P-20	1.125					1.156	1.203	1.516	
20	BK30A-20-(**)P-20	1.250	.083	.650	.094	.863	1.250	1.297	1.672	
22	BK30A-22-(**)P-20	1.375	.115			.895	1.375	1.375	1.750	
24	BK30A-24-(**)P-20	1.500					1.500	1.500	1.875	.150

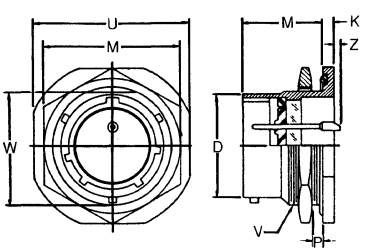


CONTACT SIZE	Y (±.030) SHELL SIZES 8 - 20	22 - 24
20	.148	.116
16 & 12	.218	.186

JAM NUT MOUNT—BK50 RECEPTACLES (REF. MS3449)

SIZE	PART NUMBER	D +.001 −.005	H ±.015	K ±.008	M ±.008	P PANEL THICKNESS MIN	P PANEL THICKNESS MAX	U ±.015	V THREAD UNEF - 2A	W ±.005
8	BK50-8-(**)P-20	.473	.750	.105	.699	.062	.187	.938	.5625-24	.525
10	BK50-10-(**)P-20	.590	.875					1.062	.6875-24	.650
12	BK50-12-(**)P-20	.750	1.062					1.250	.8750-20	.813
14	BK50-14-(**)P-20	.875	1.188					1.375	1.0000-20	.937
16	BK50-16-(**)P-20	1.000	1.312					1.500	1.1250-18	1.061
18	BK50-18-(**)P-20	1.125	1.438					1.625	1.2500-18	1.186
20	BK50-20-(**)P-20	1.250	1.562	.138	.763		.250	1.812	1.3750-18	1.311
22	BK50-22-(**)P-20	1.375	1.688					1.938	1.5000-18	1.436
24	BK50-24-(**)P-20	1.500	1.812		.794			2.062	1.6250-18	1.561

ALTERNATE INSERT POSITION INDICATOR TO BE PLACED AFTER "P"
FOR NORMAL INSERT POSITION USE "N"



CONTACT SIZE	Z (±.030) SHELL SIZES 8 - 18	20 - 22	24
20	.104	.069	.039
16 & 12	.174	.139	.109

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ELECTRONIC COMPONENTS

MIL-C-26500

PART NUMBER EXPLANATION

B E 3 0 - 18 - 31 P 6 - 2 0 - 1H

- **INTERMATEABILITY** — E-Intermateable with MIL-C-26500, type B; F-Intermateable with MIL-C-26500, type T
- **SHELL STYLE** — 2-Solder mount (circular flange); 3-Box Mount (square flange); 5-Jam nut mount
- **SHELL MATERIAL** — 0-Ferrous alloy; 1-Stainless steel (type 303)
- **SHELL SIZE**
- **INSERT ARRANGEMENT**
- **FINISH** — 1H-Standard finish
- **CONTACT** — 0-Nickel-iron alloy
- **CONTACT STYLE** — 1-Eyelet; 2-Solder cup
- **ALTERNATE KEYWAY POSITION**
- **CONTACT TYPE** — P-Pin S-Socket

BAYONET COUPLING		
DESCRIPTION	**BTC DESIGNATION**	**MILITARY DESIGNATION**
JAM NUT MOUNT	BE50-*-*PN-20 BE50-*-*PN-10	MS24265H*B*CN MS24265H*B*EN
SOLDER MOUNT	BE20-*-*PN-20 BE20-*-*PN-10	MS27034H*B*CN MS27034H*B*EN
BOX MOUNT	BE30-*-*PN-20 BE30-*-*PN-10	NO CLASS H SPECIFIED
MATING PLUG		MS24266R*B*SN
THREAD COUPLING		
JAM NUT MOUNT	BF50-*-*PN-20 BF50-*-*PN-10	MS24265H*T*CN MS24265H*T*EN
SOLDER MOUNT	BF20-*-*PN-20 BF20-*-*PN-10	MS27034H*T*CN MS27034H*T*EN
BOX MOUNT	BF30-*-*PN-20 BF30-*-*PN-10	NO CLASS H SPECIFIED
MATING PLUG		MS24266R*T*SN

INDEX OF INSERT ARRANGEMENTS

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACT	CONTACT SIZE 20	16	12	COAX
8	8-2	2	2			
	8-3	3	3			
	8-98	3	3			
10	10-2	2	2			
	10-5	5	5			
	10-20	2		2		
12	12-3	3		3		
	12-12	12	12			
14	14-4	4			4	
	14-7	7		7		
	14-15	15	15			
16	16-10	10		10		
	16-24	24	24			
18	18-11	11		10		1
	18-14	14		14		
	18-31	31	31			
20	20-16	16		16		
	20-41	41	41			
22	22-19	19		19		
	22-55	55	55			
24	24-61	61	61			

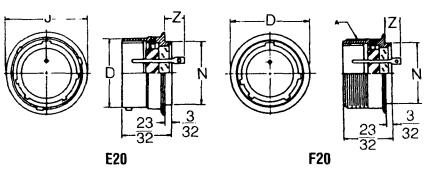
ALTERNATE KEYWAY POSITIONS

SHELL SIZE	POSITION	A*	B*	C*	D*
*8 10	NORMAL	105	140	215	265
	6	102	132	248	320
	7	80	118	230	312
	8	35	140	205	275
	9	64	155	234	304
	Y	25	115	220	270
12, 14, 16, 18, 20, 22, 24	NORMAL	105	140	215	265
	6	18	149	192	259
	7	92	152	222	342
	8	84	152	204	334
	9	24	135	199	240
	Y	98	152	268	338

*NO POSITION Y PROVIDED FOR SIZE 8 SHELL.

SOLDER MOUNT BE20/BF20 RECEPTACLES (REF. MS27034)

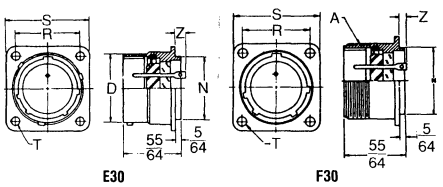
SIZE	PART NUMBER TYPE B	PART NUMBER TYPE T	A THREAD UNEF - 2A	D +.000 −.005	J ±.020	N MAX
8	BE20-8-(**)P-(..)	BF20-8-(**)P-(..)	.5625-24	.536	.705	.437
10	BE20-10-(**)P-(..)	BF20-10-(**)P-(..)	.6875-24	.659	.840	.562
12	BE20-12-(**)P-(..)	BF20-12-(**)P-(..)	.8750-20	.829	1.045	.750
14	BE20-14-(**)P-(..)	BF20-14-(**)P-(..)	.9375-20	.898	1.090	.812
16	BE20-16-(**)P-(..)	BF20-16-(**)P-(..)	1.0625-18	1.025	1.210	.937
18	BE20-18-(**)P-(..)	BF20-18-(**)P-(..)	1.1875-18	1.131	1.340	1.062
20	BE20-20-(**)P-(..)	BF20-20-(**)P-(..)	1.3125-18	1.256	1.475	1.182
22	BE20-22-(**)P-(..)	BF20-22-(**)P-(..)	1.4375-18	1.381	1.590	1.312
24	BE20-24-(**)P-(..)	BF20-24-(**)P-(..)	1.5625-18	1.506	1.725	1.432



CONTACT SIZE	Z (MAX) EYELET	SOLDER POT
20	.265	.306
16	.327	.366
12	.376	.376

BOX MOUNT BE30/BF30 RECEPTACLES (REF. MS24264)

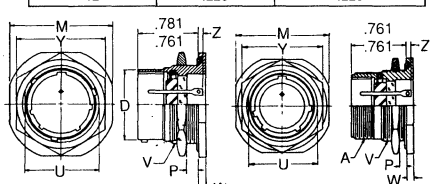
SIZE	PART NUMBER TYPE B	PART NUMBER TYPE T	A THREAD UNEF - 2A	D +.000 −.005	N MAX	R ±.005	S ±.005	T +.000 −.009
8	BE30-8-(**)P-(..)	BF30-8-(**)P-(..)	.5625-24	.536	.437	.594	.812	.125
10	BE30-10-(**)P-(..)	BF30-10-(**)P-(..)	.6875-24	.659	.562	.719	.937	
12	BE30-12-(**)P-(..)	BF30-12-(**)P-(..)	.8750-20	.829	.750	.812	1.031	
14	BE30-14-(**)P-(..)	BF30-14-(**)P-(..)	.9375-20	.898	.812	.906	1.125	
16	BE30-16-(**)P-(..)	BF30-16-(**)P-(..)	1.0625-18	1.025	.937	.969	1.250	
18	BE30-18-(**)P-(..)	BF30-18-(**)P-(..)	1.1875-18	1.131	1.062	1.062	1.343	
20	BE30-20-(**)P-(..)	BF30-20-(**)P-(..)	1.3125-18	1.256	1.182	1.156	1.437	
22	BE30-22-(**)P-(..)	BF30-22-(**)P-(..)	1.4375-18	1.381	1.312	1.250	1.562	
24	BE30-24-(**)P-(..)	BF30-24-(**)P-(..)	1.5625-18	1.506	1.432	1.375	1.703	.154



CONTACT SIZE	Z (MAX) EYELET	SOLDER POT
20	.109	.150
16	.171	.210
12	.220	.220

JAM NUT MOUNT BE50/BF50 RECEPTACLES (REF. MS24265)

SIZE	PART NUMBER TYPE B	PART NUMBER TYPE T	A THREAD UNEF - 2A	D +.000 −.005	N ±.005	P PANEL THICKNESS	U ±.003	V THREAD CLASS 2A	W ±.020	Y MAX
8	BE50-8-(**)P-(..)	BF50-8-(**)P-(..)	.5625-24	.536	.979	1/16 MIN — 9/64 MAX	.593	.6250-20 UN	.117	.828
10	BE50-10-(**)P-(..)	BF50-10-(**)P-(..)	.6875-24	.659	1.104		.718	.7500-20 UNEF		.953
12	BE50-12-(**)P-(..)	BF50-12-(**)P-(..)	.8750-20	.829	1.291		.905	.9375-20 UNEF		1.140
14	BE50-14-(**)P-(..)	BF50-14-(**)P-(..)	.9375-20	.898	1.391		.968	1.0000-20 UNEF		1.250
16	BE50-16-(**)P-(..)	BF50-16-(**)P-(..)	1.0625-18	1.025	1.516		1.093	1.1250-20 UN		1.329
18	BE50-18-(**)P-(..)	BF50-18-(**)P-(..)	1.1875-18	1.131	1.641		1.217	1.2500-20 UN		1.455
20	BE50-20-(**)P-(..)	BF50-20-(**)P-(..)	1.3125-18	1.256	1.766		1.342	1.3750-18 UNEF		1.642
22	BE50-22-(**)P-(..)	BF50-22-(**)P-(..)	1.4375-18	1.381	1.954		1.467	1.5000-20 UN	.148	1.705
24	BE50-24-(**)P-(..)	BF50-24-(**)P-(..)	1.5625-18	1.506	2.079		1.592	1.6250-18 UNEF		1.892



CONTACT SIZE	Z (MAX) EYELET	SOLDER POT
20	.119	.160
16	.181	.220
12	.230	.230

ALTERNATE KEYWAY POSITION INDICATOR TO BE PLACED AFTER "P" FOR NORMAL KEYWAY POSITION USE "N"

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ELECTRONIC COMPONENTS

MIL-C-38999 (SERIES III)

GENERAL INFORMATION

BTC's hermetically sealed BP receptacles are designed in accordance with MIL-C-38999, series III and meet the requirements of this specification.

The BP receptacles are "scoop proof," with a quick disconnect triple start thread, designed so that electrical continuity is maintained between mating shells prior to pin and socket engagement and in reverse order during the disconnecting operation. The plug shells are provided with "grounding fingers" for EMR (Electro Magnetic Radiation) or RFI (Radio Frequency Interference) shielding.

The construction of the receptacles in the "all glass" type. The hermetic sealing is accomplished by the use of one single piece of vitreous material. An interfacial resilient seal is bonded to the glass. The raised tapered barriers around each contact of this interfacial seal lock into the lead-in chamfers of the plug insert and provide a positive seal between plug and receptacle.

High density insert arrangements permit these connectors to have twice the number of contacts than previously available in similar shell sizes.

Various special materials and finishes for shell and contacts, as well as weld-mounts and thermocouple applications, are available.

INDEX OF INSERT ARRANGEMENTS

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 22	20	16	12	SERVICE RATING
9	9-35	6	6				M
	9-98	3		3			I
11	11-4	4		4			I
	11-5	5		5			I
	11-35	13	13				M
	11-98	6		6			I
	11-99	7		7			I
	11-2	2			2		I
13	13-4	4			4		II
	13-8	8		8			I
	13-35	22	22				M
	13-98	10		10			I
15	15-5	5			5		II
	15-15	15		14	1		I
	15-18	18		18			I
	15-19	19		19			I
	15-35	37	37				M
	15-97	12		8	4		I
17	17-6	6				6	II
	17-8	8			8		II
	17-26	26		26			I
	17-35	55	55				M
	17-99	23		21	2		I

STANDARD MATERIALS AND FINISHES

STAINLESS STEEL SHELLS

Material: Corrosion resistant steel per QQ-S-764, type 303.
Corrosion resistant steel per QQ-S-763, type 304L.
Finish: Passivated or nickel per QQ-N-290.

CONTACTS

Material: Nickel-iron alloy per MIL-I-23011, class 2.
Finish: 50 microinches minimum gold per MIL-G-45204 over copper per MIL-C-14550 over nickel per QQ-N-290.

INSERTS

Material: Glass.

INTERFACIAL SEALS

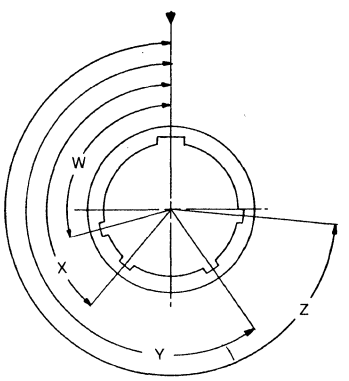
Material: Fluorosilicone rubber per AMS3325.

INDEX (cont)

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 22	20	16	12	SERVICE RATING
19	19-11	11			11		II
	19-28	28		26	2		I
	19-30	30		29	1		I
	19-32	32		32			I
	19-35	66	66				M
	19-45	67	67				M
21	21-11	11				11	I
	21-16	16			16		II
	21-24	24		24			I
	21-25	25		25			I
	21-27	27		27			I
	21-35	79	79				M
	21-39	39		37	2		I
	21-41	41		41			I
23	23-21	21			21		II
	23-32	32		32			I
	23-34	34		34			I
	23-35	100	100				M
	23-36	36		36			I
	23-53	53		53			I
	23-97	16			16		II
	23-99	11			11		II
25	25-4	56		48	8		I
	25-19	19				19	I
	25-24	24			12	12	II
	25-29	29			29		II
	25-35	128	128				M
	25-43	43		23	20		I
	25-61	61		61			I

DESCRIPTION	BTC DESIGNATION	MILITARY DESIGNATION
BOX MOUNT	BP31-*-*PN-20-0P BP31-*-*PN-20-E8	D38999/21Y**PN D38999/21N**PN
JAM NUT MOUNT	BP51-*-*PN-20-0P BP51-*-*PN-20-E8	D38999/23Y**PN D38999/23N**PN
SOLDER MOUNT	BP21-*-*PN-20-0P BP21-*-*PN-20-E8	D38999/25Y**PN D38999/25N**PN
WELD MOUNT	BP63-*-*PN-20-0P BP63-*-*PN-20-E8	D38999/27Y**PN D38999/27N**PN
MATING PLUG		D38999/26

ALTERNATE KEYWAY POSITIONS FRONT FACE OF PIN INSERT SHOWN



SHELL SIZE	KEYWAY POSITION	W°	X°	Y°	Z°
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
	E	91	131	197	240
11, 13, and 15	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242
17, 19, 23, and 25	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

PART NUMBER EXPLANATION

B P 5 1 - 11 - 98 P A - 2 0 - 0 P

INTERMATEABILITY
P–Intermateable with MIL-C-38999, series III

SHELL STYLE
2–Solder mount
3–Box mount
5–Jam nut mount
6–Weld mount

SHELL MATERIAL
1–Stainless steel (type 303)
3–Stainless steel (type 304L)

SHELL SIZE

INSERT ARRANGEMENT

CONTACT FINISH
P–Gold plated 8–Gold plated

SHELL FINISH
0–Passivated
E–Nickel plated

CONTACT MATERIAL
0–Nickel-iron alloy

CONTACT STYLE
1–Eyelet (not specified in MIL-C-38999)
2–Solder cup (standard)

KEYWAY POSITION

CONTACT TYPE
P–Pin S–Socket

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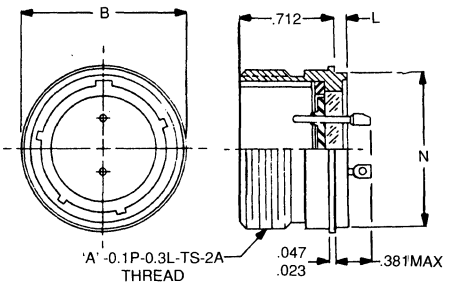
ELECTRONIC COMPONENTS

MIL-C-38999 (SERIES III) con't

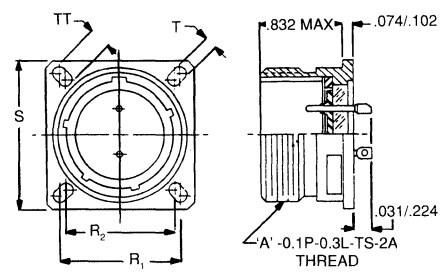
SOLDER MOUNT—BP21 RECEPTACLES (REF. D38999/25)

SHELL SIZE	MILITARY SHELL SIZE CODE	PART NUMBER	A THREAD	B ±.010	L	N +.001 −.005
9	A	BP21-9-(*)PN-20-**	.6250	.750	.094	.672
11	B	BP21-11-(*)PN-20-**	.7500	.844	.094	.781
13	C	BP21-13-(*)PN-20-**	.8750	.969	.094	.906
15	D	BP21-15-(*)PN-20-**	1.0000	1.094	.094	1.031
17	E	BP21-17-(*)PN-20-**	1.1875	1.218	.094	1.156
19	F	BP21-19-(*)PN-20-**	1.2500	1.312	.094	1.250
21	G	BP21-21-(*)PN-20-**	1.3750	1.438	.094	1.375
23	H	BP21-23-(*)PN-20-**	1.5000	1.563	.125	1.500
25	J	BP21-25-(*)PN-20-**	1.6250	1.688	.125	1.625



BOX MOUNT—BP31 RECEPTACLES (REF. D38999/21)

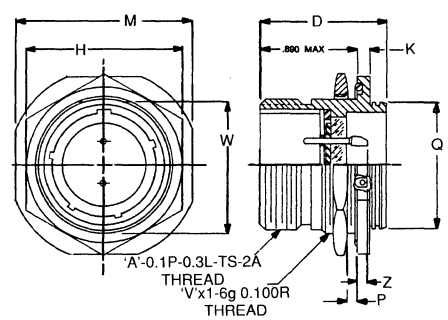
SHELL SIZE	MILITARY SHELL SIZE CODE	PART NUMBER	A THREAD	R_1 BSC	R_2 BSC	S ±.010	T ±.008	TT ±.008
9	A	BP31-9-(*)PN-20-**	.6250	.719	.594	.937	.128	.216
11	B	BP31-11-(*)PN-20-**	.7500	.812	.719	1.031	.128	.194
13	C	BP31-13-(*)PN-20-**	.8750	.906	.812	1.126	.128	.194
15	D	BP31-15-(*)PN-20-**	1.0000	.969	.906	1.220	.128	.173
17	E	BP31-17-(*)PN-20-**	1.1875	1.062	.969	1.312	.128	.194
19	F	BP31-19-(*)PN-20-**	1.2500	1.156	1.062	1.437	.128	.194
21	G	BP31-21-(*)PN-20-**	1.3750	1.250	1.156	1.563	.128	.194
23	H	BP31-23-(*)PN-20-**	1.5000	1.375	1.250	1.687	.154	.242
25	J	BP31-25-(*)PN-20-**	1.6250	1.500	1.375	1.811	.154	.242



JAM NUT MOUNT—BP51 RECEPTACLES (REF. D38999/23)

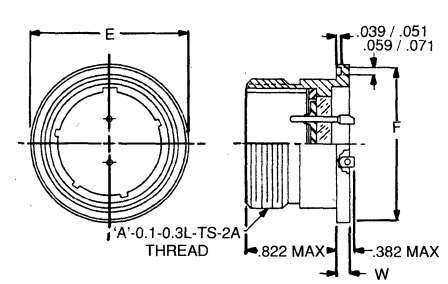
SHELL SIZE	MILITARY SHELL SIZE CODE	PART NUMBER	A THREAD	D ±.015	H ±.010	K +.012 −.004	M ±.016	Q +.012 −.000	V THREAD	†W +.000 −.010	Z MAX
9	A	BP51-9-(*)PN-20-**	.6250	1.125	.875	.102	1.063	.642	M17	.669	.232
11	B	BP51-11-(*)PN-20-**	.7500	1.125	1.000	.102	1.252	.764	M20	.769	.232
13	C	BP51-13-(*)PN-20-**	.8750	1.133	1.250	.102	1.374	.894	M25	.955	.224
15	D	BP51-15-(*)PN-20-**	1.0000	1.133	1.312	.102	1.500	1.020	M28	1.084	.224
17	E	BP51-17-(*)PN-20-**	1.1875	1.133	1.437	.102	1.626	1.142	M32	1.208	.224
19	F	BP51-19-(*)PN-20-**	1.2500	1.165	1.562	.134	1.811	1.268	M35	1.333	.224
21	G	BP51-21-(*)PN-20-**	1.3750	1.165	1.750	.134	1.937	1.394	M38	1.459	.224
23	H	BP51-23-(*)PN-20-**	1.5000	1.165	1.875	.134	2.063	1.520	M41	1.575	.224
25	J	BP51-25-(*)PN-20-**	1.6250	1.165	2.000	.134	2.189	1.642	M44	1.709	.224

N REQUIRED FOR NORMAL POSITION, REPLACE WITH APPROPRIATE ALTERNATE KEYWAY POSITION
SHELL SIZE 17 HAS MODIFIED MAJOR DIAMETER, 1.2520 - 1.2579
†RECOMMENDED 'D' HOLE PANEL DIMENSION



WELD MOUNT—BP63 RECEPTACLES (REF. MD38999/27)

SHELL SIZE	MILITARY SHELL SIZE CODE	PART NUMBER	A THREAD	E +.011 −.000	F +.000 −.011	W ±.008
9	A	BP63-9-(*)PN-20-**	.6250	.972	.941	.126
11	B	BP63-11-(*)PN-20-**	.7500	1.094	1.063	.126
13	C	BP63-13-(*)PN-20-**	.8750	1.220	1.189	.126
15	D	BP63-15-(*)PN-20-**	1.0000	1.346	1.315	.126
17	E	BP63-17-(*)PN-20-**	1.1875	1.433	1.401	.126
19	F	BP63-19-(*)PN-20-**	1.2500	1.578	1.547	.126
21	G	BP63-21-(*)PN-20-**	1.3750	1.720	1.689	.126
23	H	BP63-23-(*)PN-20-**	1.5000	1.885	1.854	.157
25	J	BP63-25-(*)PN-20-**	1.6250	1.972	1.941	.157



* REPLACE WITH INSERT ARRANGEMENT NUMBER
**REPLACE WITH FINISH CODE DESIGNATION
N REQUIRED FOR NORMAL POSITION, REPLACE WITH APPROPRIATE ALTERNATE KEYWAY POSITION

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PHONE: 908-679-9300 FAX: 908-679-9311
TOLL FREE 1-800-526-2828
ELECTRONIC COMPONENTS

MIL-C-83723 (SERIES 1)

BTC's hermetically sealed BK receptacles are designed in accordance with MIL-C-38723, series1 and meet all the requirements of this specification.

The BK receptacles have a bayonet coupling mechanism and are intermateable and intermountable with MIL-C-26482, series 1 connectors, and are identical to MIL-C-26482, series 2 receptacles. When intermated with MIL-C-26482, series 1 plugs, the minimum performance requirement for MIL-C-26482, series 1 is met.

The construction of the receptacles in the "all glass" type. The hermetic sealing is accomplished by the use of one single piece of vitreous material. An interfacial resilient seal is bonded to the glass. The raised tapered barriers around each contact of this interfacial seal lock into the lead-in chamfers of the plug insert and provide a positive seal between plug and receptacle.

Various special materials and finishes for shell and contacts, as well as weld-mounts and thermocouple applications, are available.

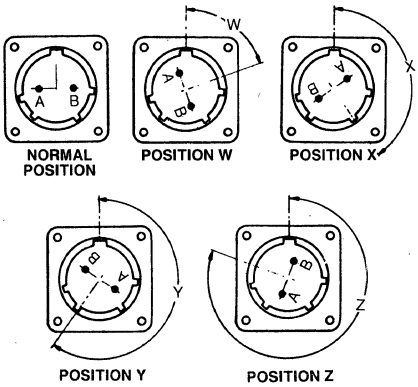
DESCRIPTION	BTC DESIGNATION	MILITARY DESIGNATION
BOX MOUNT	BK30-*-*PN-20 BK31-*-*PN-20	M83723/09H**N M83723/09Y**N
BOX MOUNT (WIDE FLANGE)	BK30A-*-*PN-20 BK31A-*-*PN-20	M83723/10H**N M83723/10Y**N
SOLDER MOUNT	BK20-*-*PN-20 BK21-*-*PN-20	M82323/11H**N M83723/11Y**N
JAM NUT MOUNT	BK50-*-*PN-20 BK51-*-*PN-20	M83723/12H**N M83723/12Y**N
MATING PLUG	M83723/13-MS3476	

INDEX OF INSERT ARRANGEMENTS

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 20	16	12	8	SERVICE RATING	ALTERNATE INSERT POSITIONS (DEGREES) W	X	Y	Z
8	8-2	2	2				I	58	122	—	—
	8-3	3	3				I	60	210	—	—
	8-4	4	4				I	45	—	—	—
	8-33	3	3				I	90	—	—	—
	8-98	3	3				I	—	—	—	—
10	10-6	6	6				I	90	—	—	—
	10-98	6	6				I	90	180	240	270
12	12-3	3		3			II	—	—	180	—
	12-8	8	8				I	90	112	203	292
	12-10	10	10				I	60	155	270	295
14	14-4	4			4		I	45	—	—	—
	14-5	5		5			II	40	92	184	273
	14-12	12	8	4			I	43	90	—	—
	14-15	15	14	1			I	17	110	155	234
	14-18	18	18				I	15	90	180	270
	14-19	19	19				I	30	165	315	—
16	16-8	8		8			II	54	152	180	331
	16-23	23	22	1			I	158	270	—	—
	16-26	26	26				I	60	—	275	338
18	18-8	8			8		I	180	—	—	—
	18-11	11		11			II	62	119	241	340
	18-30	30	29	1			I	180	193	285	350
	18-32	32	32				I	85	138	222	265

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 20	16	12	8	SERVICE RATING	ALTERNATE INSERT POSITIONS (DEGREES) W	X	Y	Z
20	20-16	16		16			II	238	318	333	347
	20-39	39	37	2			I	63	144	252	333
	20-41	41	41				I	45	126	225	—
22	22-21	21		21			II	16	135	175	349
	22-41	41	27	14			I	39	135	264	—
	22-25	55	55				I	30	142	226	314
24	24-61	61	61				I	90	180	270	324

ALTERNATE INSERT POSITIONS FRONT FACE OF PIN



PART NUMBER B K 3 0 - 1 4 - 1 9 P W - 2 0 - 8 E

INTERMATEABILITY
K–Intermateable with MIL-C-83723, series 1

SHELL STYLE
2–Solder mount (circular flange)
3–Box mount (square flange)
5–Jam nut mount

SHELL MATERIAL
0–Ferrous alloy
3–Stainless steel (type 303)

SHELL SIZE

INSERT ARRANGEMENT

FINISH
8E–Standard finish

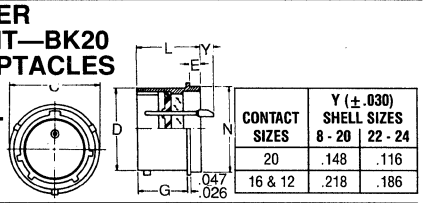
CONTACT MATERIAL
0–Nickel-iron alloy

CONTACT STYLE
1–Eyelet (not specified in MIL-C-83723)
2–Solder cup (standard)

ALTERNATE INSERT POSITION

CONTACT TYPE
P–Pin S–Socket

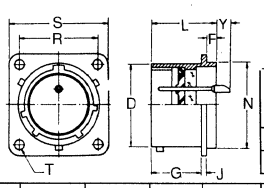
SOLDER MOUNT—BK20 RECEPTACLES (REF. MIL-C-83723 /11)



CONTACT SIZES	Y (±.030) SHELL SIZES 8 - 20	22 - 24
20	.148	.116
16 & 12	.218	.186

SIZE	PART NUMBER	C ±.010	D +.001 −.005	E ±.020	G ±.010	L MAX REF	N +.001 −.005
8	BK20-8-(**)P-20	.625	.473	.136	.588	.801	.562
10	BK20-10-(**)P-20	.750	.590				.672
12	BK20-12-(**)P-20	.844	.750				.781
14	BK20-14-(**)P-20	.969	.875				.906
16	BK20-16-(**)P-20	1.094	1.000				1.031
18	BK20-18-(**)P-20	1.218	1.125				1.156
20	BK20-20-(**)P-20	1.312	1.250	.168	.650	.863	1.250
22	BK20-22-(**)P-20	1.438	1.375			.895	1.375
24	BK20-24-(**)P-20	1.564	1.500				1.500

BOX MOUNT— BK30 RECEPTACLES (REF. MIL-C-83723/09)



CONTACT SIZES	Y (±.030) SHELL SIZES 8 - 20	22 - 24
20	.148	.116
16 & 12	.218	.186

SIZE	PART NUMBER	D +.001 −.005	F ±.010	G ±.010	J ±.016	L MAX REF	N +.001 −.005	NARROW FLANGE R ±.005	S ±.015	T ±.005
8	BK30-8-(**)P-20	.473	.115	.588	.062	.801	.562	.594	.812	.120
10	BK30-10-(**)P-20	.590					.672	.719	.937	
12	BK30-12-(**)P-20	.750					.781	.812	1.031	
14	BK30-14-(**)P-20	.875					.906	.906	1.125	
16	BK30-16-(**)P-20	1.000					1.031	.968	1.218	
18	BK30-18-(**)P-20	1.125					1.156	1.062	1.312	
20	BK30-20-(**)P-20	1.250	.083	.650	.094	.863	1.250	1.156	1.437	
22	BK30-22-(**)P-20	1.375	.115			.895	1.375	1.250	1.562	
24	BK30-24-(**)P-20	1.500					1.500	1.375	1.687	.147

ALTERNATE INSERT POSITION INDICATOR TO PLACED AFTER "P" FOR NORMAL INSERT POSITION USE "N"

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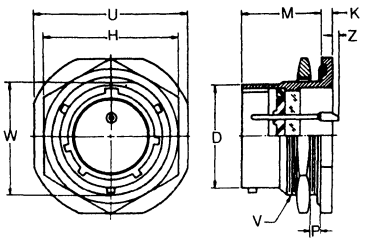
ELECTRONIC COMPONENTS

MIL-C-83723 (SERIES 1) con't

JAM NUT MOUNT—BK50 RECEPTACLES (REF. MIL-C-83723/12)

SIZE	PART NUMBER	D +.001 −.005	H ±.015	K ±.008	M ±.008	P PANEL THICKNESS MIN	P PANEL THICKNESS MAX	U ±.015	V THREAD UNEF-2A	W ±.005
8	BK50-8-(**)P-20	.473	.750	.105	.699	.062	.187	.938	.5625-24	.525
10	BK50-10-(**)P-20	.590	.875					1.062	.6875-24	.650
12	BK50-12-(**)P-20	.750	1.062					1.250	.8750-20	.813
14	BK50-14-(**)P-20	.875	1.188					1.375	1.0000-20	.937
16	BK50-16-(**)P-20	1.000	1.312					1.500	1.1250-18	1.061
18	BK50-18-(**)P-20	1.125	1.438					1.625	1.2500-18	1.186
20	BK50-20-(**)P-20	1.250	1.562	.138	.763		.250	1.812	1.3750-18	1.311
22	BK50-22-(**)P-20	1.375	1.688					1.938	1.5000-18	1.436
24	BK50-24-(**)P-20	1.500	1.812		.794			2.062	1.6250-18	1.561

ALTERNATE INSERT POSITION INDICATOR TO BE PLACED AFTER "P" FOR NORMAL INSERT POSITION USE "N"



CONTACT SIZE	Z (±.030) SHELL SIZES 8 - 18	20 - 22	24
20	.104	.069	.039
16 & 12	.174	.139	.109

MIL-C-83723 (SERIES 3)

GENERAL INFORMATION

BTC's hermetically sealed BM and BL receptacles are designed in accordance with MIL-C-83723, series 3, types B and T respectively and meet all the requirements of this specification.

The BM receptacles have a bayonet coupling mechanism are intermateable and intermountable with MIL-C-26500, type B connectors. The BL receptacles have a thread coupling mechanism and are intermateable and intermountable with MIL-C-26500, type T connectors.

The construction of the receptacles in the "all glass" type. The hermetic sealing is accomplished by the use of one single piece of vitreous material. An interfacial resilient seal is bonded to the glass. The raised tapered barriers around each contact of this interfacial seal lock into the lead-in chamfers of the plug insert providing a positive seal between plug and receptacle.

Various special materials and finishes for shell and contacts, as well as weld-mounts and thermocouple applications, are available.

THREAD COUPLING		
DESCRIPTION	BTC DESIGNATION	MILITARY DESIGNATION
BOX MOUNT	BL30-*-*PN-20 BL31-*-*PN-20	M83723/88H**N M83723/88Y**N
JAM NUT MOUNT	BL50-*-*PN-20 BL51-*-*PN-20	M82323/89H**N M83723/89Y**N
SOLDER MOUNT	BL20-*-*PN-20 BL21-*-*PN-20	M83723/90H**N M83723/90Y**N
MATING PLUG	M83723/86, M83723/91, M83723/95, M83723/97	

BAYONET COUPLING		
DESCRIPTION	BTC DESIGNATION	MILITARY DESIGNATION
BOX MOUNT	BM30-*-*PN-20 BM31-*-*PN-20	M83723/79H**N M83723/79Y**N
SOLDER MOUNT	BM20-*-*PN-20 BM21-*-*PN-20 BM20-*-*PN-40 BM21-*-*PN-40	M82323/80H**N M83723/80Y**N M83723/93H**N M83723/93Y**N
JAM NUT MOUNT	BM50-*-*PN-20 BM51-*-*PN-20 BM50-*-*PN-50 BM51-*-*PN-50	M83723/81H**N M83723/81Y**N M83723/94H**N M83723/94Y**N
MATING PLUG	M83723/75-M83723/77	

PART NUMBER

B L 2 0 - 1 8 - 3 1 P 6 - 2 0 - 8 E

INTERMATEABILITY
L-Intermateable with MIL-C-83723, series 3, type T
M-Intermateable with MIL-C-83723, series 3, type B

SHELL STYLE
2-Solder mount (circular flange)
3-Box mount (square flange)
5-Jam nut mount

SHELL MATERIAL
0-Ferrous alloy
3-Stainless steel (type 303)

SHELL SIZE

INSERT ARRANGEMENT

FINISH
8E-Standard finish

CONTACT MATERIAL
0-Nickel-iron alloy

CONTACT STYLE
1-Eyelet (not specified in MIL-C-83723)
2-Solder cup (standard)
4-Straight pin (solder mount, type B only)
5-Flex lead (jam nut mount, type B only)

ALTERNATE INSERT POSITION

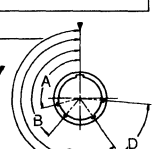
CONTACT TYPE
P-Pin S-Socket

INDEX OF INSERT ARRANGEMENTS

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 20	16	12
8	8-2	2	2		
	8-3	3	3		
	8-98	3	3		
10	10-2	2	2		
	10-5	5	5		
	10-6	6	6		
	10-20	2		2	
12	12-3	3		3	
	12-12	12	12		
14	14-4	4			4
	14-7	7		7	
	14-15	15	15		

SHELL SIZE	INSERT ARRANGEMENT	TOTAL CONTACTS	CONTACT SIZE 20	16	12
16	16-10	10		10	
	16-24	24	24		
18	18-14	14		14	
	18-31	31	31		
20	20-16	16		16	
	20-41	41	41		
22	22-19	19		19	
	22-32	32	26		6
	22-39	39	27	12	
	22-55	55	55		
24	24-61	61	61		

ALTERNATE KEYWAY POSITIONS FRONT FACE OF PIN INSERT SHOWN



SHELL SIZE	POSITION	A*	B*	C*	D*
*8 10	NORMAL	105	140	215	265
	6	102	132	248	320
	7	80	118	230	312
	8	35	140	205	275
	9	64	155	234	304
	Y	25	115	220	270
12, 14, 16, 18, 20, 22, 24	NORMAL	105	140	215	265
	6	18	149	192	259
	7	92	152	222	342
	8	84	152	204	334
	9	24	135	199	240
	Y	98	152	268	338

*NO POSITION Y PROVIDED FOR SIZE 8 SHELL

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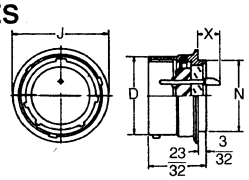
ELECTRONIC COMPONENTS

MIL-C-83723 (SERIES 3)

TYPE B

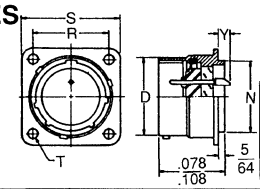
SOLDER MOUNT—BM20 RECEPTACLES (REF. MIL-C-83723/80)



CONTACT SIZE	X (MAX)
20	.330
16	.400
12	

SIZE	PART NUMBER	D +.000 −.005	J ±.020	N MAX
8	BM20-8-(*)PN-20	.536	.740	.500
10	BM20-10-(*)PN-20	.659	.840	.562
12	BM20-12-(*)PN-20	.829	1.045	.750
14	BM20-14-(*)PN-20	.898	1.090	.812
16	BM20-16-(*)PN-20	1.025	1.210	.937
18	BM20-18-(*)PN-20	1.131	1.340	1.062
20	BM20-20-(*)PN-20	1.256	1.430	1.187
22	BM20-22-(*)PN-20	1.381	1.590	1.312
24	BM20-24-(*)PN-20	1.506	1.710	1.437

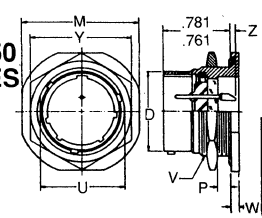
BOX MOUNT—BM30 RECEPTACLES (REF. MIL-C-83723/79)



CONTACT SIZE	X (MAX)
20	.330
16	.400
12	

SIZE	PART NUMBER	D +.000 −.005	N MAX	R ±.005	S ±.005	T +.000 −.009
8	BM30-8-(*)PN-20	.536	.500	.594	.812	.125
10	BM30-10-(*)PN-20	.659	.562	.719	.937	
12	BM30-12-(*)PN-20	.829	.750	.812	1.031	
14	BM30-14-(*)PN-20	.898	.812	.906	1.125	
16	BM30-16-(*)PN-20	1.025	.937	.969	1.250	
18	BM30-18-(*)PN-20	1.131	1.062	1.062	1.343	
20	BM30-20-(*)PN-20	1.256	1.187	1.156	1.437	
22	BM30-22-(*)PN-20	1.381	1.312	1.250	1.562	
24	BM30-24-(*)PN-20	1.506	1.437	1.375	1.703	.154

JAM NUT MOUNT—BM50 RECEPTACLES (REF. MIL-C-83723/81)

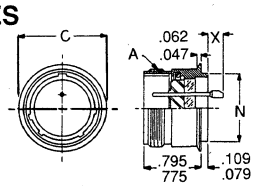


CONTACT SIZE	Z (MAX)
20	.165
16	.235
12	

SIZE	PART NUMBER	D +.000 −.005	M ±.005	P PANEL THICK-NESS	U ±.003	V THREAD CLASS 2A	W ±.020	Y MAX
8	BM50-8-(*)PN-20	.536	.979	1/16 MIN - 9/64 MAX	.593	.6250-20 UN	.117	.828
10	BM50-10-(*)PN-20	.659	1.104		.718	.7500-20 UNEF		.953
12	BM50-12-(*)PN-20	.829	1.291		.905	.9375-20 UNEF		1.140
14	BM50-14-(*)PN-20	.898	1.391		.968	1.0000-20 UNEF		1.250
16	BM50-16-(*)PN-20	1.025	1.516		1.093	1.1250-20 UN		1.329
18	BM50-18-(*)PN-20	1.131	1.641		1.217	1.2500-18 UNEF		1.455
20	BM50-20-(*)PN-20	1.256	1.766		1.342	1.3750-18 UNEF		1.642
22	BM50-22-(*)PN-20	1.381	1.954		1.467	1.5000-18 UNEF	.148	1.705
24	BM50-24-(*)PN-20	1.506	2.079		1.592	1.6250-18 UNEF		1.892

TYPE T

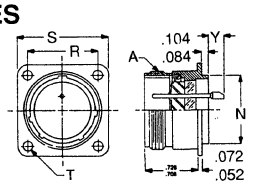
SOLDER MOUNT—BL20 RECEPTACLES (REF. MIL-C-83723/90)



CONTACT SIZE	X ±.030
20	.164
16 & 12	.194

SIZE	PART NUMBER	A THREAD UNEF-2A	C ±.010	N +.000 −.006
8	BL20-8-(*)PN-20	.5625-24	.713	.500
10	BL20-10-(*)PN-20	.6875-24	.840	.562
12	BL20-12-(*)PN-20	.8750-20	1.045	.750
14	BL20-14-(*)PN-20	.9375-20	1.090	.812
16	BL20-16-(*)PN-20	1.0625-18	1.210	.937
18	BL20-18-(*)PN-20	1.1875-18	1.340	1.062
20	BL20-20-(*)PN-20	1.3125-18	1.475	1.182
22	BL20-22-(*)PN-20	1.4375-18	1.590	1.312
24	BL20-24-(*)PN-20	1.5625-18	1.725	1.432

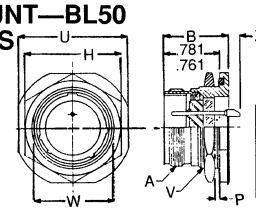
BOX MOUNT—BL30 RECEPTACLES (REF. MIL-C-83723/88)



CONTACT SIZE	X ±.030
20	.164
16 & 12	.194

SIZE	PART NUMBER	A THREAD UNEF-2A	N +.000 −.006	R ±.005	S ±.005
8	BL30-8-(*)PN-20	.5625-24	.500	.594	.812
10	BL30-10-(*)PN-20	.6875-24	.562	.719	.937
12	BL30-12-(*)PN-20	.8750-20	.750	.812	1.031
14	BL30-14-(*)PN-20	.9375-20	.812	.906	1.125
16	BL30-16-(*)PN-20	1.0625-18	.937	.969	1.250
18	BL30-18-(*)PN-20	1.1875-18	1.062	1.062	1.343
20	BL30-20-(*)PN-20	1.3125-18	1.182	1.156	1.437
22	BL30-22-(*)PN-20	1.4375-18	1.312	1.250	1.562
24	BL30-24-(*)PN-20	1.5625-18	1.432	1.375	1.703

JAM NUT MOUNT—BL50 RECEPTACLES (REF. MIL-C-83723/89)



CONTACT SIZE	Z (±.030) SHELL SIZES 8 - 18	22
20	.150	.139
16 & 12	.180	.169

SIZE	PART NUMBER	A THREAD UNEF-2A	B MAX REF	M ±.015	P PANEL THICK-NESS	U ±.015	V THREAD UNEF-2A	W ±.003
8	BL50-8-(*)PN-20	.5625-24	.918	.812	.062 MIN/.125 MAX	.964	.6250-20	.593
10	BL50-10-(*)PN-20	.6875-24		.937		1.088	.7500-20	.718
12	BL50-12-(*)PN-20	.8750-20		1.125		1.275	.9375-20	.905
14	BL50-14-(*)PN-20	.9375-20		1.187		1.375	1.0000-20	.968
16	BL50-16-(*)PN-20	1.0625-18		1.312		1.500	1.1250-18	1.093
18	BL50-18-(*)PN-20	1.1875-18		1.437		1.625	1.2500-18	1.217
20	BL50-20-(*)PN-20	1.3125-18		1.562		1.750	1.3750-18	1.342
22	BL50-22-(*)PN-20	1.4375-18	.928	1.687		1.938	1.5000-18	1.467
24	BL50-24-(*)PN-20	1.5625-18		1.812		2.063	1.6250-18	1.592

ALTERNATE KEYWAY POSITION INDICATOR TO BE PLACED AFTER "P" FOR NORMAL KEYWAY POSITION USE "N"

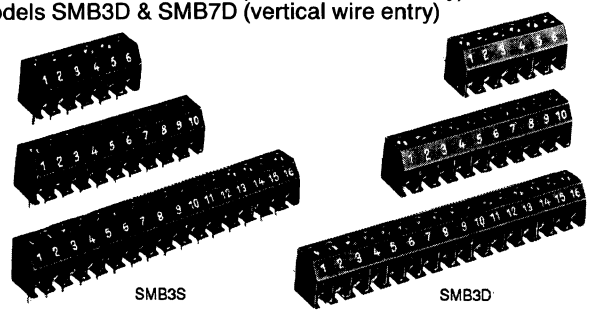
ALL HERMETICALLY SEALED CONNECTORS STOCKED BY BTC ARE MANUFACTURED IN THE U.S.A. BY CONNECTOR INDUSTRIES OF AMERICA.

BUCHANAN® PC board-mount electronic connectors

UL Recognized Component — CSA Certified — VDE Approved

ONE-PIECE SUBMINIATURE

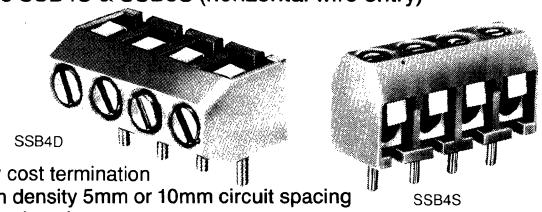
Models SMB3S & SMB7S (horizontal wire entry)
Models SMB3D & SMB7D (vertical wire entry)



- **Extra high density—the smallest screw dedicated connector on the market—3,5mm circuit spacing**
- 7+ circuits per inch
- 7mm circuit spacing also available for higher voltages
- Maintains center-to-center spacing when aligned end-to-end
- Nylon housing
- 125V rating (3,5mm)
  300V rating (7mm)
- #14 to #20 AWG wire range
- Also available with wire protectors (consult factory)
- Reliable screw connections
- Superior solderability

ONE-PIECE

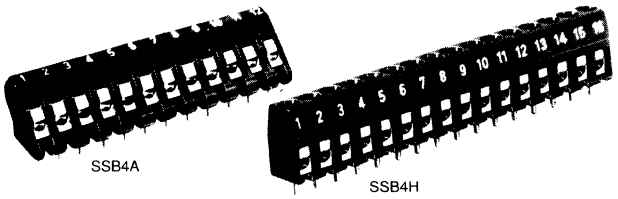
Models SSB4D & SSB5D (vertical wire entry)
Models SSB4S & SSB5S (horizontal wire entry)



- Low cost termination
- High density 5mm or 10mm circuit spacing
- Nylon housing
- 125V rating (5mm), 300V rating (10mm)
- Horizontal or vertical wire entry
- Floating terminals also fit 5,08mm circuit centers
- #14 to #30 AWG wire range

ONE-PIECE

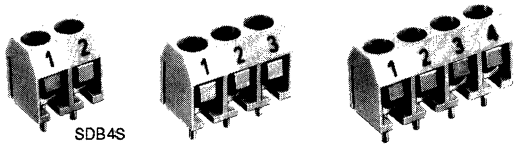
Models SSB4A & SSB5A (angular profile)
Models SSB4H & SSB5H (high profile)



- Convenient 45° angular wire connection or standard vertical mounting
- Extra safety without extra cost: deeply recessed captive screws
- 300V rating (5mm), 600V rating (10mm)
- #12 to #30 AWG wire range

MODULAR ONE-PIECE

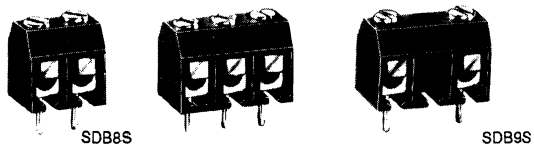
Model SDB4S (5mm)
Model SDB5S (10mm)



- Lowest cost termination
- Convenient dovetail construction for secure extended end-to-end mounting
- 2,3 and 4-circuit configurations to facilitate low inventory
- Maintains center-to-center circuit spacing when aligned end-to-end
- High density 5mm circuit spacing plus 10mm circuit spacing for higher voltage

MODULAR ONE-PIECE

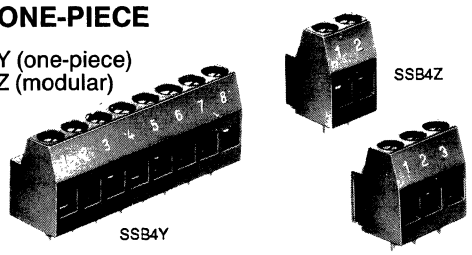
Model SDB8S (5,08mm)
Model SDB9S (10,16mm)



- 5,08mm (.200 in.) circuit spacing and 10,16 (.400 in.) circuit spacing for higher voltage
- Convenient dovetail construction maintains center-to-center circuit spacing
- 2,3 and 4-circuit configurations facilitate low inventory
- Low cost
- Internal wire protection

MODULAR ONE-PIECE

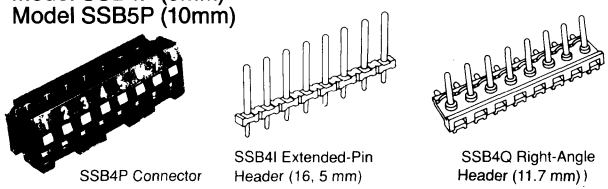
Model SSB4/5Y (one-piece)
Model SSB4/5Z (modular)



- "Lift system" wire connection for superior termination
- Two configurations—a one-piece connector or a modular connector
- Cage-clamp design prevents wire insertion below cage
- Highly accurate dovetail joining system for end-to-end mounting with constant circuit spacing
- Closed-bottom housing eliminates flux/solder wicking
- 5mm or 10mm circuit spacing

VERTICAL PLUG-IN

Model SSB4P (5mm)
Model SSB5P (10mm)



- Low cost plug-in connection and disconnection
- Latching pins for shock/vibration resistance and polarizing pins available
- Unique 7-point socket contact design for low contact resistance
- 5mm or 10mm circuit spacing
- Flush-mount design—reduces stress on solder connections

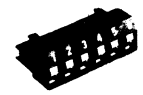
AMERACE CORPORATION - INDUSTRIAL ELECTRICAL PRODUCTS
530 W. Mt. Pleasant Avenue, Livingston, NJ 07039-1790 • (201) 992-8400 • FAX: 201-992-9416 • TELEX: 13-8403

BUCHANAN® PC board-mount electronic connectors

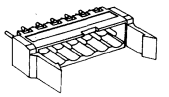
UL Recognized Component — CSA Certified — VDE Approved

HORIZONTAL/VERTICAL PLUG-IN

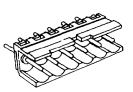
Model SSB4L (5mm)
Model SSB5L (10mm)



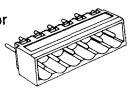
SSB4L Connector



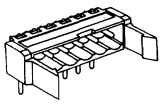
SLB4F Vertical Latching Header



SSB4W Vertical Header



SSB4F Closed-End Vertical Header

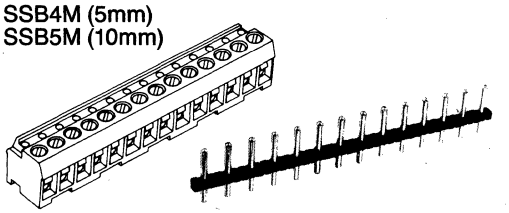


SLB4E Right-Angle Latching Header

- Low profile, horizontal or vertical plug-in connection
- Simultaneous connect or disconnect of as many as 20 wires
- Unique 7-point socket contact design for low contact resistance
- Captive screws and spring-loaded wire protectors
- 5mm or 10mm circuit spacing

FLUSH-MOUNT HEADERS

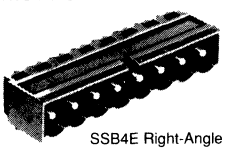
Model SSB4M (5mm)
Model SSB5M (10mm)



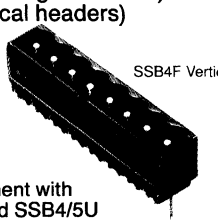
- Low cost flush-mount mating with connector SSB4/5P
- Brass pins with silver plating
- 300V rating (5mm), 600V rating (10mm)
- Superior solderability
- Strips from 2 to 24 pins in length (5mm)
- Nylon insulator

CLOSED-END HEADERS

Models SSB4E & SSB5E (right-angle headers)
Models SSB4F & SSB5F (vertical headers)



SSB4E Right-Angle Header



SSB4F Vertical Header

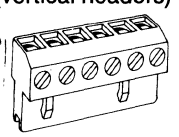
- Closed ends prevent misalignment with plug-in connectors SSB4/5L and SSB4/5U
- Especially convenient for frequent connection and disconnection without error
- Both 5mm and 10mm pin spacing
- Horizontal or vertical configurations
- Nylon housing

OPEN-END HEADERS

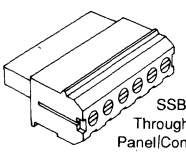
Models SSB4/5K (right-angle headers)
Models SSB4/5W (vertical headers)

SSB4W Vertical Header

SSB4K Right Angle Header



SSB4L Plug-in Connector



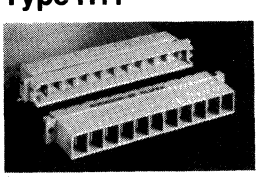
SSB4U Through-the-Panel/Connector

- Horizontal or vertical mating with through-the-panel connector SSB4/5U or plug-in connector SSB4/5L
- 5mm or 10mm pin spacing
- Brass Pins with silver plating
- Nylon housing
- Strip Lengths from 2 to 22 pins (5mm)

BUCHANAN® 2E power DIN 41612 electronic connectors

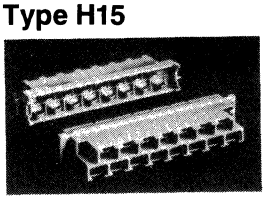
UL Recognized Component — CSA Certified — VDE Approved

Type H11



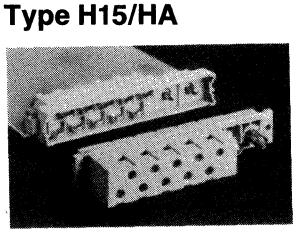
- Eleven 20 amp. terminals
- Optional leader pin in position 32, or positions 2 and 32—for first-make/last-break connection
- External or Integral polarization options available
- Varied termination styles
- Quick-connect terminals accept standard .250 in. x .032 in. uninsulated lugs

Type H15



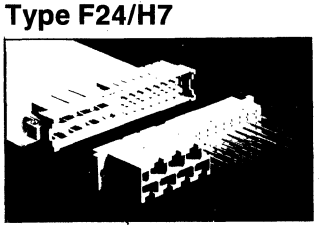
- Fifteen 15 amp. terminals
- Optional leader pin in position 32 for first-make/last-break connection
- External or Integral polarization options available
- 90° angle solder pins may be broken-off to serve as quick-connect contacts on the termination side of male connectors
- Varied termination styles

Type H15/HA



- Ten 15 amp. plus two 50 amp. terminals for power flexibility
- Optional leader pin in position 32 for first-make/last-break connection
- External or Integral polarization options available
- Varied termination styles

Type F24/H7



- Both signal and power terminals in one connector
- Twenty-four 6 amp. terminals plus seven 15 amp. terminals
- Optional leader pin in position 32 for first-make/last-break connection
- External polarization option available
- Varied termination styles

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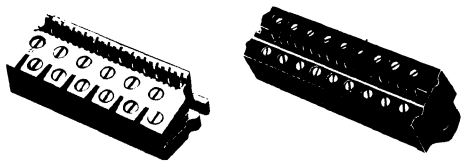
BUCHANAN® card edge electronic connectors and single screw barrier strips

—UL Recognized Component —CSA Certified —VDE Approved

CARD EDGE

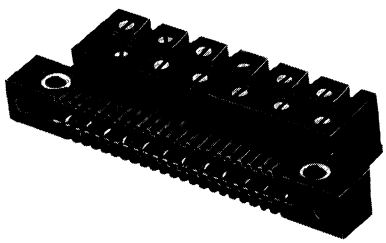
Model PCB1A and PCB1B



- .200″ or high density .156″ contact spacing for enclosed areas
- Connections on one or both sides of PC board—horizontal or vertical orientation
- Funneled wire entry ports
- Recessed contacts to prevent stubbing
- Dead-front construction
- No wire lugging, crimping, soldering or wrapping

CARD EDGE

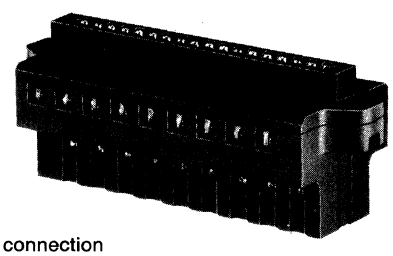
Model PCB3A



- Convenient PCB connection for areas close to vertical surfaces
- Corrugated socket walls minimize warpage and maximize heat dissipation
- Also suitable for free standing, surface, panel mount or card cage mounting
- Accommodates boards with as many as 44 circuits
- Funneled wire entry ports

CARD EDGE

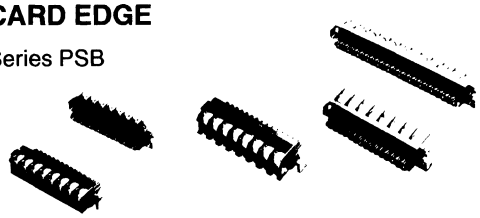
Model PCB5B



- Double-sided PCB connection
- Optional temperature stabilization (± ½°)
- Bifurcated, cantilever contacts provide 2 contacts for each position
- .156 in. (4mm) Circuit spacing with 18 contacts on each side of the PC board
- Repeated insertion/removal does not score card edge fingers

CARD EDGE

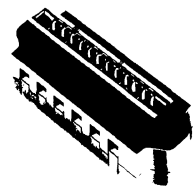
Series PSB



- Barrier strip flexibility plus card-edge connector convenience
- No soldering or intermediate connections
- .375 in. circuit spacing
- Tuning fork contact design provides reliable retention pressure
- No screwdriver damage to PC boards
- Secure, three-sided screw contact isolation at 90° or 45° angles
- Through-the-panel or horizontal surface mounting

CARD EDGE

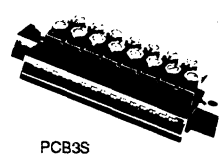
Model PCB2B



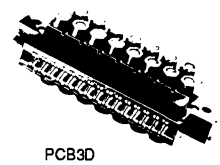
- Simplified through-the-panel or card rack mounting
- Screw connections on back side isolate field installer and eliminate torque damage
- Recessed contacts prevent stubbing
- Dead-front construction
- No wire iugging, crimping, soldering or wrapping
- Glass-filled polyester insulator

CARD EDGE

Models PCB3S and PCB3D



PCB3S



PCB3D

- Single or double-sided PCB connection
- Bifurcated, cantilever contacts on .156 in. (4mm) centerlines
- Non-rotating wire contacts accept #16 through #30 AWG wire sizes
- Meets MIL-C-21097 for insertion/withdrawal forces
- No wire lugging, crimping, soldering or wrapping

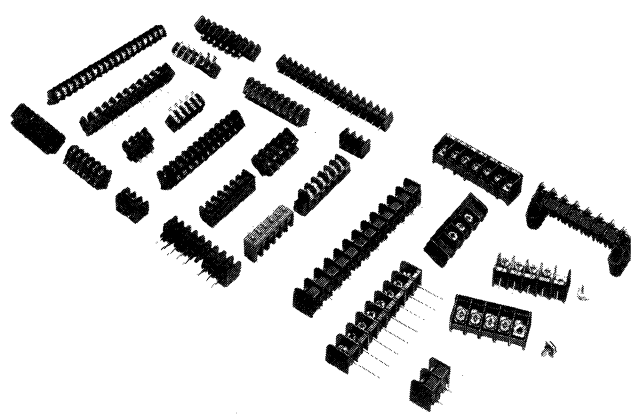
BUCHANAN®

PC board-mount electronic connectors

UL Recognized Component —CSA Certified —VDE Approved

SINGLE SCREW BARRIER STRIPS

Series SSB3/6/7 and RSB3/6



- Maximum circuit isolation—2 or 3 barriers
- Fast wiring—backed-out screws
- High pull-out resistance
- 300V rating (SSB3/6, RSB3/6)
  600V rating (SSB7)
- 5 bottom terminal styles, horizontal and vertical configurations
- Closed or turret bases
- Polypropylene insulator

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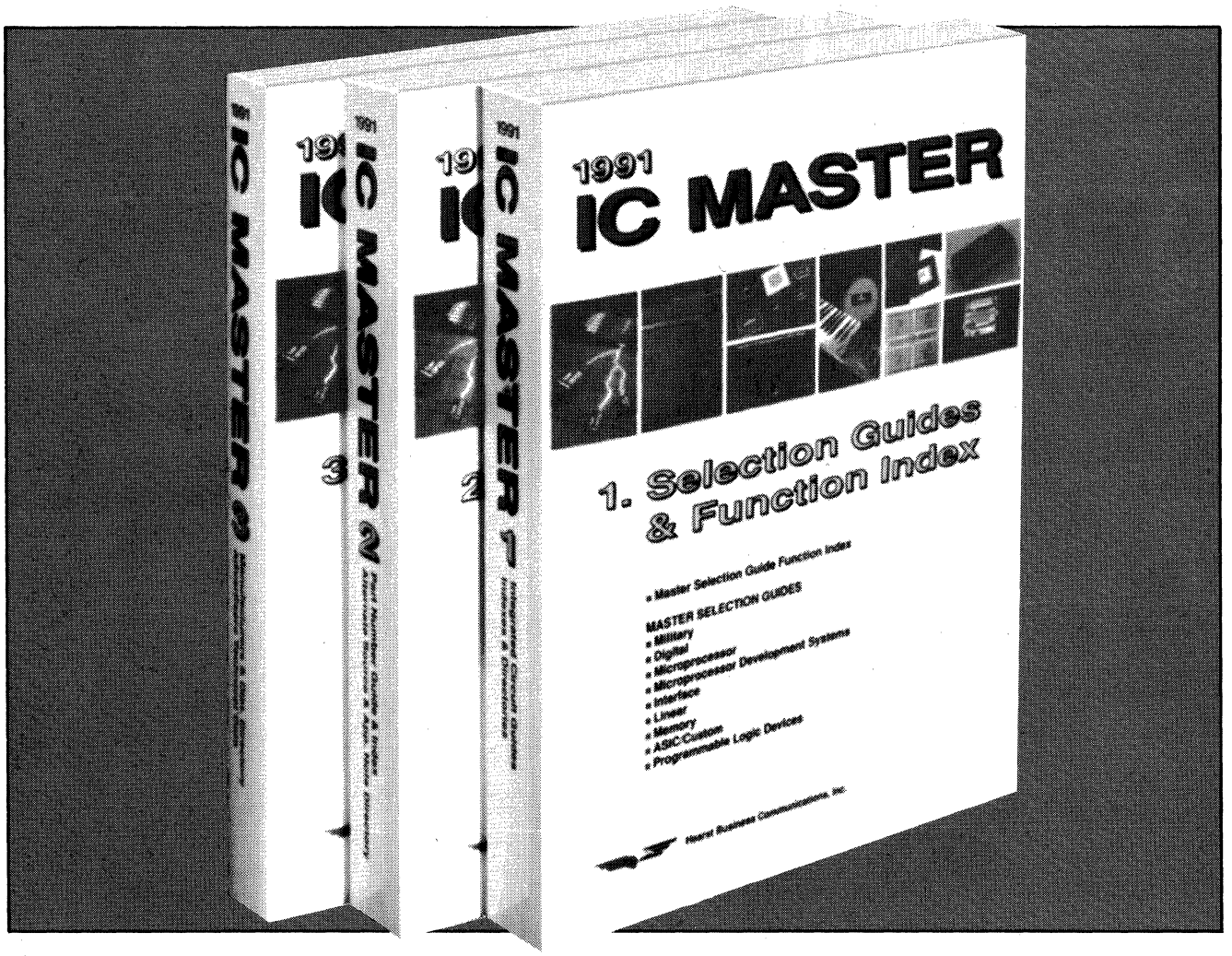

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Do we have good news for you! Get your hands on the latest annual copy of the IC Master. The Master will save you both time and money. Here's how.

The Master lists every single IC you can buy. Better yet, the Master lists ICs by function. You know what you want to do. The Master tells you who makes what for what you want to do.

There's more! The Master lists every known alternate source to every integrated circuit. If somebody makes a substitute for an IC, the Master tells you. And fast!

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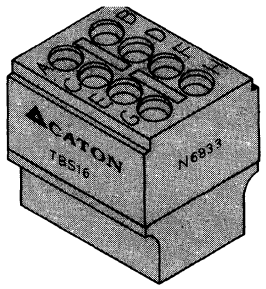
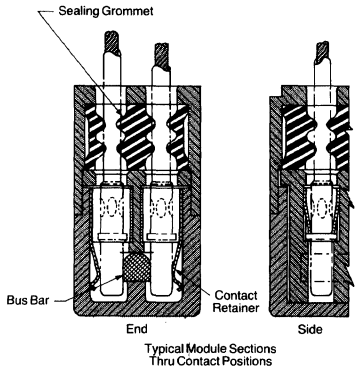
And, if you tell her you saw it in the 1991/92 EEM, she'll take $10 off the subscription price!

IC MASTER

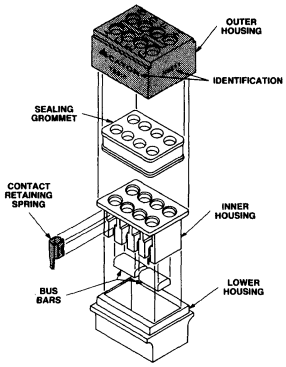
SEALOK®

an Environmentally Sealed Modular Interconnection System





Typical Module Sections Thru Contact Positions



Description

Caton Connector announces **SEALOK**, an environmentally sealed modular interconnection system for shipboard, aircraft, aerospace and many industrial commercial applications where protection against environment is required.

Caton offers in **SEALOK** a compact system that:

- Functions over a wide range of temperature, vibration and shock without variations in contact resistance.
- Protects electrical junctions from humidity and corrosive attack.
- Provides wiring flexibility.
- Can be readily installed and serviced by tools common in industry.

Features

Outer Housing. The outer shell of the **SEALOK** module is constructed in two halves of glass-filled diallyl phthalate, a lightweight thermosetting plastic ***that protects the sealing grommet and other internal components from damage.*** The two halves are bonded in an area where the adhesive will not contaminate contact and locking surfaces.

The hard top of the outer housing:

- Ensures maximum seal effectiveness even if severe training of wires occurs.
- Provides a guide for proper insertion and extraction of contacts.
- Offers a surface for clear identification of contact positions and bussing arrangements.
- Minimizes exposure of sealing gland surfaces to injurious fluids.

Material

Molded Housing:
Glass-filled, thermosetting diallyl phthalate per MIL-M-14F, Type SDG-F. Color green.

Sealing Grommet:
Silicone rubber compound

Contact Retaining Spring:
Beryllium copper per Fed. Spec QQ-C-533

Bus Bar:
Brass per Fed. Spec. QQ-B-626b. Plated .00030 min. hard gold

Sealing Plugs:
Heat-resistant plastic. Color coded

Track:
Extruded aluminum (6063) per Fed. Spec. QQ-A-200/9a

End Clamp:
Die-cast anodized aluminum (A380) per MIL-F-14072, Type II. Color silver gray

Spacer:
Heat-resistant plastic. Color yellow

Hardware:
Stainless steel per MIL-S-7720

Performance Characteristics

Dielectric Withstanding Voltage:
(Sea level) 1500 volts AC minimum
(70,000 ft., wires removed) 275 volts AC minimum
(70,000 ft., wires installed) 1000 volts AC minimum

Maximum Current Rating:

TBS20-__-1	7.5 amperes
TBS1620-__-1	20.0 amperes
TBS 16-__-1	20.0 amperes

Operating Temperature:
−55°C to +150°C

Voltage Drop:
(Measured per MIL-C-26636 across two adjacent wires at max. rated current)

TBS20-__-1	26 millivolts max.
TBS1620-__-1	46 millivolts max.
TBS16-__-1	46 millivolts max.

Insulation Resistance:
5000 megohms min. at 25°C
2000 megohms min. at 200°C

Contact Retention Force:

YTB20-2D45	20 lbs. min.
YTB16-1D45	25 lbs. min.

Humidity:
per MIL-STD-202, Method 106. Insulation resistance 1000 megohms min.

Vibration:
per MIL-STD-202, Method 204. Condition D. No loosening of parts, damage or discontinuity in excess of one microsecond

Durability:
(18 cycles of insertions and withdrawals) Meets all applicable requirements after durability cycling.

High Impact Shock:
per MIL-STD-202, Method 207. No loosening of parts, damage or discontinuity in excess of one microsecond

Fluid Immersion:
(Five Cycles of two-minute immersion and 23-hour wait) **SEALOK** module is unaffected by lubrication oil per MIL-L-9236 or by jet fuel JP-4 per MIL-J-5624

SEALOK™ – Manufactured under license from the Burndy Corporation.

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16 Series
High Voltage Cable Assemblies

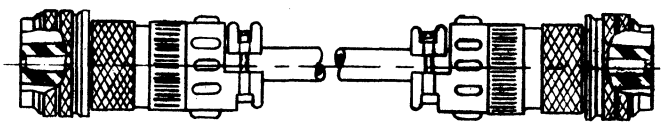
The **16 Series** is a basic and proven design. Standard quality materials, customization and a long track record make this series idea for most High Voltage Corona-Free cable assembly requirements.

Pictured here are some typical cable assembly configurations. We are not limited to just these assemblies, so please consult your local sales representative or call **CATON** directly with your requirements. We have **1 through 13 connector assemblies available as standard product.**

The **16 Series** utilizes standard MIL-C-5015 Class E aluminum shells. These inserts are resilient silicone per ZZ-R-765 with tapered self centering contours. When mated, all air is excluded thereby making the connection impervious to the outside environment. All shields are circumferentially terminated using a grounding wedge which provides an excellent ground circuit and overall assembly durability.

Factory terminated assemblies have corona inception voltages of 4 KVDC thru 20 KVDC when measured on a corona test set with a minimum sensitivity of 15 picocoulombs.

TYPE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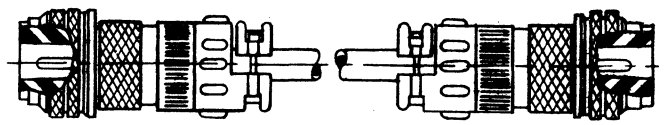
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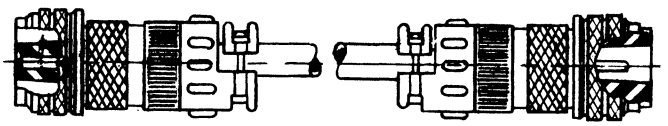
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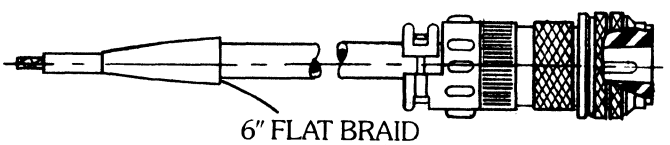
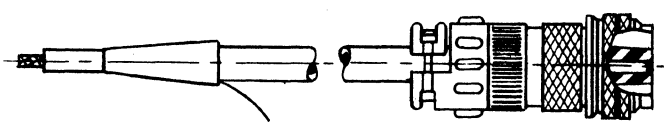
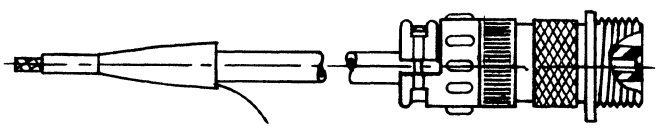
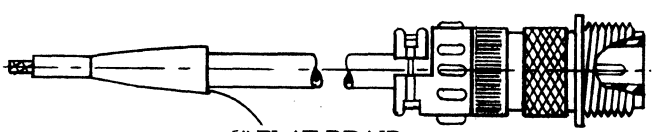
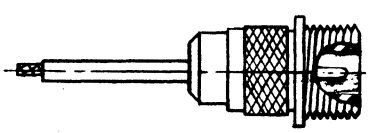

6″ FLAT BRAID
4


6″ FLAT BRAID
5


6″ FLAT BRAID
6


6″ FLAT BRAID
7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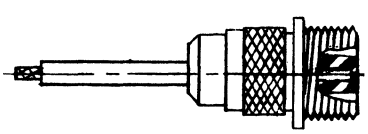
9

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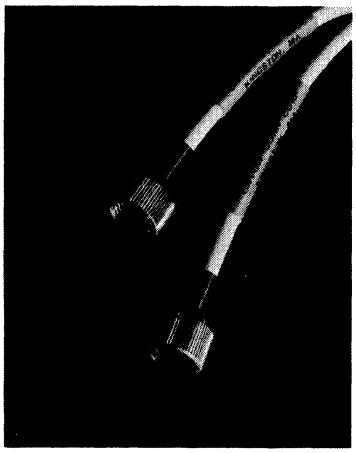
17 Series

High Voltage Lead Connectors



Tripping of sensitive logic circuitry, power loss and eventual failure are the three main problems Corona can cause. The **CATON 17Series** is designed for Corona-Free performance...2-1/2 times superior than AMP assemblies.

CATON assemblies have corona inception voltages of at least 5 KVAC as measured on a corona test set with a minimum sensitivity of 5 picocoulombs.

AMP P/N	CATON P/N	AMP P/N	CATON P/N	AMP P/N	CATON P/N
	S13046-L				
830126-2	S13057-L	862550-4	S13057-L	1-849104-5	S13060-L
830637-5	S13047-L	862550-6	S13057-L	1-849104-6	S13060-L
830638-2	S13059-L	862550-8	S13057-L	1-849616-0	S13061-L
830638-6	S13059-L	862550-9	S13057-L	1-849616-5	S13061-L
830638-9	S13059-L	862551-1	S13047-L	1-861814-5	S13061-L
837655-0	S13056-L	862551-4	S13047-L	1-861814-6	S13061-L
837655-5	S13056-L	862551-6	S13047-L	1-861814-9	S13061-L
837655-7	S13056-L	862551-8	S13047-L	1-862550-3	S13057-L
837701-7	S13056-L	863701-5	S13056-L	1-862551-2	S13047-L
846938-8	S13062-L	863701-8	S13056-L	1-862551-5	S13047-L
849099-4	S13063-L	863702-2	S13057-L	1-863701-0	S13056-L
849099-7	S13063-L	863703-1	S13056-L	1-863701-1	S13056-L
849099-9	S13063-L	863703-4	S13056-L	1-863701-3	S13056-L
849103-1	S13063-L	863703-6	S13056-L	1-863702-2	S13057-L
849103-5	S13063-L	863703-8	S13056-L	1-863702-3	S13057-L
849104-1	S13060-L	863703-9	S13056-L	1-863702-6	S13057-L
849616-7	S13061-L	863705-5	S13047-L	1-863702-7	S13057-L
861811-1	S13063-L	863706-2	S13059-L	1-863705-2	S13047-L
861811-4	S13063-L	863706-6	S13059-L	1-863705-3	S13047-L
861811-5	S13063-L	863706-9	S13059-L	1-863706-5	S13059-L
861812-1	S13060-L	863707-1	S13047-L	1-863706-9	S13059-L
861812-2	S13060-L	863707-4	S13047-L	1-863707-2	S13047-L
861812-3	S13060-L	863707-6	S13047-L	1-863707-5	S13047-L
861812-4	S13060-L	863707-8	S13047-L	2-830126-1	S13057-L
861813-1	S13062-L	1-830126-2	S13057-L	2-830637-1	S13047-L
861813-2	S13062-L	1-830126-3	S13057-L	2-830637-4	S13047-L
861813-6	S13062-L	1-830126-6	S13057-L	2-830637-8	S13047-L
861814-1	S13061-L	1-830126-7	S13057-L	2-830638-0	S13059-L
862444-3	S13048-L	1-830637-2	S13047-L	2-846930-0	S13062-L
862484-4	S13048-L	1-830637-3	S13047-L	2-846938-0	S13062-L
862484-7	S13048-L	1-830638-5	S13059-L	2-849616-2	S13061-L
862484-8	S13048-L	1-830638-9	S13059-L	2-861814-1	S13061-L
862549-1	S13056-L	1-837655-0	S13056-L	2-863637-8	S13047-L
862549-4	S13056-L	1-837655-1	S13056-L	2-863702-1	S13057-L
862549-6	S13056-L	1-837655-3	S13056-L	2-863705-1	S13047-L
862549-8	S13056-L	1-846938-6	S13062-L	2-863705-4	S13047-L
862549-9	S13056-L	1-849099-2	S13063-L	2-863705-8	S13047-L
862550-1	S13057-L	1-849103-9	S13063-L	2-863706-0	S13059-L

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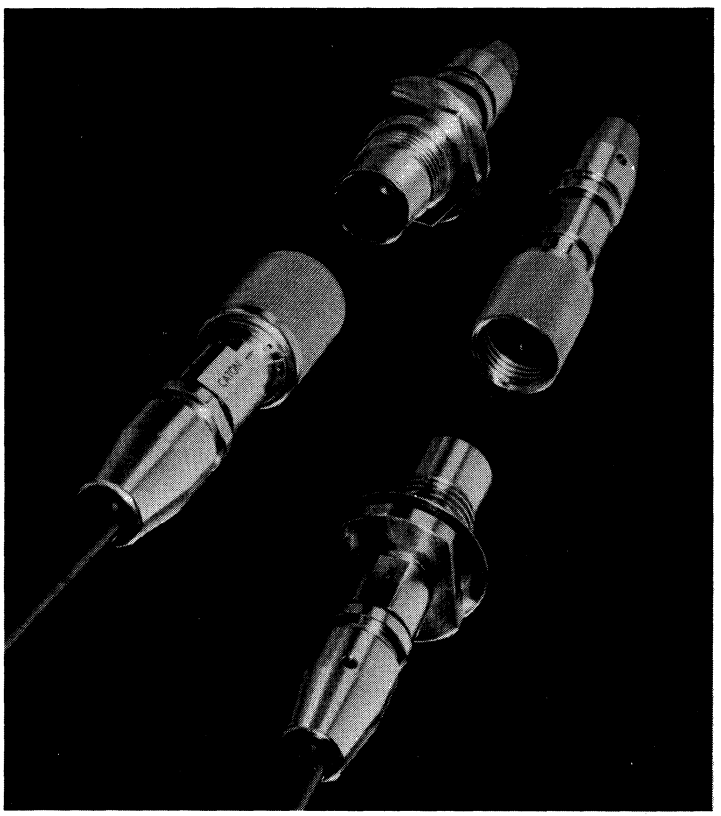
CATON

Caton Connector Corporation

18 Series

High Voltage Cable Assemblies



Caton 18 Series

The **18 Series** are high quality, high voltage, Corona-Free connectors which are designed for use with RG-214 coaxial cable.

General Specifications and Capabilities

Connectors are designed for use with RG-214 Coaxial Cable (13 AWG .425 jacket O.D.)

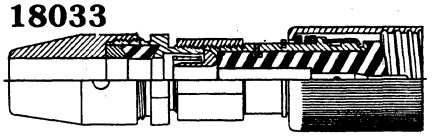
MECHANICAL: Shell and Basic Hardware: 1/2 Hard Brass per QQ-B-626 Alloy 360 Nickel Plate per QQ-N-290, Class 2 Type VI, Over Copper Flash per MIL-C-14550, Class 4

MOUNTING HARDWARE: 1/2 Hard Brass per QQ-B-626 Alloy 360 Nickel Plate per QQ-N-290, Class 2 Type VI, Over Copper Flash per MIL-C-14550, Class 4.

ELECTRICAL: (When properly assembled and mated)
Operating Voltage: 6.6 KVRMS
Dielectric Withstanding Voltage: 10 KVRMS
Current: 20 Amps
Corona Extinction Voltage: 5.3 KVRMS

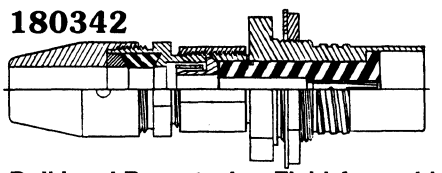
ENVIRONMENTAL: (When properly assembled and mated)
Operating Temperature: 0 to +125°C
Altitude: Rated values shall be maintained to an altitude of 10,000 feet.

18033



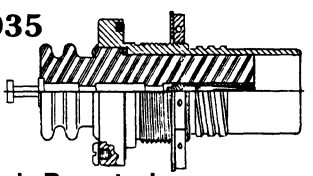
Cable Plug—Field Assembly
Mates with: 18034 and 18035

180342



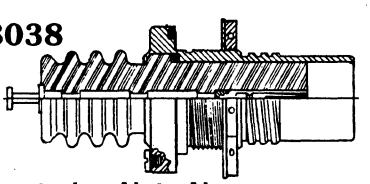
Bulkhead Receptacle—Field Assembly
Mates with: 18033

18035



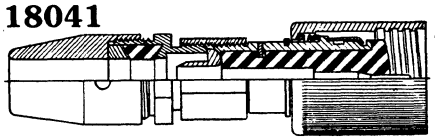
Chassis Receptacle
Mates with: 18033

18038



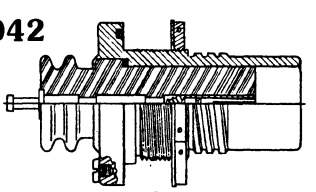
Receptacle—Air to Air
Mates with: 18033

18041



Cable Plug—Field Assembly
Mates with: 18042

18042



Chassis Receptacle
Mates with: 18041

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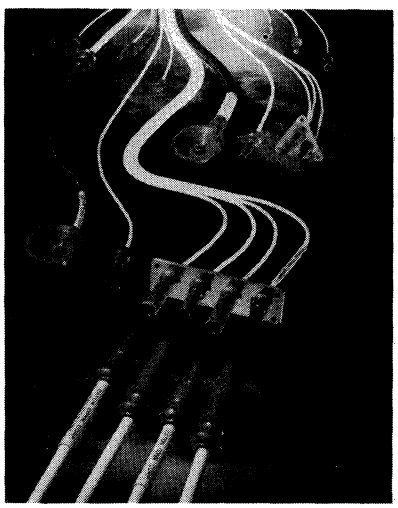
CATON

Caton Connector Corporation

14 Series
Silicone In-Line Connectors

Whether the application is a Clean Room test hookup or an oil and water laden harsh environment, the 14 Series offers space saving reliable High Voltage performance at costs below conventional shell type connectors.

Air is completely excluded when these connectors are mated thereby making the connection impervious to air, water and most oils. The resilient silicone connector bodies offer quick connect and disconnect while still maintaining a pull out force of 10-13 lbs.



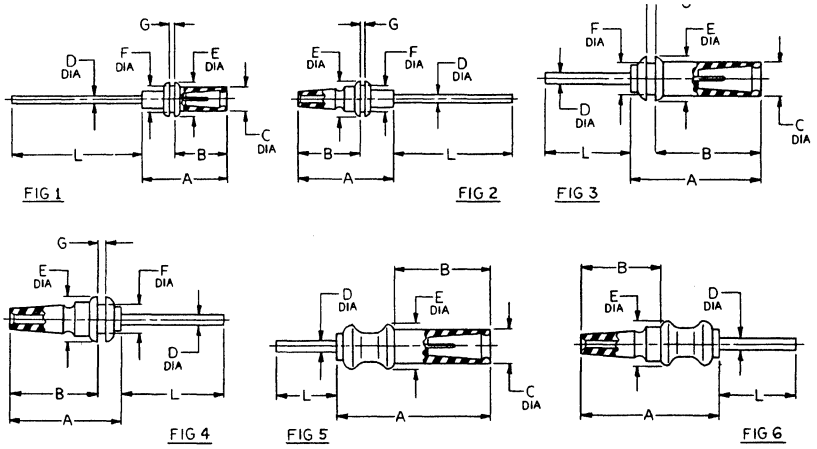


FIG 1 FIG 2 FIG 3 FIG 4 FIG 5 FIG 6

Features

- 10-45 KVDC operating voltages
- 7.5-30 amp continuous
- grommet or in-line mounting
- wire directly molded to connector body
- −55° to +125°C
- no degradation to 70,000 feet

Specifications

Connector body: silicone rubber per ZZ-R-765
55 (female)−75 (male) durometer, color red
Female socket contacts: bronze per ASTMB-140, alloy B, gold plated MIL-G-45204
Male contacts: ½ hard brass per QQ-B-611A.
gold plated per MIL-G-45204
Wire: silicone tinned copper stranded, color white per MIL-W-16878/8

Applications

The PM Series has been used on applications such as land or airborne radar, photocopy equipment (corona spells trouble in these machines), CRT displays, printing presses, and laboratory hook-ups.

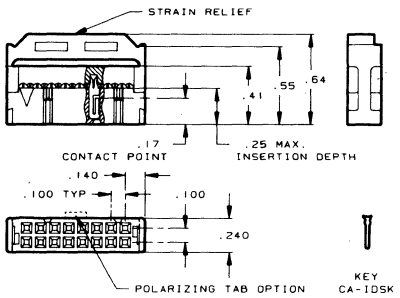
CATON P/N	VOLTAGE RATING	FIG	CONTACT SIZE	A	B	C	D	E	F	G	MATING P/N'S
PM105M	10KVDC	1	.040	1.20	.75	.35	.10	.48	.36	.06	PM105F
PM105F	10KVDC	2	.040	1.30	.85	---	.10	.48	.36	.06	PM105M
PM200M	30KVDC	3	.062	1.81	1.47	.47	.14	.62	.43	.12	PM200F PM210F
PM200F	30KVDC	4	.062	1.96	1.22	---	.14	.62	.43	.12	PM200M PM210M
PM210M	30KVDC	5	.062	2.16	1.37	.47	.14	.62	---	---	PM200F PM210F
PM210F	30KVDC	6	.062	1.94	1.12	---	.14	.62	---	---	PM200M PM210M
PM300M	45KVDC	3	.080	2.23	1.87	.49	.30	.78	.53	.12	PM300F PM310F
PM300F	45KVDC	4	.080	1.93	1.60	---	.30	.78	.53	.12	PM300M PM310M
PM310M	45KVDC	5	.080	2.62	1.72	.59	.30	.78	---	---	PM300F PM310F
PM310F	45KVDC	6	.080	2.37	1.47	---	.30	.78	---	---	PM300M PM310M

CATON
Caton Connector Corporation
Jones River Industrial Park • Wapping Road
(Route 106) • Kingston, Massachusetts 02364-1333
Telephone: 617-585-4315 • FAX: 617-585-2973

CIRCUIT ASSEMBLY CORP.

INSULATION DISPLACEMENT

Socket-.100 x .100



Benefits/Features
Conforms to MIL-C-83503/7c
UL recognized/C.S.A. certified
Sizes available—10, 14, 16, 20, 26, 34, 40, 50 and 60
Terminates with standard IDC type headers on .100 grid
Single leaf side wipe contact
Consult factory for other plating options and pull tabs
Mates with HM, H3M, HL, IDH, and dual row strip headers

Specifications
Electrical rating: 1 AMP
Temperature range: – 55°C to + 120°C
Insulation material: Glass filled polyester, gray UL94V-0
Contact material: Beryllium copper
Contact plating: 30/150 µIN gold/tin, 250 µIN tin

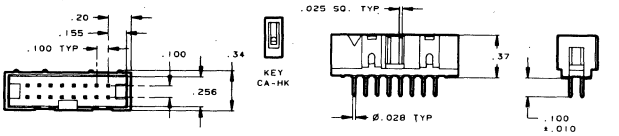
Circuit Assembly Part Numbers

	Sel Gold/Tin Plate	
No. of Pos.		**Polarizing Feature**
10	CA-10IDS2-F	CA-10IDS2-F-SPT
14	CA-14IDS2-F	CA-14IDS2-F-SPT
16	CA-16IDS2-F	CA-16IDS2-F-SPT
20	CA-20IDS2-F	CA-20IDS2-F-SPT
26	CA-26IDS2-F	CA-26IDS2-F-SPT
34	CA-34IDS2-F	CA-34IDS2-F-SPT
40	CA-40IDS2-F	CA-40IDS2-F-SPT
50	CA-50IDS2-F	CA-50IDS2-F-SPT
60	CA-60IDS2-F	CA-60IDS2-F-SPT

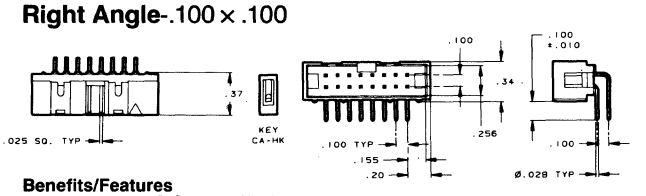
Note: For tin plate, replace "F" with "T." For Strain Relief, add suffix "-SR."
For dual polarizing feature, 50 & 60 position, replace "SPT" with "DPT."

LOW PROFILE SHROUDED HEADER

Straight-.100 x .100



Right Angle-.100 x .100



Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—10, 14, 16, 20, 26, 34, 40, 50 and 60
Straight and right angle construction
Terminates with standard IDC socket connectors
Low cost
.028 diameter tail
Consult factory for other sizes, tail lengths and contact material
Mates with IDS2

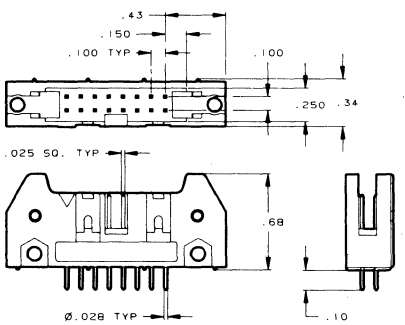
Specifications
Electrical rating: 1 AMP
Temperature range: – 55°C to + 120°C
Insulation material: Glass filled polyester, gray UL94V-0
Contact material: Phosphor bronze
Contact plating: 15/150 µIN gold/tin

Circuit Assembly Part Numbers

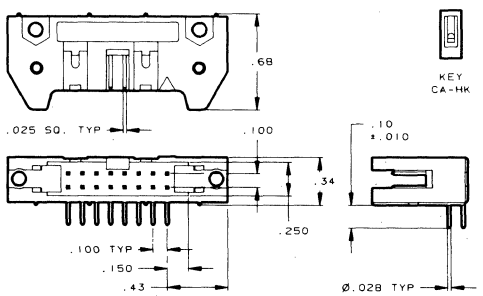
No. of Pos.	Straight	Right Angle
10	CA-10HL-1C	CA-10HLR-1C
14	CA-14HL-1C	CA-14HLR-1C
16	CA-16HL-1C	CA-16HLR-1C
20	CA-20HL-1C	CA-20HLR-1C
26	CA-26HL-1C	CA-26HLR-1C
34	CA-34HL-1C	CA-34HLR-1C
40	CA-40HL-1C	CA-40HLR-1C
50	CA-50HL-1C	CA-50HLR-1C
60	CA-60HL-1C	CA-60HLR-1C

SHROUDED HEADER WITH LATCHES

Straight-.100 x .100, Enclosed



Right Angle-.100 x .100, Enclosed



Benefits/Features
Conforms to MIL-C-83503/25A (Straight exit)
MIL-C-83503/24A (Right angle exit)
U.L. recognized/C.S.A. certified
Sizes available—10, 14, 16, 20, 26, 34, 40, 50 and 60
Fully enclosed straight or right angle construction
.028 diameter tail
Terminates with standard IDC Socket connectors
Consult factory for additional tail lengths & plating options
Mates with IDS2

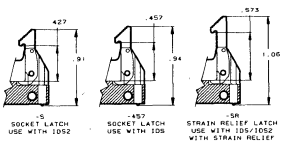
Specifications
Electrical rating: 1 AMP
Temperature range: – 55°C to + 120°C
Insulation material: Glass filled polyester, gray UL94V-0
Contact material: Phosphor bronze
Contact plating: 30/150 µIN gold/tin

Circuit Assembly Part Numbers

No. of Pos.	Straight	Right Angle
10	CA-10HM-1F	CA-10HRM-1F
14	CA-14HM-1F	CA-14HRM-1F
16	CA-16HM-1F	CA-16HRM-1F
20	CA-20HM-1F	CA-20HRM-1F
26	CA-26HM-1F	CA-26HRM-1F
34	CA-34HM-1F	CA-34HRM-1F
40	CA-40HM-1F	CA-40HRM-1F
50	CA-50HM-1F	CA-50HRM-1F
60	CA-60HM-1F	CA-60HRM-1F

Note: For latch, add suffix "-S," "-SR," or "-457."

Latches

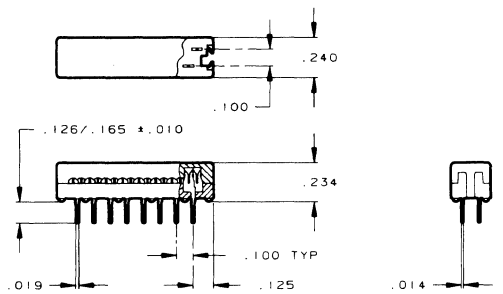


CIRCUIT ASSEMBLY CORP. 18 Thomas St., Irvine, Calif. 92718-2703 Phone: (714) 855-7887 Fax: (714) 855-4298

CIRCUIT ASSEMBLY CORP.

INSULATION DISPLACEMENT

Plug-Slim Line .100 x .100



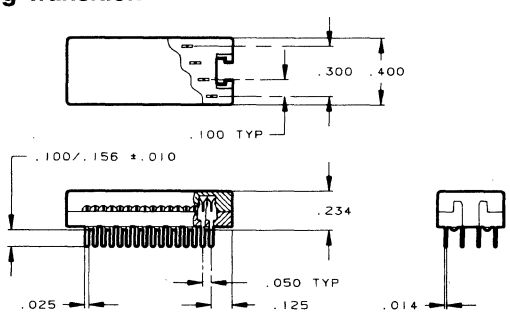
Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—10, 14, 16, 20, 24, 26, 34, 36, 40, 50, 60 and 64
Can be soldered directly to P.C.B.

Specifications
Electrical rating: 1 AMP
Temperature range: −55°C to +120°C
Insulation material: Glass filled polyester, gray UL94V-0
Contact material: Phosphor bronze
Contact plating: 250 µIN tin

Circuit Assembly Part Numbers

No. of Pos.	Short Tail	Long Tail
10	CA-10IDPSL-1T	CA-10IDPSL-2T
14	CA-14IDPSL-1T	CA-14IDPSL-2T
16	CA-16IDPSL-1T	CA-16IDPSL-2T
20	CA-20IDPSL-1T	CA-20IDPSL-2T
24	CA-24IDPSL-1T	CA-24IDPSL-2T
26	CA-26IDPSL-1T	CA-26IDPSL-2T
34	CA-34IDPSL-1T	CA-34IDPSL-2T
36	CA-36IDPSL-1T	CA-36IDPSL-2T
40	CA-40IDPSL-1T	CA-40IDPSL-2T
50	CA-50IDPSL-1T	CA-50IDPSL-2T
60	CA-60IDPSL-1T	CA-60IDPSL-2T
64	CA-64IDPSL-1T	CA-64IDPSL-2T

Plug-Transition



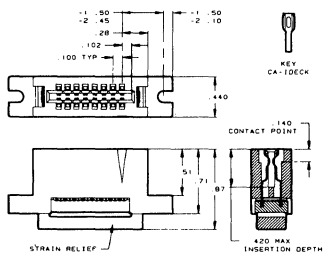
Benefits/Features
Conforms to MIL-C-83503/23A
U.L. recognized/C.S.A. certified
Sizes available—10, 20, 26, 34, 36, 40 and 50
Can be soldered directly to P.C.B.

Specifications
Electrical rating: 1 AMP
Temperature range: −55°C to +120°C
Insulation material: Glass filled polyester, gray UL94V-0
Contact material: Phosphor bronze
Contact plating: 250 µIN tin

Circuit Assembly Part Numbers

No. of Pos.	Short Tail	Long Tail
10	CA-10IDPCB-1T	CA-10IDPCB-2T
20	CA-20IDPCB-1T	CA-20IDPCB-2T
26	CA-26IDPCB-1T	CA-26IDPCB-2T
34	CA-34IDPCB-1T	CA-34IDPCB-2T
36	CA-36IDPCB-1T	CA-36IDPCB-2T
40	CA-40IDPCB-1T	CA-40IDPCB-2T
50	CA-50IDPCB-1T	CA-50IDPCB-2T

Edge Card



Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—10, 16, 20, 26, 34, 40, 50, and 60
Terminates with .072/.054 thick P.C.B.
Bifurcated cantilever contacts
Consult factory for available pull tabs

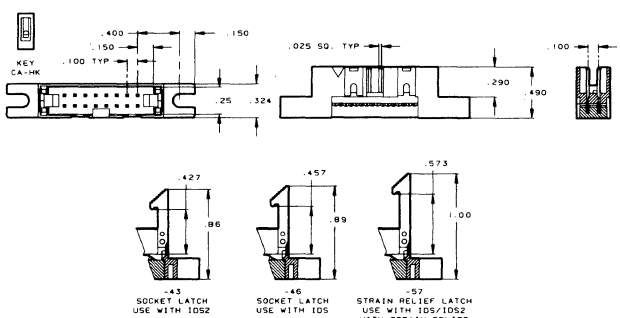
Specifications
Electrical rating: 1 AMP
Temperature range: −55°C to +120°C
Insulation material: Glass filled polyester, gray UL94V-0
Contact material: Beryllium copper
Contact plating: 30/150 µIN gold/tin

Circuit Assembly Part Numbers

No. of Pos.	Ears w/Hole	Ears w/Slot	No Ears
10	CA-10IDEC-1F	CA-10IDEC-2F	CA-10IDEC-3F
16	CA-16IDEC-1F	CA-16IDEC-2F	CA-16IDEC-3F
20	CA-20IDEC-1F	CA-20IDEC-2F	CA-20IDEC-3F
26	CA-26IDEC-1F	CA-26IDEC-2F	CA-26IDEC-3F
34	CA-34IDEC-1F	CA-34IDEC-2F	CA-34IDEC-3F
40	CA-40IDEC-1F	CA-40IDEC-2F	CA-40IDEC-3F
50	CA-50IDEC-1F	CA-50IDEC-2F	CA-50IDEC-3F
60	CA-60IDEC-1F	CA-60IDEC-2F	CA-60IDEC-3F

Note: For Strain Relief, add suffix "-SR."

Header-.100 x .100



Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—10, 20, 26, 34, 40, 50 and 60
Terminates with standard IDC socket connectors
Mates with IDS2

Specifications
Electrical rating: 1 AMP
Temperature range: −55°C to +120°C
Insulation material: Glass filled polyester, gray UL94V-0
Latch material: Nylon, gray UL94V-0
Contact material: Phosphor bronze
Contact plating: 30/150 µIN gold/tin

Circuit Assembly Part Numbers

No. of Pos.	With Ears	Without Ears
10	CA-10IDH-2F	CA-10IDH-3F
20	CA-20IDH-2F	CA-20IDH-3F
26	CA-26IDH-2F	CA-26IDH-3F
34	CA-34IDH-2F	CA-34IDH-3F
40	CA-40IDH-2F	CA-40IDH-3F
50	CA-50IDH-2F	CA-50IDH-3F
60	CA-60IDH-2F	CA-60IDH-3F

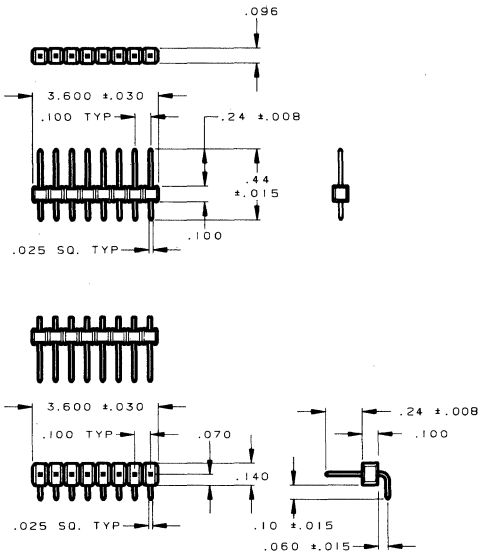
Note: For latch, add suffix "-43," "-46," or "57."
Latches are packaged separately, to be installed after cable/connector assembly.

CIRCUIT ASSEMBLY CORP. 18 Thomas St., Irvine, Calif. 92718-2703 Phone: (714) 855-7887 Fax: (714) 855-4298

CIRCUIT ASSEMBLY CORP.

.025 SQ. POST HEADER

Straight-.100 Centers



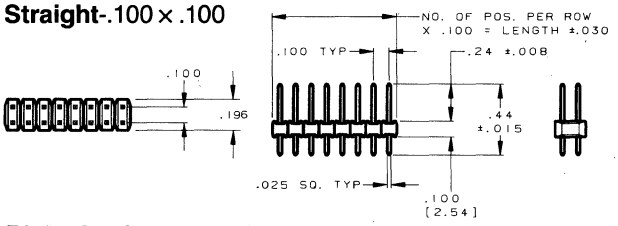
Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—36 position
.025 square post
Low cost
Notched for easy breaking, straight or right angle pins
Terminates with standard .100 center sockets
Consult factory for other sizes, pin lengths, plating options and self retaining tail feature
Mates with S-VSC, SJO, SJC, and S-IDS2

Specifications
Electrical rating: 1 AMP
Temperature range: −55°C to +120°C
Insulation material: Glass filled thermoplastic, black UL94V-0
Contact material: Phosphor bronze
Contact plating: 15/150 µIN gold/tin

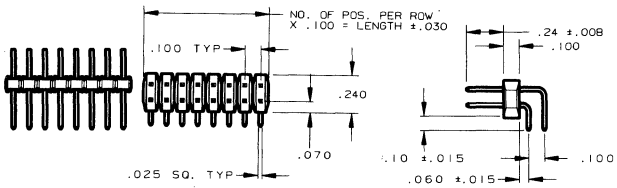
Circuit Assembly Part Numbers

	Sel Gold/Tin Plate	
No. of Pos.	**Straight Pin**	**Right Angle Pin**
36	CA-S36-24C-44	CA-S36R-24C-10

Straight-.100 x .100



Right Angle-.100 x .100



Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—10, 14, 16, 20, 26, 34, 40, 50, 60, 72
Side and end stackable
.025 square post
Terminates with standard IDC Socket connectors
Low cost
Consult factory for other sizes, pin lengths, plating options and self retaining tail feature
Mates with D-VSC, SJO, SJC, IDS, and IDS2

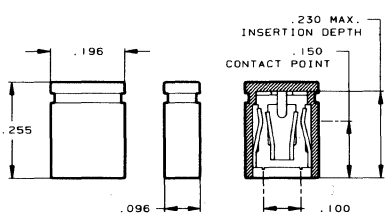
Specifications
Electrical rating: 1 AMP
Temperature range: −55°C to +120°C
Insulation material: Glass filled thermoplastic, black UL94V-0
Contact material: Phosphor bronze
Contact plating: 15/150 µIN gold/tin

Circuit Assembly Part Numbers

	Sel Gold/Tin Plate	
No. of Pos.	**Straight Pin**	**Right Angle Pin**
10	CA-D10-24C-44	CA-D10R-24C-10
14	CA-D14-24C-44	CA-D14R-24C-10
16	CA-D16-24C-44	CA-D16R-24C-10
20	CA-D20-24C-44	CA-D20R-24C-10
26	CA-D26-24C-44	CA-D26R-24C-10
34	CA-D34-24C-44	CA-D34R-24C-10
40	CA-D40-24C-44	CA-D40R-24C-10
50	CA-D50-24C-44	CA-D50R-24C-10
60	CA-D60-24C-44	CA-D60R-24C-10
72	CA-D72-24C-44	CA-D72R-24C-10

SHORTING JUMPER

Closed-.100 Centers



Benefits/Features
Sizes available—2 position
Side and end stackable
Terminates with standard .025 square posts
Mates with standard strip headers

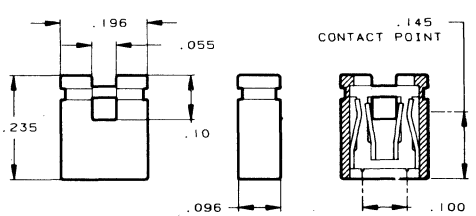
Specifications
Electrical rating: 2 AMP
Temperature range: −55°C to +125°C
Insulation material: Glass filled polyester, black UL94V-0
Contact material: Phosphor bronze
Contact plating: 10 µIN gold

Circuit Assembly Part Numbers

	Sel Gold/Tin Plate
No. of Pos.	
2	CA-02SJC-B

Note: For different insulator color, add suffix "-BLU," "-RED," "-WHT."

Open-.100 Centers



Benefits/Features
Sizes available—2 position
Side and end stackable, standard height or low profile
Terminates with standard .025 square posts
Mates with standard strip headers

Specifications
Electrical rating: 2 AMP
Temperature range: −55°C to +125°C
Insulation material: Glass filled polyester, black UL94V-0
Contact material: Phosphor bronze
Contact plating: 10 µIN gold

Circuit Assembly Part Numbers

No. of Pos.	Standard Ht. (.235)	Low Profile (.180)
2	CA-02SJO-B	CA-02SJO-LB

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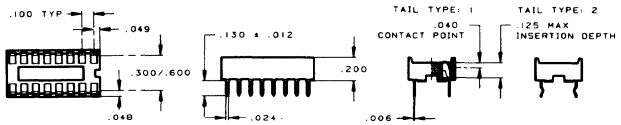
CIRCUIT ASSEMBLY CORP.

I.C. SOCKETS

Socket–Dip, .160 High to mating surface



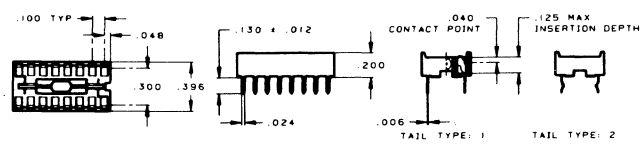
Benefits/Features
Sizes available—06, 08, 14, 16, 18, 20, 22, 24, 28, 32, 40 and 48
Side and end stackable
Low height
Dual leaf, side wipe contact
Mates with IDP2, P

Specifications
Electrical Rating: 1 AMP @ 250 VAC
Temperature range: – 55°C to + 105°C
Insulation Material: Glass filled polyester, black UL94V-0
Contact material: Phosphor bronze
Contact plating: 150 µIN tin

Circuit Assembly Part Numbers

No. of Pos.	Centers	Solder Tail	Self-Retaining Solder Tail
06	.300	CA-06SDL-1T	CA-06SDL-2T
08	.300	CA-08SDL-1T	CA-08SDL-2T
14	.300	CA-14SDL-1T	CA-14SDL-2T
16	.300	CA-16SDL-1T	CA-16SDL-2T
18	.300	CA-18SDL-1T	CA-18SDL-2T
20	.300	CA-20SDL-1T	CA-20SDL-2T
22	.400	CA-22SDL-1T	CA-22SDL-2T
22-3	.300	CA-22SDL-1T-3	CA-22SDL-2T-3
24	.600	CA-24SDL-1T	CA-24SDL-2T
24-3	.300	CA-24SDL-1T-3	CA-24SDL-2T-3
28	.600	CA-28SDL-1T	CA-28SDL-2T
28-3	.300	CA-28SDL-1T-3	CA-28SDL-2T-3
32	.600	CA-32SDL-1T	CA-32SDL-2T
40	.600	CA-40SDL-1T	CA-40SDL-2T
48	.600	CA-48SDL-1T	CA-48SDL-2T

Socket–Dip, Decoupling Capacitor



Benefits/Features
Sizes available—14, 16, 18 and 20
Decoupling capacitor, side and end stackable
Low height
Dual leaf, side wipe contact
Consult factory for additional capacitance values
Mates with IDP2, P.

Specifications
Electrical Rating: 1 AMP @ 250 VAC
Temperature range: – 55°C to + 105°C
Insulation material: Glass filled polyester, black UL94V-0
Contact material: Phosphor bronze
Contact plating: 150 µIN tin
Capacitor specifications:
Type: ceramic, Z5U
Capacitance Tolerance: – 20%, + 80%
Voltage Rating: 50 VDC

Circuit Assembly Part Numbers

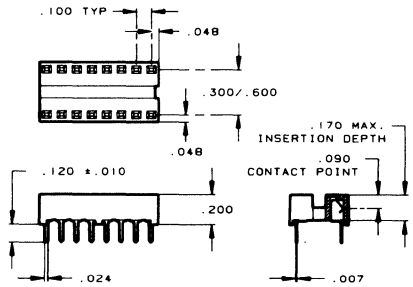
No. of Pos.	.01 µF Cap	.033 µF Cap
14	CA-14SDLC-1T-103	CA-14SDLC-1T-333
16	CA-16SDLC-1T-103	CA-16SDLC-1T-333
18	CA-18SDLC-1T-103	CA-18SDLC-1T-333
20	CA-20SDLC-1T-103	CA-20SDLC-1T-333

Note: For self-retaining solder tail, replace "-1T" with "-2T."

No. of Pos.	.1 µF Cap	33 µF Cap
14	CA-14SDLC-1T-104	CA-14SDLC-1T-334
16	CA-16SDLC-1T-104	CA-16SDLC-1T-334
18	CA-18SDLC-1T-104	CA-18SDLC-1T-334
20	CA-20SDLC-1T-104	CA-20SDLC-1T-334

Note: For self-retaining solder tail, replace "-1T" with "-2T."

Socket–Dip, .200 High



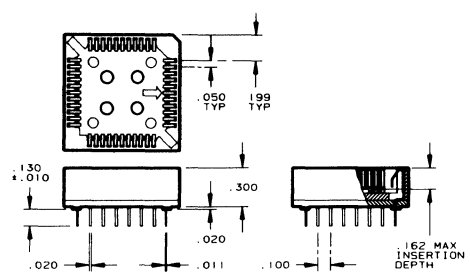
Benefits/Features
Sizes available—08, 14, 16, 18, 20, 22, 24, 28 and 40
Side and end stackable with closed entry
Low height
Single leaf, side wipe contact with positive overstress protection
Consult factory for additional plating options
Mates with IDP2, P

Specifications
Electrical Rating: 1 AMP @ 300Vrms
Temperature range: – 65°C to + 125°C
Insulation Material: Glass filled polyester, black UL94V-0
Contact material: Brass
Contact plating: 10 µIN gold, 250 µIN tin

Circuit Assembly Part Numbers

No. of Pos.	Tin Plate
08	CA-08SLP-TSD
14	CA-14SLP-TSD
16	CA-16SLP-TSD
18	CA-18SLP-TSD
20	CA-20SLP-TSD
22	CA-22SLP-TSD
24	CA-24SLP-TSD
28	CA-28SLP-TSD
40	CA-40SLP-TSD

Socket: PLCC



Benefits/Features
UL recognized
Sizes available—20, 28, 32, 44, 52, 68, 84 & 100

Designed for Jedec PLCC Type A devices (J style leads)

Specifications
Electrical Rating: 1 amp
Temperature Range: – 55°C to + 110°C
Insulation Material: glass filled polyester, black UL94V-0
Contact Material: Phosphor Bronze
Contact Plating: 250 µIN Tin

Circuit Assembly Part Numbers

No. of Pos.	
20	CA-20SPC-T
28	CA-28SPC-T
32	CA-32SPC-T
44	CA-44SPC-T
52	CA-52SPC-T
68	CA-68SPC-T
84	CA-84SPC-T
100	CA-100SPC-T

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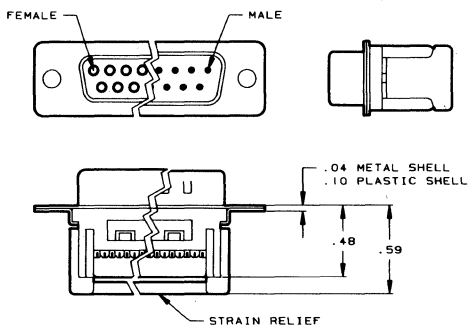
CIRCUIT ASSEMBLY CORP.

D SUBMINIATURES

Insulation Displacement-Metal Shell



Benefits/Features
U.L. recognized
Sizes available—09, 15, 25 and 37
Terminates with standard D type connectors
Metal shell, optional strain relief
Consult factory for pull tabs

Specifications
Electrical rating: 5 AMP
Temperature range: – 55°C to + 105°C
Insulation material: Glass filled polyester, gray UL94V-0
Shell material: Steel/tin plated
Contact material: Female/phosphor bronze Male/brass
Contact plating: Gold flash/tin

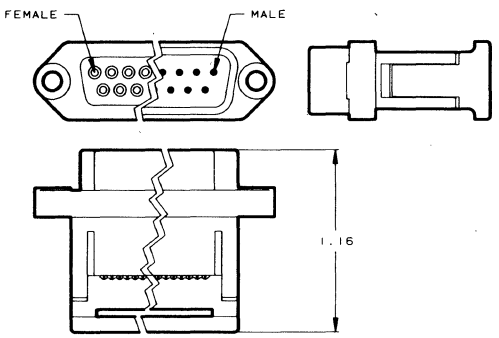
Circuit Assembly Part Numbers

	Metal Shell	
No. of Pos.	**Male**	**Female**
09	CA-09DPID	CA-09DSID
15	CA-15DPID	CA-15DSID
25	CA-25DPID	CA-25DSID
37	CA-37DPID	CA-37DSID

	Plastic Shell	
No. of Pos.	**Male**	**Female**
09	CA-09DPID-P	CA-09DSID-P
15	CA-15DPID-P	CA-15DSID-P
25	CA-25DPID-P	CA-25DSID-P
37	CA-37DPID-P	CA-37DSID-P

Note: For strain relief, add suffix "-SR."

Insulation Displacement-Plastic Shell



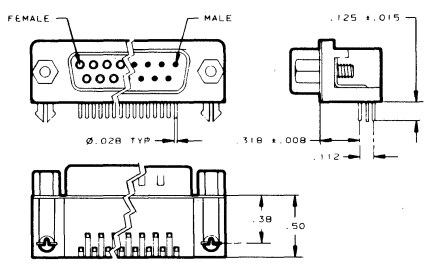
Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—25 position
Terminates with standard D type connectors
All plastic construction with integral strain relief

Specifications
Electrical rating: 1 AMP
Temperature range: – 55°C to + 120°C
Insulation material: Glass filled polyester, gray UL94V-0
Contact material: Phosphor bronze
Contact plating: 10 µIN gold

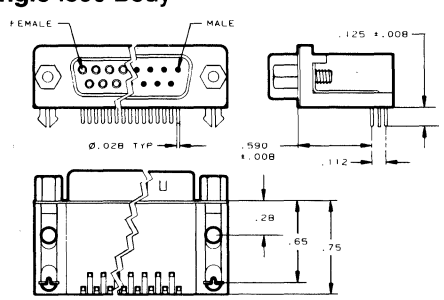
Circuit Assembly Part Numbers

No. of Pos.	Male	Female
25	CA-25SMD-P	CA-25SMD-S

Right Angle-.318 Body



Right Angle-.590 Body



Benefits/Features
Sizes available—9, 15, 25, and 37
Terminates with standard D type connectors
Right angle metal shell construction
4-40 Threaded stand-off
Ground strap with self-retaining fork

Specifications
Electrical rating: 5 AMP
Temperature range: – 55°C to + 105°C
Insulation material: Glass filled polyester, black UL94V-0
Shell material: Steel, tin plated
Contact material: Female/phosphor bronze, Male/brass
Contact plating: Gold flash

Circuit Assembly Part Numbers

	.318 Body	
No. of Pos.	**Male**	**Female**
09	CA-09DPR-11	CA-09DSR-11
15	CA-15DPR-11	CA-15DSR-11
25	CA-25DPR-11	CA-25DSR-11
37	CA-37DPR-11	CA-37DSR-11

	.590 Body	
No. of Pos.	**Male**	**Female**
09	CA-09DPRL-11	CA-09DSRL-11
15	CA-15DPRL-11	CA-15DSRL-11
25	CA-25DPRL-11	CA-25DSRL-11
37	CA-37DPRL-11	CA-37DSRL-11

Note: For ground strap with clearance hole, replace "-11" with "-12."

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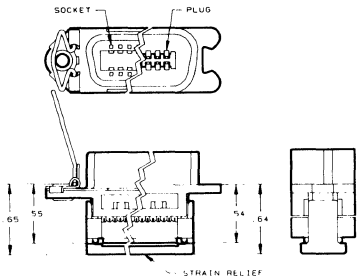
CIRCUIT ASSEMBLY CORP.

RIBBON

Insulation Displacement



Benefits/Features
U.L. recognized
Sizes available—24, 36 & 50
Metal shell, optional strain relief
Terminates with standard ribbon type connectors
Consult factory for pull tabs

Specifications
Electrical rating: 1 AMP
Temperature range: −55°C to +105°C
Insulation material: 24 & 36—Glass filled polyester, gray UL94V-0
50—Glass filled polycarbonate, gray UL94V-0
Shell material: Steel, nickel plated
Contact material: Phosphor bronze
Contact plating: Gold flash/tin

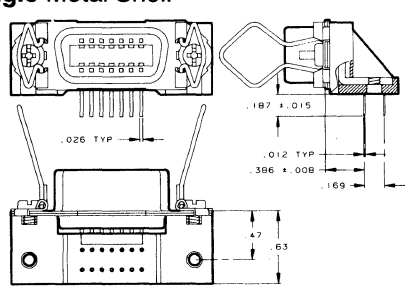
Circuit Assembly Part Numbers

	Metal Shell
No. of Pos.	**Socket w/Bail Latch**
24	CA-24RSID-2
36	CA-36RSID-2
50	CA-50RSID-2

	Plastic Shell	
No. of Pos.	**Socket w/Bail Latch**	**Plug w/Bail Lock**
24	CA-24RSID-2P	CA-24RPID-3P
36	CA-36RSID-2P	CA-36RPID-3P
50	CA-50RSID-2P	CA-50RPID-3P

Note: For strain relief, add suffix "-SR."

Right Angle-Metal Shell



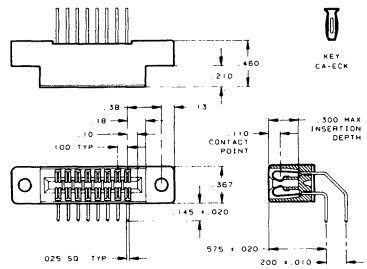
Benefits/Features
Sizes available—14, 24, 36 & 50
Right angle construction
Terminates with standard ribbon type connectors
Right angle metal shell construction with bail latches
Ground strap with 4-40 threaded hole

Specifications
Electrical rating: 5 AMP
Temperature range: −55°C to +105°C
Insulation material: Glass filled polyester, black UL94V-0
Shell material: Steel, nickel plated
Contact material: Phosphor bronze
Contact plating: gold flash/tin

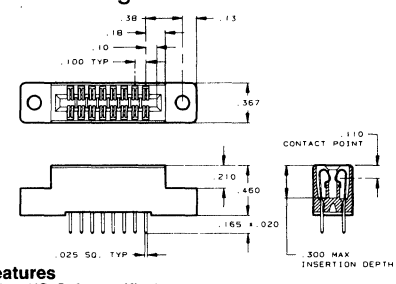
Circuit Assembly Part Numbers

No. of Pos.	
14	CA-14RSR-4
24	CA-24RSR-4
36	CA-36RSR-4
50	CA-50RSR-4

Edge Card-Right Angle



Edge Card-.460 High



Benefits/Features
U.L. recognized/C.S.A. certified
Sizes available—20, 24, 26, 30, 34, 36, 40, 44, 50, 60, 72, 80, 86 and 100
Mates with .072/.054 thick P.C.B.
Straight and right angle construction
Bifurcated modified bellows contact
Consult factory for additional tail types and lengths, plating options and ear configurations

Specifications
Electrical rating: 2 AMP
Temperature range: −55°C to +120°C
Insulation material: Glass filled polyester, green UL94V-0
Contact material: Copper/nickel alloy
Contact plating: 20/150 µIN gold/tin

Circuit Assembly Part Numbers

	Right Angle	
No. of Pos.	**Ears w/hole**	**No ears**
20	CA- 20ECR-1-SD	CA- 20ECR-3-SD
24	CA- 24ECR-1-SD	CA- 24ECR-3-SD
26	CA- 26ECR-1-SD	CA- 26ECR-3-SD
30	CA- 30ECR-1-SD	CA- 30ECR-3-SD
34	CA- 34ECR-1-SD	CA- 34ECR-3-SD
36	CA- 36ECR-1-SD	CA- 36ECR-3-SD
40	CA- 40ECR-1-SD	CA- 40ECR-3-SD
44	CA- 44ECR-1-SD	CA- 44ECR-3-SD
50	CA- 50ECR-1-SD	CA- 50ECR-3-SD
60	CA- 60ECR-1-SD	CA- 60ECR-3-SD
72	CA- 72ECR-1-SD	CA- 72ECR-3-SD
80	CA- 80ECR-1-SD	CA- 80ECR-3-SD
86	CA- 86ECR-1-SD	CA- 86ECR-3-SD
100	CA-100ECR-1-SD	CA-100ECR-3-SD

	Straight	
No. of Pos.	**Ears w/hole**	**No ears**
20	CA- 20EC-1-SD	CA- 20EC-3-SD
24	CA- 24EC-1-SD	CA- 24EC-3-SD
26	CA- 26EC-1-SD	CA- 26EC-3-SD
30	CA- 30EC-1-SD	CA- 30EC-3-SD
34	CA- 34EC-1-SD	CA- 34EC-3-SD
36	CA- 36EC-1-SD	CA- 36EC-3-SD
40	CA- 40EC-1-SD	CA- 40EC-3-SD
44	CA- 44EC-1-SD	CA- 44EC-3-SD
50	CA- 50EC-1-SD	CA- 50EC-3-SD
60	CA- 60EC-1-SD	CA- 60EC-3-SD
72	CA- 72EC-1-SD	CA- 72EC-3-SD
80	CA- 80EC-1-SD	CA- 80EC-3-SD
86	CA- 86EC-1-SD	CA- 86EC-3-SD
100	CA-100EC-1-SD	CA-100EC-3-SD

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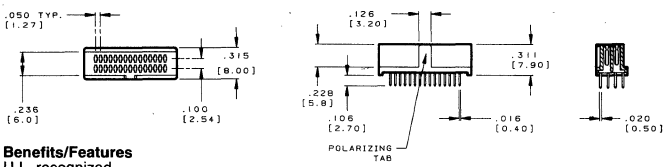
CIRCUIT ASSEMBLY CORP.

NANOFLEX™ BOARD MOUNT SOCKET



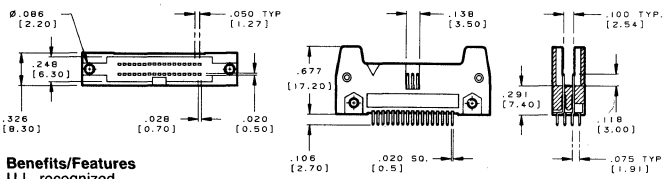
Benefits/Features
U.L. recognized
Molded polarizing tab assures correct orientation of part in mating header
Dual leaf side wipe contacts

Specifications
Current Rating: 0.5 AMP
Temperature Range: – 20°C to + 105°C
Insulator Material: Glass filled polyester, Blue, UL94V-0
Contact Material: Phosphor Bronze
Contact Plating: Contact Area: 12µ IN gold Tail Area: 100µ IN tin/lead

Circuit Assembly Part Numbers

No. of Positions	Connector
10	CA-10NFVS-12GT
16	CA-16NFVS-12GT
20	CA-20NFVS-12GT
26	CA-26NFVS-12GT
30	CA-30NFVS-12GT
34	CA-34NFVS-12GT
40	CA-40NFVS-12GT
50	CA-50NFVS-12GT
60	CA-60NFVS-12GT
64	CA-64NFVS-12GT
80	CA-80NFVS-12GT
100	CA-100NFVS-12GT

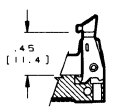
NANOFLEX™ SHROUDED HEADER



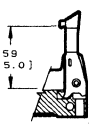
Benefits/Features
U.L. recognized
Fully enclosed 4 wall construction for P.C.B. mounting
Latch Ejectors permit easy removal of mating socket with and without strain relief
Molded slot assures correct orientation of mating socket with polarizing tab

Specifications
Current Rating: 0.5 AMP
Temperature Range: – 20°C to + 105°C
Insulator Material: Glass filled polyester, Blue, UL94V-0
Contact Material: Phosphor Bronze
Contact Plating: Contact Area: 12µ IN gold Tail Area: 100µ IN tin/lead

Short Latch Ejector
for use with CA-NFS
without strain relief



Long Latch Ejector
for use with CA-NFS
with strain relief



Circuit Assembly Part Numbers

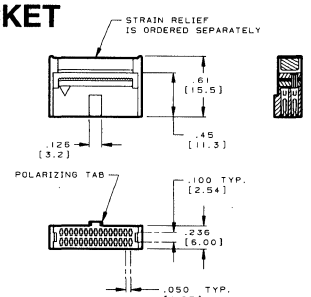
No. of Positions	Short latch	Long latch
10	CA-10NFH-12GT-10	CA-10NFH-12GT-20
16	CA-16NFH-12GT-10	CA-16NFH-12GT-20
20	CA-20NFH-12GT-10	CA-20NFH-12GT-20
26	CA-26NFH-12GT-10	CA-26NFH-12GT-20
34	CA-34NFH-12GT-10	CA-34NFH-12GT-20
40	CA-40NFH-12GT-10	CA-40NFH-12GT-20
50	CA-50NFH-12GT-10	CA-50NFH-12GT-20
60	CA-60NFH-12GT-10	CA-60NFH-12GT-20
64	CA-64NFH-12GT-10	CA-64NFH-12GT-20
80	CA-80NFH-12GT-10	CA-80NFH-12GT-20
100	CA-100NFH-12GT-10	CA-100NFH-12GT-20

NOTE: FOR RIGHT ANGLE VERSION, REPLACE NFH WITH NFHR

NANOFLEX™ I.D. SOCKET

Benefits/Features
U.L. Recognized
Patented 3 point contact system terminates with .025 conductor center cable
Molded polarizing tab assures correct part orientation in mating header
Slots in cover permit easy insertion of test probe
Optional Strain Relief is available
Dual leaf side wipe contacts

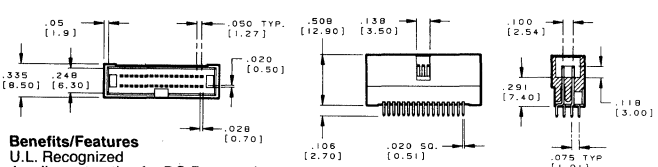
Specifications
Current Rating: 0.5 AMP
Temperature Range: – 20°C to + 105°C
Insulator Material: Glass filled polyester, blue, UL94V-0
Contact Material: Beryllium Copper
Contact Plating: 12µ IN gold
Recommended Wire Size: 30 AWG stranded



Circuit Assembly Part Numbers

No. of Positions	Connector	Strain Relief
10	CA-10NFS-12G	CA-SR10NFS
16	CA-16NFS-12G	CA-SR16NFS
20	CA-20NFS-12G	CA-SR20NFS
26	CA-26NFS-12G	CA-SR26NFS
34	CA-34NFS-12G	CA-SR34NFS
40	CA-40NFS-12G	CA-SR40NFS
50	CA-50NFS-12G	CA-SR50NFS
60	CA-60NFS-12G	CA-SR60NFS
64	CA-64NFS-12G	CA-SR64NFS
80	CA-80NFS-12G	CA-SR80NFS
100	CA-100NFS-12G	CA-SR100NFS

NANOFLEX™ LOW PROFILE BOX HEADER



Benefits/Features
U.L. Recognized
4 wall construction for P.C.B. mounting
Molded slot assures correct part orientation in mating header

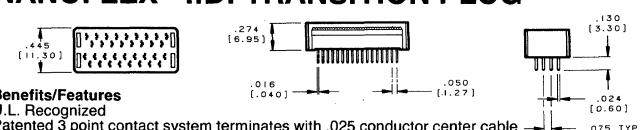
Specifications
Current Rating: 0.5 AMP
Temperature Range: – 20°C to + 105°C
Insulator Material: Glass filled polyester, Blue, UL94V-0
Contact Material: Phosphor Bronze
Contact Plating: Contact Area: 12µ IN gold Tail Area: 100µ IN tin/lead

Circuit Assembly Part Numbers

No. of Positions	Connector
10	CA-10NFHL-12GT
16	CA-16NFHL-12GT
20	CA-20NFHL-12GT
26	CA-26NFHL-12GT
30	CA-30NFHL-12GT
34	CA-34NFHL-12GT
40	CA-40NFHL-12GT
50	CA-50NFHL-12GT
60	CA-60NFHL-12GT
64	CA-64NFHL-12GT
80	CA-80NFHL-12GT
100	CA-100NFHL-12GT

NOTE: FOR RIGHT ANGLE VERSION, REPLACE NFHL WITH NFHLR.

NANOFLEX™ I.D. TRANSITION PLUG



Benefits/Features
U.L. Recognized
Patented 3 point contact system terminates with .025 conductor center cable
Slots in cover permit easy insertion of test probe

Specifications
Current Rating: 0.5 AMP
Temperature Range: – 20°C to + 105°C
Insulator Material: Glass filled polyester, Blue, UL94V-0
Contact Material: Beryllium Copper
Contact Plating: 12µ IN gold
Recommended Wire Size: 30 AWG standed

Circuit Assembly Part Numbers

No. of Positions	Connector
10	CA-10NFT-12G
16	CA-16NFT-12G
20	CA-20NFT-12G
26	CA-26NFT-12G
34	CA-34NFT-12G
40	CA-40NFT-12G
50	CA-50NFT-12G
60	CA-60NFT-12G
64	CA-64NFT-12G
80	CA-80NFT-12G
100	CA-100NFT-12G

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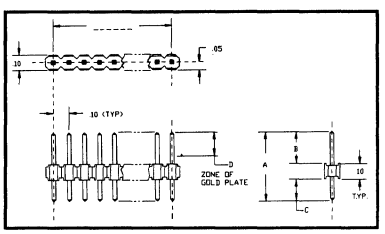
COMM CON CONNECTORS INC.

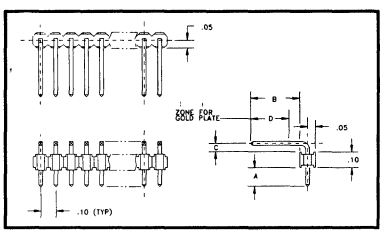
Comm Con Connectors Inc. was established in 1982. From inception, our plan has been to offer the Electronics OEM marketplace a variety of header interconnects not available from the more traditional connector companies. Our product flexibility is a result of 14 different standard contact lengths (from .330 to 1.430), 3 plating options (tin, gold, duplex gold/tin), and plastic insulator options such as glass filled thermoplastic or high temp thermoplastic, in single, double and triple row versions. A great variety of additional customizing of these parts is possible including specific pins eliminated for keying, bypassing traces on a P.C.B., or locating the plastic at other locations on the pin. Creation of special bends is also possible.

All of our strip headers and socket connectors employ a "breakaway" feature, however, as a service to our customers, we will cut any of these products into the desired size at no charge.



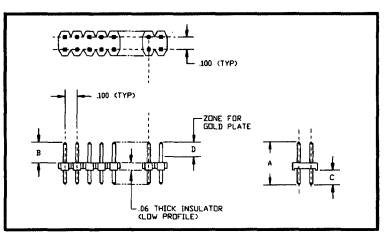
SINGLE ROW; DOUBLE ROW; TRIPLE ROW STRAIGHT HEADERS

Our single row straight headers are available in 12 pin lengths, from .330 to 1.430, (in .100 encrements). In addition to 35 standard "B" and "C" dimensioned parts, we offer an unlimited variety of customer specified parts.



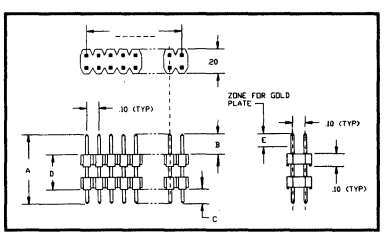
SINGLE ROW; DOUBLE ROW; TRIPLE ROW RIGHT ANGLE HEADERS

Our single row right angle .025 sq headers are available in both the low profile and high profile, as standards. Many choices in pin dimensions gives us the broadest package of right angle breakaway parts available.



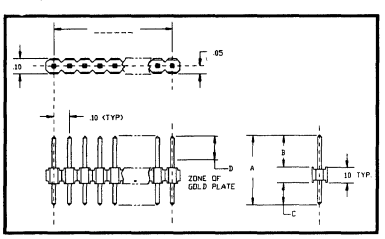
MICRO HEIGHT HEADER SYSTEM

Available in single, double or triple row versions, our micro height headers utilize a .060 thick plastic, and a .330 long pin, which decreases the height .110 from the botton of the PCB, vs the standard solder header.



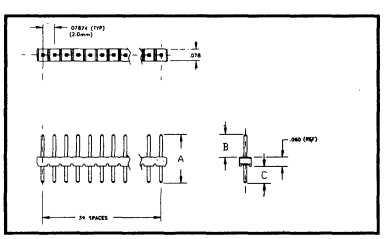
SINGLE AND DOUBLE ROW SPACER-HEADER INTERCONNECTS

This new concept allows the design freedom of interconnecting two PCB's with a pre specified mating length. Eliminates having both a plastic spacer, and a seperate interconnect.



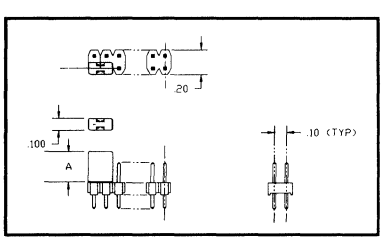
HIGH TEMPERATURE HEADERS

For infrared or vapor reflow applications, we offer a high temp plastic insulator with a rating in excess of 260 C. Both single and double row parts available.



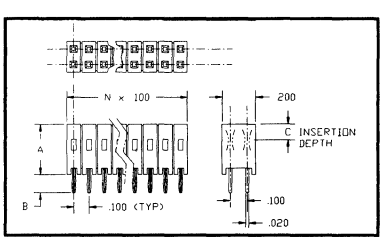
MICRO SPACED CONNECTORS

Two series are available for tight circuit center designs, .050 and .079 (2mm). Both series include headers, sockets and shunts.



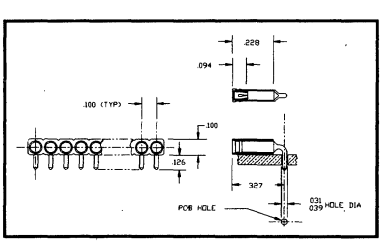
BUSSING SHUNTS

We offer a variety of bussing shunts to cover most applications. These include 4 styles of .100 center parts, .100 center multiple shunts (2 to 10 attached together), and micro spaced .079 parts.



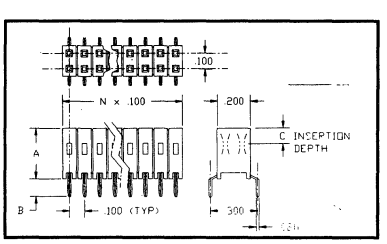
STRAIGHT SOCKETS

For PCB disconnecting applications, we offer several different sockets, from .185 tall for low profile, to .315 standard applications. Designs include both modified box, and hi-rel screw machine contacts.



RIGHT ANGLE SOCKETS

For right angle disconnects, we offer both single and double row socket versions. These parts utilize hi-rel screw machine sockets.

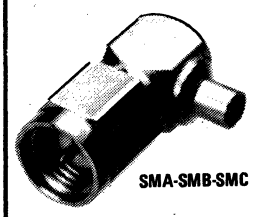


BOTTOM ENTRY SOCKETS

To eliminate hand soldering of a socket to a PCB when a disconnect application is utilized, we offer a bottom entry socket that is soldered on the component side of the board. Access of the pin is through the PCB, into the bottom of the socket.

COMM CON CONNECTORS, INC.
4111 Ocean View Boulevard, Montrose, California 91020 • (818) 957-2018 • FAX (818) 957-4851

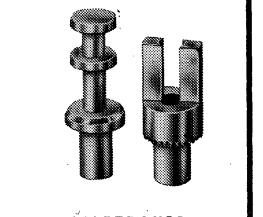
Presenting . . .

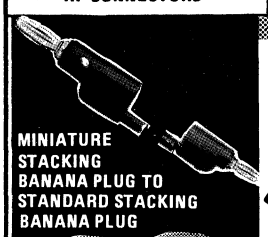

SMA-SMB-SMC
RF CONNECTORS

TEFLON* TERMINALS

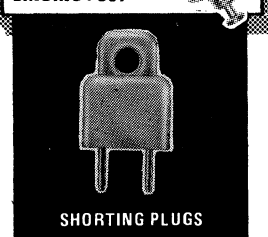
HEXHEAD BINDING POST

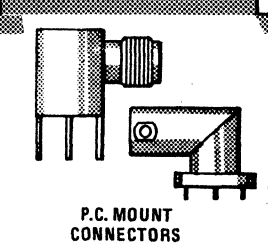
WASHERS & GROMMETS

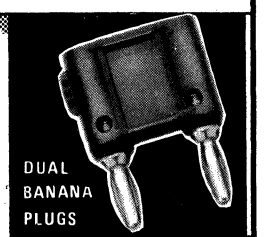

SOLDER LUGS

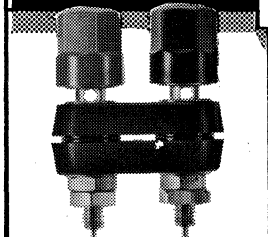

MINIATURE STACKING BANANA PLUG TO STANDARD STACKING BANANA PLUG

SAFETY HOOK TEST CLIPS

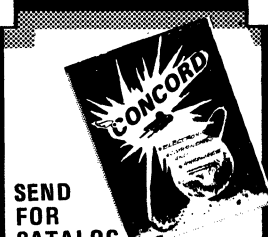

SHORTING PLUGS


P.C. MOUNT CONNECTORS

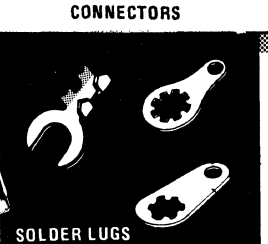

DUAL BANANA PLUGS


DUAL BINDING POST

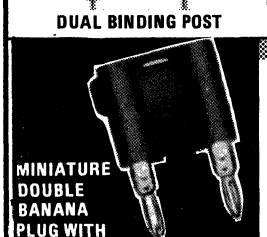
BANANA PLUGS

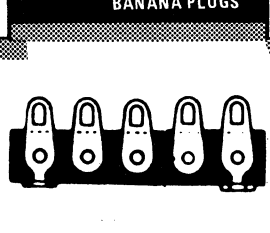


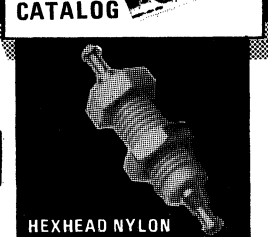
SEND FOR CATALOG

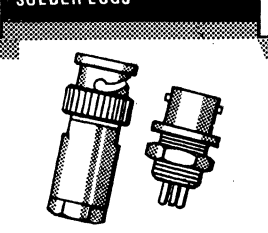

SOLDER LUGS

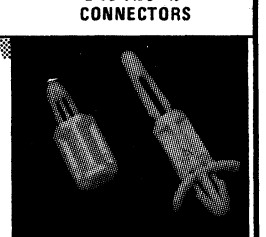
BNC-TNC-"N" CONNECTORS


MINIATURE DOUBLE BANANA PLUG WITH SOLDER TERMINALS

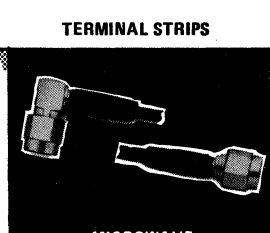

TERMINAL STRIPS


HEXHEAD NYLON FEED THRU


TWINAX & TRIAX CONNECTORS

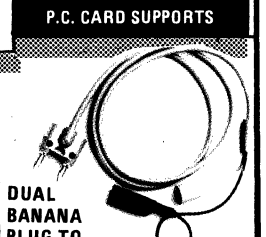

P.C. CARD SUPPORTS

INSULATED TIP PLUGS


MICROWAVE CABLE ASSEMBLIES

BNC MALE TO BINDING POST

90 NYLON PC JACK


DUAL BANANA PLUG TO ALLIGATOR CLIPS ADAPTER CABLE

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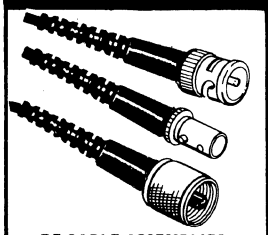
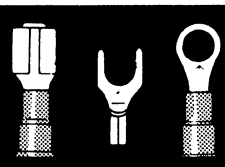
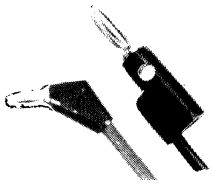
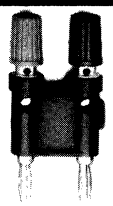

RF CABLE ASSEMBLIES

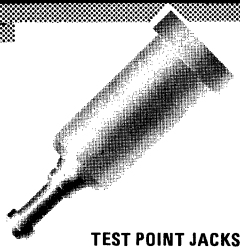

SOLDERLESS LUGS & TERMINALS

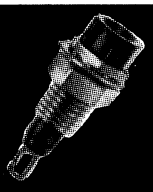

JUMPERS & PATCH CORDS

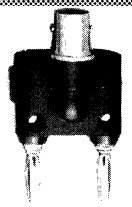
RF CONNECTORS


BINDING POST TO DOUBLE BANANA PLUG

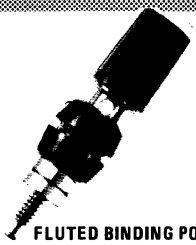
KNOBS

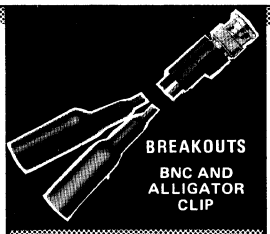

TEST POINT JACKS


PANEL JACKS


BNC FEMALE TO BANANA PLUGS

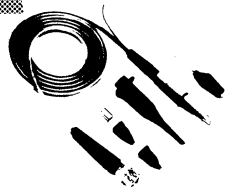
P.C. PINS

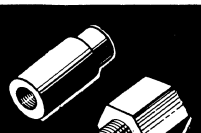

FLUTED BINDING POSTS

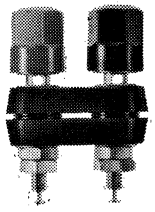

BREAKOUTS BNC AND ALLIGATOR CLIP

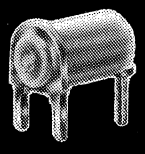
TEST ACCESSORIES

SHORTING PLUGS

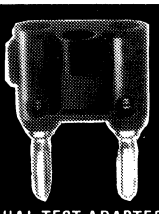

OSCILLOSCOPE PROBES

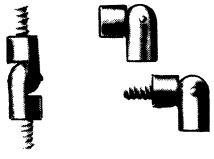

SPACERS & STANDOFFS

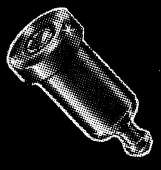

DUAL BINDING POSTS


90° NYLON P.C. JACK

MIL-C-39024 JACKS


DUAL TEST ADAPTERS


HINGED STANDOFFS


TEFLON* PANEL JACKS

SAFETY HOOK TEST CLIPS

SAFETY TEST PROBE TO SHROUDED BANANA PLUG

HANDLES

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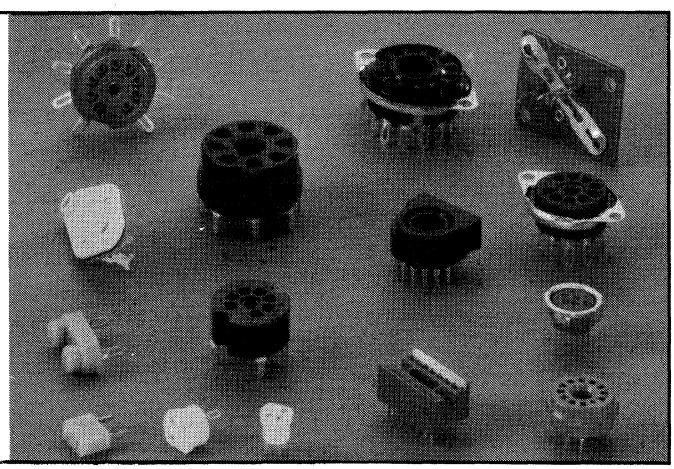
Our production facilities are fully integrated from raw materials to final assembly. We do our own stamping and molding. We also design and build our own automatic assembly equipment. This allows us to control our processes and thus serve you with our Zero Defect Program quality.

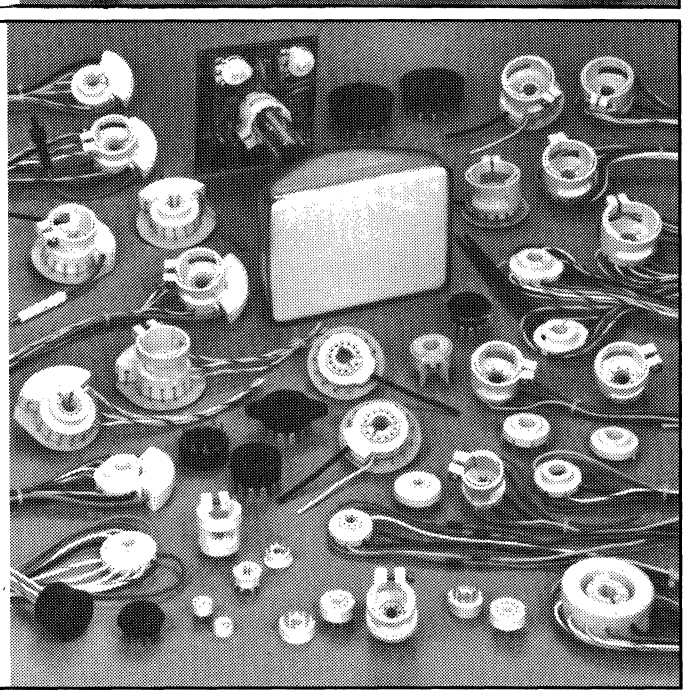
SOCKETS

- **Tube/Relay:** 4, 5, 7, 8, 9, 10, 11, 12, 14, 16, 20, 22 and other pin configurations. PC, solder tab and chassis mount. Molded and laminated constructions. Metal or molded saddle, top or bottom mount.
- **Transistor:** T03, 5, 9, 11, 12, 18, 33, 39, 40, 46, 52, 60, 66, 72, 104 and others.
- **Crystal:** .486" pin centers for HC-6/U, HC-13/U, HC-14/U, HC-27/U, HC-36/U & HC-48/U, MIL-S-12883/4; .273" pin centers for HC-46/U; .192" pin centers for HC25/U, HC-42/U, HC-43/U, HC-49/U, HC-50/U and others.



CRT SOCKETS

- For high resolution CRTs used in Avionics, CAD/CAM, Sonar, Radar, Information Displays, Medical and Measurement Instruments
- **Tube neck retaining clamp option available on most sockets.**
- Mate with most JEDEC and other base configurations.
- PC, solder tab and wire lead connections. PC and flying lead combination. New designs welcome.
- With or without Spark Gaps.
- In-line resistors, chokes and capacitors.



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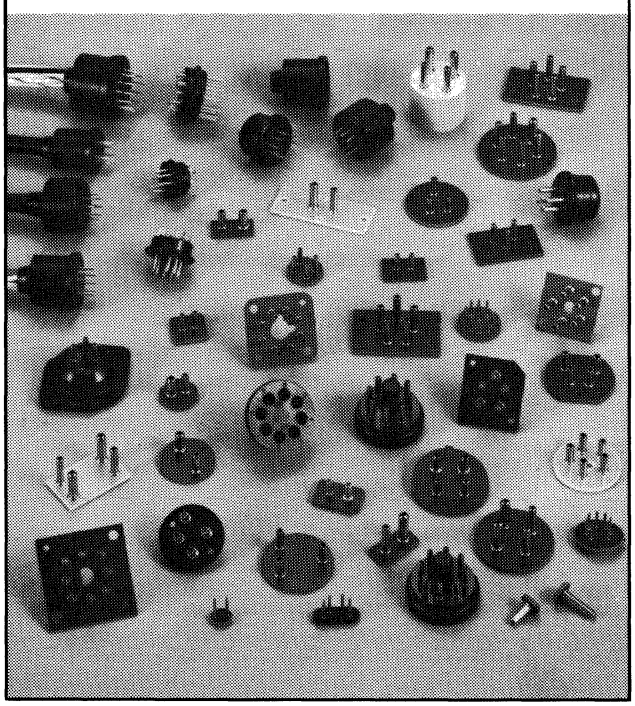
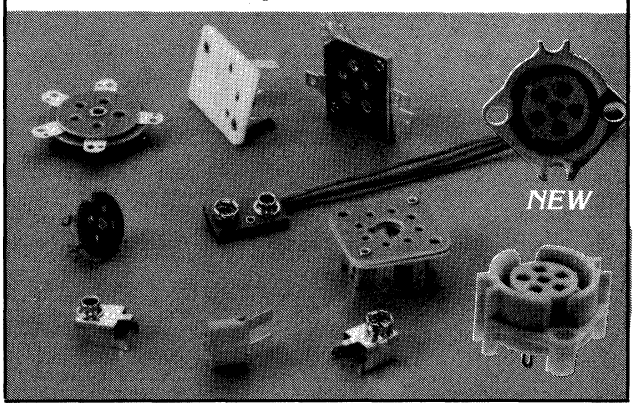
PLUGS

- Molded and laminated constructions.
- 1 to 12 pins.
- Polarized.
- Mate with many of our sockets.
- Molded Boots for insulation.
- Industrial, Military and Commercial.



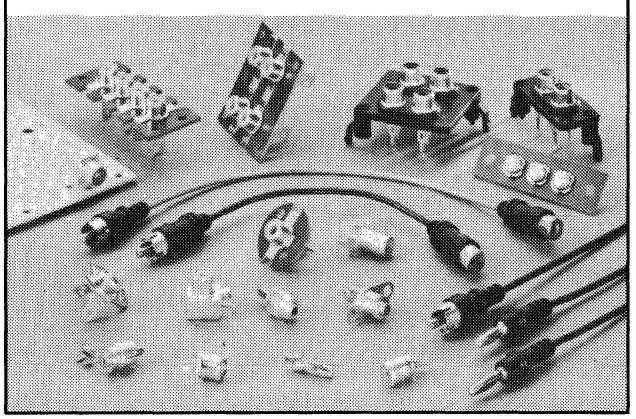
BATTERY CONNECTORS, SOCKETS AND PLUGS

- Molded or laminated constructions.
- Industrial, Military and Commercial.



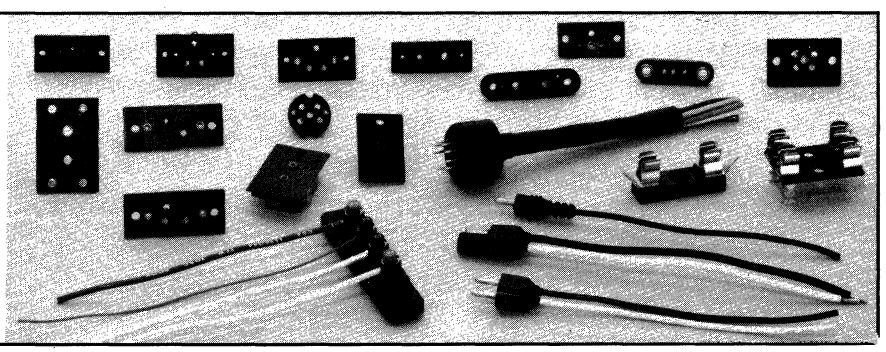
AUDIO & RF CONNECTORS

- UHF and VHF. • PC, chassis or free standing.
- Sockets & Plugs. • Vertical and right angle.



OTHER INTERCONNECTING DEVICES

- Wyrlok™ molded quick connecting device.
- Molded and laminated connectors.
- Laminated receptacles.
- Fuse & Rectifier holders.



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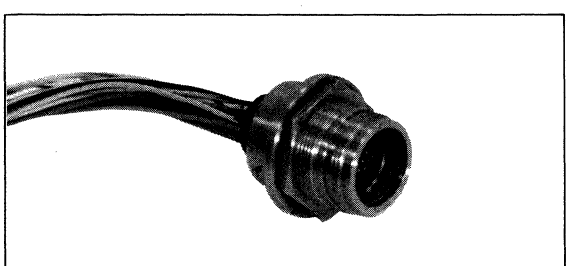
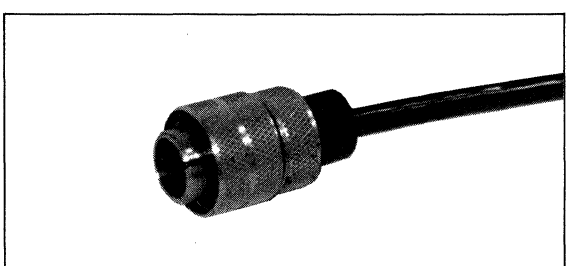
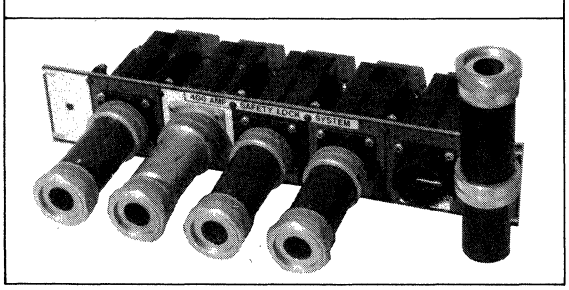
- ALTITUDE
- NUCLEAR RADIATION
- RFI/EMI
- UNDER WATER

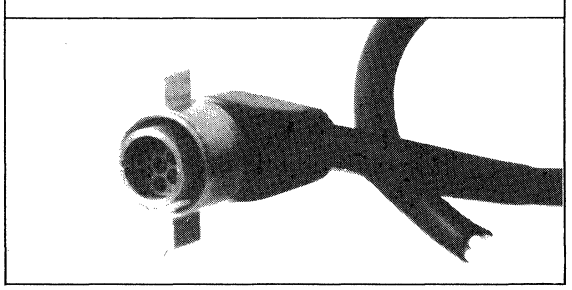
TYPES AVAILABLE:

- PLUGS
- MULTI-CONTACT
- RECEPTACLES
- TERMINATIONS
- CABLE ASSEMBLIES
- WIRING HARNESSES
- MOLDED–"TO" WIRE/CABLE
- COAXIAL/TRIAXIAL
- SOLDERING QUALIFIED TO MIL-STD-2000









WHETHER THE DESIGN IS YOURS OR FROM OUR CUSTOM DESIGN STAFF, CONNECTRONICS CAN PROVIDE YOU WITH COMPLETE PRODUCTION, TESTING AND QUALITY CONTROL INCLUDING SPC AND MIL-Q-9858A Q.C. SYSTEM.

Connectronics Corp.
2745 Avondale
P.O. Box 3355
Toledo, Ohio 43607

419-537-0020
Fax: 419-537-0007

MINIGLOSSARY CONNECTORS

Connector terminology is often quite confusing. This confusion starts with the very names of connectors. The name of a connector may derive from its shape, application, type of conductor or even method of termination.

Shape—Circular, cylindrical, and rectangular.

Electrical application—High voltage, RF, microwave, input/output, etc.

Mechanical application—Printed circuit, rack & panel, cable, etc.

Conductor type—Coaxial, flat cable, ribbon cable, flex circuit, etc.

Termination method—Wirewrap, soldercup, solderless, etc.

Hardware such as clamps, hoods, and adapters are frequently used to convert cable connectors to rack and panel types. This adds to the name confusion. A very common telephone connector, for example (the "C" type) got its name from the model number of the original maker.

Contact: The part(s) of the connector that actually provides circuit continuity between its two sections—the parts which are normally mated. The back end of the connector should properly be called the *termination*. This is the point where the wires or PC board is attached to the connector.

Contact alignments: Often called *contact float*. Describes the amount of allowable contact movement within the connector body. Permits self-alignment.

Male vs. female: In the U.S. this describes the contact construction. In Europe this term is more often used to describe the outer shell mating action which may be the reverse of the contacts.

Closed entry: A female contact which prevents entry of a male contact larger than a specific size.

Open entry: A female contact designed for a specific size of male contact but which will allow entry of larger male contacts by spring action.

Hermaphrodite: Contacts or connector bodies which are the same configuration. Male/female designations do not apply. Bodies usually have some mechanical means for maintaining polarity.

Hermetic seal: Glass-to-metal seals at terminations. Often used improperly to describe vacuum-tight seals.

Waterproof seal: May or may not be truly *waterproof*. May prevent easy entrance of casual water by means of a rubber or other boot.

Printed circuit connector: Connectors which are used in conjunction with printed circuit boards. There are two distinctly different styles.

Edgeboard. May be called *edge* or *card*. The printed circuit (PC) board edge enters the connector.

Two-piece: One part of the connecting pair is physically attached to the PC board itself. The other part is attached to something else such as a cable or a motherboard.

Readout: Describes the arrangement at the terminating edge of a PC board. May be single or double. A double readout PC board has termination strips on each side not usually interconnected.

Ribbon connectors: A type of connector which allows flat "ribbon" cable to be attached to a round or rectangular connector but also used interchangeably for flat connectors to flat cable.

Ribbon contact connector: Describes the contacts in a rectangular connector which have a self-wiping mating action. Not the same as ribbon connector.

Solderless terminal: Any style of termination which does not require solder for a permanent connection. See *crimp* and *insulation displacement*.

Crimp termination: A stripped wire is inserted into a barrel or trough which is then crimped to the conductor with a suitable tool.

Insulation displacement: Unstripped insulated wire is fitted into a channel containing metal teeth which are forced through the insulation to make contact with the conductor.

Service rating: The maximum rated voltage and/or current which may be applied continuously. May be called *working voltage*. Can be confused with the term used to describe how many times a connector may be mated and separated.

Withstanding voltage: Also called *test voltage*. The voltage a connector must withstand for one minute without breakdown. Applied between connectors and between connectors and shell and any grounding devices of the connector.

corcom
Filtered Modular Jack

Corcom, Inc.
1600 Winchester Road
Libertyville, Illinois 60048 USA
TEL: 708-680-7400 FAX: 708-680-8169

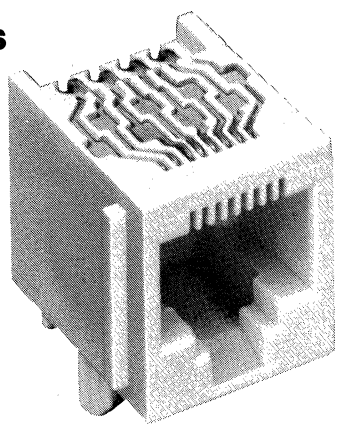
Corcom's Signal Sentry Filtered Modular Jack provides a space saving and cost effective solution to signal line RFI emissions and susceptibility problems in telecommunications equipment, computers, terminals, workstations and peripherals.

Conventional protection places separate filtering components on the printed circuit board near the connector, which adds to design/redesign requirements, uses valuable space, and sacrifices performance. The unique Corcom design, however, provides interference suppression at its optimal location by integrating filtering into the RJ11 (6 position)/RJ45 (8 position) jack itself.

The Corcom Signal Sentry Filtered Modular Jack is the ideal connector to solve the RFI problems in your LAN, PBX, local I/O and ISDN interfaces to twisted pair or other multi-conductor cabling systems.

For detailed information, dimensions and PC board layout call or write for Signal Sentry Brochure.

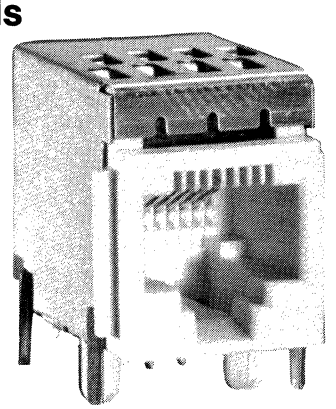
L Models



L Models Inductive filtering in a direct retrofit size to standard unfiltered jacks. L models are offered with both standard ferrite sleeves and high performance ferrite block inductive filtering.

- Retrofit design
- RJ11 and RJ45 Jack
- Available with metal shield for additional RF protection
- Ferrite block provides cost effective filtering
- Ferrite sleeves prevent cross talk

LC Models



LC Models Inductive and capacitive filtering with metal shield. The ferrite blocks or ferrite sleeves are combined with ceramic chip capacitors for additional protection.

- Metal Shield with optional spring fingers for ground path across interface
- RJ11 and RJ45 Jack
- Ferrite Block provides cost effective filtering
- Ferrite sleeves prevent cross talk
- Available with terminals fully or partially loaded

SIGNALSENTRY™

corcom
Power Entry Products

Corcom, Inc.
1600 Winchester Road
Libertyville, Illinois 60048 USA
TEL: 708-680-7400 FAX: 708-680-8169

Corcom offers over 75 models of power entry products which provide the combination of functions to make a system easily adaptable for marketing anywhere in the world.

Both unfiltered and filtered models provide combinations of IEC connectors, fuse holders, voltage selectors, and on/off switches offering a cost-effective alternative to individual parts.

Filtered models are available with five levels of filtering for susceptibility and emissions applications including applications for FCC and VDE emissions levels.

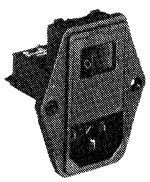
All models have approvals from the major safety agencies in the world. The units are sold through a strong network of reps and distributors worldwide. For more detailed information, call or write for our catalog: *Corcom Power Entry Products.*

Unfiltered Models

J Series

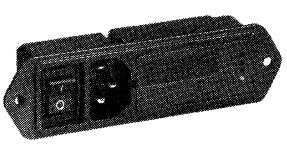
- 2 or 4 voltage selection
- North American fuse holder
- 6 amp current rating

L Series



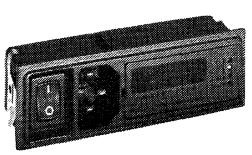
- North American OR European fuse holder
- Optional on/off switch or voltage selection
- 6 amp current rating
- Snap-in or flange mount

M Series



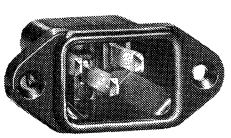
- North American AND European fuse holder
- 6 amp current rating
- Optional on/off switch
- Optional 2 or 4 voltage selection

M Series



- New Snap-in design
- Labor savings
- North American AND European fuse holder
- Optional 2 or 4 voltage selection

SR Series



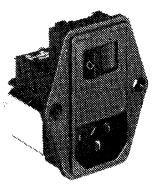
- IEC Connectors
- Male or female configuration
- Snap-in, flange, or right angle PC mount

Filtered Models

J Series

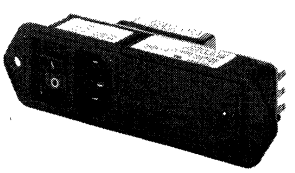
- New design
- Medical and General Purpose filters
- Five levels of filter performance
- 2 or 4 voltage selection
- North American fuse holder
- 6 amp current rating

L Series



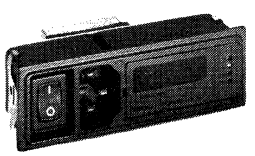
- Filtering for medical or linear applications
- North American OR European fuse holder
- Optional on/off switch OR voltage selection
- Current ratings of 1 to 6 amps
- Snap-in or flange mount

M Series



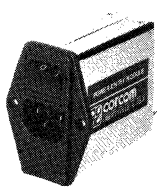
- Four levels of filtering including medical applications
- North American AND European fuse holder
- Current ratings of 3 to 5 amps
- Optional on/off switch
- Optional 2 or 4 voltage selection

M Series



- New Snap-in design
- Labor savings
- Susceptibility filtering
- North American AND European fuse holder
- Optional 2 or 4 voltage selection

LA Series



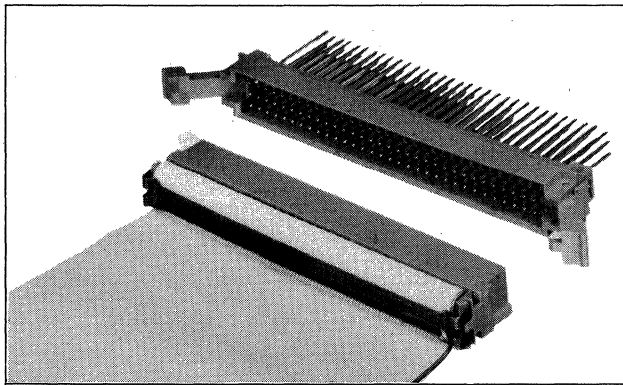
- Three levels of filtering
- On/off switch
- North American AND European fuse holder
- 2 voltage selection
- Flange mount

DISCOVER CW IDC Connectors

New! CW "American DIN"...The 96 Passenger Bus.

IDC Connector System: Now 50% more I/O capacity with speed and convenience of IDC termination!

- Provides busing capability never before available
- Compatible to DIN specification 41612
- 50% more I/O capability in the same space as other IDC DIN connectors
- Fast, reliable IDC termination
- Mass terminates 96 conductors on .100″ centers to .033″ centered flat cable
- Quick, easy, positive connection
- Drop-in replacement for standard DIN connectors
- Complete socket/header/cable system
- VA assemblies available
- Ejector latch system
- Compatible with standard Eurocard PC board systems



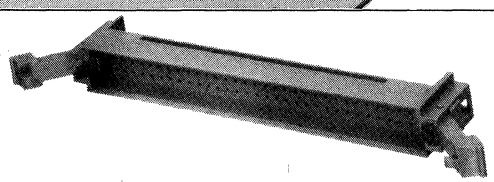
AMERICAN DIN HEADER CONNECTORS are available in solder and wire wrap pins in straight and right angle configurations. Ejector latches ensure easy insertion/withdrawal.

Pins are on .100″ DIN standard centers with three active rows of contacts.

Headers are drop in replacement for standard DIN connectors.

AMERICAN DIN SOCKET CONNECTORS mate with flat cable with .033″ centered spacing. 96 contacts in 3 active rows increase I/O capability to 50% more than standard DIN sockets.

American DIN sockets mate with all configuration types of 96 pin DIN headers.



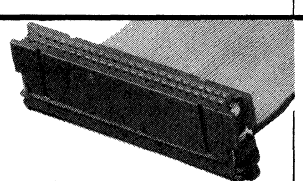
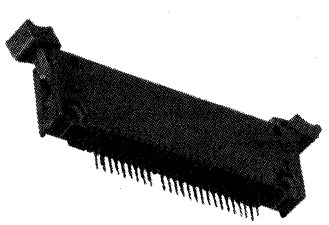
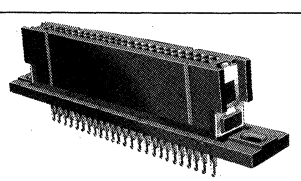
AMERICAN DIN BACKPLANE SHROUD easily mounts to predesigned backplanes to provide pin protection and mateability to the American DIN socket.

Furnished as standard are the same latches as on the American DIN header.

New! CW Nano...The 75% Savings Plan.

.025 Microminiature Connector System: One-fourth the area of conventional IDC connectors... one-eighth the volume!

A complete family of miniature connectors affords unprecedented levels of design flexibility—from .025″ center-to-center mass termination, through surface mount capability, direct board-to-board interface and much more....

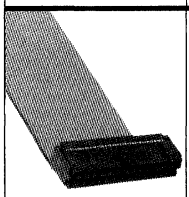
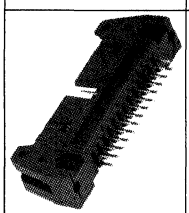
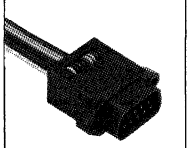
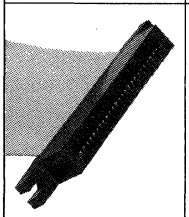
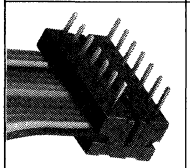
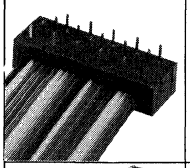
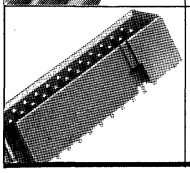
	Description	Features
	**NANO SOCKET CONNECTORS** are used to interconnect PC boards or points on a backplane through Nano headers or pins on .050″ × .050″ spacing. They mate with 30 AWG solid and 32 AWG stranded cable, extruded or laminated, on .025″ centers.	• CW's patented Torq-Tite™ contact assures gas-tight connection • Pre-assembled cover for rapid, precise assembly • Polarization slots on both sides assures positive orientation
	**NANO HEADER CONNECTORS** are most often permanently mounted to PC boards and mate with Nano socket connectors on .050″ contact spacing. Available in both straight and right angle versions for vertical or horizontal mounting, Nano headers offer the designer a wide diversity of circuit design options, including solder pins in various lengths, wire-wrap posts, compliant pins, edgeboard contacts and surface mounting capability.	• Latches available as option; ensure easy ejection, secure fit • Polarization ribs on both sides for positive orientation • Available with solder, compliant, and wire-wrap contacts. • Surface mount in straight and right angle versions.
	**NANO SOCKET/POST CONNECTORS** provide fast, simple and positive direct board-to-board connections without cable—providing unprecedented levels of packaging density. Posts are mounted on .050″ × .100″ centers, with the post array staggered to allow straight line PC board circuit layout.	• Mates with all Nano headers, both straight and right angle • Solder pin, edgecard, surface mount configurations available • Mounts directly to PC board on .050″ × .100″ centers

IDC Connectors

DISCOVER CW

CW Standard IDC Connector Systems

QPL UL CSA

	Description	Features	No. of Contacts
	**Socket** Normally used to interconnect PC boards or points on a backplane through headers or pins on .100 in. × .100 in. spacing. Patented Torq-Tite™ contact for positive gas-tight cable termination. Nose end of contact provides superior wiping action and redundant electrical contact.	• Mil-C-83503/7 approved • Preassembled cover provides for precise, rapid assembly • Ridges on cover help align cable • Choice of polarizing method and optional strain relief strap	10, 14, 16, 20, 26, 34, 40, 50, 60
	**Headers** Fully shrouded or traditional design headers provide reliable mating interface for standard sockets having .100 in. × .100 in. contact spacing. Headers have pins on their mating side and offer the designer a choice of either wire-wrap or solder pins in various lengths in straight or right angle styles.	• Mil-C-83503/20, 21, 24, and 25 approved • Mateable with sockets from other manufacturers, with or without strain relief • Polarization ribs can be removed for use with non-polarized sockets • Easy ejection, and secure locking available with long or short latches	10, 14, 16, 20, 26, 34, 40, 50, 60
	**D-Subminiature** Ideal for input/output applications and inter-connecting electronic equipment. Interchangeable and mateable with other connectors that meet these standards. Available in all-plastic or metal-face versions with optional EMI/RFI shield.	• Metal face D-sub qualified to Mil-C-24308 • Choice of 3-way strain relief • Accepts standard .050 in. conductor spacing cable without special cable preparation • Preassembled cover for precise, rapid assembly • Accepts jacketed and shielded cable without the need for a backshell	9, 15, 25, 37 with pin or socket contacts
	**Card Edge** Provides a fast means for connecting/disconnecting single, double-sided or multi-layer PC boards. Extra long cantilevered contact provides an extended self-cleaning, wiping action, and ensures positive connection to the board.	• Factory pre-assembled cover for fast assembly • Self-adjusting contact force adjusts for variations in PC board thickness • Full polarization capability • With or without mounting ears	10, 20, 26, 34, 40, 50
	**DIP** Used for rapid, permanent connection of ribbon cable to a PC board or when connect/disconnect capabilities are required. Mates with a standard DIP socket. Cover is factory pre-assembled to connector base to simplify handling and assembly of cable.	• Mil-C-83503/6 approved. • Sturdy, yet flexible terminal posts • No "bare shoulders" on the contact at the PC board interface • Optional strain relief strap is available	14, 16, 24, 40
	**PCB** Used when a permanent connection of flat cable to the PC board is required. Cable is terminated to the PCB plug to make a reliable gas-tight connection through use of Torq-Tite™ contacts. The connector's pins are then soldered to the board.	• Mil-C-83503/23 approved • No "bare shoulders" on the contact at the PC board interface • Integral strain-relief option available. • Cover lip available for cable end termination.	10, 20, 26, 34, 40, 50, 60
	**Low Profile Box Headers** Mate with all standard female sockets. Reduce height and board area by as much as 50%. Available in straight or right angle, solder or edgeboard pins.	• Polarization ribs can be removed for use with non-polarized sockets • Mateable with sockets from other manufacturers • Pin lengths for 1/16″ or 1/8″ PC boards	20, 26, 34, 40, 50

Ask for catalog EM-C-2114 for CW Nano system information.
Request catalog EM-C-2110 for CW IDC connector system information.

DISCOVER CW

CW Industries, 130 James Way, Southampton, PA 18966
TEL: 215-355-7080
FAX: 215-355-1088

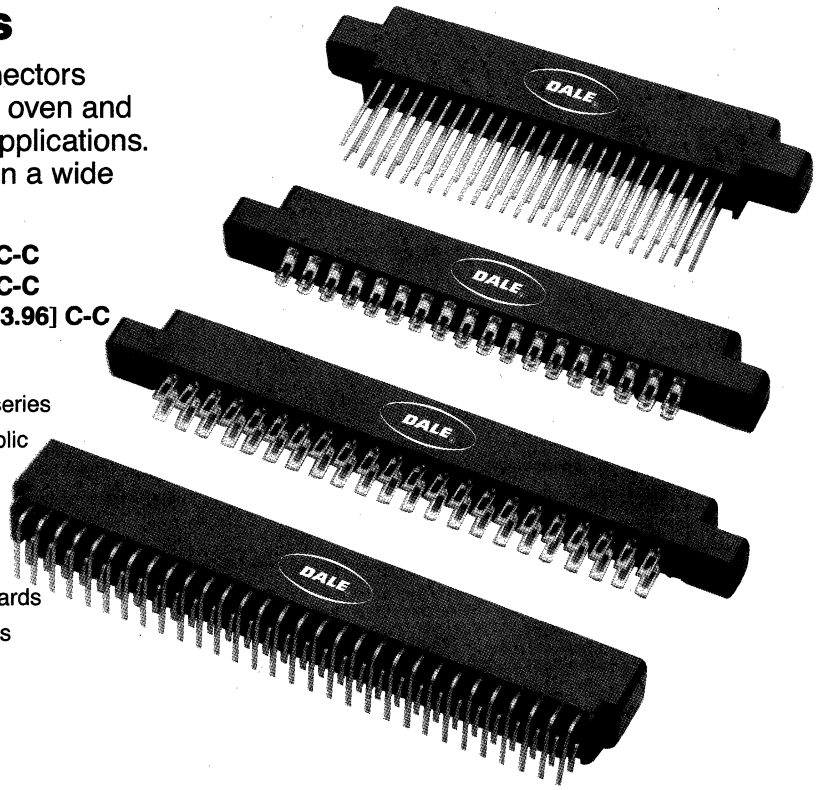
A COMPANY OF VISHAY DALE

DUAL READOUT EDGEBOARD CONNECTORS

150°C and 200°C BURN-IN CONNECTORS

High temperature, long life connectors designed specifically for burn-in oven and automatic temperature testing applications. Priced affordably and available in a wide range of sizes.

SERIES EB4, .100 [2.54] C-C
SERIES EB6, .125 [3.17] C-C
SERIES EB7, EB8, .156 [3.96] C-C



FEATURES

- Right angle models now included for all series
- High temperature, glass reinforced phenolic connector bodies — 150°C
- High temperature, glass reinforced PPS connector bodies — 200°C
- High reliability spinodal alloy contacts
- Accepts standard .054-.071 thick P.C. boards
- High reliability bifurcated bellows contacts
- Gold-plated contacts
- Card extender style terminals standard
- Variety of mounting styles available
- Competitively priced
- **Recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524.**

[Numbers in brackets indicate millimeters]

SPECIFICATIONS

Body Material: Fiberglass reinforced phenolic, 150°C operating temperature, flame-retardant (UL94V-O) — 150°C
Fiberglass reinforced polyphenylene sulfide, 200°C operating temperature, flame-retardant (UL94V-O) — 200°C

Contacts: Copper-nickel-tin spinodal alloy per ASTM B 740

Plating: Gold plating (.00003 min. thick), over .00005 min. nickel underplate

Current Rating: 5 amps

Test Voltage Between Contacts:
At sea level: 1800 VRMS At 70,000 feet: 450 VRMS

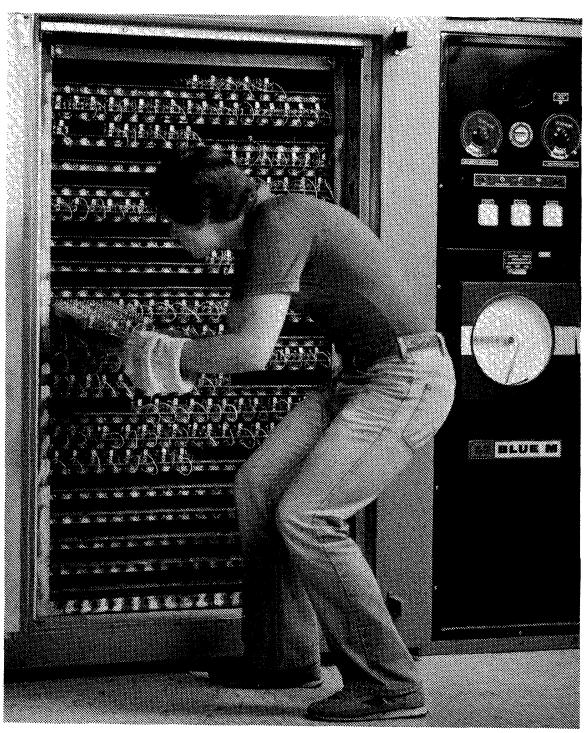
Insulation Resistance: 5,000 megohms min. at 500 VDC potential

Contact Resistance: 30 millivolts max. at rated current

Humidity: 48 hours at 95% relative humidity at 90°C, insulation resistance 5,000 megohms

Shock: 3,50G shocks in each of 3 mutually perpendicular planes with no loss of continuity

SPECIAL APPLICATION NOTE:
When operating units at elevated temperatures, solder having a melting point 50°C above the operating temperature should be used. Contact factory for specific solder information.



CONTACT: **DALE ELECTRONICS, INC.** E. Hwy. 50, P.O. Box 180, Yankton, SD 57078-0180 • Phone (605) 665-9301

A COMPANY OF DALE

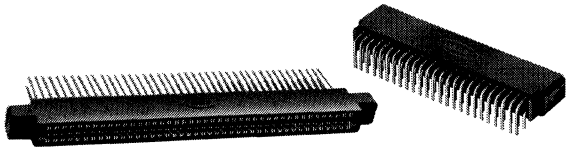
EDGEBOARD CONNECTORS

MODEL	SPACING	FEATURES

DUAL READOUT

EB4 (Standard) .100 C-C x .200

EB4 (Right Angle) .100 C-C x .150
.100 C-C x .200

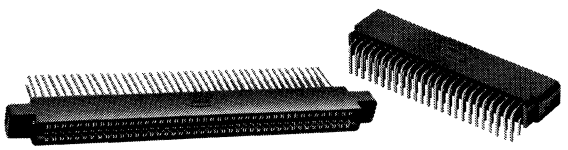


- Designed to meet MIL-C-21097/23 requirements
- Body materials: Diallyl phthlate, phenolic, glass-filled polyester
- Wide choice of contact terminations, body sizes and mounting styles
- Selective gold plating
- Accepts printed circuit board thickness from .054 [1.37] — .071 [1.80]
- Polarization between contact positions in all sizes.
- **Recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.**

DUAL READOUT

EB6 (Standard) .125 C-C x .250

EB6 (Right Angle) .125 C-C x .150
.125 C-C x .200

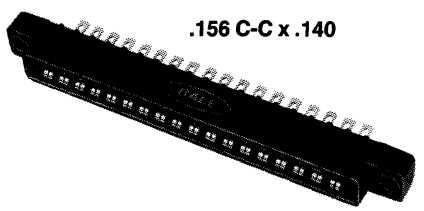


- Designed to meet MIL-C-21097/24 requirements
- Body materials: Diallyl phthlate, phenolic, glass-filled polyester
- Wide choice of contact terminations, body sizes and mounting styles
- Selective gold plating
- Accepts printed circuit board thickness from .054 [1.37] — .071 [1.80]
- Polarization between contact positions in all sizes.
- **Recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.**

DUAL and SINGLE READOUT

EB7S .156 C-C

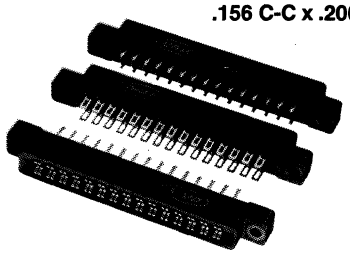
EB7D .156 C-C x .140



- Bifurcated bellows contacts
- Accepts printed circuit board thickness from .054 [1.37] — .071 [1.80]
- Polarization between contact positions in all sizes.
- Selective gold plating
- Polarizing key (reinforced nylon) inserts by hand. Requires no adhesive.
- Protected entry, straightens and aligns board to prevent contact damage.
- **Recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.**

DUAL READOUT

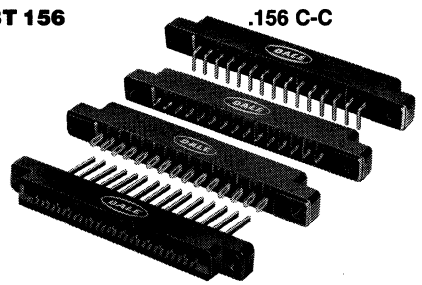
EB8 .156 C-C x .200



- Bifurcated bellows contacts
- Designed to meet MIL-C-21097 requirements
- Body materials: Diallyl phthlate, phenolic, glass-filled polyester
- Wide choice of contact terminations, body sizes and mounting styles
- Selective gold plating
- Accepts printed circuit board thickness from .054 [1.37] — .071 [1.80]
- Polarization between contact positions in all sizes.
- **Recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.**

SINGLE READOUT

EBT 156 .156 C-C



- Modified tuning fork contacts have chamfered lead-in to reduce wear on board contacts
- Accepts printed circuit board thickness from .054 [1.37] — .070 [1.78]
- Polarization on or between contact positions in all sizes
- Polarizing key (reinforced nylon) inserts by hand. Requires no adhesive.
- Protected entry, straightens and aligns board to prevent contact damage
- Terminal configurations include eyelet, dip-solder and Wire Wrap™
- Meets or exceeds MIL-C-21097/6
- **Connectors with Type A, B, C, D or R contacts are recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.**

CONTACT: **DALE ELECTRONICS, INC.** E. Hwy. 50, P.O. Box 180, Yankton, SD 57078-0180 • Phone (605) 665-9301

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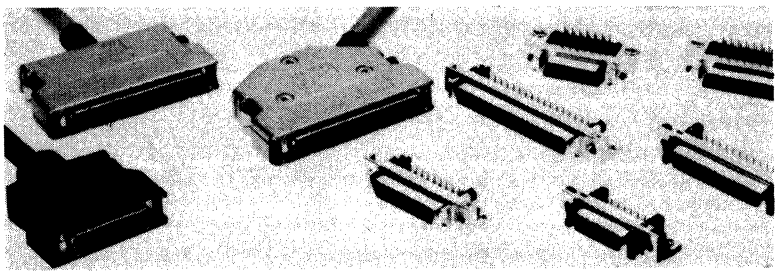
DDK ELECTRONICS

DHA Series

1.27 (.050") centerline Interface Connectors for SCSI and other Computer Equipment



SPECIFICATION

Rated voltage . . . . . .250V AC (r.m.s)
Rated current 0.5A/contact
Dielectric withstanding voltage 1 minute 500V AC (r.m.s)
Insulation resitance . . .500MΩ min. at 500V DC
Contact resistance . . .35mΩ max.
Applicable cable (for plugs only) . . . . .AWG #28 Insulator O.D.:0.58 (.023)

MATERIAL/FINISH

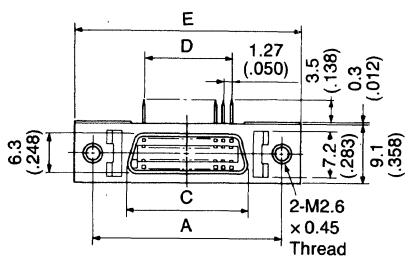
Contact . . . . .Copper alloy/ Gold over Nickel plate
Shell . . . . . .Brass/Nickel plate
Insulator . . . .PBT resin (UL94V-0)
Hood (metal) .Zinc cast/Non-conductive paint finish (color: grey)
Hood (plastic)ABS resin (UL94V-0)

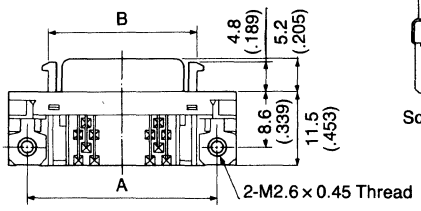
FEATURES

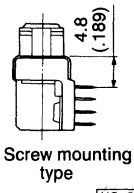
- Space saving 1.27mm (.050") centerline
- Highly-reliable, scoop-proof cantilever contact design
- IDC termination for plug
- "D"-shape shell polarization to eliminate connector mis-mating
- Quick and secure mating lock design
- Solid metal shells for EMI suppression
- Available with over mold plugs

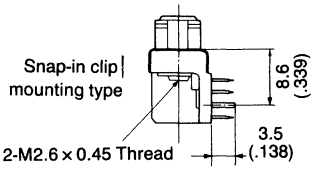
Stamped metal shell type DHA-RAxx-R1xx

Dimensions: mm (inches)



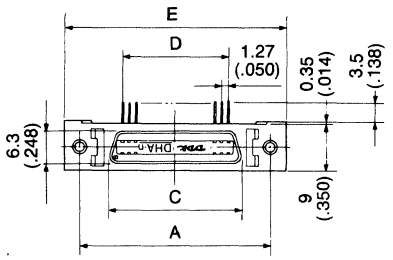


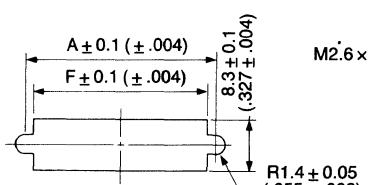


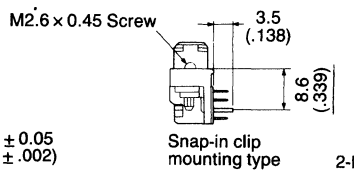


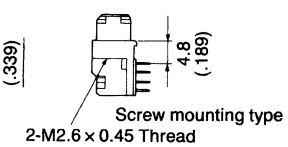
NO. OF CONT'S	A	B	C	D	E
26	31.26 (1.231)	24.64 (.970)	20.3 (.799)	15.24 (.600)	37.2 (1.465)
36	37.61 (1.481)	30.99 (1.220)	26.6 (1.047)	21.59 (.850)	43.5 (1.713)
40	40.15 (1.581)	33.53 (1.320)	29.2 (1.150)	24.13 (.950)	46.1 (1.815)
50	46.50 (1.831)	39.88 (1.570)	35.5 (1.398)	30.48 (1.200)	52.4 (2.063)
68	57.93 (2.281)	51.31 (2.020)	47.0 (1.850)	41.91 (1.650)	63.9 (2.516)

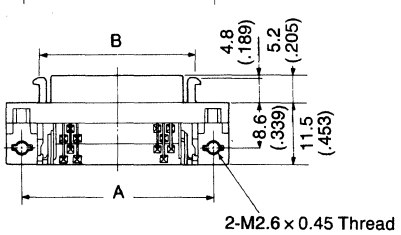
Solid metal shell type DHA-RCxx-R1xxx

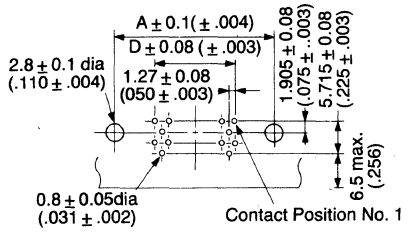












PCB mounting dimensions
(Connector mount side)
PCB thickness:
$1.6^{+0.19}_{-0.1}(0.63^{+.007}_{-.004})$ (for snap-in clip mounting)
1.6 ± 0.19(.063 ± .007) (for screw mounting)

NO. OF CONT'S	A	B	C	D	E	F
14	23.64 (.931)	17.02 (.670)	12.7 (.500)	7.62 (.300)	29.57 (1.164)	19.97 (.786)
20	27.45 (1.081)	20.83 (.821)	16.5 (.650)	11.43 (.450)	33.38 (1.314)	23.78 (.936)
26	31.26 (1.231)	24.64 (.970)	20.3 (.799)	15.24 (.600)	37.19 (1.464)	27.59 (1.086)
36	37.61 (1.481)	30.99 (1.220)	26.6 (1.047)	21.59 (.850)	43.54 (1.714)	33.94 (1.336)
40	40.15 (1.581)	33.53 (1.320)	29.2 (1.150)	24.13 (.950)	46.08 (1.814)	36.48 (1.436)
50	46.5 (1.831)	39.88 (1.571)	35.5 (1.398)	30.48 (1.200)	52.43 (2.064)	42.83 (1.686)
60	52,85 (2.081)	46.23 (1.820)	41.9 (1.650)	36.83 (1.450)	58.78 (2.314)	49.18 (1.936)
68	57.93 (2.281)	51.31 (2.020)	47 (1.850)	41.91 (1.650)	63.86 (2.514)	54.26 (2.136)
80	65.55 (2.581)	58.93 (2.320)	54.6 (2.150)	49.53 (1.950)	71.48 (2.814)	61.88 (2.436)
100	78.25 (3.081)	71.63 (2.820)	67.3 (2.650)	62.23 (2.450)	84.14 (3.314)	74.58 (2.936)

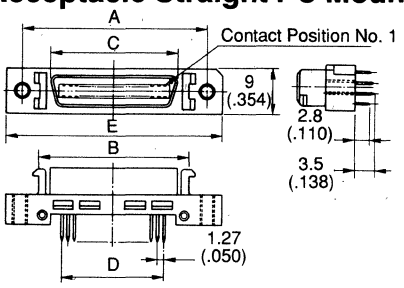
DDK ELECTRONICS

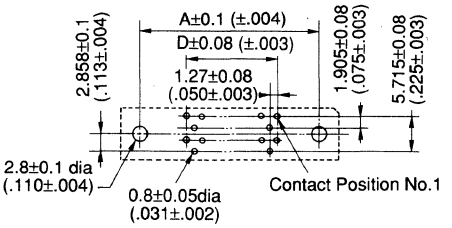
DHA Series

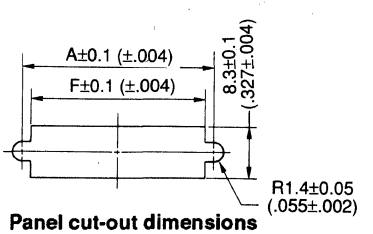
Dimensions: mm (inches)

DHA-RBXX-SIXXX

Receptacle Straight PC Mount

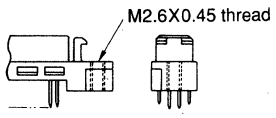




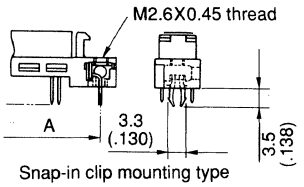


Panel cut-out dimensions
Panel thickness = 2 max. (.077)

PCB mounting dimensions
(Connector-mount side)
PCB thickness: 1.6 +0.19 −0.1 (.063 +.007 −.004) (for snap-in clip mounting)
1.6±0.19 (.063±.007) (for screw mounting)



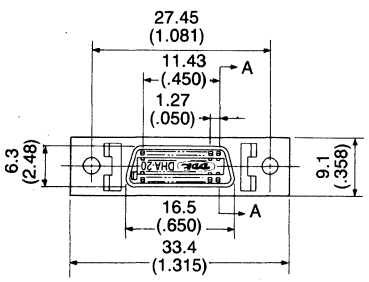
Screw mounting type

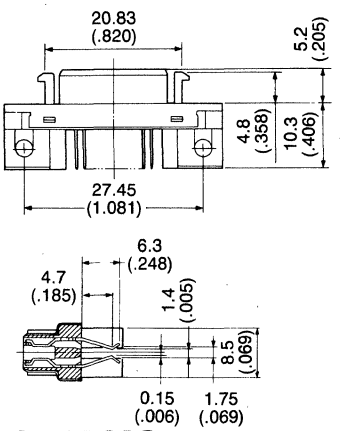


Snap-in clip mounting type

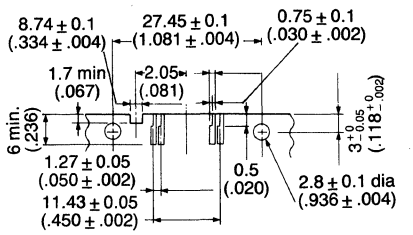
NO. OF CONT'S	A	B	C	D	E	F
40	40.15 (1.581)	33.53 (1.320)	29.2 (1.150)	24.13 (.950)	46.08 (1.814)	36.48 (1.436)
50	46.5 (1.831)	39.88 (1.571)	35.5 (1.398)	30.48 (1.200)	52.43 (2.064)	42.83 (1.686)
68	57.93 (2.281)	51.31 (2.020)	47 (1.850)	41.91 (1.650)	63.86 (2.514)	54.26 (2.136)
80	65.55 (2.581)	58.93 (2.320)	54.6 (2.150)	49.53 (1.950)	71.48 (2.814)	61.88 (2.436)

Receptable SMT type (stamped metal shell) - DHA-RZXX-S9X



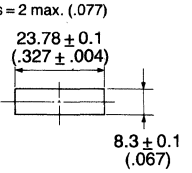


PCB mounting dimensions
PCB thickness = 1.6 ± 0.15 (.063 ± .006)

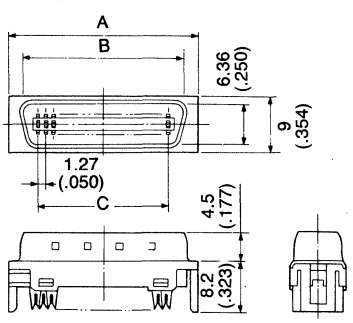


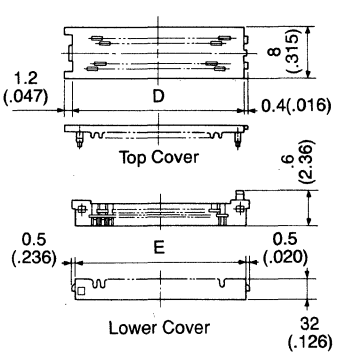
Panel thickness = 2 max. (.077)

Panel cut-out dimensions



Plug (without hood) - DHA-PCXX-XG





NO. OF CONT'S	A	B	C	D	E
14	17.2 (.6.77)	12.8 (.504)	7.62 (.300)	14.7 (.579)	14.7 (.579)
20	21 (.827)	16.6 (.654)	11.43 (.450)	18.5 (.728)	18.5 (.728)
26	24.8 (.976)	20.4 (.803)	15.24 (.600)	22.3 (.878)	22.3 (.878)
36	31.2 (1.228)	26.7 (1.051)	21.59 (.850)	28.7 (1.130)	28.7 (1.130)

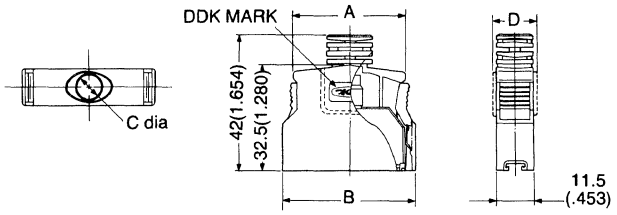
NO. OF CONT'S	A	B	C	D	E
40	33.7 (1.327)	29.3 (1.154)	24.13 (.950)	31.2 (1.228)	31.2 (1.228)
50	40.1 (1.579)	35.6 (1.402)	30.48 (1.200)	37.5 (1.476)	37.5 (1.476)
60	46.4 (1.827)	42 (1.654)	36.83 (1.450)	43.9 (1.728)	43.9 (1.728)

NO. OF CONT'S	A	B	C	D	E
68	51.5 (2.028)	47.1 (1.854)	41.91 (1.650)	49 (1.929)	49 (1.929)
80	59.1 (2.327)	54.7 (2.154)	49.53 (1.950)	56.6 (2.228)	56.6 (2.228)
100	71.8 (2.827)	67.4 (2.654)	62.23 (2.450)	69.3 (2.728)	69.3 (2.728)

DDK ELECTRONICS DHA Series

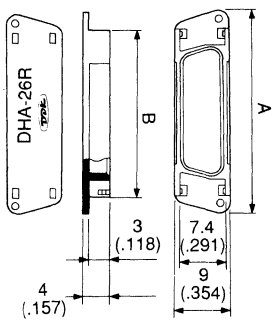
Dimensions: mm (inches)

Plastic Hood - DHA-HPDXX-IX



NO. OF CONT'S	A	B	C	D	NO. OF CONT'S	A	B	C	D
14	20.2 (.795)	25.8 (1.016)	6.5 (.256)	—	68	54.5 (2.146)	60.1 (2.366)	9.3 (.366)	—
20	24.1 (.949)	29.7 (1.169)	6.7 (.264)	—	80	62.1 (2.445)	67.7 (2.665)	10.1 (.398)	12.4 (.488)
36	34.2 (1.346)	39.8 (1.567)	8.1 (.319)	—	100	74.8 (2.945)	80.4 (3.165)	10.7 (.421)	13.0 (.512)
50	43.1 (1.697)	48.7 (1.917)	8.7 (.343)	—					

Dust cover (plastic)

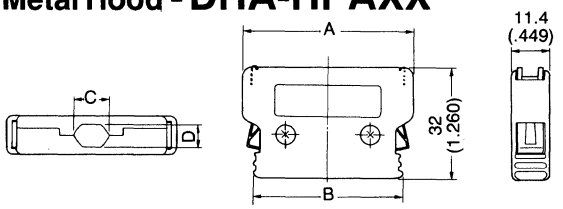


P/N	NO. OF CONT'S	A	B
DHA-26RB-405	26	34.44 (1.356)	27.94 (1.100)
DHA-36RB-405	36	40.79 (1.606)	34.29 (1.350)
DHA-40RB-405	40	43.33 (1.706)	36.83 (1.450)
DHA-50RB-405	50	49.68 (1.956)	43.18 (1.700)
DHA-60RB-405	60	56.03 (2.206)	49.53 (1.950)
DHA-68RB-405	68	61.11 (2.406)	54.61 (2.150)

Cable Assembly Tools

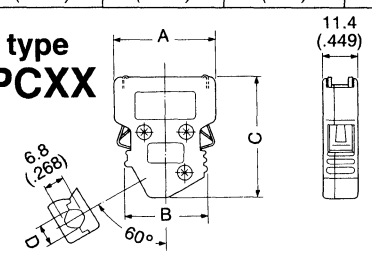
Tool Kit P/N	Component Tool P/N
357J-9761	357J-8629: Cable locator
	357J-8599: Cover assembly tool
	357J-8621: Cable cutting tool

Metal Hood - DHA-HPAXX



NO. OF CONT'S	A	B	C	D
20	29.5 (1.161)	23.5 (.925)	6.58 (.260)	6.2 (.244)
26	33.3 (1.311)	27.3 (1.075)	7.23 (.285)	6.8 (.268)
36	39.7 (1.563	33.7 (1.327)	8.23 (.324)	
40	42.2 (1.661)	36.2 (1.425)	8.73 (.344)	
50	48.6 (1.913)	42.6 (1.677)	10.23 (.403)	
60	54.9 (2.161)	48.9 (1.925)	11.16 (.439)	
68	60 (2.362)	54 (2.126)	12.07 (.475)	

60° Angle type DHA-HPCXX



NO. OF CONT'S	A	B	C	D
26	33.3 (1.311)	27.3 (1.075)	40 (1.575)	7.23 (.285)
36	39.7 (1.563)	33.7 (1.327)	41 (1.614)	8.23 (.324)
50	48.6 (1.913)	42.6 (1.677)	41 (1.614)	10.23 (.403)
68	60 (2.362)	54 (2.126)	41 (1.614)	12.07 (.475)

Ordering Information

EXAMPLE: **DHA-A26-3G-HPA-10-01 D**

NO. OF CONTACTS
14, 20, 26, 36, 40, 50, 60, 68

CONTACT PLATING
1:0.76μm (30"μ) Gold over Nickel
2:0.25μm (10"μ) Gold over Nickel
3: Gold Flash over Nickel

HOOD STYLE
A: Straight type
C: 60°C Angle type
D: Plastic type

HARNESS STYLE
D: Double Ended
S: Single Ended

LENGTH (L meter)
• Standard
01:1 meter
02:2 meter
04:4 meter

• Decimal
XX PXX
Integer Decimal

(Examples)
01P5 :1.5 meter
02P3 :2.3 meter
00P5 :0.5 meter
00P55:0.55 meter

Used with these designation for plastic hood only **1 0**

DDK MARK (PLASTIC ONLY)
1: With mark

HOOD COLOR (PLASTIC ONLY)
0: Black
1: Beige
2: Gray

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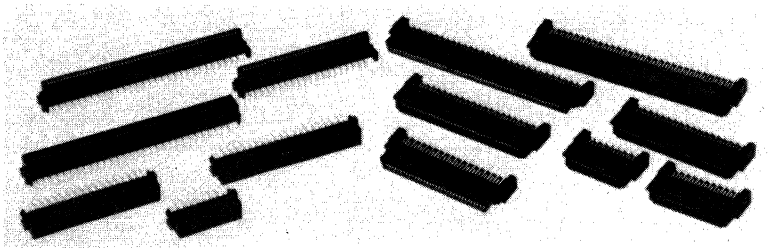
DDK ELECTRONICS

DHB Series

1.27 (.050″) centerline Two-piece Connectors Board to Board and Board to Cable Connections



SPECIFICATION

Rated voltage	250V AC (r.m.s.)
Rated current	0.5A/contact
Dielectric with-standing voltage	500V AC (r.m.s.) 1 minute
Insulation resistance	500MΩ min. at 500V DC
Contact resistance	35mΩ max. at 10mA DC

FEATURES

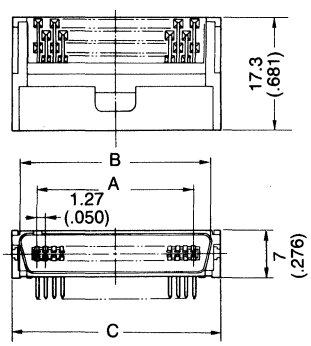
- Space saving 1.27mm (.050″) centerline
- Highly-reliable, scoop-proof cantilever contact design
- "D"-shape shell polarization to eliminate connector mis-mating
- Bi-level contact tails to ease assembly into PCB holes
- With snap-lock pins plus four kinked contact tails to secure connector on PCB for soldering
- Intermateable with half-pitch (1.27mm (.050″) centerline) IDC flat ribbon cable connectors for board to cable connection

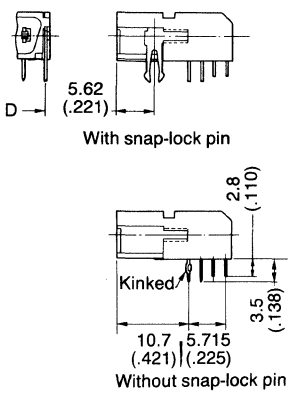
MATERIAL/FINISH

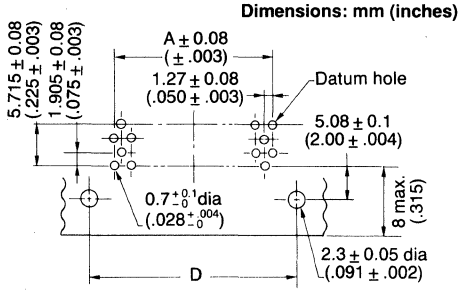
Contact	Copper alloy/ Gold over Nickel plate
Insulator	PBT resin (UL94V-0)
Snap lock pin	Copper alloy/ Solder plate

Right angle plugs DHB-PAxx

Dimensions: mm (inches)

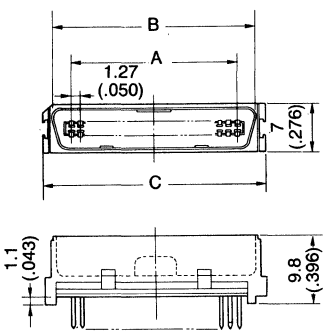


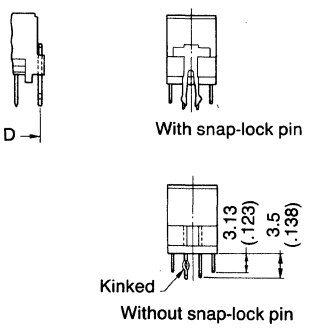


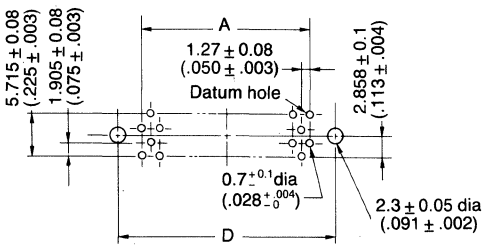


PCB mounting dimensions
(Connector mount side)
PCB thickness:
$1.6^{+0.19}_{-0.1}$ ($.063^{+.007}_{.004}$) (with snap-lock pin)
1.6 ± 0.19(.063 ± .007) (less snap-lock pin)

Straight plugs DHB-PBxx







PCB mounting dimensions
(Connector mount side)
PCB thickness:
$1.6^{+0.19}_{-0.1}$ ($0.63^{+.007}_{.004}$) (with snap-lock pin)
1.6 ± 0.19(.063 ± .007) (less snap-lock pin)

NO. OF CONT'S	A	B	C	D	NO. OF CONT'S	A	B	C	D	NO. OF CONT'S	A	B	C	D
20	11.43 (.450)	16.58 (.653)	20.03 (.789)	18.54 (.730)	50	30.48 (1.200)	35.63 (1.403)	39.08 (1.539)	37.59 (1.480)	96	59.69 (2.350)	64.84 (2.553)	68.29 (2.689)	66.80 (2.630)
30	17.78 (.700)	22.93 (.903)	26.38 (1.039)	24.89 (.980)	60	36.83 (1.450)	41.98 (1.653)	45.43 (1.789)	43.94 (1.730)	100	62.23 (2.450)	67.38 (2.653)	70.83 (2.789)	69.34 (2.730)
34	20.32 (.800)	25.47 (1.003)	28.92 (1.139)	27.43 (1.080)	68	41.91 (1.650)	47.06 (1.853)	50.51 (1.989)	49.02 (1.930)	120	74.93 (2.950)	80.08 (3.153)	83.53 (3.289)	82.04 (3.230)
40	24.13 (.950)	29.28 (1.153)	32.73 (1.289)	31.24 (1.230)	80	49.53 (1.950)	54.68 (2.153)	58.13 (2.289)	56.64 (2.230)					

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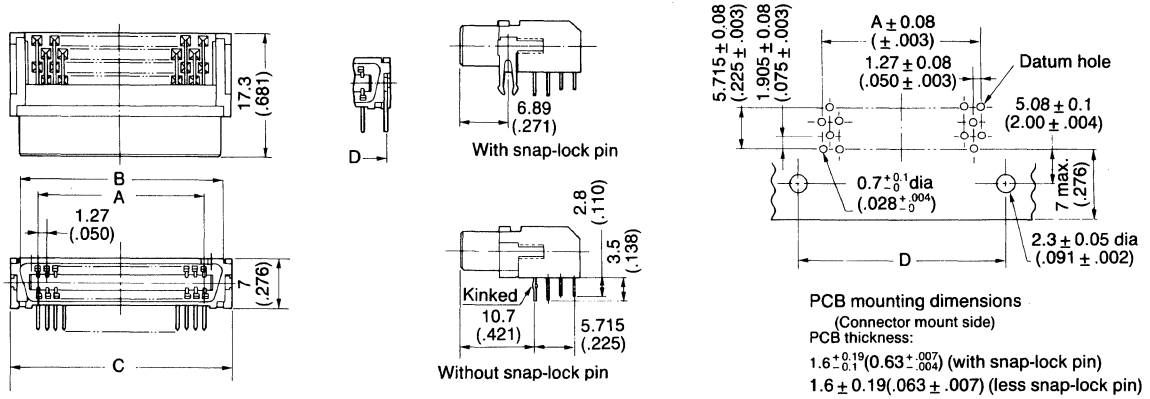
DDK ELECTRONICS DHB Series

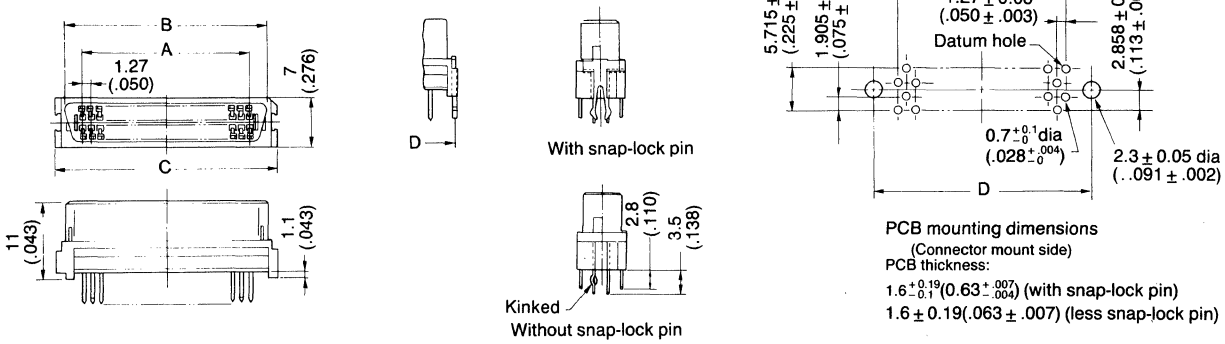
Right angle receptacles DHB-RAxx

Dimensions: mm (inches)



PCB mounting dimensions
(Connector mount side)
PCB thickness:
$1.6^{\pm 0.19}_{\pm 0.1}$ ($0.63^{\pm .007}_{\pm .004}$) (with snap-lock pin)
1.6 ± 0.19(.063 ± .007) (less snap-lock pin)

Straight receptacles DHB-RBxx



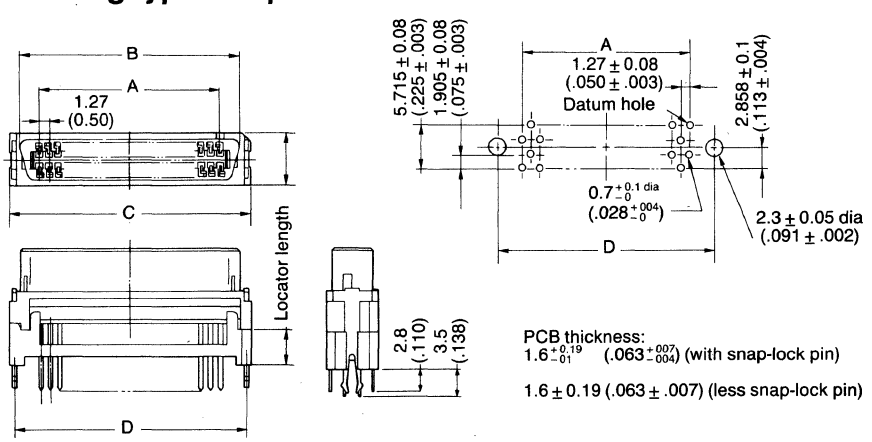
PCB mounting dimensions
(Connector mount side)
PCB thickness:
$1.6^{\pm 0.19}_{\pm 0.1}$ ($0.63^{\pm .007}_{\pm .004}$) (with snap-lock pin)
1.6 ± 0.19(.063 ± .007) (less snap-lock pin)

NO. OF CONT'S	A	B	C	D
20	11.43 (.450)	16.48 (.649)	20.03 (.789)	18.54 (.730)
30	17.78 (.700)	22.83 (.899)	26.38 (.899)	24.89 (.980)
34	20.32 (.800)	25.37 (.999)	28.92 (.999)	27.43 (1.080)
40	24.13 (.950)	29.18 (1.149)	32.73 (1.149)	31.24 (1.230)

NO. OF CONT'S	A	B	C	D
50	30.48 (1.200)	35.53 (1.399)	39.08 (1.539)	37.59 (1.480)
60	36.83 (1.450)	41.88 (1.649)	45.43 (1.789)	43.94 (1.730)
68	41.91 (1.650)	46.96 (1.849)	50.51 (1.989)	49.02 (1.930)
80	49.53 (1.950)	54.58 (2.149)	58.13 (2.289)	56.64 (2.230)

NO. OF CONT'S	A	B	C	D
96	59.69 (2.350)	64.74 (2.549)	68.29 (2.689)	66.80 (2.630)
100	62.23 (2.450)	67.28 (2.649)	70.83 (2.789)	69.34 (2.730)
120	74.93 (2.950)	79.98 (3.149)	83.53 (3.289)	82.04 (3.230)

Stacking type receptacles



PCB thickness:
$1.6^{+0.19}_{-01}$ ($.063^{\pm .007}_{\pm .004}$) (with snap-lock pin)

1.6 ± 0.19 (.063 ± .007) (less snap-lock pin)

NO. OF CONT'S	A	B	C	D
20	11.43 (.450)	16.48 (.649)	20.03 (.789)	18.54 (.730)
30	17.78 (.700)	22.83 (.899)	26.38 (1.039)	24.89 (.980)
34	20.32 (.800)	25.37 (.999)	28.92 (1.139)	27.43 (1.080)
40	24.13 (.950)	29.18 (1.149)	32.73 (1.289)	31.24 (1.230)
50	30.48 (1.200)	35.53 (1.399)	39.08 (1.539)	37.59 (1.480)
60	36.83 (1.450)	41.88 (1.649)	45.43 (1.789)	43.94 (1.730)
80	49.53 (1.950)	54.58 (2.149)	58.13 (2.289)	56.64 (2.230)
100	62.23 (2.450)	67.28 (2.649)	70.83 (2.789)	69.34 (2.730)

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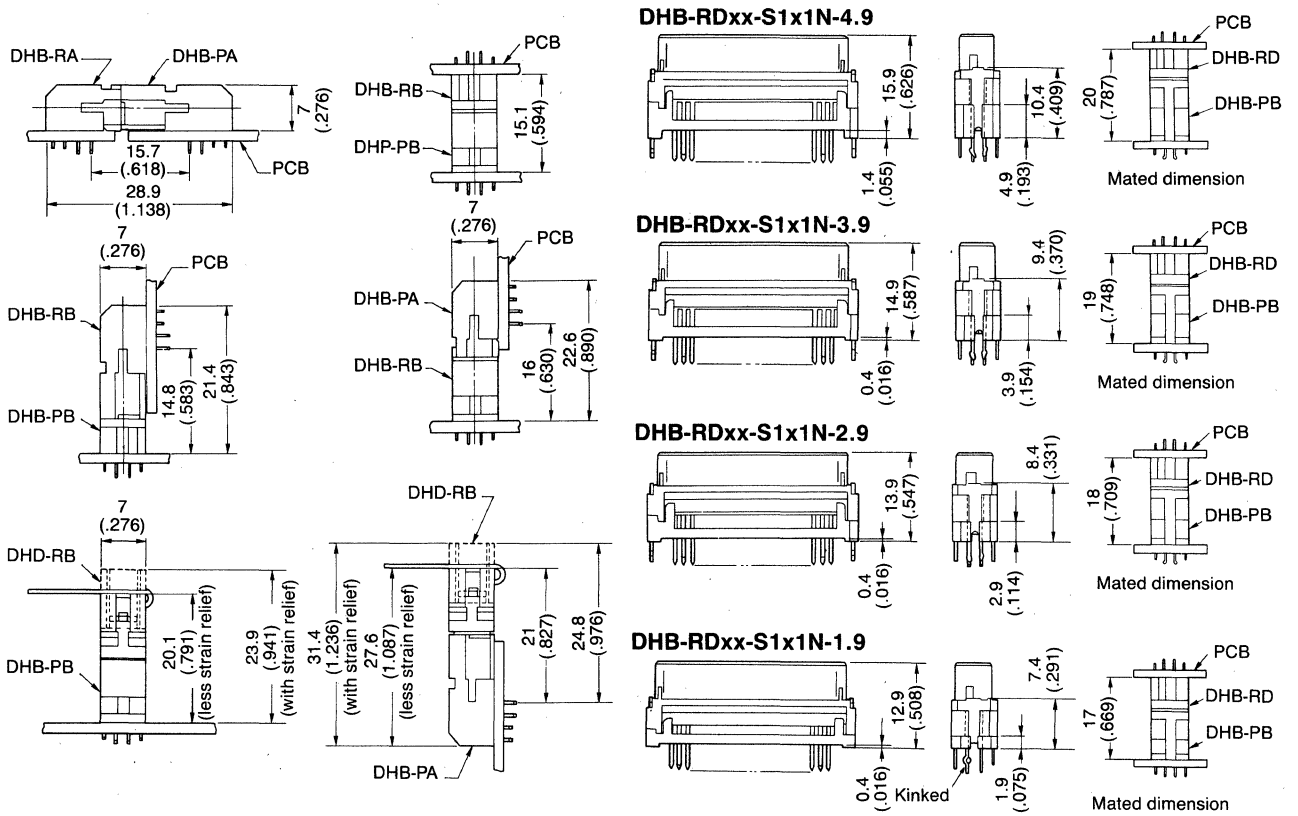
DDK ELECTRONICS

DHB Series

Dimensions: mm (inches)

Mated Dimensions



Ordering Information

Plugs

EXAMPLE: **DHB-PA50-R131N**

CONNECTOR STYLE
P: Plug

HOUSING STYLE
A: Right angle
B: Straight

NO. OF CONTACTS
20, 30, 34, 40, 50, 60, 68, 80, 96, 100, 120

TAIL STYLE
R: Right angle PCB
S: Straight PCB

REAR COVER
N: Without cover

SNAP LOCK PIN
N: Without snap-lock pin
1: With snap-lock pin

CONTACT PLATING
1: 0.76μm (30"μ) Gold over Nickel
2: 0.25μm (10"μ) Gold over Nickel
3: Gold flash over Nickel
Tail • • • Solder plating

TAIL LENGTH
1: 2.8mm (.110") & 3.5mm (.138") (for DHB-PA)
3.13mm (.123") & 3.5mm (.138") (for DHB-PB)

Receptacles

EXAMPLE: **DHB-RA50-R131N**

CONNECTOR STYLE
R: Receptacle

HOUSING STYLE
A: Right angle
B: Straight

NO. OF CONTACTS
20, 30, 34, 40, 50, 60, 68, 80, 96, 100, 120

TAIL STYLE
R: Right angle PCB
S: Straight PCB

REAR COVER
N: Without cover

SNAP LOCK PIN
N: Without snap-lock pin
1: With snap-lock pin

CONTACT PLATING
1: 0.76μm (30"μ) Gold over Nickel
2: 0.25μm (10"μ) Gold over Nickel
3: Gold flash over Nickel
Tail • • • Solder plating

TAIL LENGTH
1: 2.8mm (.110") & 3.5mm (.138")

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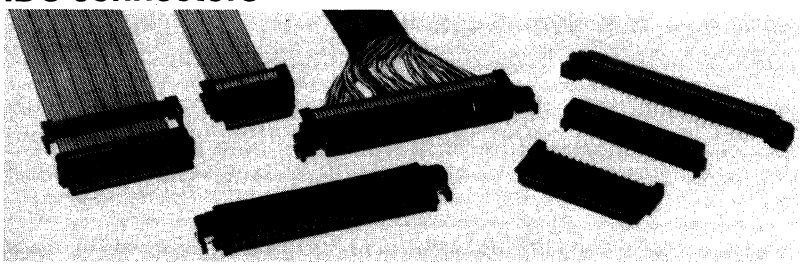
DDK ELECTRONICS

DHD Series

1.27 (.050″) center Flat ribbon cable IDC connectors



SPECIFICATION

Rated voltage . . . . . .250V AC (r.m.s.)
Rated current 0.5A/contact
Dielectric with-. . . . . .500V AC (r.m.s.)
standing voltage 1 minute
Insulation resistance . .500MΩ min.
at 500V DC
Contact resistance . . .35mΩ max.
at 10mA DC

FEATURES

- 1.27mm (.050″) center IDC connectors for 0.635mm (.025″) pitch flat ribbon cable (AWG #28 or #30)
- Highly-reliable, scoop-proof cantilever contact design
- "D"-shape shell polarization to eliminate connector mis-mating
- Bi-level IDC termination design for reliable connection
- Open ended rear cover design for daisy chain applications
- Space saving mating lock design
- Intermateable with half-pitch (1.27mm (.050″) centerline) DHB series board mounting connectors

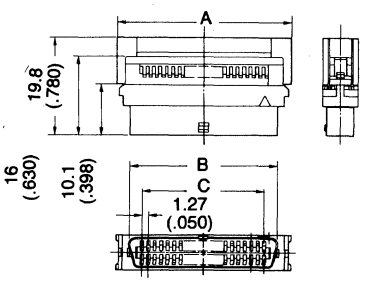
MATERIAL/FINISH

Contact . . .Copper alloy/
Gold over Nickel plate
Insulator. . .Plug : PBT resin
(UL94V-0)
Socket: Polyamide resin
(UL94V-0)

APPLICABLE CABLES

AWG #30 or #28 flat ribbon cables

Receptacles–Friction lock type

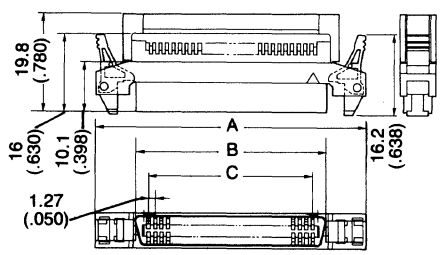


Dimensions: mm (inches)

NO. OF CONT'S	A	B	C	MATING PLUGS	
				Straight tail	Right angle tail
34	30.57 (1.204)	25.37 (.999)	20.32 (.800)	DHB-PB34-S××××	DHB-PA34-R××××
40	34.38 (1.354)	29.18 (1.149)	24.13 (.950)	DHB-PB40-S××××	DHB-PA40-R××××
50	40.73 (1.604)	35.53 (1.399)	30.48 (1.200)	DHB-PB50-S××××	DHB-PA50-R××××
60	47.08 (1.854)	41.88 (1.649)	36.83 (1.450)	DHB-PB60-S××××	DHB-PA60-R××××
68	52.16 (2.054)	46.96 (1.849)	41.91 (1.650)	DHB-PB68-S××××	DHB-PA68-R××××

Note: Friction lock type connectors are available in shell size 34, 40, 50, 60 and 68.

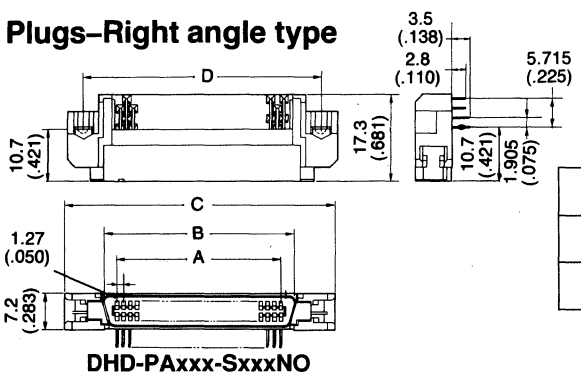
Receptacles–Lock lever type



NO. OF CONT'S	A	B	C	MATING PLUGS	
				Straight tail	Right angle tail
80	70.47 (2.774)	54.58 (2.149)	49.53 (1.950)	DHD-PB80-S1××NO	DHD-PA80-R1××NO
100	83.17 (3.274)	67.28 (2.649)	62.23 (2.450)	DHD-PB100-S1××NO	DHD-PA100-R1××NO

Note: Lock lever type connectors are available in shell size 80 and 100.

Plugs–Right angle type



DHD-PAxxx-SxxxNO

NO. OF CONT'S	A	B	C	D	MATING RECEPTACLE
80	49.53 (1.950)	54.68 (2.153)	70.47 (2.774)	64.07 (2.522)	DHD-RA80-×OA×
100	62.23 (2.450)	67.38 (2.653)	83.17 (3.274)	76.77 (3.022)	DHD-RA100-×OA×

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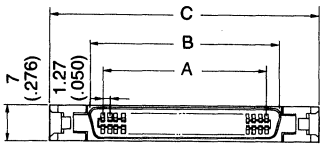
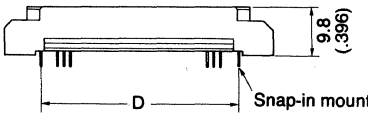
DDK ELECTRONICS

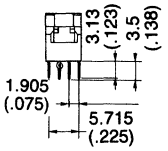
DHD Series

Plugs–Straight type



DHD-PAxxx-RxxxNO

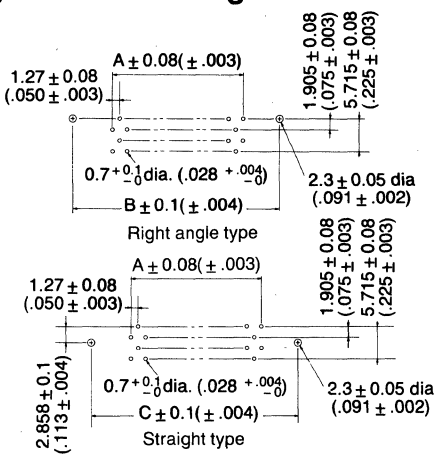




Dimensions: mm (inches)

NO. OF CONT'S	A	B	C	D	MATING RECEPTACLE
80	49.53 (1.950)	54.68 (2.153)	70.47 (2.774)	56.64 (2.230)	DHD-RA80- × OA ×
100	62.23 (2.450)	67.38 (2.653)	83.17 (3.274)	69.34 (2.730)	DHD-RA100- × OA ×

Plugs–PCB mounting dimensions

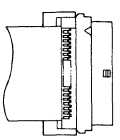


NO. OF CONT'S	A	B	C
80	49.53 (1.950)	64.07 (2.522)	56.64 (2.230)
100	62.23 (2.450)	76.77 (3.022)	69.34 (2.730)

INTERMATEABILITY DIAGRAM

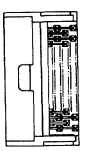
With Friction lock

Receptacles

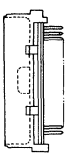


DHD-RB34
DHD-RB40
DHD-RB50
DHD-RB60
DHD-RB68

Plugs



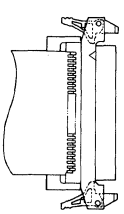
(90° PCB mounting)
DHB-PA34
DHB-PA40
DHB-PA50
DHB-PA60
DHB-PA68



(Straight PCB mounting)
DHB-PB34
DHB-PB40
DHB-PB50
DHB-PB60
DHB-PB68

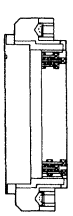
With Locking lever

Receptacles



DHD-RA80
DHD-RA100

Plugs



(90° PCB mounting)
DHD-PA80
DHD-PA100

(Straight PCB mounting)
DHD-PB80
DHD-PB100

Cable Assembly Tool

Tool Kit P/N	Component
357J-10238	357J-10491 : Cable cutting tool
	357J-10721 : Cable cutting tool after cover assembly
	357J-10236 : Cable termination tool
	357J-10237 : Final terminatiion tool

Ordering Information

Receptacles

EXAMPLE: **DHD-RB34-10AS**

CONNECTOR STYLE
R: Receptacle

MATING LOCK STYLE
B: Friction lock type (Note)

NO. OF CONTACTS
34, 40, 50, 60, 68

STRAIN RELIEF
N: Without strain relief
S: With strain relief

APPLICABLE WIRE
A: AWG#30 and #28 (stranded)

POLARIZING KEY
0: No key

CONTACT PLATING
1: 0.76μm (30"μ) Gold over Nickel
2: 0.25μm (10"μ) Gold over Nickel
3: Gold Flash over Nickel

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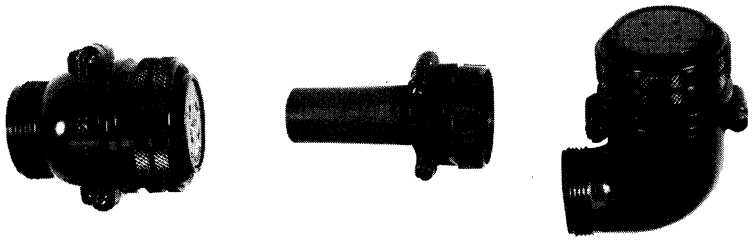
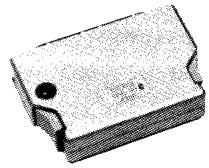
DDK ELECTRONICS

MIL-C-5015 Circular Connectors



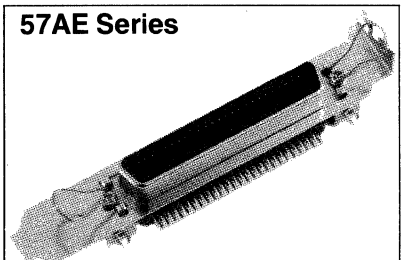
DDK's DMS series of circular connectors are MIL-C-5015 intermateable and intermountable and are cadmium free. By eliminating cadmium, the environmental hazards associated with its use are also eliminated. The connector insulator material is diallyl phthalate and the shells are zinc plated die cast aluminum with an olive drab chromate finish. Clear and black finishes are also available. Silver plated contacts have pre-tinned solder cup terminations. The DMS series has over 70 insert configurations spanning 12 shell sizes and 5 contact sizes. Cable clamps, bushings, and cap and chain assemblies are also offered for the entire product series. DMS series connectors are applicable in the electronics, communications, commercial and industrial markets.

Active SCSI Terminator



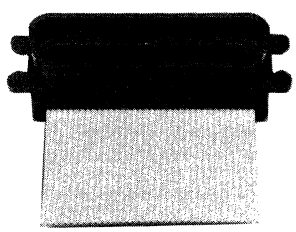
DDK's 57TE series EMI shielded SCSI terminators to ANSI x 3.131-1986 standards are used with computers and peripherals containing a SCSI controller circuit. The active terminator features a voltage regulator circuit which results in superior performance where many peripherals are involved in the system. Differential and single ended terminators are also available and all are intermateable with standard 57 series ribbon style receptacles. For today's new compact SCSI designs, terminators using .050 inch pitch technology are also available. Featuring low cost and compact size, all terminators can be designed to individual specifications.

57AE Series



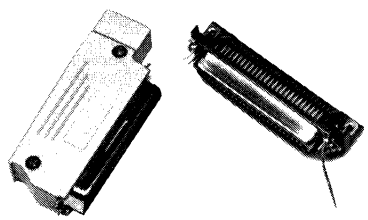
The latest addition to the wide range of ribbon style connectors offered by DDK is the 57AE series. This is a right angle SCSI interface connector with a low profile design for use in computer expansion card applications. Features include a closed insulator front to protect contacts from ESD, and when using the supplied mounting bracket, zero gap between the shell and the panel for effective EMI/RFI noise suppression. Intermateable with all 57 series ribbon style plugs. Supplied with or without the mounting bracket.

57F Series



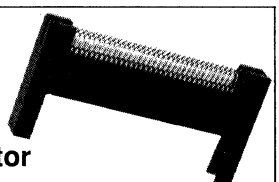
Ribbon style connector terminates to standard .050 inch pitch flat cable. Plugs and receptacles are available in 14, 24, 36 and 50 position sizes. Mating connectors come with spring latches for cable to panel applications or through holes for rack and panel applications. Metal or plastic strain reliefs. Choice of blue or black insulator colors. Intermateable with all 57 series family of connectors where EMI/RFI shielding is not required. Ribbon style contacts are self wiping for extra reliability.

57FE Series



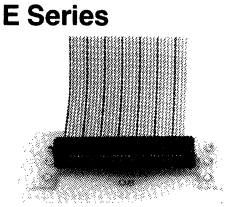
Shielded ribbon style connector features metal shell for protection from EMI/RFI. Plugs and receptacles are available in 14, 24, 36 and 50 position sizes. Used for cable to panel applications where either spring latch or screwlock retention is required. Plugs terminate to standard .050 inch pitch flat and round cable. Receptacles terminate to standard .050 inch flat cable. Hoods come in either straight or right angle versions. Intermateable with other connectors in the 57 series family. Used for SCSI or other computer related applications.

PCMCIA Memory Card Connector



Memory card connector system conforms to JEIDA Version 4 specifications. DDK Electronics, Inc.'s MCD series 68 position memory card connectors feature high density packaging for the latest cost effective memory storage technology. The contacts are on a .050 in. x .050 in. grid and the overall height of the printed circuit mount plug is 0.255 inches. The plug is on the system side and features include extended first make-last break contacts to prevent chip damage due to electrostatic discharge, card detect pins, and may accommodate a card ejection option. The mating connector is a surface mount socket which is mounted on the edge of the memory card. Contact design allows for at least 5000 mating and unmating cycles.

DHE Series



DDK's DHE series transition style connector offers a high density solution to board to cable applications. Available in 50, 60, and 68 positions these connectors terminate to .025 inch pitch bonded flat cable. Bi-level termination ensures a reliable connection and allows daisy chaining of boards. Retention contacts hold the board down for wave soldering operations. These connectors can be used with one another or with DDK's DHD series for board to board applications. For board to panel applications the DHE series may be used in conjunction with DDK's DHA-RE series shielded panel mount receptacle.

DOC

DDK's DOC series converts RS-232-C/D electrical signals into fibre optic signals. Using the standard 25 position D-subminiature connector interface, this device plugs into the RS-232-C/D port of a computer. The fibre optic interface is via an SMA connector, toslink, or neclink. Transmission speed is up to 64kbps and transmission length is up to 1 km using silica glass fibre. Fibre optic transmission allows complete isolation from EMI/RFI interference. Four incoming and four outgoing signals may be transmitted in synchronized or asynchronized modes. Other important features include the option for the user to change pin assignments, power and signal transmission indicators via LED, and optional 5V or 6V power source.

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CONNECTORS
IEC CONNECTORS

SCREW MOUNTING

INTRODUCTION

1. DESIGNED TO MEET GLOBALLY ACCEPTED IEC PUBLICATION 320, CLASS I, THAT ALLOWS USERS TO COMPLY WITH INDUSTRY STANDARD IN POWER ENTRY REQUIREMENT.
2. CONNECTOR FOR COLD CONDITION, WITH PIN TEMPERATURE 65°C.
3. NICKEL PLATED BRASS PINS AND SOLDERING TERMINALS.
4. SCREW-ON MOUNT FROM FRONT OR REAR (WITH SCREW TYPE-M3).
5. FUSE HOLDER DESIGNED FOR ONE FUSE AND ONE SPARE FUSE (BOTH 5 x 20mm FUSES). SAFETY INTERLOCK PREVENTS FUSE REMOVAL WITH LINE PLUG INSERTED.
6. ADAPTS TO 110V OR 240V INPUT VOLTAGE SIMPLY BY REVERSING THE VOLTAGE SELECTOR.
7. ALL PART NUMBERS ARE UL RECOGNIZED AND CSA CERTIFIED.

SPECIFICATIONS

1. RATED VOLTAGE: 250VAC
2. MINIMUM INSULATION RESISTANCE AT 500VDC: 10M OHM
3. DIELECTRIC STRENGTH (ONE MINUTE): 2000VAC BETWEEN PINS
4. FLAMMABILITY CLASS: UL 94V-0

SNAP-IN MOUNTING

INTRODUCTION

1. DESIGNED TO MEET GLOBALLY ACCEPTED IEC PUBLICATION 320, CLASS I, THAT ALLOWS USERS TO COMPLY WITH INDUSTRY STANDARD IN POWER ENTRY REQUIREMENT.
2. CONNECTOR FOR COLD CONDITION, WITH PIN TEMPERATURE 65°C.
3. NICKEL-PLATED BRASS PINS AND SOLDERING TERMINALS.
4. SNAP-IN MOUNT (PANEL THICKNESS: 0.04 INCH)
5. ADAPTS TO 115V OR 230V INPUT VOLTAGE WITH VOLTAGE SELECTOR SWITCH.
7. ALL PART NUMBERS ARE CSA CERTIFIED.

SPECIFICATIONS

1. RATED VOLTAGE: 250VAC
2. MINIMUM INSULATION RESISTANCE AT 500VDC: 10M OHM
3. DIELECTRIC STRENGTH (ONE MINUTE): 2000VAC BETWEEN PINS
4. FLAMMABILITY CLASS: UL 94V-0

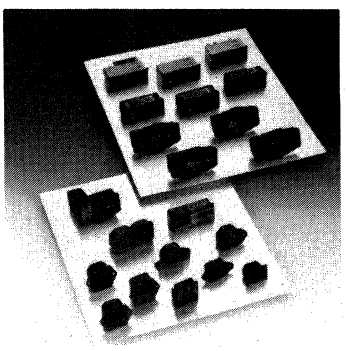
PC BOARD AND SCREW MOUNTING

INTRODUCTION

1. DESIGNED TO MEET GLOBALLY ACCEPTED IEC PUBLICATION 320, CLASS I, THAT ALLOWS USERS TO COMPLY WITH INDUSTRY STANDARD IN POWER ENTRY REQUIREMENT.
2. CONNECTOR FOR COLD CONDITION, WITH PIN TEMPERATURE 65°C.
3. NICKEL-PLATED BRASS PINS FOR SOLDERING ON PC BOARD.
4. ALL PART NUMBERS ARE CSA AND SEMKO APPROVED.

SPECIFICATIONS

1. RATED VOLTAGE: 250VAC
2. MINIMUM INSULATION RESISTANCE AT 500VDC: 10M OHM
3. DIELECTRIC STRENGTH (ONE MINUTE): 2000VAC BETWEEN PINS
4. FLAMMABILITY CLASS: UL 94V-0



POWER ENTRY MODULES

SCREW MOUNTING

INTRODUCTION

1. DESIGNED TO MEET GLOBALLY ACCEPTED IEC PUBLICATION 320, CLASS I, THAT ALLOWS USERS TO COMPLY WITH INDUSTRY STANDARD IN POWER ENTRY REQUIREMENT.
2. CONNECTOR FOR COLD CONDITION, WITH PIN TEMPERATURE 65°C.
3. NICKEL-PLATED BRASS PINS AND SOLDERING TERMINALS.
4. SCREW-ON MOUNT FROM FRONT OR REAR (WITH SCREW TYPE-M3).
5. POWER MODULE INCORPORATES AN IEC CONNECTOR, DOUBLE FUSE HOLDER, VOLTAGE SELECTOR, DOUBLE POLE POWER SWITCH, ALL IN ONE EASY-TO-INSTALL UNIT.

SPECIFICATIONS

1. RATED VOLTAGE: 250VAC
2. OPERATING FREQUENCY: 50–60Hz
3. MINIMUM INSULATION RESISTANCE AT 500VDC: 10M OHM
4. DIELECTRIC STRENGTH (ONE MINUTE): 2000VAC BETWEEN PINS
5. FLAMMABILITY CLASS: UL 94V-0

SNAP-IN MOUNTING

INTRODUCTION

1. DESIGNED TO MEET GLOBALLY ACCEPTED IEC PUBLICATION 320, CLASS I, THAT ALLOWS USERS TO COMPLY WITH INDUSTRY STANDARD IN POWER ENTRY REQUIREMENT.
2. CONNECTOR FOR COLD CONDITION, WITH PIN TEMPERATURE 65°C.
3. NICKEL-PLATED BRASS PINS AND SOLDERING TERMINALS.
4. SNAP-IN MOUNT (PANEL THICKNESS: 0.04 INCH TO 0.07 INCH)
5. POWER MODULE IN PLASTIC CASE OR METAL CASE THAT INCORPORATES AN IEC CONNECTOR, FUSE HOLDER, POWER SWITCH AND VOLTAGE SELECTOR SWITCH, ALL IN ONE EASY-TO-INSTALL UNIT.

SPECIFICATIONS

1. RATED VOLTAGE: 115VAC/250VAC
2. OPERATING FREQUENCY: 48–440Hz
3. MAXIMUM LEAKAGE CURRENT EACH LINE TO GROUND:
   2 µA AT 115VAC/60Hz
   5 µA AT 250VAC/50Hz
4. DIELECTRIC STRENGTH (ONE MINUTE):
   2250VDC LINE-TO-GROUNDED
   1450VDC LINE-TO-LINE
5. FLAMMABILITY CLASS: UL-94V-0

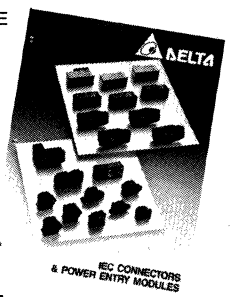
SNAP-IN MOUNTING

INTRODUCTION

1. DESIGNED TO MEET GLOBALLY ACCEPTED IEC PUBLICATION 320, CLASS I, THAT ALLOWS USERS TO COMPLY WITH INDUSTRY STANDARD IN POWER ENTRY REQUIREMENT.
2. CONNECTOR FOR COLD CONDITION, WITH PIN TEMPERATURE 65°C.
3. NICKEL-PLATED BRASS PINS AND SOLDERING TERMINALS.
4. SNAP-IN MOUNT (STANDARD UNIT MOUNT PANEL THICKNESS: 0.04 TO 0.063 INCH: SPECIAL UNITS MOUNT PANEL THICKNESS: 0.06 TO 0.09 INCH)
5. POWER MODULE INCORPORATES AN IEC CONNECTOR, FUSE HOLDER, AND VOLTAGE SELECTOR, ALL IN ONE EASY-TO-INSTALL UNIT.

SPECIFICATIONS

1. RATED VOLTAGE: 115VAC/250VAC
2. OPERATING FREQUENCY: 50–60Hz
3. MINIMUM ISOLATION RESISTANCE AT 500VDC: 10M OHM.
4. MAXIMUM LEAKAGE CURRENT EACH LINE TO GROUND:
   2µA 115VAC/60Hz
   5µA 250VAC/50Hz
5. DIELECTRIC STRENGTH (ONE MINUTE):
   2250VDC LINE-TO-GROUND
   1450VDC LINE-TO-LINE
6. FLAMMABILITY CLASS: UL 94V-0



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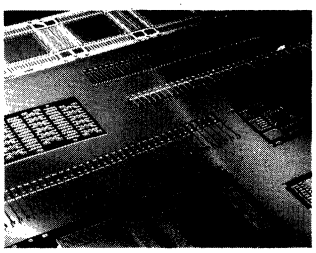
Leadframes and Application Equipment

Die-Tech, Inc., recognized as a leader in design and manufacturing in leadframes and lead assembly equipment, consistently embraces a practical next generation focus.

Growth over the years has been built on Quality, Ingenuity, Flexibility and Competitive Pricing.

A full service business, Die-Tech has the capability to take your project from initial concept to finished package. Administration, Sales, Engineering and Manufacturing work closely to facilitate open communication and interaction.

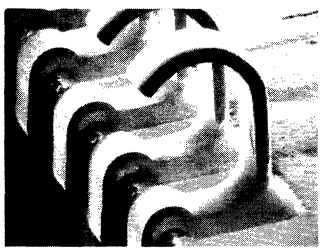
We are customer oriented. Our customer service staff, aided by computer, is able to expedite the customers' requests quickly and efficiently. We can provide rapid turn around for customer inquires, quotations, order status, requests for literature, sample requests and technical information.

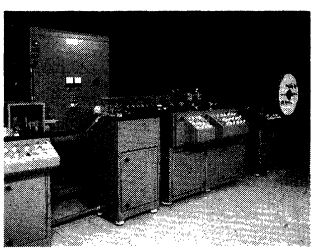


Leadframes

Die-Tech's innovative clip leadframe lets you use both sides of the substrate.

- **SIPS**
- **DIPS**
- **ZIPS**
- **QUAD'S**
- **Surface mount**
- **Through hole**
- **Solder laden**
- **Etched**
- **Stamped**
- **Plated**
  - **Tin / lead alloys**
  - **Pre-plate & post-plate**
  - **Selective plating**

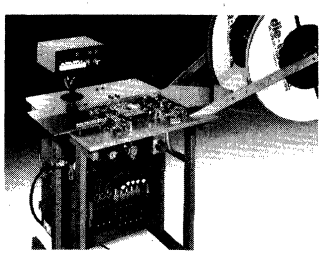


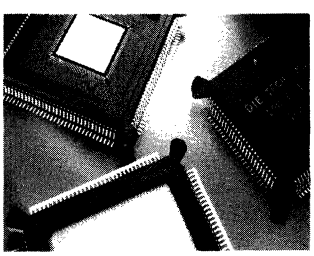


Application Equipment

Whether it's simple tooling, or sophisticated turnkey manufacturing processes, Die-Tech can provide you with the assembly equipment you need, from hand tools to complete in-line systems.

- **Prototype tooling**
- **Assembly machines, Hand tools, Semi automatic**
- **Fully automatic production systems**

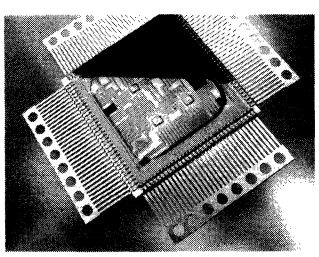




Surface Mount Leaded Packages

Die-Tech's patented fine pitch leadframe provides a low cost, high performance alternative to current package concepts. Designed to meet JEDEC Solid State product outlines, these packages can be custom configured for specific applications.

- **Packages**
- **Package components**
- **Contract assembly available**



Precision Stamping

Skilled operators using the latest in high volume manufacturing techniques, produce a variety of precision stamped parts. Production runs maintain close tolerances to insure the customer of a quality products. Die-Tech employees are all trained in SPC.

- **Loose piece**
- **Reel to reel**

Tooling

Professional tool makers build the production tooling using the most advanced techniques and high quality equipment available. Trim & form tooling and machine parts are manufactured on time and competitively.

- **Spares**
- **Fixtures**
- **Trim and form tools**

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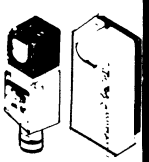
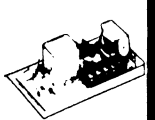
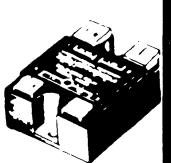

PHOTOELECTRICS

RELAYS


LIQUID LEVEL CONTROLS


SOLID STATE RELAYS

TERMINAL BLOCKS

TEMPERATURE CONTROLS

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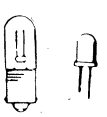
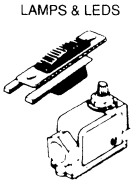
CIRCUIT BREAKERS FUSES & FUSEHOLDERS

KNOBS


LAMPS & LEDS


SWITCHES

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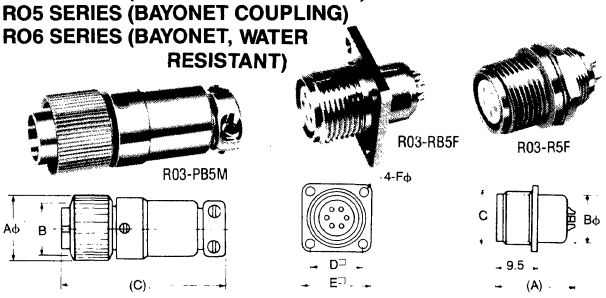
T.M.W QUALITY CONNECTORS of *TAJIMI*/DSC

MINIATURE CIRCULAR CONNECTORS Vibration, Moisture, Corrosion resistance: MIL-C-STD-202E.

RO3 SERIES (THREADED COUPLING)
RO5 SERIES (BAYONET COUPLING)
RO6 SERIES (BAYONET, WATER RESISTANT)

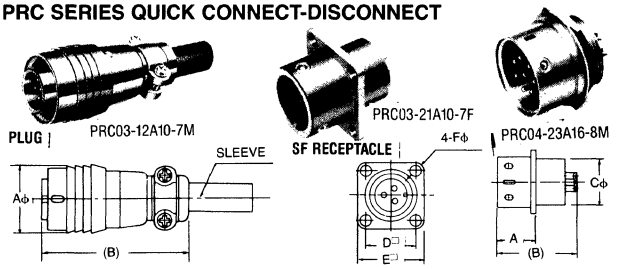


RO1, RO3, RO5 and RO6 series multipin circular connectors are small in size and high in reliability. Suitable for miniature and high density electronics equipment. RO1 (Threaded coupling) and RO6 (Bayonet coupling) series are water resistant and designed for application in Mobilradios and outdoor small electronics equipment.

Material: Shell is brass & zinc alloy, nickel plated. Contacts: copper alloy, gold plated (Nickel based).

No. of Contacts	A	B	C	Cable O.D.	A	B	C	D	E	F
2, 3, 5	12.0	M10.5P=0.75	32.0	5.2	18.0	9.0	M10.5P=0.75	10.5	15.0	2.2
6, 8	15.5	M14P=1	34.0	6.2	18.0	12.0	M14P=1	13.0	17.5	2.2
12	20.0	M18P=1	39.0	10.5	18.0	16.0	M18P=1	17.0	22.5	2.8

PRC SERIES QUICK CONNECT-DISCONNECT



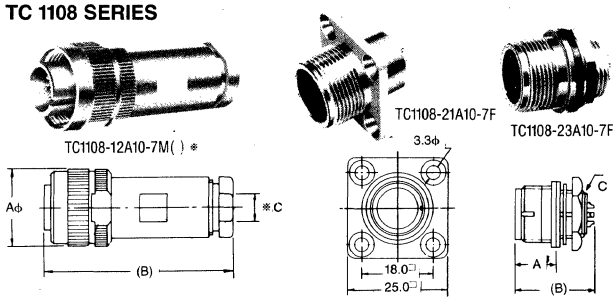
PRC03, 04 and 05 series are quick release, lightweight, miniature multipin connectors with audible lock mechanism, and are also free of vibration and impact problems.

Material & Plating: PRC05. Brass-Nickel, PRC03. Zinc Alloy-Nickel, PRC04. Aluminum A/O coating.

Plug					SF & BH Receptacle					
Series	No. of Contacts	A	B	Cable O.D.	A	B	C	D	E	F
PRC03	2, 3, 4, 5, 7	21.0	46.0	10.5	12.5	26.5	15.0	16.0	21.0	2.9
PRC04	8, 14	28.0	55.5	12.5	13.5	25.5	21.0	21.5	28.0	3.4
	12, 19	34.0	63.5	14.5	14.0	26.0	26.0	26.0	33.0	3.9
	21, 37	41.0	71.0	18.0	14.0	26.0	32.0	31.0	38.0	3.9
PRC05	2, 3, 5	13.5	32.0	5.2	9.5	18.0	9.0	11.5	16.0	2.2
	6, 8	16.7	34.0	6.2	9.5	18.0	12.0	13.5	18.0	2.2
	12	21.0	39.0	10.5	9.5	18.0	16.0	17.0	22.5	2.8

WATERPROOF CIRCULAR CONNECTORS Vibration, Moisture, Corrosion resistance: MIL-C-STD-202E.

TC 1108 SERIES



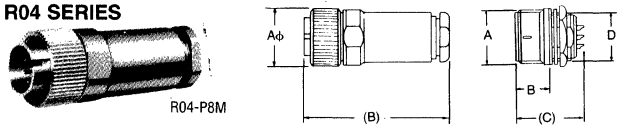
Tajimi TC1108 series connectors are waterproof up to 30 meters in depth. Economical and highly reliable construction also provides for applications in high humidity conditions. Hermetically sealed receptacles (Glass-to-Metal seal and Ceramic seal) are also available. Its applications are for vacuum pumps, inert gas tanks and oil pressure pumps.

Material & Plating: Brass-Nickel. Contacts: Copper Alloy-Gold (Nickel based).

Shell Size	No. of Contacts	A	B	Back-Nut I.D.* C	Mounting Hole Dia.	Receptacle Bulk Head A	Receptacle Bulk Head B	Receptacle Bulk Head C
10	2, 3, 4, 5, 7	21	52	5.2, 6.3, 7.0 8.0, 8.6, 10.0	14.2	12.5	26.0	M15
16	8 14	27	55.5	11.1/11.8/13.5 11.0/14.3/15.8	20.2	12.5	26.0	21.0
20	12, 19	34	61	11.0/14.3/15.8	25.2	13.5	26.0	26.0
26	21, 37	40	65	16.3	31.2	13.5	26.0	32.0

*Select most suitable I.D. for cable outer diameter.

R04 SERIES



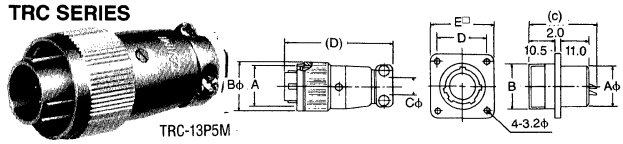
Tajimi R04 series connectors are miniature and waterproof up to 20 meters in depth. Its superior quality and small size offer design flexibility for a wide variety of applications including those for small electronics instruments and electromechanical devices which operate under high humidity conditions. Also available: Hermetically sealed receptacles (Glass-to-Metal seal and Ceramic seal).

Material & Plating: Brass-Nickel. Contacts: Copper Alloy-Gold (Nickel based).

No. of Contacts	A	B	Cable O.D.	A	B	C	D
2, 3, 5	12.0	38	4.8ϕ	M10.5P=0.75	9.0	18.0	M9.0P=0.5
6, 8	15.5	40	6.3ϕ, 6.8ϕ, 7.3ϕ	M14.0P=1	9.0	18.0	M12.0P=0.8
12	20.0	42	8.5ϕ	M18P=1	9.0	18.0	M16P=1

GENERAL PURPOSE CONNECTORS

TRC SERIES



TRC series is specifically designed for high reliability, economical construction for general purpose electronics applications.

Shell size	No. of Contacts	A Thread	B	C	D	A	B Thread	D	E
13	3, 5	M18P=1	21.5	8.5	46.0	16	M18P=1	20	26
16	7, 10	M22P=1	25.5	12.0	49.0	20	M22P=1	23	29
21	10, 16	M26P=1	29.5	14.5	53.0	24	M26P=1	26	32
25	16, 24	M30P=1	33.5	17.5	56.0	28	M30P=1	29	35

SPECIFICATIONS FOR ALL SERIES

Series	R01, R03, R04, R05, PRC05			PRC03, TC1108				PRC04 & TC1108				
Contacts	2, 3, 6	5	8	2	3	4	5, 7	8, 12	14	19	21	37
Current rating	2A	2A	2A	10A	10A	5A	5A	10A	5A	4A	10A	3A
Voltage rating (AC Vrms)	300	150	200	600	350	400	350	400	350	400	400	400
Withstanding Voltage (AC Vrms)	900	500	700	1800	1000	1200	1000	1200	1000	1200	1200	1200

Series	R01, R03, R04, R05, PRC05			PRC03, TC1108				PRC04 & TC1108				
Applicable wire	22	22	22	16	16	20	20	16	20	20	16	20
Contact resistance	DC3V 1A 5m max.											
Insulation resistance	DC500V 1000 M min.											
Temperature range	− 25 C ~ +85 C											

Inline connector (JACK) is available for all series.
DSC offers a complete line of Tajimi connectors including RF Coaxial, Triaxial, Sub-miniature Coaxial.
For more information please call: 212-691-9050

SEE DSC SWITCHES IN EEM VOLUME B PAGE B-1681

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DuPont Electronics

For Customer Service: 1-800-237-2374

Product Type or Application	Center Line Spacing: 0.50 mm (0.020 in.)	1.27 mm (0.050 in.)						2.00 mm (0.079 in.)			2.49 mm (0.098 in.)	
	Du Pont Product Name: 0.50 mm FLEX	Rib-Cage™ II	Memory Cassette System	EISA	MicroChannel	PLCC	SIMM / Zero Insertion Force (ZIF)	Minitek™ II	Metral®	Duramate™	Relimate®	
Pins												
Unshielded Headers												
Shielded Headers												
Compliant Press-Fit Pin Headers												
Shrouds (pinless headers)												
Shunts												
Discrete PCB Sockets and Solder Aids												
PCB Mounted Receptacles												
Edge-Card Connectors												
Straddle-Mount Connectors												
High-Density Backpanel Connectors												
Surface Mount Connectors												
Hybrid Connectors												
Add-on Memory Systems and Sockets												
D-Subminiature Connectors												
Telephone Interconnection Systems												
Discrete Crimp-to-Wire Pins/Receptacles/Housings												
Round Conductor, Round Cable Discrete Crimp-to-Wire Conns.												
Round Conductor, Round Cable Insulation Piercing Connectors												
Coax Cable Connectors												
Round Conductor, Flat Cable IDC Connectors												
Flat Conductor, Flat Cable Insulation Piercing Connectors												
Flexible Circuitry Connectors												
Fiber Optic Components												
Custom External Cable Assemblies												
Custom Internal Cable Assemblies												
Hybrid Cable Products												

Connector Systems	BergCon®	DUBOX®	Empire System®	Minisert™	Griplet®	HPC	DIN
Pins							
Unshielded Headers							
Shielded Headers							
Compliant Press-Fit Pin Headers							
Shrouds (pinless headers)							
Shunts							
Discrete PCB Sockets and Solder Aids							
PCB Mounted Receptacles							
Edge-Card Connectors							
Straddle-Mount Connectors							
High-Density Backpanel Connectors							
Surface Mount Connectors							
Hybrid Connectors							
Add-on Memory Systems and Sockets							
D-Subminiature Connectors							
Telephone Interconnection Systems							
Discrete Crimp-to-Wire Pins/Receptacles/Housings							
Round Conductor, Round Cable Discrete Crimp-to-Wire Conns.							
Round Conductor, Round Cable Insulation Piercing Connectors							
Coax Cable Connectors							
Round Conductor, Flat Cable IDC Connectors							
Flat Conductor, Flat Cable Insulation Piercing Connectors							
Flexible Circuitry Connectors							
Fiber Optic Components							
Custom External Cable Assemblies							
Custom Internal Cable Assemblies							
Hybrid Cable Products							

DuPont Electronics

Connector Systems

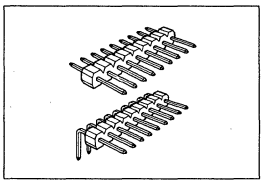
2.54 mm (0.100 in.)	2-in-1 Header Assemblies
	Clincher™
	Duflex™
	Relifex®
	Quickie™ IDC
	TLC™ Cable Assemblies
	SLT™ Cable Assemblies
	Tri-Lead Cable Assemblies
	GPIB Cable Assemblies
	Latch-N-Lok™
	Shielded BergCon® Cable Assemblies
	Shielded I/O Assemblies
	Twinax Cable Assemblies
	Terminators
	SCSI-II
3.81 mm (0.125 in.)	BergCon®
	Serpent I/O Conns.; IBM 360/370 Plug Comp.
	SLT Transmission Line Cable Assembly
3.81 mm (0.150 in.)	BergCon®
5.08 mm (0.200 in.)	Minisert™
	BergCon®
D-Subminiature System	
Modular Jack Connectors	
Fiber Optic Local Area Network (LAN) System	

Product Available

For Customer Service: 1-800-237-2374

DuPont Electronics — Connector Systems

BergStik® II Headers



Features:

- Can be manually broken to the desired length.
- Drawn 0,64 mm (0.025 in.) square wire presents 4 quality surfaces suitable for wire wrapping.
- Standoffs allow cleaning to eliminate soldering contaminates.
- Optional retention tail provides 0.5 lb minimum retention prior to soldering on 0.062 in. thick PC boards.

Technical Data:

Spacing:	2,54 mm (0.100 in.) and 2,54 x 2,54 mm (0.100 x 0.100 in.)
Polarization:	By omitting a pin
Body:	
Material	Glass-filled nylon (UL94V-0). Color black
Insulation Resistance	5000 M Ω min.
Temperature Range	–65°C to + 105°C
Withstanding Voltage	1500V rms (sea level)
PIN:	
Material	Phosphor bronze
Finish	Gold, tin/lead or GXT™ (see "Ordering Data")
Current Rating	5A max.
Retention Force to Body	8.9 N (2 lb.) in either direction

Plating:

1 is 0,76 µm (30 µ in.) Gold over 1,27 µm (50 µ in.) Nickel.

2 is 0,38 µm (15 µ in.) Gold over 1,27 µm (50 µ in.) Nickel.

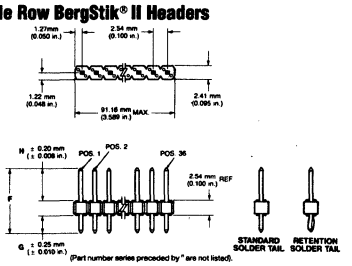
3 is 1,27 µm (50 µ in.) Gold over 1,27 µm (50 µ in.) Nickel.

4 is 3,81 µm (150 µ in.) 9/37 Tin/Lead.

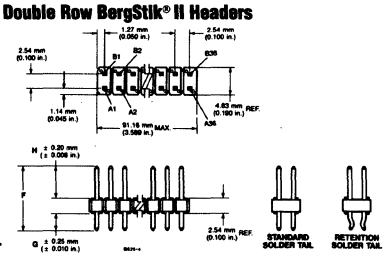
5 is 0,38 µm (15 µ in.) GXT™ Palladium-Nickel Alloy w/Gold Flash over 1,27 µm (50 µ in.) Nickel.

6 is 0,76 µm (30 µ in.) GXT™ Palladium-Nickel Alloy w/Gold Flash over 1,27 µm (50 µ in.) Nickel.

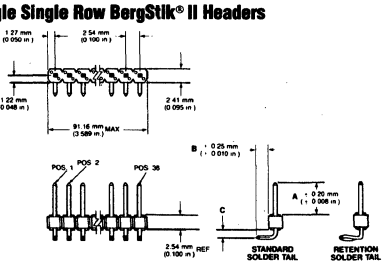
Straight Single Row BergStik® II Headers



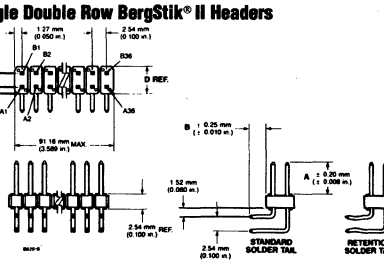
Straight Double Row BergStik® II Headers



Right Angle Single Row BergStik® II Headers



Right Angle Double Row BergStik® II Headers



Ordering Data—Straight Single Row:

H Length Above Plastic mm	H Length Above Plastic in.	G Length Below Plastic mm	G Length Below Plastic in.	F Overall Length mm	F Overall Length in.	Part Numbers Standard Product	Number of Positions	Plating
5,84	0.230	3,05	0.120	11,43	0.450	68001-xxx	1–36	1, 2, 3, 4, 5 or 6
5,84	0.230	3,05	0.120	11,43	0.450	69190-xxx*	1–36	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	13,67	0.538	78511-xxx	1–36	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	13,67	0.538	78229-xxx*	1–36	1, 2, 3, 4, 5 or 6

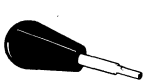
Ordering Data—Straight Double Row:

H Length Above Plastic mm	H Length Above Plastic in.	G Length Below Plastic mm	G Length Below Plastic in.	F Overall Length mm	F Overall Length in.	Part Numbers Standard Product	Number of Positions	Plating
5,84	0.230	3,05	0.120	11,43	0.450	67997-xxx	2–72	1, 2, 3, 4, 5 or 6
5,84	0.230	3,05	0.120	11,43	0.450	69192-xxx*	2–72	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	13,67	0.538	68691-xxx	2–72	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	13,67	0.538	78548-xxx*	2–72	1, 2, 3, 4, 5 or 6

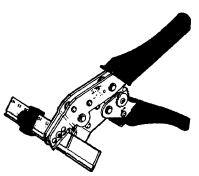
Ordering Data—Right Angle Single Row:

H Length Above Plastic mm	H Length Above Plastic in.	G Length Below Plastic mm	G Length Below Plastic in.	F Bend Distance From Plastic mm	F Bend Distance From Plastic in.	Part Numbers Standard Product	Number of Positions	Plating
5,84	0.230	3,05	0.120	1,52	0.060	68016-xxx	1–36	1, 2, 3, 4, 5 or 6
5,84	0.230	3,05	0.120	1,52	0.060	69191-xxx*	1–36	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	1,52	0.060	68423-xxx	1–36	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	1,52	0.060	78554-xxx*	1–36	1, 2, 3, 4, 5 or 6

HT-143 BergStik® Header Polarizing Tool



HT-320 BergStik® Header Cutting Tool



Ordering Data—Right Angle Double Row:

A Length Above Plastic mm	A Length Above Plastic in.	B Length Below Plastic mm	B Length Below Plastic in.	C mm	C in.	D mm	D in.	Part Numbers Standard Product	Number of Positions	Plating
5,84	0.230	3,05	0.120	1,78	0.070	6,10	0.240	79257-xxx	2–72	1, 2, 3, 4, 5 or 6
5,84	0.230	3,05	0.120	1,78	0.070	6,10	0.240	78299-xxx*	2–72	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	1,78	0.070	6,10	0.240	79258-xxx	2–72	1, 2, 3, 4, 5 or 6
8,08	0.318	3,05	0.120	1,78	0.070	6,10	0.240	78276-xxx*	2–72	1, 2, 3, 4, 5 or 6

Ordering data—Low Profile:

A Length Above Plastic mm	A Length Above Plastic in.	B Length Below Plastic mm	B Length Below Plastic in.	C mm	C in.	D mm	D in.	Part Numbers Standard Product	Number of Positions	Plating
5,84	0.230	3,05	0.120	1,14	0.045	4,83	0.190	68021-xxx	2–72	1, 2, 3, 4, 5 or 6
5,84	0.230	3,05	0.120	1,14	0.045	4,83	0.190	69193-xxx*	2–72	1, 2, 3, 4, 5 or 6
8,08	0.318	3,18	0.125	1,14	0.045	4,83	0.190	68696-xxx	2–72	1, 2, 3, 4, 5 or 6

**Retentive solder tail part number*

For Customer Service: 1-800-237-2374

DuPont Electronics — Connector Systems

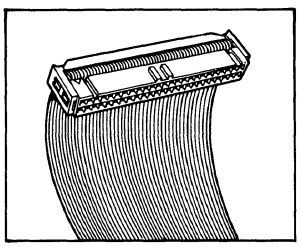
QUICKIE™ III IDC SYSTEM

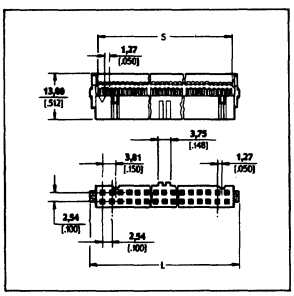
The Quickie III system includes a complete line of female connectors, straight and right angle headers, and edge card connectors. Products are available in a variety of sizes ranging from 6 to 64 positions.

The female connector has a single-beam, long-wipe contact that provides a highly reliable electrical connection. A pre-installed bridge-type cover protects the contacts during handling and provides precise cover-to-base alignment during installation. It also reduces the assembly time required during connector installation.

Quickie III headers feature a unique duplex-plated pin with two-sided plating in the contact area; whereas, the two contact sides of the pin are plated in either gold or GXT, and the two noncontact sides of the pin are plated with gold flash. The solder-tail portion of the pin is fully plated with tin/lead.

These headers also feature four-wall shielding that protects the pin when the header is unmated, and dual-function latches that both lock and eject a mated connector.





QUICKIE III FEMALE CONNECTOR

71600 Series 0.76µ (30 µ in.) Gold over nickel (postplated)

Part Numbers 71600 Series			DIMENSIONS			
	Dash Numbers—Central/Dual Polarization		L		S	
Number of Positions	Female Assembly	Female Assembly with Strain Relief (Standard)	MM.	IN.	MM.	IN.
10	-110	-010	17,16	0.6756	13,33	0.525
14	-114	-014	22,24	0.8756	18,41	0.725
16	-116	-016	24,78	0.9756	20,95	0.825
18	-118	-018	27,32	1.0756	23,49	0.925
20	-120	-020	29,86	1.1756	26,03	1.025
26	-126	-026	37,48	1.4756	33,65	1.325
34	-134	-034	47,64	1.8756	43,81	1.725
40	-140	-040	55,26	2.1756	51,43	2.025
44	-144	-044	60,34	2.3756	56,51	2.225
50	-150	-050	67,96	2.6756	64,13	2.525
60	-160	-060	80,66	3.1756	76,83	3.025
64	-164	-064	85,74	3.3756	81,91	3.225

Technical data:

Grid: 2,54 x 2,54 mm [.100 x .100 inch]

Polarization: By means of a polarization plug

Body:

Material: Glass-filled thermoplastic polyester (UL94V-O). Color grey.

Insulation resistance: 1 x 10^5 MΩ min.

Temperature range: -65° to +125°C

Withstanding voltage: 1000V rms (sea level)

Contact:

Material: Phosphor bronze.

Finish: 71600 -0.76 µm (*30 µ in.) Gold over nickel (Postplated)

Current rating: 1 A

Resistance: 15 mΩ max.

Packaging:

Standard bulk: Multiples of 500

Optional tube: Multiples of 500—To order add T to end of dash number; Example 71600-110T

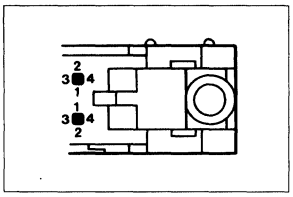
QUICKIE III HEADERS

71912 and 71918 Series, 4-wall Straight

71912: 0.76 µm (30 µ in.) Gold over nickel

71918: 0.76 µm (30 µ in.) GXT™ (Palladium-nickel alloy with gold flash) over nickel.

Note: These platings are on sides 1 and 2. Sides 3 and 4 are gold flash. See right.

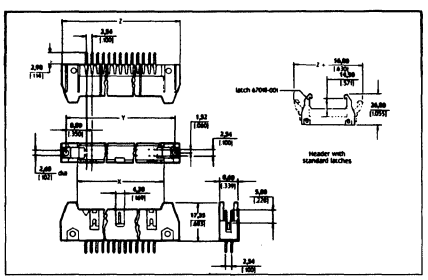


Number of positions	Part numbers 71912-xxx 71918-xxx Dash numbers: standard latches	low profile latches	without latches	DIMENSIONS X MM.	X IN.	Y MM.	Y IN.	Z MM.	Z IN.
2x3	-106	-206	-006	13,15	0.518	22,86	0.900	26,92	1.060
2x4	-108	-208	-008	15,69	0.618	25,40	1.000	29,46	1.160
2x5	-110	-210	-010	18,23	0.718	27,94	1.100	32,00	1.260
2x7	-114	-214	-014	23,31	0.918	33,02	1.300	37,08	1.460
2x8	-116	-216	-016	28,85	1.018	35,56	1.400	39,62	1.560
2x9	-118	-218	-018	38,39	1.118	38,10	1.500	42,16	1.660
2x10	-120	-220	-020	30,93	1.218	40,64	1.600	44,70	1.760
2x13	-126	-226	-026	38,55	1.518	48,26	1.900	48,26	2.060
2x17	-134	-234	-034	48,71	1.918	58,42	2.300	58,42	2.460
2x20	-140	-240	-040	56,33	2.218	66,04	2.600	66,04	2.760
2x22	-144	-244	-044	61,41	2.418	71,12	2.800	71,12	2.960
2x25	-150	-250	-050	69,03	2.718	78,74	3.100	78,74	3.260
2x30	-160	-260	-060	81,73	3.218	91,44	3.600	91,44	3.760
2x32	-164	-264	-064	86,81	3.118	96,52	3.800	96,52	3.960

Notes:
1. Pin: 0,64 mm [.025 inch] square
2. Standard polarization key 67020-001
3. Double-bump polarization key 67020-002

PC Board specification

Thickness 1,58 [.062]



Polarization

By cutting off a pin and adding a polarization plug to the mating female connector. By using QUICKIE Female and molded single polarizing ridge or dual polarizing grooves in conjunction with header utilizing dual polarization keys.

Body:

Material: Glass-filled thermoplastic polyester (UL94V-O). Color grey.

Insulation resistance: 1 x 10^5 MΩ min.

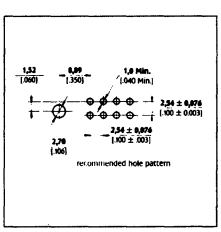
Temperature range: -65°C to +125°C

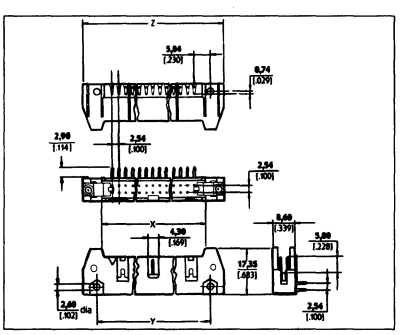
Withstanding voltage: 1000V rms (sea level)

Pin:

Material: Phosphor bronze.

Current rating: 1A





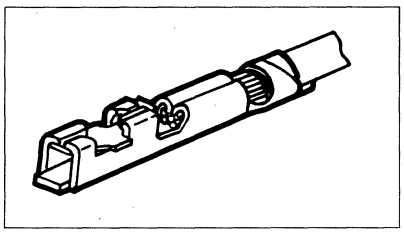
Note: Sizes shown are representative; for more complete information call your Du Pont Electronics distributor. (See listing last page of this section.)

For Customer Service: 1-800-237-2374

DuPont Electronics — Connector Systems

PV™ Dual-Metal Female Receptacles

The Du Pont PV dual-metal receptacle provides unsurpassed mechanical and electrical performance. Its two-piece design offers durability and reliability. The spring withstands repeated insertions and withdrawals, all the while maintaining constant mechanical pressure on the pins. Excellent electrical conductivity is attained by the high normal force of the receptacle. The wiping action between the contact area and the mating pin cleans the contact surfaces of oxides during insertion and withdrawal. The PV line offers wide design flexibility. There is a choice of three spring thicknesses to help meet specific insertion/withdrawal force requirements. There are four terminal variations in crimp-to-wire sizes from 18 to 36 AWG, and a choice of several gold or tin/lead platings. A complete line of application equipment provides optimum assembly capability for varying production needs.



Mini PV Receptacle

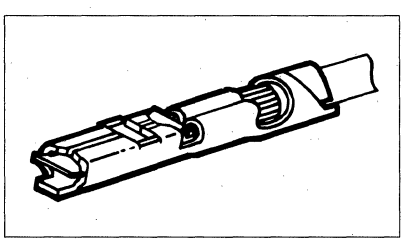
Body Material: 1/4 hard brass. *Body Plating:* 15, 30 or 40 µ in. gold over 50 µ in. nickel in contact area with gold flash on remainder of contact: 100 µ in. tin/lead over 30 µ in. copper in contact area with 50 µ in. tin/lead over remainder of contact. *Spring Material:* Heat-treated beryllium copper. *Spring Plating:* Gold flash or 30 µ in/tin. *Spring Thickness:* 0.0035, 0.0048, or 0.0065 in. *Current Rating:* 3 A cont. *Contact Resistance:* 5 milliohms.

Application Information

Mates To: 0.025" round or square pin or 0.028" round pin. *Pin Length:* for Discrete Application—0.200" nominal: For Housing Application—0.230" nominal. *Spring Thicknesses:* 0.0035" for use in 40–72 position Mini Latch Housing; 0.0048" for use in 10–50 position Mini Latch Housing; 0.0065" for use in 2–20 position Mini Latch Housing.

AWG Wire Size	Spring Thickness	Du Pont Number			
		Strip Form		Loose-Piece	
		30 µ in./Gold	Tin/Lead	40 µ in./Gold	Tin/Lead
18, 20 or Two 22 or Two 24	.0035" .0048" .0065"	48231-000 48047-000 48052-000	75374-035 75374-033 75374-031	75374-018 75374-016 75374-014	75374-036 75374-034 75374-032
22, 24, 26 or Two 26 or Two 28	.0035" .0048" .0065"	48049-000 48046-000 48051-000	75374-023 75374-021 75374-019	75374-006 75374-004 75374-002	75374-024 75374-022 75374-020
28, 30, 32 or Two 30 or Two 32	.0035" .0048" .0065"	48048-000* 48045-000* 48050-000*	75374-029 75374-027 75374-025	75374-012 75374-010 75374-008	75374-030 75374-028 75374-026

**UL approved*



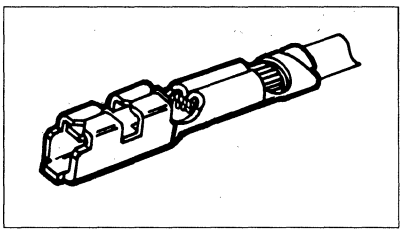
Maxi PV Receptacle

Body Material: 1/4 hard brass. *Body Plating:* 40 µ in. gold over 50 µ in. nickel in contact area with gold flash over remainder of contact: 100 µ in. tin/lead over 30 µ in. copper in contact area with 50 µ in. tin/lead over remainder of contact. *Spring Material:* Heat-treated beryllium copper. *Spring Plating:* Gold flash or 30 µ in. tin. *Spring Thickness:* 0.005, 0.006, 0.008". *Current Rating:* 5 A cont. *Contact Resistance:* 4 milliohms.

Application Information

Mates To: 0.025" round or square pin. *Pin Length:* For Discrete Application—0.230" nominal; For Housing Application—0.220" nominal. *Spring Thicknesses:* 0.005" for use in 12–56 position Maxi Latch Housing; 0.006" for use in 10–40 position Maxi Latch Housing; 0.008" for use in 2–12 position Maxi Latch Housing.

AWG Wire Size	Spring Thickness	Du Pont Number			
		Strip Form		Loose-Piece	
		40 µ in./Gold	Tin/Lead	40 µ in./Gold	Tin/Lead
18, 20 or Two 22 or Two 24	.005" .006" .008"	46226-000 46221-000 46223-000	47736-000 47388-000 46580-000	46227-000 46225-000 47387-000	46582-000 47391-000 46581-000
22, 24, 26 or Two 26 or Two 28	.005" .006" .008"	46236-000 46231-000 46233-000	47737-000 47389-000 46590-000	46237-000 46235-000 47384-000	46592-000 47392-000 46591-000
28, 30, 32 or Two 30 or Two 32	.005" 006" .008"	46246-000 46241-000 46243-000	47738-000 47390-000 46600-000	46247-000 46245-000 47403-000	46602-000 47393-000 46601-000



Jumbo PV Receptacle

Body Material: 1/4 hard brass. *Body plating:* 40 µ in. gold over 50 µ in. nickel in contact area with gold flash on remainder of contact: 100 µ in. tin/lead over 30 µ in. copper in contact area with 50 µ in. tin/lead over remainder of contact. *Spring Material:* Heat-treated beryllium copper. *Spring Plating:* Gold flash or 30 µ in. tin. *Spring thickness:* 0.065". *Current Rating:* 7 A cont. *Contact Resistance:* 1.5 milliohms.

Application Information

Mates To: 0.040–0.045" round or square pin. *Pin Length:* For Discrete Application—0.235" nominal; For Housing Application—0.266" nominal.

AWG Wire Size	Spring Thickness	Du Pont Number			
		Strip Form		Loose-Piece	
		40 µ in./Gold	Tin/Lead	40 µ in./Gold	Tin/Lead
18, 20 or Two 22 or Two 24	.040" .045"	75369-003 75375-003	75369-006 75375-006	75186-003 75187-003	75186-006 75187-006
22, 24, 26 or Two 26 or Two 28	.040" .045"	75369-002 75375-002	75369-005 75375-005	75186-002 75187-002	75186-005 75187-005
28, 30, 32 or Two 30 or Two 32	.040" .045"	75369-001 75375-001	75369-004 75375-004	75186-001 75187-001	75186-004 75187-004

Crimp-to-Wire Male Pins

The Crimp-to-Wire Male Pin eliminates the need for a printed circuit board interface by mating with the Mini PV receptacle in a flying connection. It also fits all Mini Latch housings, so no special housing is necessary. The Male pin is available in gold or tin/lead platings. *Material:* 3/4 hard brass. *Plating:* 50 µ in. gold over 50 µ in. nickel in contact area with gold flash on remainder of contact. 100 µ in. tin/lead over 30 µ in. copper in contact area with 50 µ in. tin/lead over remainder of contact. *Current Rating:* 3 A cont. when mated to Mini PV Receptacle. *Contact Resistance:* 5 milliohms when mated to Mini PV Receptacle.

Application Information

Mates To: Female receptacles accepting 0.025" square pins 0.230" in length.

AWG Wire Size	Du Pont Number			
	Strip Form		Loose-Piece	
	40 µ in./Gold	Tin/Lead	40 µ in./Gold	Tin/Lead
18, 20 or Two 22 or Two 24	47793-000 47793-003*	75653-003 75673-006*	48117-000	75654-003
22, 24, 26 or Two 26 or Two 28	47792-000 47792-003*	75653-002 75653-005*	48116-000	75654-002
28, 30, 32 or Two 30 or Two 32	47791-000 47791-003*	75653-001 75653-004*	48115-000	75654-001

**For use with Olympian Model 700 and Model 740 machines only.*

For Customer Service: 1-800-237-2374

DuPont Electronics

Connector Systems

Clincher™ Connector Mass Termination System

The Du Pont Clincher™ system mass terminates flat conductor, flat cable or flex circuitry used in packaging applications requiring maximum flexibility and optimum space and weight savings.

The female Clincher™ simultaneously terminates all cable conductors without stripping and is ready for production use within 15 seconds, substantially reducing total installed cost over individually terminated methods. The Clincher™ assembly mates to 0,64 mm (0.025 in.) pins or headers on 2,54 mm (0.100 in.) centers to form a complete interconnection system.

The male Clincher™ offers the same features as its female counterpart. It can also be used to make a flying connection to a female Clincher™, PV™/housing assembly, or any other receptacle which can mate to 0,64 mm (0.025 in.) square pins.

The Clincher™ Solder Tab is designed to mass terminate flat, flexible cable and circuitry for soldering to a printed circuit board.

Easy-to-operate application equipment completes the Clincher™ system.

Performance Data

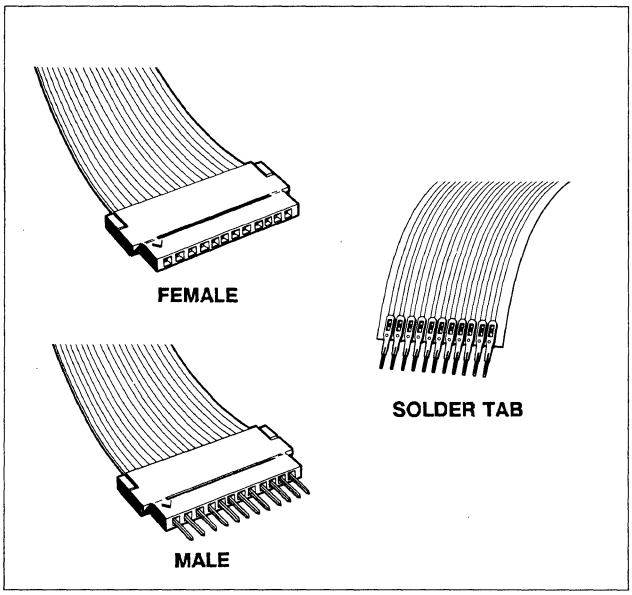
Insulation Resistance: 5 x 10^4 megohms. min. *Dielectric Withstanding Voltage*: 500 VAC, rms. *Current Rating*: 2A. *Insertion Force*: 500 grams max. (400 grams avg.) when mated to 0.025" square tin/lead plated pins. *Withdrawal Force*: 30 grams min. (50 grams avg.) when mated to 0.025" square tin/lead plated pins.

Clincher Connector

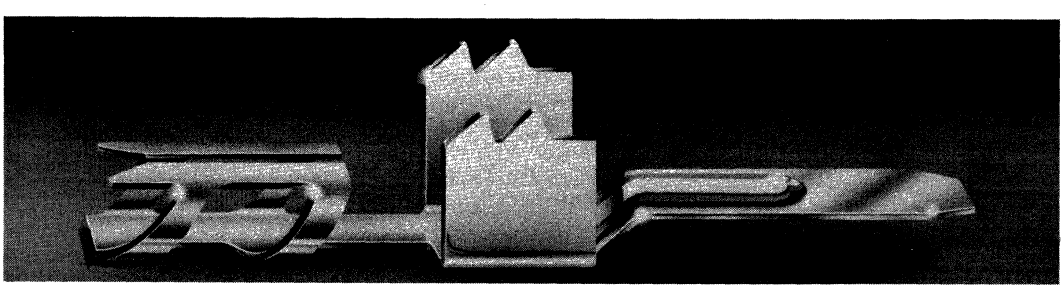
Housing Material: Blue polypropylene, flame retardant per UL94V-0. *Contact Material*: 1/2 hard copper-nickel alloy. *Contact Plating*: 30 μ in. gold in contact area or 100 μ in. tin/lead overall. *Spring Material*: 1/2 hard, heat-treated beryllium-copper alloy. *Spring Plating*: 20 μ in. gold or 10 μ in. tin/lead.

Clincher Solder Tab

Material: 1/2 hard copper-nickel alloy. *Plating*: 100 μ in. tin/lead.



Rib-Cage™ II 0.050 Inch Connector for High Density Packaging



The new Rib-Cage™ II connector on 0.050 inch centers is designed for high density, low profile printed circuit board packaging. It is available in both surface-mount and through-mount configurations. The low profile of the connector allows for tight parallel board packaging.

Rib-Cage II is available in a double-row vertical card connector configuration in two by five through two by fifty positions, in increments of two by five. The contacts are duplex-plated with 30 microinches of gold in the contact area, providing gold only where needed for a more reliable and economical connector.

Rib-Cage II connectors are designed for low profile systems requiring high density. The connectors require only one-eighth the space of 0.100 inch connectors with the same number of contacts.

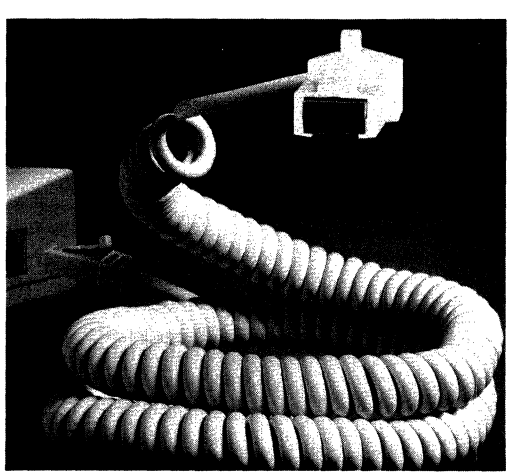
Latch-N-Lok™ Shielded Assemblies.

Improve your system's sales appeal. Choose from the industry's widest variety of compact plugs and receptacles. Straight, right-angle or combination designs. Latch on top, bottom or side. Panels, chassis or board mounted receptacles. And cords—coiled or straight—in any length, with any number of conductors, and foil, serve or braid shielding. Latch-N-Lok can use a variety of wire gauges (22 to 30 AWG) within an assembly.

All of these combinations can be customized and color-coordinated to your system. Costs no more than standard assemblies.

Latch-N-Lok is the only quick disconnect pin-and-socket system with a contact design proven over millions of applications.

Call **1-800-237-4357** for additional information.



For Customer Service: 1-800-237-2374

DuPont Electronics

Connector Systems

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DuPont Electronics

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With ETI's elastomeric connectors, you can:

- *Minimize lead lengths to maintain signal integrity*
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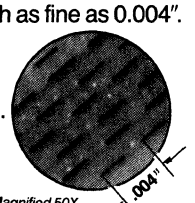
Matrix MOE®

- Contact pitch as fine as 0.004".
- Ideal for high-speed VLSI applications.

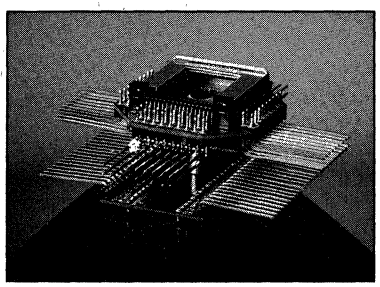


NEW Free Connector Catalog!

- 64 pages of technical data and ordering info.
- A must for any PCB design or packaging engineer!

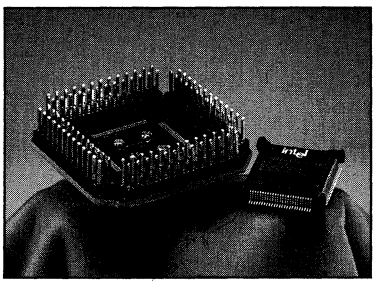
©ETI

ET-110



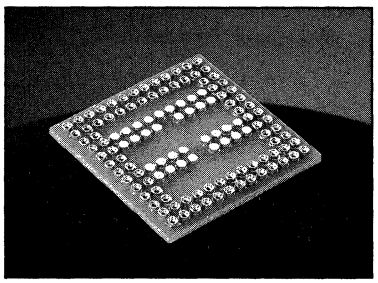
Quick, Fast Socket Conversion

- Convert-A-Socket™ makes it a snap to convert a production socket to a test socket and vice-versa.
- Complete line of male/female sockets for LCC, PLCC, PGA, PQFP, and DIP circuits.
- A must if you're inserting circuits repeatedly in low insertion force sockets.
- Quick turnaround on custom engineering services.



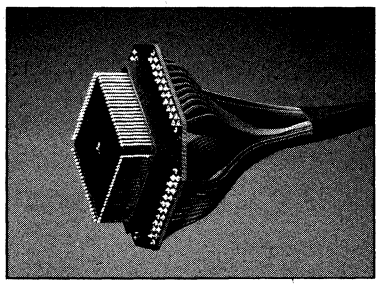
Quality Debugging Accessories

- Protect your ICs from damage. Insert and extract LCC, PLCC, PGA, and PQFP packages with the right tool.
- Use receptacle boards to build test fixtures, and mount your test equipment, in half the time.
- Get the right production sockets, burn-in sockets, test leads, and test clips for SMT, SOIC, or PLCC circuits.
- Quick turnaround on custom engineering services.



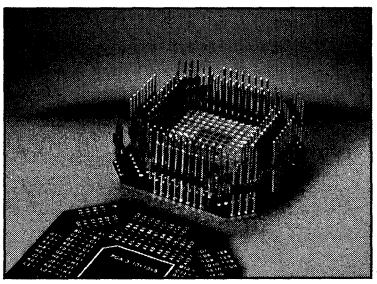
Over 300 Prototyping Adapters

- Adapt-A-Boards™ make it easy to adapt standard or high-density prototyping boards to a variety of packages.
- For all package types: LCC, PLCC, PGA, PQFP, SDIP (shrink DIP devices), SOIC and more!
- Bottom configurations adapt to wire wraps or solder tail pins. Boards conform to Mil-C-45204.
- Quick turnaround on custom engineering services.



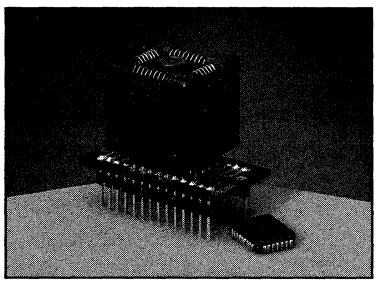
Easy Emulator Pods & Adapters

- Plug your PLCC and LCC packages into your PC board in minutes, with these easy-to-use adapters.
- Emulator/logic analyzer users: Adapt-a-Pod™ converts one package type to another (LCC, PLCC, PGA, and DIPs).
- Emulator pods and adapters are available in all standard pin counts, with ribbon or ribbon cable headers.
- Quick turnaround on custom engineering services.



Complete Line of Debug Tools

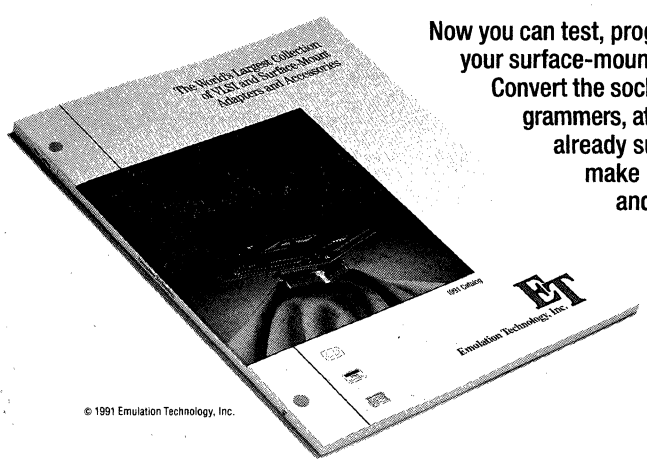
- Famous Bug Katcher™ makes it easy to attach test leads to ICs in LCC, PLCC, PGA, PQFP, and DIP packages.
- Eliminates need for noisy cables; reduces capacitance and inductance in your test set-up.
- You can also quickly isolate and reconnect sections of your socketed IC with our Bug Isolator.™ (All packages.)
- Quick turnaround on custom engineering services.



PAL/PROM Programmer Adapters

- Any EPROM programmer designed for DIPs can be converted to accept LCC, PLCC, and SOIC sockets in seconds!
- To program, just insert an Adapt-A-Socket™ between the programmer's DIP socket and the circuit to be programmed.
- Designed to fit all types of EPROM programmers, including Data I/O 120/121A, Stag, Logical Devices, etc.
- Quick turnaround on custom engineering services.

The World's Largest Collection of VLSI and Surface-Mount Adapters and Accessories



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Now you can test, program, and debug all your surface-mounted and VLSI devices. Convert the sockets in your PROM programmers, attach test leads to chips already surface-mounted, and make prototypes quickly and easily.

Thousands of these problem-solving devices can be found in our FREE 1991 CATALOG. Contact: Emulation Technology, Inc., 2344 Walsh Avenue, Bldg F, Santa Clara, CA 95051. FAX: 408-982-0664 TEL: 408-982-0660

ET

Emulation Technology, Inc.

DIN 41612

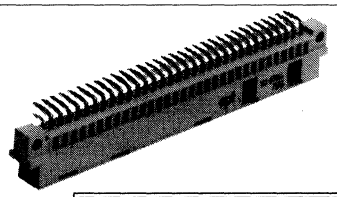
ept

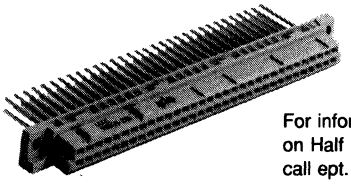
B

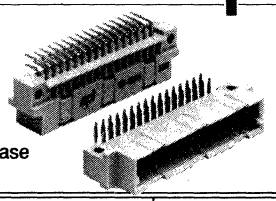
64 Pin

Operating Current per pin at 20° C
32 Pins 2.5 A
64 Pins 2.0 A

Both, Male and Female Connectors are available in short tail and 2 & 3 level WireWrap Pressfit versions. Call ept for Data Sheets and Order information.

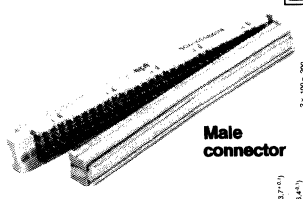




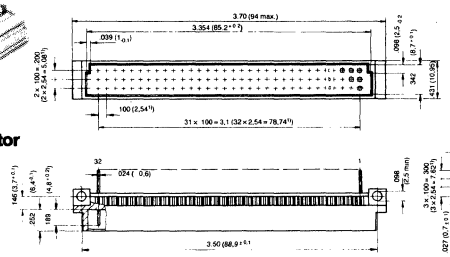


For information on Half DIN please call ept.

B MALE	Post length	16 pin row a pos 2,4,6	32 pins row a	32 pins row a+b pos 2,4,6	64 pins row a+b
	.114" solder	101-40004	101-40014	101-40024	101-40064
	.512" 2 level ww		101-40034	101-40044	101-40074
	.669" 3 level ww		101-40035	101-40045	101-40075
	.134" straight	101-40005	101-40015	101-40025	101-40065
B FEMALE	.098" solder	102-40004	102-40014	102-40024	102-40064
	.157" solder	102-40005	102-40015	102-40025	102-40065
	.512" 2 level ww	102-40006	102-40016	102-40026	102-40066
	Solder eylet	102-40054	102-40034	102-40044	102-40075

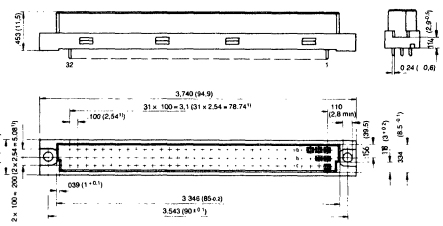


Male connector



C Series

Female connector

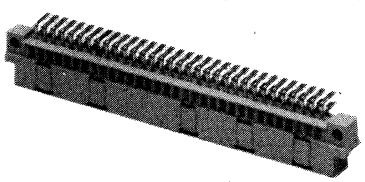


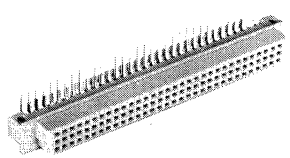
C

96 Pin

Operating Current per pin at 20° C
32 Pins 2.5 A
96 Pins 2.0 A
Both, Male and Female Connectors are available in short tail and 2 & 3 level WireWrap Pressfit versions. Also available with 8 microinches Au on WireWrap post.

C MALE	Post length	32 pins row a	32 pins r. a,c pos 2,4,6	48 pins r. a,b,c pos 2,4,6	64 pin row a+c	96 pins row a,b,c
	.114" solder	103-40004	103-40014	103-40024	103-40034	103-40064
	.173"		103-40114	103-40124	103-40134	103-40164
	.512" 2 level ww		103-40194	103-40144	103-40154	103-40174
	.669" 3 level ww		103-40094	103-40044	103-40054	103-40074
	.134" straight	103-40005	103-40015	103-40025	103-40035	103-40065
C FEMALE	.098" dip solder	104-40004	104-40014	104-40044	104-40054	104-40064
	.157" dip solder	104-40005	104-40015	104-40045	104-40055	104-40065
	.512" 2 level ww	104-40006	104-40016	104-40046	104-40056	104-40066
	Solder eylet	104-40025	104-40035	104-40105	104-40115	104-40075
	IDC Flat Cable				104-49054	104-49064





R

Inverse DIN 96 Pin

Operating Current per pin at 20° C
32 Pins 2.5 A
96 Pins 2.0 A

Also available with 8 microinches Au on WireWrap post. Call ept for Data Sheets and Order information.

R MALE	Post length	32 pins row a	32 pins r. a,c pos 2,4,6	48 pins r. a,b,c pos 2,4,6	64 pins row a+c	96 pins row a,b,c
	.098" dip solder	115-40005	115-40015	115-40026	115-40035	115-40065
	.157" dip solder	115-40044	115-40046	115-40025	115-40054	115-40074
	.512" 2 level ww	115-40004	115-40014	115-40024	115-40034	115-40064
	.181" pressfit	115-60004	115-60014	115-60044	115-60054	115-60064
	.512" pressfit	115-60005	115-60015	115-60045	115-60055	115-60065
	.669" pressfit	115-60006	115-60016	115-60046	115-60056	115-60066
R FEMALE						
	.052" dip solder	116-40024	116-40034	116-40044	116-40054	116-40074

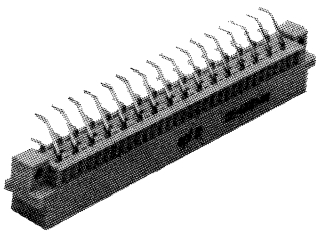
All parts listed are for Class II DIN (400 insertion extraction cycles). For more information on DIN specifications, and detailed drawings for connectors, please call or Fax
Electronic Precision Technology Tel. 1-800-323-2568 Fax (617) 661-2989

DIN 41612

ept

D

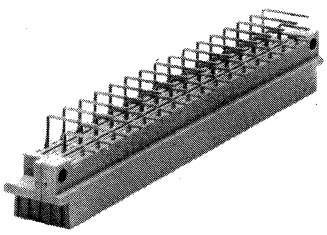
32 Pins 5.5 A
16 Pins 6.0 A



D MALE	Pin length Class II	16 pins row a	16 pins r. a+c pos 2,6,10	32 pins row a+c
	.114" RA	105-40004	105-40014	105-40064
	.146" straight	105-4006	105-40016	105-40066
D FEMALE	.787" WW.039□	106-40035	106-40015	106-40065
	.157" solder	106-40034	106-40014	106-40064
	solder eylet	106-40036	106-40016	106-40066
	RA solder	106-40046	106-40026	106-40076

E

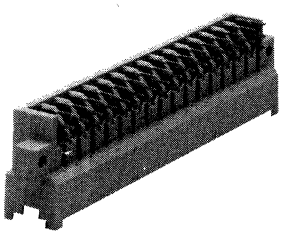
48 Pins 5.0 A
32 Pins 6.0 A



E MALE	Pin length Class II	32 pins row a+c	32 pins row a+e	48 pins row a,c,e
.100 or .200 between rows	.100 spacing	107-40024	107-40014	107-40064
	.200 spacing	107-40025	107-40015	107-40065
	straight DS	107-40026	107-40016	107-40066
E FEMALE	.787" WW	108-40015	108-20025	108-40065
	.157" solder	108-40014	108-40024	108-40064
	solder eylet	108-40046	108-40036	108-40076

F

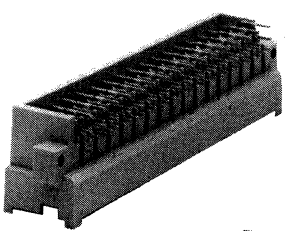
48 Pins 6.0 A
Nom. Current
8.0 A Max



F MALE	Pin length Class II	32 pins row b + z	32 pin row d + z	48 pins row d+ b+ z
	RA solder	109-40024	109-40014	109-40064
	prmate pos Z	109-52024	109-51484	109-52064
	prmate Z2+Z32	109-52025	109-51485	109-52065
F FEMALE	.866" WW	110-40024	110-40014	110-40064
	.177" solder	110-40025	110-40015	110-40065
	solder eylet	110-40026	110-40016	110-40066
	.866" Termipoint	110-40054	110-40044	110-40094
	1.026"Termipoint	110-40056	110-40046	110-40096

G

64 Pins 6.0 A
Nominal
8.0 A max



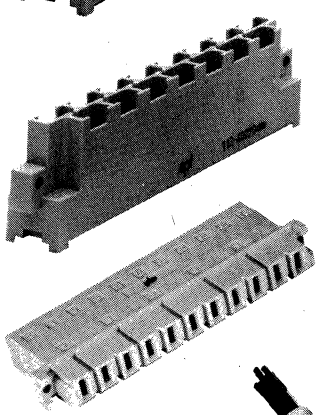
G MALE	Post length Class II		64 pins row z+b+d+f	
	RA Dip Solder		111-40064	
	Prmate pos Z2		111-40164	
	Prmt Z2+Z32		111-40264	
G FEMALE	.866" WW		112-40065	
	.177" solder		112-40064	
	solder eylet		112-40095	

H 15

15 Pin
15 A/pin

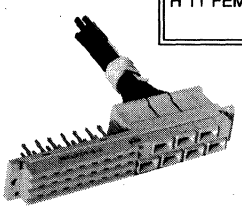
H 11

11 Pin
20 A/pin

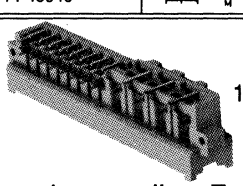


H 15 MALE Class I		Right angle Dip Solder 113-40060		Faston Pin 113-40070
H 15 FEMALE Class I		Threaded screw terminal 114-40070		Faston Pin 114-40060
H 11 MALE Class I		Right Angle Dip Solder 113-40010		Faston Pin 113-40030
H 11 FEMALE		Faston Pin 114-40040		plastic coding key 114-3000

POWERBLOCK



117-40061



118-40584

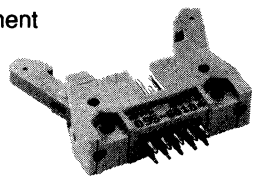
For Data Sheets and information on Powerblock shown above call or Fax.
Electronic Precision Technology Tel. 1-800-323-2568 Fax. (617) 661-2989

DIN 41651 PRESSFIT HEADERS

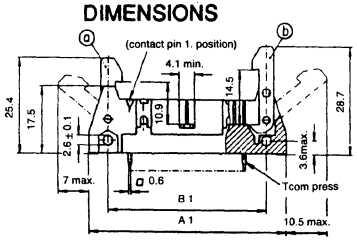
ept

4 Wall Pressfit Protected Header

With polarization keys for correct socket alignement



DIMENSIONS



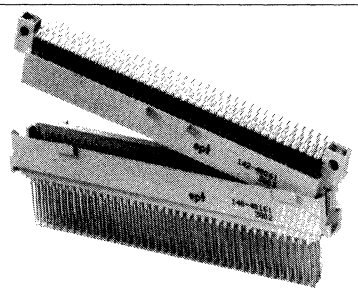
No. of Positions	Qual. Class	No latch	Short latch	Long latch
10	II	095-60104	095-60105	095-60106
14	II	095-60144	095-60145	095-60146
16	II	095-60164	095-60165	095-60166
20	II	095-60204	095-60205	095-60206
26	II	095-60264	095-60265	095-60266
34	II	095-60344	095-60345	095-60346
40	II	095-60404	095-60405	095-60406
50	II	095-60504	095-60505	095-60506
60	II	095-60604	095-60605	095-60606
64	II	095-60644	095-60645	095-60646

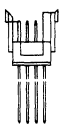
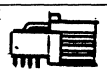
HIGH DENSITY CONNECTOR

160 Pin (4x40)

2 A at 20° C

Pressfit PCB hole dia=.040±.003



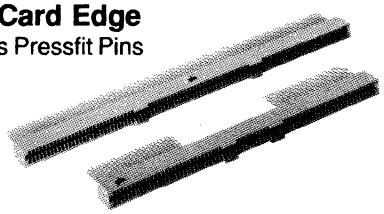
MALE  Premating contact in 4 corners	Post length	Part No.
	4.6 mm	140-40174
	17.2 mm	140-40176
	4.6 mm prmate cont	140-40163
	17.2 mm premating	140-40161
FEMALE 		
	2.5 mm	142-40061
	Male & Female = Qual. Class II	

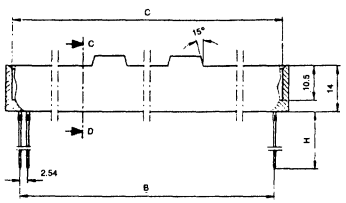
CARD EDGE CONNECTORS

2x99 Pin Card Edge

.100" centers Pressfit Pins

2 A at 25°C



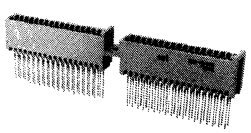


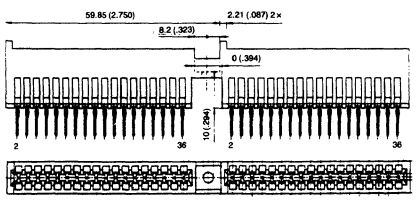
Pins	Compliant Pin (Solid=210-40xxx)	
	17.8mm pin	22.0 mm pin
2x99	210-60265	210-60264
2x94	210-60165	210-60164
2x77	210-60065	210-60064
2x23	210-60015	210-60014

Q-BUS 2x36 Pin

Pressfit Pins

4 A at 20°C





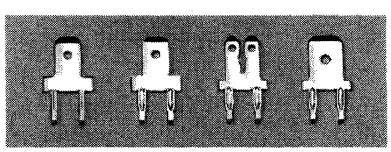
Pin length	Terminal Surface	Part No.
.336"	SnPb	220-40064
.336"	8 microinches Au	220-40074
.708"	SnPb	220-40065
.708"	8 microinches Au	220-40075

POWER TERMINALS

SPADE TERMINALS

DIN 46244

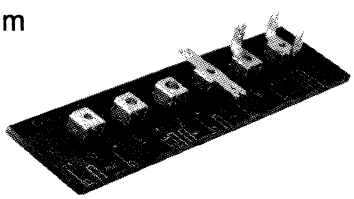
PCB hole dia=1.6 mm



Post type				
Pressfit solid pin	090-10162	090-10161	090-10163	090-10164
Solder	090-10062	090-10061	090-10063	090-10064

POWER BUGS

PCB hole dia=1.6 mm



Termination	Screw & Nut M3	Screw & Nut M4	Screw & Nut M5	Spade terminal
Part No.	910-60040	910-60045	910-60050	910-22715

Electronic Precision Technology Tel. 1-800-323-2568 Fax. (617) 661-2989

SI UNITS

RELATIVE QUANTITY SYMBOLS

$\neq$	not equal to
$\approx$	approximately equal to
$\propto$	proportional to
$<$	smaller than
$\leq$	smaller than or equal to
$\ll$	much smaller than
$>$	larger than
$\geq$	larger than or equal to
$\gg$	much larger than
$\equiv$	identical to or equivalent
$\uparrow$	increases
$\downarrow$	decreases

PREFIXES FOR SI UNITS

Multiple	Prefix	Symbol
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p

Quantity	Symbol	SI Unit	Symbol	Derivation
acceleration	a	m s^{-2}	—	velocity/time
acceleration due to gravity	g	m s^{-2}	—	velocity/time
amount of substance	n	mole	mol	mole fraction (n) used
amplification factor	μ	*a ratio*	—	—
angle	$\theta_1, \varphi_1, \alpha_1$	—	—	—
angle of incidence	i	degree or radian	°	—
angle of refraction	r	degree or radian	°	—
angle, Bragg	θ	number	—	—
angle, critical	c	degree or radian	°	—
anode slope resistance	R_A	ohm	Ω	$\Delta V_a / \Delta I_a$
area	A	metres squared	m^2	$l \times b$
atomic number	Z	a number	—	number of protons
Avogadro constant	L, N_A	number	—	—
breadth	b	metre	m	fundamental unit
capacitance	C	farad	F	charge/p.d.
charge, electric	Q	coulomb	C	current × time
charge on electron	e	coulomb	C	$1{\cdot}6 \times 10^{-19}$ C
conductance	G	ohm^{-1}	Ω^{-1}	reciprocal of resistance
current, electric	I	ampere	A	fundamental unit
decay constant	λ	*a ratio*	—	—
density	ρ	kg m^{-3}	—	m/V
distance along path	s	metre	m	fundamental unit
efficiency	η	*a ratio*	—	work output/work input
electrochemical equiv.	z	g C^{-1}	—	mass/charge
electromotive force	E	volt	V	energy/charge
electron	e	—	—	—
energy	E	joule	J	N m
energy, kinetic	E_k	joule	J	N m. $E_k = 1/2mv^2$
energy, potential	E_p	joule	J	N m. $E_p = mgh$
Faraday constant	F	coulomb mol^{-1}	C mol^{-1}	96,500 C mol^{-1}
field strength, electric	E	V m^{-1}	—	potential gradient: p.d./dist.
field-strength magnetic	H	ampere-turns	—	current × no. of turns
flux, magnetic	Φ	weber	Wb	e.m.f/rate of change of flux
flux density	B	tesla	T	flux/area
focal length	f	metre	m	—
force	F	newton	N	kg m s^{-2}
free energy	ΔG	joule	J	—
frequency	f	hertz	Hz	oscillations/time
gas constant	r	joule	J	energy
half-life,radioactivity	$t_{1/2}$	second	s	fundamental unit
heat capacity	C	J K^{-1}	—	quantity of heat/temp. rise
heat of reaction	ΔH	joule	J	heat energy
heat capacity, specific	c	J K^{-1} kg^{-1}	—	heat capacity/mass
heat, quantity of	q	joule	J	energy

eem SI UNITS

Quantity	Symbol	SI Unit	Symbol	Derivation
height	h	metre	m	fundamental unit
image distance	υ	metre	m	fundamental unit
inductance, mutual	M	henry	H	induced e.m.f./rate of change of current
inductance, self	L	henry	H	—
intensity of radiation	I	*a number*	—	—
latent heat	L	joule	J	quantity of heat
latent heat, specific	l	J kg^{-1}	—	quantity of heat
latent heat, molar	L_m	joule mol^{-1}	J	quantity of heat
length	l	metre	m	fundamental unit
magnetizing force	H	ampere-turns	—	—
magnetic moment	m	Wb m	—	torque in unit magnetic field
magnification, linear	m	*a ratio*	—	—
mass	m	kilogramme	kg	fundamental unit
mass number	A	*a number*	—	number of neutrons + protons
molar volume	V_m	(dm^3)	—	volume of 1 mole
molar solution	M	*a ratio*	—	moles/dm^3
moment of force	—	N m	—	force × perp. distance
neutron number	N	*a number*	—	number of neutrons
number	n	—	—	—
number of molecules	N	—	—	—
number turns on coil	n	*a number*	—	—
number order spectrum	p	*a number*	—	—
object distance	u	metre	m	fundamental unit
peak current	I_o	ampere	A	see current
peak e.m.f.	E_o	volt	V	see e.m.f.
period	T	second	s	fundamental unit
permeability	μ	H m^{-1}	—	henry/metre
permeability, vacuum	μ_o	H m^{-1}	—	—
permeability, relative	μ_r	*a ratio*	—	$\mu = \frac{\mu}{\mu_o}$
permittivity	ε	F m^{-1}	—	farad/metre
permittivity, vacuum	ε_o	F m^{-1}	—	farad/metre
permittivity, relative	ε_r	*a ratio*	—	$\varepsilon_r = \frac{\varepsilon}{\varepsilon_o}$
potential, electric	V	volt	V	energy/charge
potential difference	V	volt	V	energy/charge
power	P	watt	W	J s^{-1}
pressure	p	pascal	Pa	N m^{-2}: force/area
radius	r	metre	m	fundamental unit
reactance	X	ohm	Ω	E_o/I_o
refractive index	n	*a ratio*	—	—
resistance	R	ohm	Ω	p.d./current
resistivity, electrical	ρ	ohm-metre	—	resistance × length
relative density	d	*a ratio*	—	ρ_{sub}/ρ_{water}
r.m.s. current	$I_{r.m.s}$	ampere	A	see current
r.m.s. voltage	$V_{r.m.s}$	volt	V	see e.m.f.
slit separation	s	metre	m	fundamental unit
tension	T	newton	N	see force
temperature, Celsius	θ	degree C	°C	from kelvin
temp. interval	θ	degree	° or K	—
temp. absolute	T	kelvin	K	fundamental unit
thickness	d	metre	m	fundamental unit
time	t	second	s	fundamental unit
torque	T	Nm	—	see moment
turns ratio	T	*a ratio*	—	n_{sec}/n_{prim}
(unit of electricity)	—	kW h	—	kilowatt × hour
velocity	u,υ	ms^{-1}	—	distance/time
velocity, angular	ω	$second^{-1}$	s^{-1}	angle/time
velocity, e.m.waves	c	m s^{-1}	—	—
velocity of sound	υ	m s^{-1}	—	—
volume	V	metre cubed	m^3	l × b × h
wavelength	λ	metre	m	fundamental unit
work	w	joule	J	force x distance (Nm)
weight	W	newton	N	kg m s^{-2}or mg

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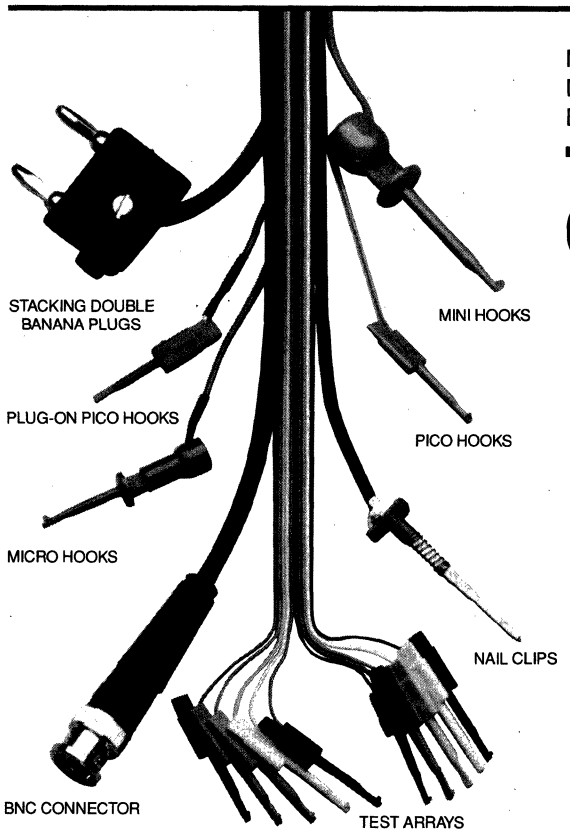

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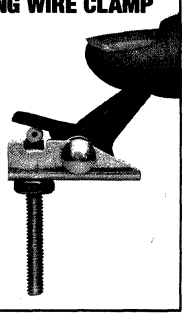
NEW



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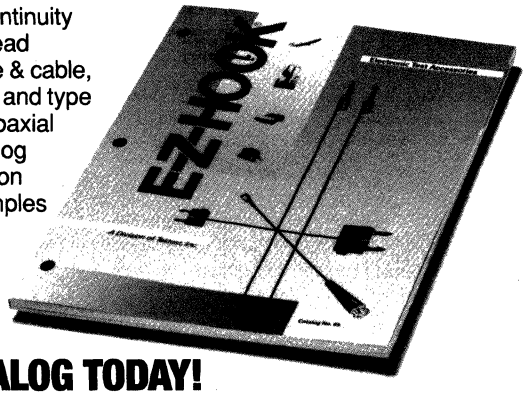

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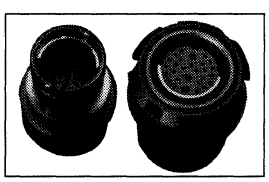

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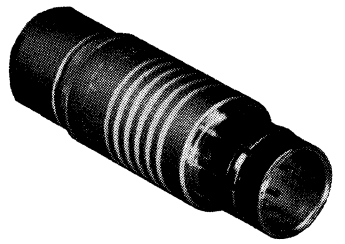
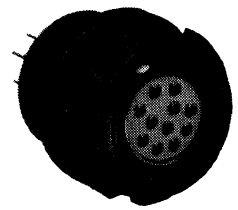
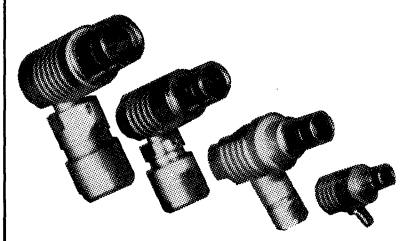


REAR PANEL MOUNT

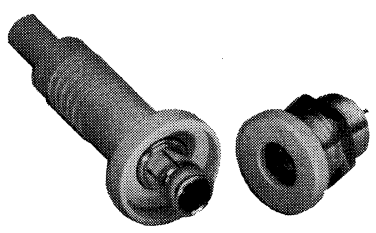


BLACK CHROME

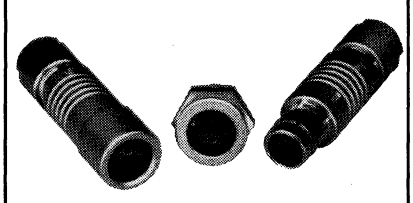
RIGHT ANGLE



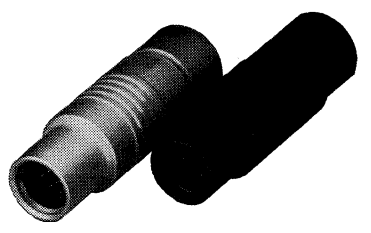
ESD SHOCK PROOF



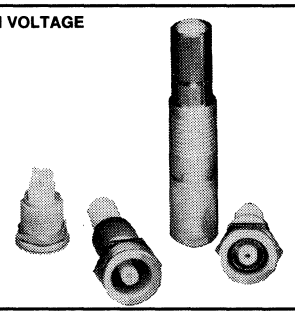
LEMO COMPATIBLE



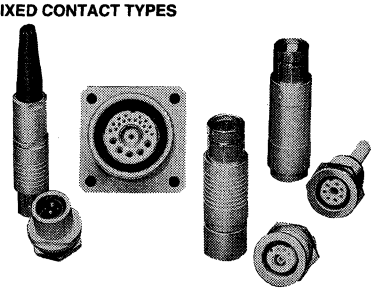
NON-LOCKING



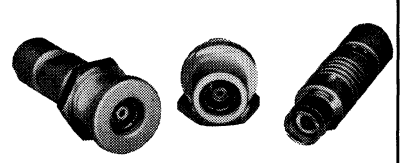
HIGH VOLTAGE



MIXED CONTACT TYPES



TRIAX



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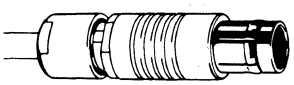
Connector Body Configurations

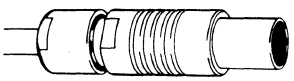
ANY PLUG MATES WITH ANY RECEPTACLE

Plugs

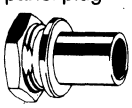
S Straight plug
SE Sealed plug



SOV Non-locking plug
SOVE Sealed non-locking plug

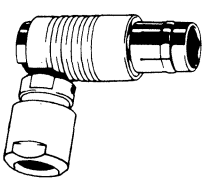


SF Non-locking panel plug

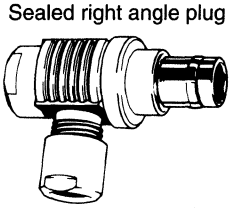


SFE Sealed non-locking panel plug

WS Right angle plug

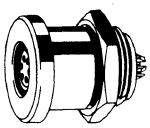


WSE Sealed right angle plug



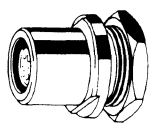
Receptacles

D Panel receptacle

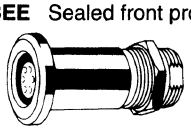


DEE Sealed panel receptacle

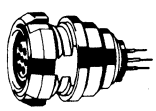
DB Front projecting receptacle



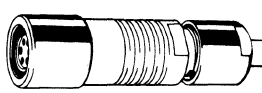
DBEE Sealed front projecting receptacle



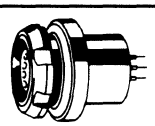
WDE Sealed bulk-head feedthrough



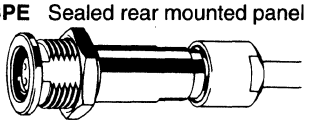
DBP Rear mounted panel receptacle



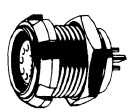
K Cable receptacle
KE Sealed cable receptacle



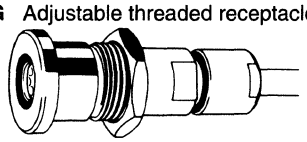
DBPE Sealed rear mounted panel receptacle



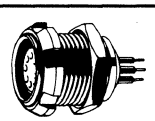
DK Panel receptacle with cable clamp



DG Adjustable threaded receptacle



DKE Sealed panel receptacle with cable clamp



DGP Adjustable threaded receptacle with PCB contacts

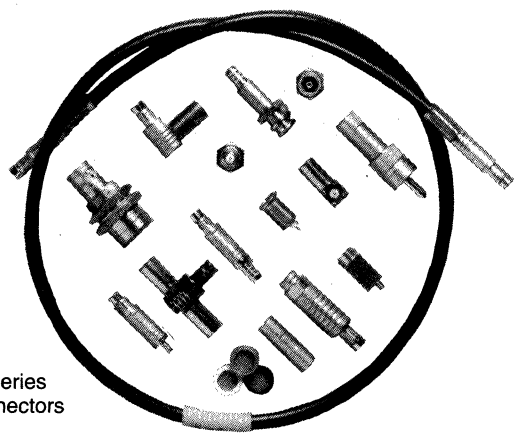
Receptacles/ Plugs	Series 101		Series 102		Series 103		Series 104		Series 105		Series 106		Series 107		Series 400	
	Max Length (mm)	Max Diam. (mm)	Max Length (mm)	Max Diam. (mm)	Max Length (mm)	Max Diam. (mm)	Max Length (mm)	Max Diam. (mm)	Max Length (mm)	Max Diam. (mm)	Max Length (mm)	Max Diam. (mm)	Max Length (mm)	Max Diam. (mm)	Max Length (mm)	Max Diam. (mm)
D	15.3	7.0	19.0	11.0	23.0	14.0	25.0	19.0	32.5	22.0	50.0	37.0	46.0	40.0	27.0	18.0
DBP	–	–	20.2	14.0	23.0	14.0	23.0	19.0	29.5	22.0	–	–	–	–	–	–
DBEE	–	–	19.5	14.0	23.0	18.0	30.0	22.0	32.5	27.0	50.0	40.0	47.0	45.0	—	—
DBPE	–	–	19.8	9.0	25.8	14.0	26.0	16.0	30.0	20.0	–	–	–	–	–	–
DEE	–	–	20.0	14.0	23.0	18.0	25.0	22.0	32.5	27.0	50.0	41.0	47.0	45.0	—	—
DG	–	–	18.2	9.0	23.0	12.0	24.0	15.0	28.0	18.0	–	–	–	–	–	–
DGP	–	–	19.2	9.0	22.8	12.0	26.0	15.0	–	–	–	–	–	–	–	–
DK	26.5	7.0	35.0	11.0	43.0	14.0	50.0	19.0	60.0	22.0	80.0	32.0	105.0	40.0	–	–
DKE	–	–	35.0	14.0	43.0	18.0	50.0	22.0	60.0	27.0	85.0	37.0	110.0	45.0	–	–
K/KE	26.5	6.5	35.0	10.0	43.0	13.0	50.0	16.0	60.0	19.0	79.0	37.0	–	–	61.0	18.0
S/SE	27.0	6.5	35.0	9.0	46.0	12.0	50.0	15.0	60.0	18.0	78.0	28.0	110.0	34.0	61.0	20.0
SF	18.5	8.0	20.0	10.0	23.5	14.0	27.0	18.0	29.0	22.0	–	–	50.0	36.0	–	–
SFE	–	–	–	–	25.2	17.0	28.0	22.0	–	–	–	–	–	–	–	–
SOV/SOVE	27.0	6.5	35.0	9.0	46.0	12.0	50.0	15.0	52.0	18.0	78.0	28.0	110.0	45.0	–	–
WDE	–	–	39.0	14.0	40.0	17.0	40.0	22.0	62.0	27.0	74.0	42.0	92.0	45.0	–	–
WS	20.0	9.0	28.0	9.0	33.0	12.0	35.5	15.0	52.0	18.0	–	–	85.0	34.0	–	–
WSE	–	–	35.0	13.0	41.0	17.0	47.0	20.0	54.0	24.0	–	–	–	–	–	–

FISCHER CONNECTORS
INCORPORATED

Connectors by Series: 101 and 102

FAX: 805-295-0090 ☎ (805) 295-0600 ■ (800) 344-0445

The following is a partial list of some ot the standard Fischer connectors. Please note if you don't see exactly what you need, call us. We have over 3000 different types of connectors from which to choose.



101 Series
NIM-CAMAC Connectors

Series	Ref. No.	Description	Contacts	Test Voltage Contact to Body	Imped. (Ohms ± 2)	Max. I	Cable Diameter (mm)	Cable Type
101	S 101 A004	Coaxial, solder, plug	1	3.0 KVDC	50	2A DC	1.5-3.0	
	S 101 A004-2	Coaxial, crimp, plug	1	3.0 KVDC	50	2A DC	3.0	
	S 101 A004-3	Coaxial, crimp, plug	1	3.0 KVDC	50	2A DC	5.1	
	S 101 A004-7	Coaxial, solder, plug	1	3.0 KVDC	50	2A DC	5.1	
	WS 101 A004	Coaxial, crimp, right angle plug	1	3.0 KVDC	50	2A DC	3.0	
	SAW 101 A004	Termination, 50 Ohms	1	3.0 KVDC	50	2A DC		The following cables may be used:
	SM 101 A004	Shorting plug	1	3.0 KVDC	50	2A DC		
	SF 101 A004	Coaxial, non-locking panel plug	1	3.0 KVDC	50	2A DC		
	SDL 101 A004	Right angle adaptor	1	3.0 KVDC	50	2A DC		**Cable Diameter 1.5 - 3.0 mm (0.59 - 0.118")**
	SDT 101 A004	T adaptor	1	3.0 KVDC	50	2A DC		RG-174
	D 101 A004	Coaxial, receptacle	1	3.0 KVDC	50	2A DC		RG-178
	D 101 A004-8	Coaxial, body gold plated, receptacle	1	3.0 KVDC	50	2A DC		RG-179
	DK 101 A004	Coaxial, solder, receptacle	1	3.0 KVDC	50	2A DC	1.5-3.0	RG-180
	DK 101 A004-2	Coaxial, crimp, receptacle	1	3.0 KVDC	50	2A DC	1.5-3.0	RG-187
	DK 101 A004-3	Coaxial, crimp, receptacle	1	3.0 KVDC	50	2A DC	5.1	RG-188
	K 101 A004	Coaxial, solder, receptacle	1	3.0 KVDC	50	2A DC	1.5-3.0	RG-196
	K 101 A004-2	Coaxial, crimp, receptacle	1	3.0 KVDC	50	2A DC	1.5-3.0	RG-316
	K 101 A004-3	Coaxial, crimp, receptacle	1	3.0 KVDC	50	2A DC	5.1	
	K-K 101 A004	Adaptor female-female	1	3.0 KVDC	50	2A DC		**Cable Diameter 5.1 mm (0.200")**
	WD 101 A004	Feed through, female-female	1	3.0 KVDC	50	2A DC		RG-58
	DLP 101 A004	PCB, right angle, gold plated body	1	3.0 KVDC	50	2A DC		RG-400
	DLP 101 A004-10	PCB, right angle, nickel plated body	1	3.0 KVDC	50	2A DC		
	DP 101 A004-9	PCB, mount in pairs, gold plated body	1	3.0 KVDC	50	2A DC		
	DP 101 A004-10	PCB, straight, nickel plated body	1	3.0 KVDC	50	2A DC		
	S 101 A004-Cinch	Female RCA-CAMAC male adaptor	1	3.0 KVDC	50	2A DC		
	IB3C-S 101 A004	BNC, female-CAMAC male adaptor	1	3.0 KVDC	50	2A DC		
	D 101 A004-Cinch	Male RCA-CAMAC female adaptor	1	3.0 KVDC	50	2A DC		
	D 101 A004-IB11	BNC, male-CAMAC female adaptor	1	3.0 KVDC	50	2A DC		
	IB3C-D 101 A004	BNC, female-CAMAC female adaptor	1	3.0 KVDC	50	2A DC		
	D 101 A005	Triaxial, receptacle, solder	2	1.1 KVDC		2A DC		
	S 101 A005	Triaxial, plug, solder	2	1.1 KVDC		2A DC	1.5-3.0	

101 A004

101 A005

Series	Ref. No.	Description	Contacts	Test Voltage (kVAC @ 50 Hz) Contact to Body	Test Voltage (kVAC @ 50 Hz) Contact to Contact	Imped. (Ohms)	Max. I (Amps)* Temp. Rise 20°C	Max. I (Amps)* Temp. Rise 40°C	Contact Diameter mm/AWG	Cable O.D. (mm)
102	102 A001	Single pole	1	1.4			10/15	14/20	1.6/14	
	102 A018	Single pole	1	7.0 DC			7/10	8/11	0.9/22	
	102 A002	Coaxial	1	1.8		50	7/10	8/11	0.9/22	Unshielded: 1.4-4.7
	102 A017	Coaxial	1	1.5		75	5/7	5/7	1.3/18	
	102 A014	Triaxial	2	1.1	1.2		8/11	10/15	0.9/22	Shielded: 1.4-4.5
	102 A021	Triaxial	2	0.16/1.4	0.7	50	8/11	10/15	0.9/22	
	102 A051	Multipole	2	0.7	0.9		6.5	9	0.9/22	
	102 A052	Multipole	3	0.7	0.9		6	8.5	0.9/22	Sealed: 1.5-4.7
	102 A053	Multipole	4	0.5	0.7		3.5	5	0.7/24	
	102 A054	Multipole	5	1.0	1.2		3.5	5	0.7/24	
	102 A056	Multipole	7	0.5	0.7		0.8	1.1	0.5/30	

102 A001
102 A018

102 A002
102 A017

102 A014

102 A021

102 A051

102 A052

102 A053

102 A054

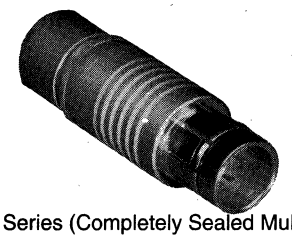
102 A056

* *When 2 numbers are shown, the 1st is with the signal returned through the connector shell, the 2nd represents the current through the center pin only.*

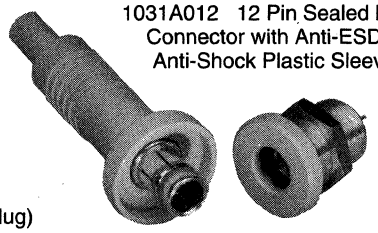
FISCHER CONNECTORS INCORPORATED

Connectors by Series: 103 and 104

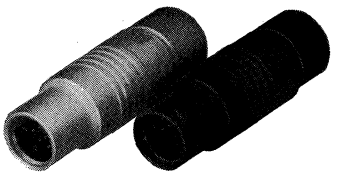
FAX: 805-295-0090 ☎ (805) 295-0600 ■ (800) 344-0445



104 Series (Completely Sealed Multipin Plug)



1031A012 12 Pin Sealed Metal Connector with Anti-ESD & Anti-Shock Plastic Sleeve



SOVE 104 Series Non-Locking Connectors

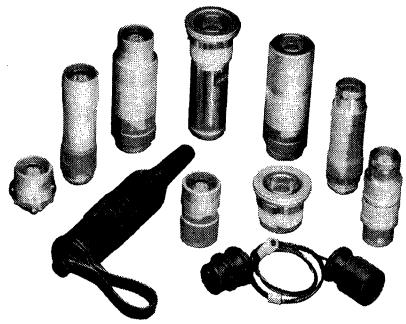
Series	Ref. No.	Description	Contacts	Test Voltage (kVAC @ 50 Hz)		Imped. (Ohms)	Max. I (Amps)*		Contact Diameter mm/AWG	Cable O.D. (mm)
				Contact to Body	Contact to Contact		Temp. Rise 20°C	Temp. Rise 40°C		
103/1031	103 A001	Single pole	1	2.6			14/19	16/23	2.0/12	
	103 A002	Coaxial	1	3.2		75	8.5/12	9.5/13	1.3/18	
	103 A023	Coaxial	1	9.0 DC		50	8.5/12	9.5/13	1.3/18	
	103 A026	Coaxial	1	1.6		50	11/16	12/18	1.6/14	
	103 A038	Coaxial	1			50			1.6/16	
	103 A015	Triaxial	2	1.1	1.0		10	14	1.3/18	Unshielded: 2.2-6.7
	103 A011	Multipole	1 Fe.	0.7	1.3				1.3/18	
			1 Co.	0.7	1.3				1.3/18	Shielded: 1.7-6.7
	103 A025	Multipole	1 Cr.	0.7	1.3				1.3/18	
			1 Al.	0.7	1.3				1.3/18	
	103 A030	Multipole	2	0.7	1.2				1.3/18	Sealed: 1.7-6.7
	103 A051	Multipole	2	0.7	1.2		9	13	1.3/18	
	103 A052	Multipole	3	0.7	0.8		9	12.5	1.3/18	
	103 A053	Multipole	4	0.7	1.3		5	7	0.9/22	
	103 A054	Multipole	5	0.7	0.9		5	7	0.9/22	
	103 A056	Multipole	6	0.6	0.5		3.5	5	0.7/24	
	103 A057	Multipole	7	0.6	0.5		3.5	5	0.7/24	
	1031 A012	Multipole	12	1.4	1.5		3.0	4.0	0.7/24	

Series	Ref. No.	Description	Contacts	Test Voltage (kVAC @ 50 Hz)		Imped. (Ohms)	Max. I (Amps)*		Contact Diameter mm/AWG	Cable O.D. (mm)
				Contact to Body	Contact to Contact		Temp. Rise 20°C	Temp. Rise 40°C		
104	104 A001	Single pin	1	3.2			18/25	32/45	3.0/10	
	104 A010	Single pin	1	8.0 DC			25	35	2.0/12	
	104 A012	Single pin	1	2.5			18/25	25/35	4.0/8	
	104 A085	Single pin	1	1.7			35	50	5.0/8	
	104 A060	Coaxial	1	4.0		50	18	25	2.0/12	
	104 A078	Single pin	1	1.0			3	4.5	0.9/22	
		Coaxial	2	1.0/3.8		50	6	9	0.7/24	
	104 A087	Low current	2	1.1	1.0		18	25	0.9/22	
		High current	2	1.0	1.0		2	3	2.3/12	
	104 A083	Mixed	1	1.2	2.7		6	9	1.6/14	
			2	2.5	2.5		20	25	0.9/22	
	104 A067	Multipole	2	0.7	0.9		6	9	0.9/22	Unshielded: 3.2-8.7
	104 A051	Multipole	2	1.3	1.8		15	21	1.6/14	
	104 A040	Multipole	3	1.25	1.3		14	20	1.6/14	
	104 A037	Multipole	4	1.3	1.4		8	12	1.3/18	Shielded: 2.9-8.7
	104 A062	Multipole	4	6.0 DC	6.0 DC		5.5	8	0.9/22	
	104 A053	Multipole	5	0.9	1.2		7.5	11	1.3/18	
	104 A065	Multipole	6	1.2	1.5		4.5	6.5	0.9/22	Sealed: 2.9-8.7
	104 A054	Multipole	7	0.9	1.1/1.8		4.5	6.5	0.9/22	
	104 A066	Multipole	8	0.9	1.1		4	6	0.9/22	
	104 A055	High current	1	2.9	1.5				1.3/18	
		Low current	8	0.6	0.8/1.0				0.9/22	
	104 A056	Multipole	11	0.6	0.8/10		3.5/5	3.8/5.4	0.9/22	
	104 A086	Multipole	16	0.5	0.8		2.5	3.8	0.7/24	
	104 A092	Multipole	19						0.7/24	
	104 A057	Multipole	1 Fe.	1.3	1.6				1.6/14	
		Thermocouple	1 Co.	1.3	1.6				1.6/14	
	104 A061	Multipole	1 Cr.	1.6	1.6				1.3/18	
		Thermocouple	1 Al.	1.6	1.6				1.3/18	
	104 A035	Multipole	2 Fe.	1	1.3				1.3/18	
		Thermocouple	2 Co.	1	1.3				1.3/18	
	104 A036	Multipole	2 Cr.	1	1.3				1.3/18	
		Thermocouple	2 Al.	1	1.3				1.3/18	

** When 2 numbers are shown, the 1st is with the signal returned through the connector shell, the 2nd represents the current through the center pin only.*

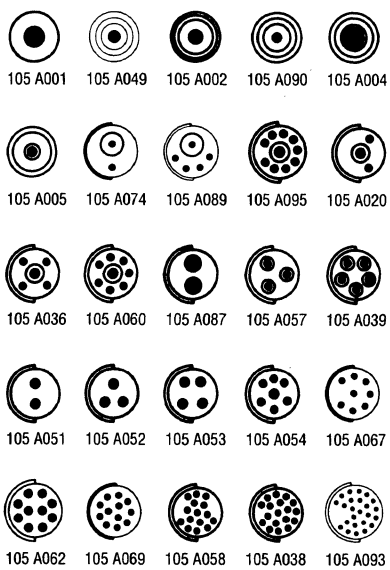
FISCHER CONNECTORS INCORPORATED
FAX: 805-295-0090 ☎ (805) 295-0600 ■ (800) 344-0445

Connectors by Series: 105 and 106



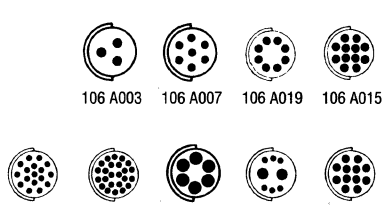
1051 Triax Connectors & Accessories

105



Ref. No.	Description	Contacts	Test Voltage (kVAC @ 50 Hz) Contact to Body	Test Voltage (kVAC @ 50 Hz) Contact to Contact	Imped. (Ohms)	Max. I (Amps)* Temp. Rise 20°C	Max. I (Amps)* Temp. Rise 40°C	Contact Diameter mm/AWG	Cable O.D. (mm)
105 A001	Single pole	1	4.0			22/31	31/45	4.0/8	Shielded: 3.2-10.7 Sealed: 3.2-10.7
105 A049	Single pole	1	25.0 DC			25/36	31/43	2.0/12	
105 A002	Coaxial	1	5.0		50	16/25	22/30	3.0/10	
105 A090	Coaxial	1	5.0		75	10/14	13.5/13	2.0/12	
105 A004	Coaxial	1	13.0 DC		40	22/32	30/42	4.0/8	
105 A005	Coaxial	1	14.0 DC		75	25/36	31/4	2.0/12	
105 A074	Signal	1				9	12	1.3/18	
	Coaxial	2	8.0 DC	7.1/1.0	50	10	13	1.3/18	
105 A089	Multipole	4				9	12	0.9/22	
	Coaxial	1	8.0 DC	7.1/1.0	50	5	7	1.3/18	
105 A095	Signal	9						0.9/22	
	Coaxial	2			50			1.3/18	
105 A020	High voltage	1	14.0 DC			9		2.0/12	
	Low voltage	2	0.8	4.9		14		1.3/18	
105 A036	High voltage	1	14.0 DC			8		2.0/12	
	Low voltage	4	0.8	3.5		14		1.3/18	
105 A060	High voltage	1	14.0 DC	14.0 DC		8	10	2.0/12	
	Low voltage	7	0.9	1.0		12	15	1.3/18	
105 A087	Multipole	2	1.1	1.5		20	28	3.0/10	
105 A057	Multipole	3	5.5 DC	8.0 DC		10	13	1.3/18	
105 A039	Multipole	5	7.0 DC	7.0 DC		8	11	1.3/18	
105 A051	Multipole	2	2.0	1.8		20	30	2.0/12	
105 A052	Multipole	3	1.3	1.6		16	23	2.0/12	
105 A053	Multipole	4	0.8	1.3/2.0		14	20	2.0/12	
105 A054	High current	1	2.4	1.3		14	6	2.0/12	
	Low current	6	1.1	0.9/2.7		8	10	1.3/18	
105 A067	Multipole	8	0.95	1.0		8	11	1.3/18	
105 A062	Multipole	10	0.9	0.9		6	9	1.3/18	
105 A069	Multipole	12	0.7	0.8		5.5	7.5	1.3/18	
105 A058	Multipole	15	0.7	1.0		3.5	5	0.9/22	
105 A038	Multipole	18	0.7	1.0		3.3	4.7	0.9/22	
105 A093	Multipole	24	0.7	0.7		2.5	3.5	0.7/24	

106



Ref. No.	Description	Contacts	Test Voltage (kVAC @ 50 Hz) Contact to Body	Test Voltage (kVAC @ 50 Hz) Contact to Contact	Imped. (Ohms)	Max. I (Amps)* Temp. Rise 20°C	Max. I (Amps)* Temp. Rise 40°C	Contact Diameter mm/AWG	Cable O.D. (mm)
106 A003	Multipole	3	4	3		19	26	2.3/12	Shielded: 4.2-19.2 Sealed: 4.2-19.2
106 A007	Multipole	7	2.3	2.3		14	20	2.0/13	
106 A019	Multipole	8	2.2	1.9		14	20	2.0/13	
106 A015	Multipole	12	1.7	1.4		11	15.5	2.0/13	
106 A018	Multipole	17	1.7	1.4		7	10	1.3/18	
106 A017	Multipole	24	1.4	1.1		6	9	1.3/18	
106 A013	Multipole	6	12 DC	12 DC		8	11	1.3/18	
106 A014	Multipole	2	20 DC	13 DC		14	20	2.0/13	
		6	2	1.6		7	10	1.3/18	
106 A010	Multipole	6 Fe.	1.7	1.4				2.0/13	
	Thermocouple	6 Co.	1.7	1.4				2.0/13	

* *When 2 numbers are shown, the 1st is with the signal returned through the connector shell, the 2nd represents the current through the center pin only.*

FISCHER CONNECTORS INCORPORATED
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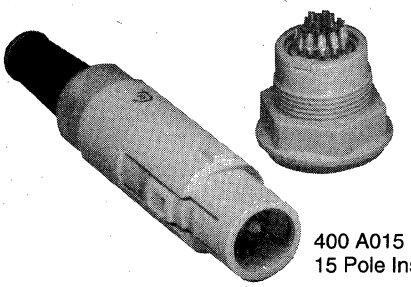
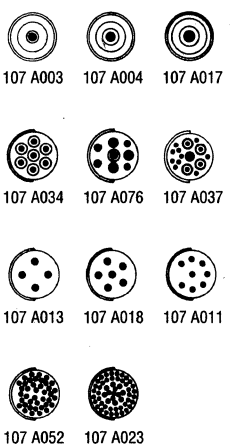
Connectors by Series: 107 and 400

107 A073
High Power Connector
180A/28KV DC with
Safety Locking Ring



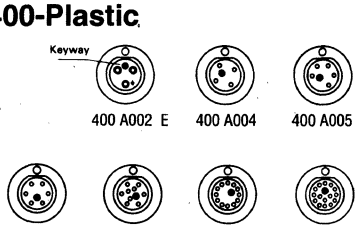
400 A015
15 Pole Insulated Body

Series	Ref. No.	Description	Contacts	Test Voltage (kVAC @ 50 Hz)		Imped. (Ohms)	Max. I (Amps)*		Contact Diameter mm/AWG	Cable O.D. (mm)
				Contact to Body	Contact to Contact		Temp. Rise 20°C	Temp. Rise 40°C		
107	107 A003	Coaxial	1	30 DC		75	31/44	37/52	4.0/8	
	107 A004	Coaxial	1	55 DC		75	31/44	35/50	4.0/8	
	107 A017	Coaxial	1	55 DC		50	42/60	54/75	5.0/6	
	107 A073	Coaxial	1	28 DC			120	180	10.0/0	
	107 A020	Multipole	2	8 DC	8 DC		30	40	2.3/12	
		Multipole	6	8 DC	8 DC		15	20	2.0/13	
	107 A034	Multipole	7	14 DC	14 DC		12.5	18	2.0/13	
	107 A076	Multipole	1	20 DC	21 DC		10	14	2.0/13	
			3	3.2 DC	2.8 DC		35	50	4.0/8	
			2	1.5 DC	3 DC		10	14	2.0/13	
			2	1.6 DC	2.8 DC		5	7	1.3/18	Shielded: 5.2-22.7
	107 A037	Multipole	10	0.9 AC	0.9 AC	50	8	10	1.3/18	
			4			50	5	8	1.3/18	Sealed: 5.7-22.7
			1	11 DC	7 DC	50	10	14	2.0/13	
	107 A039	Multipole	30	1.2 AC	1.3 AC		4	5.5	1.3/18	
			1			75	10	14	2.5/12	
	107 A024	Multipole	2	3.3 DC	7 DC		33.5	47.5	4.0/8	
	107 A013	Multipole	4	3.6 DC	5 DC		25	35	2.3/12	
	107 A018	Multipole	6	2.9 AC	2.9 AC		22	31	2.3/12	
	107 A011	Multipole	8	2.9 AC	2.9 AC		14	20	2.0/13	
	107 A015	Multipole	19	1.5 AC	1.5 AC		9.5	13.5	2.0/13	
	107 A051	Multipole	27	1.5 AC	1.6 AC		5	7.5	1.3/18	
	107 A052	Multipole	40	1.3 AC	1 AC		4.7	6.6	1.3/18	
	107 A023	Multipole	8	2 AC	1 AC		5	7	1.3/18	
			47	1 AC	1 AC		2	2.5	0.9/22	



* *When 2 numbers are shown, the 1st is with the signal returned through the connector shell, the 2nd represents the current through the center pin only.*

Series	Ref. No.	Description	Contacts	Test Voltage (kVAC @ 50 Hz)		Imped. (Ohms)	Max. I (Amps)	Contact Diameter mm/AWG	Cable O.D. (mm)
				Contact to Body	Contact to Contact				
400-Plastic	4400 A002+E	Multipole	3	N.A.	3		10	1.8/14	
	400 A004	Multipole	4	N.A.	2		4	0.8/22	
	400 A005	Multipole	5	N.A.	2		4	0.8/22	
	400 A006	Multipole	6	N.A.	2		4	0.8/22	Unshielded: 2.0-8.5
	400 A009	Multipole	9	N.A.	1.3		4	0.8/22	
	400 A012	Multipole	12	N.A.	1.0		4	0.8/22	
	400 A015	Multipole	15	N.A.	1.0		4	0.8/22	



FISCHER CONNECTORS INCORPORATED

Connectors by Type/Application

FAX: 805-295-0090 ☎ (805) 295-0600 ■ (800) 344-0445

The following is a partial list of some of the standard Fischer connectors. Please note if you don't see exactly what you need, call us. We have over 3000 different types of connectors from which to choose.

CERAMIC INSULATOR
(High temperature-400° C and high radiation resistance)

PART NO.	TYPE	FEATURE
102 A019	Coax	8A/1 KV
102 A022	2 pole	2A/0.7 KV
103 A016	Triax	
103 A028	Coax	9 KV
104 A046	Triax	
104 A080	4 pole	4A/1.1 KV
106 A012	12 pole	
107 A062	48 pole	

COAX/SINGLE CONTACT

PART NO.	TYPE	FEATURE
101 A001	40 Ohm	
101 A002	50 Ohm	
101 A004	50 Ohm	
102 A001	6 Amps	1.4 KV
102 A002	50 Ohm	
102 A017	75 Ohm	
102 A018		7 KV
102 A019	Ceramic	
102 A025	50 Ohm	17 KV, RG-58 crimp
102 A026	50 Ohm	3.5 KV
102 Z017	75 Ohm	
102 Z025	50 Ohm	17 KV, RG-58 crimp
102 Z026	50 Ohm	3.5 KV
103 A001	8 Amps	2.6 KV
103 A002	75 Ohm	
103 A009	75 Ohm	
103 A023	50 Ohm	5 KV
103 A026	50 Ohm	1.8 KV
103 A028		9 KV
103 A038	50 Ohm	RG-58
104 A002	75 Ohm	
104 A010		8 KV
104 A060	50 Ohm	
104 A078	1 coax,	+1 low voltage
104 A085	50 Amps	1.7 KV
105 A001	15 Amps	4 KV
105 A002	50 Ohm	
105 A004	40 Ohm	13 KV
105 A005	75 Ohm	14 KV
105 A049		25 KV
105 A090	75 Ohm	
105 A099		7.8 KV
107 A003	75 Ohm	30 KV
107 A004	75 Ohm	55 KV
107 A017	50 Ohm	55 KV

DELRIN COVERED BODY

PART NO.	TYPE	
SE	1021 A004-10	4 pole
DEE	1021 A004-10	4 pole
SE	103 A055-4	6 pole
SFE	103 A055-4	6 pole
DEE	103 A055-4	6 pole
KE	103 A055-4	6 pole
SE	103 A056-15	6 pole
DEE	103.A056-15	6 pole
SE	1031 A012-10	12 pole
DEE	1031 A012-10	12 pole

HIGH VOLTAGE

PART NO.	TEST VOLTAGE (DC)	FEATURE
102 A018	7 KV	Coax
102 A025	17 KV	50 Ohm
102 A026	3.5 KV	50 Ohm
102 Z025	17 KV	50 Ohm
102 Z026	3.5 KV	50 Ohm
103 A023	5 KV	Coax, 50 Ohm
103 A028	9 KV	Coax
104 A010	8 KV	Coax
104 A062	6 KV	4 pole
104 A062-6	11 KV	4 pole
105 A004	13 KV	Coax, 40 Ohm
105 A005	14 KV	Coax, 75 Ohm
105 A020	14 KV	+2 low voltage
105 A036	14 KV	+4 low voltage
105 A039	7 KV	5 pole
105 A049	25 KV	Coax
105 A057	5.5 KV	3 pole
105 A060	14 KV	+7 low voltage
105 A074	8 KV	+1 low voltage
105 A089	4 KV	50 Ohm coax + 4 pole
105 A096	4.7 KV	+7 low voltage
105 A096-12	8.0 KV	+7 low voltage
105 A099	7.8 KV	Coax
1051 A015-1	8 KV	+11 low voltage
106 A013	12 KV	6 pole
106 A014	2–13 KV	+6 low voltage
106 A031	20 KV	2 pole
107 A003	30 KV	Coax, 75 Ohm
107 A004	55 KV	Coax, 75 Ohm
107 A017	55 KV	Coax, 50 Ohm
107 A034	14 KV	7 pole
107 A079	20 KV	5 pole
107-126	40 KV	Coax

MIXED CONTACTS

PART NO.	DESCRIPTION	
104 A055	1–4 Amp	8–2 Amp
104 A078	1–50 Ohm RG174	1–low voltage
104 A083	2–2.5 KV	1–1.2 KV
104 A087	2–25 Amp	2–2 Amp
105 A020	1–14 KV	2–0.8 KV
105 A036	1–14 KV	4–0.8 KV
105 A060	1–14 KV	7–0.9 KV
105 A074	1–50 Ohm RG58	1–low voltage
105 A089	1–50 Ohm RG58	4–low voltage
105 A095	1–50 Ohm RG174	9–low voltage
1051 A015-1	1–8 KV	11–low voltage
106 A014	2–13 KV	6–1.6 KV
107 A020	2–25 Amp	6–6 Amp
107 A023	8–8 Amp	47–2 Amp
107 A037	1–7 KV	4–50 Ohm 10–4 Amp
107 A039	1–75 Ohm RG59	30–4 Amp
107 A072	5–40 Amp	7–low voltage
107 A076	1–20 KV	3–50 Amp 2–8 Amp 2–4 Amp

THERMOCOUPLE

PART NO.	NO. CONTACT	MATERIAL	TYPE
102 A005	2 pole	Chromel-alumel	K
102 A006	2 pole	Chromel-alumel	K
102 A007	2 pole	Gold plated brass	
102 A008	2 pole	Gold plated brass	
102 A009	2 pole	Iron-constantan	J
102 A016	2 pole	Copper-constantan	T
103 A011	2 pole	Iron-constantan	J
103 A025	2 pole	Chromel-alumel	K
103 A030	2 pole	Copper-constantan	T
104 A026	2 pole	Chromel-alumel	K
104 A035	4 pole	Iron-constantan	J
104 A036	4 pole	Chromel-alumel	K
104 A057	2 pole	Iron-constantan	J
104 A061	2 pole	Chromel-alumel	K
106 A010	12 pole	Iron-constantan	J
106 A011	12 pole	Chromel-alumel	K
107 A025	19 pole	Brass-constantan	

TRIAX

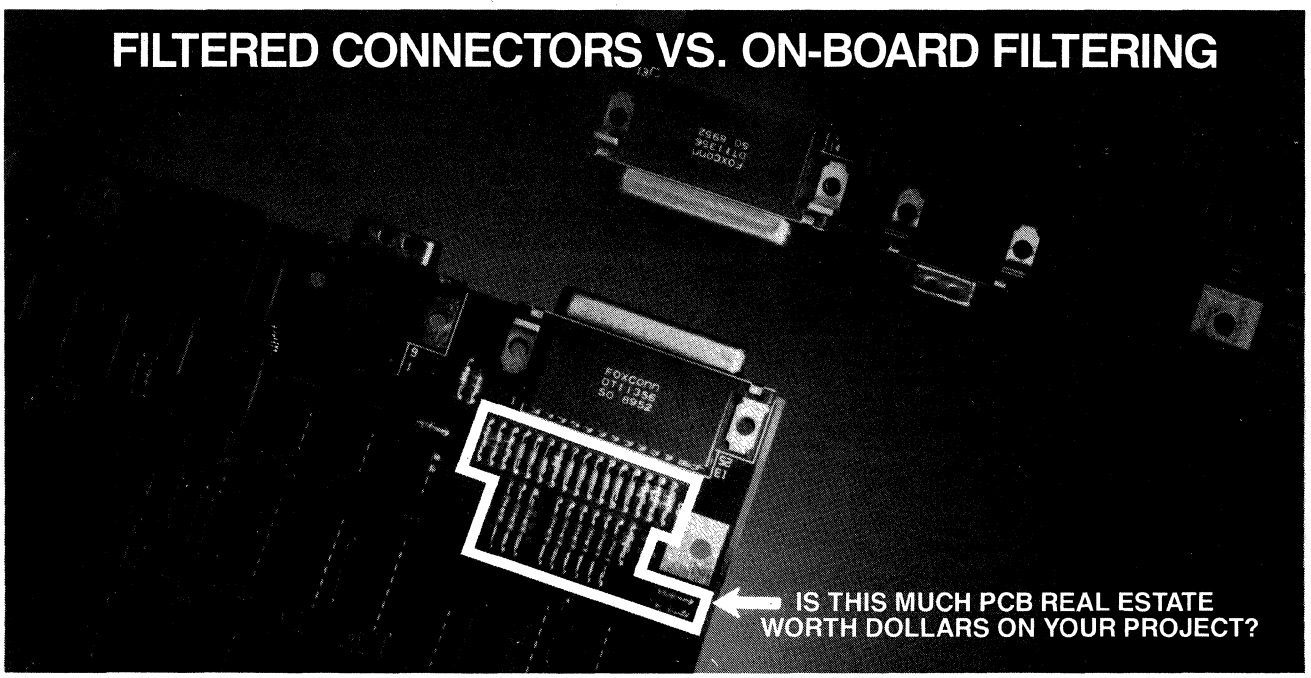
PART NO.	TYPE
101 A005	
102 A014	
102 A021	50 Ohm
103 A015	
104 A046	
104 Z088	
1051 A004	75 Ohm (See separate Video Triax Catalog)

Other Fischer connector types include: Printed Circuit Board Mount, Rear Panel Mount, Remote Manipulation (Robotic) and Square Flange Mount. Stainless Steel and Aluminum may also be ordered instead of our standard Chrome or Nickel plated Brass bodies.

Filtered D-Subminiature Connectors

FOXCONN®

FILTERED CONNECTORS VS. ON-BOARD FILTERING



DOES YOUR EXISTING PC BOARD HAVE FCC COMPLIANCE PROBLEMS? IF THE ANSWER IS "YES" TO EITHER QUESTION, A FILTERED D SUB I/O CONNECTOR INSTEAD OF ON PC BOARD CAPACITORS OFFERS THESE ADVANTAGES.

INCREASED FILTERING EFFECTIVENESS—Filtering inside the connector yields the shortest ground loop, thus minimizing stray inductance and optimizing attenuation of high frequency noise.

LESS OCCURRENCE OF REGENERATION—On-board filtering may form a resonant frequency by its combination of filtering elements and stray inductance, and design revisions must be made to eliminate the problems. Using filtered connectors is a time-saving way of avoiding these hassles.

GREATER STABILITY—Filtering happens right at the I/O gate, so there is no "antenna effect" as there is for on-board filters.

IMPROVED TRANSMISSION OF SIGNAL—Smaller filtering elements can be used when filtering occurs directly at the connector, so there is lower insertion loss of the original transmission signal.

SIMPLIFIED INVENTORY—There are fewer parts to handle when filtering is included in the connector.

LESS MANUFACTURING TIME—Filters are already installed and tested in the connector.

REDUCED CABLE SHIELDING REQUIREMENTS—The more stable and efficient filtering of filtered connectors can result in reduced shielding requirements of cables.

DESIGN TIME SAVINGS—Creating and revising I/O filter designs for each PC board layout is time consuming, redundant, and inconsistent. But with predetermined attenuation curves, filtering connectors provide a reliable alternative.

COST COMPARISON OF FOXCONN FILTERED CONNECTORS VS. ON-BOARD FILTERING.

1. D-Sub Connector	US$ 2.50 – 6.00	US$ 0.84
2. Additional Filtering Elements		0.25
3. Additional Overhead and Labor		0.40
4. Extra Board Space		4.00
5. Extra R & D Time		5.56
Total:	US$ 2.50 – 6.00	US$ 11.05*

Less dependency on cable shielding provides additional savings, not included in this illustration. Computation of on-board filtering costs available on request.

For Filter D Or Other Foxconn Catalogs, Contact Any Location Below

USA: HEADQUARTERS
930 W. MAUDE AVENUE
SUNNYVALE, CA 94086
TEL: 408/749-1228, 800/727-3699
FAX: 408/749-1266

LOS ANGELES OFFICE
590 W. LAMBERT ROAD
BREA. CA 92621
TEL: 714/256-1888
FAX: 714/256-2068

CHICAGO SALES OFFICE
307 S. MILWAUKEE AVENUE, SUITE #113
WHEELING, IL 60090
TEL: 708/215-4670
FAX: 708/215-4673

PORTLAND SALES OFFICE
841 SE 31ST COURT
HILLSBORO, OR 97124
TEL: 503/648-6998
FAX: 503/648-2252

FOXCONN®

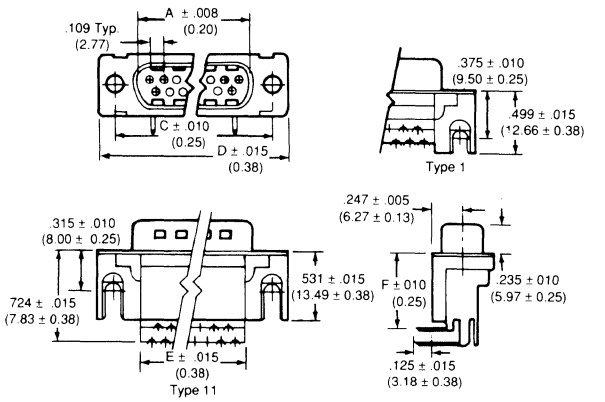
FOXCONN FILTER D CONNECTORS FIT IN STANDARD .318" FOOT PRINT AND MEET APPLICABLE PORTIONS OF MIL-C-24308 FOR PERFORMANCE AND INTERMATABILITY.

No. of Contacts	(Shell Size)	Dimensions A	B	C	D	E	F I	F II
9 & 15*	(1)	.663 (16.84)	.642 (16.31)	.984 (24.99)	1.221 (31.01)	.614 (15.60)	.318 (8.08)	.590 (14.99)
15	(2)	.991 (25.17)	.970 (24.64)	1.312 (33.32)	1.539 (39.40)	.941 (23.90)	.318 (8.08)	.590 (14.99)
25	(3)	1.531 (38.89)	1.510 (38.36)	1.852 (47.04)	2.089 (53.11)	1.488 (37.77)	.318 (8.08)	.590 (14.99)

*15 No. 22 AWG contacts in shell size (1) plus various mounting styles and contact terminations are available in all shell sizes.

SOLDER TAIL, RIGHT ANGLE POSTED, CONTACT SIZE NO. 20* BODY LENGTH: TYPE I, .318 (8.08); TYPE II, .590 (14.99)

Plug & Receptacle



Filtering Performance

(C Filter)

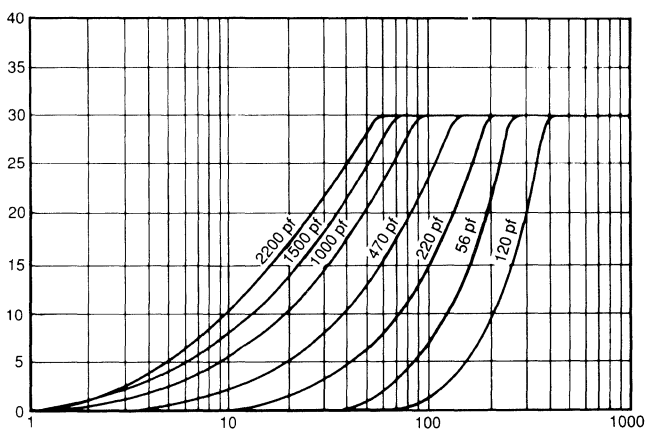
TYPICAL INSERTION LOSS (dB)

	Frequency (MHz) 3	10	50	70	100	200	500	1000
56 pf	0	0	0	0	1	9	30	30
120 pf	0	0	2	4	8	20	30	30
220 pf	0	0	4	8	12	28	30	30
470 pf	0	2	12	16	22	30	30	30
1000 pf	1	5	19	24	30	30	30	30
1500 pf	2	7	23	29	30	30	30	30
2200 pf	3	10	28	30	30	30	30	30

Custom Designs-In addition to the standard parts specified in the product specifications of the following pages. Foxconn provides custom designed filtering assemblies including:

—in-line adaptors
—filtered cable assemblies
—special terminations
—special mounting accessories
—ESD connectors
—L/C filtered connectors
—Pi filtered connectors
—IDC filtered connectors

INSERTION LOSS (dB) Frequency (MHz)



Advantages of Foxconn Filtered Connectors

RELIABILITY—Foxconn filters have no solder junctions or their related mechanical stresses, so connector performance is more reliable.

PROGRAMMABILITY—The EMI filtering performance of each cavity is separately programmable.

AFFORDABILITY—Foxconn Filtered Connectors are available at unbeatable prices.

INTERMATEABILITY—Foxconn Filtered Connectors have standard D-sub dimensions, so they are fully intermateable with standard D-sub connectors.

COMPACT BODY LENGTH—Foxconn's connector filtering design is exceptionally compact, so that even .318" right angle connectors are available with filtering.

PRODUCTIVITY—Foxconn focuses on manufacturing considerations during the design process, so production lead time is minimized.

SHIELDING AND ESD PROTECTION—A unique design in Foxconn Filtered Connectors provides additional shielding effectiveness and enhanced electrostatic discharge protection.

For Filter D Or Other Foxconn Catalogs, Contact Any Location Below

USA: HEADQUARTERS
930 W. MAUDE AVENUE
SUNNYVALE, CA 94086
TEL: 408/749-1228, 800/727-3699
FAX: 408/749-1266

LOS ANGELES OFFICE
590 W. LAMBERT ROAD
BREA, CA 92621
TEL: 714/256-1888
FAX: 714/256-2068

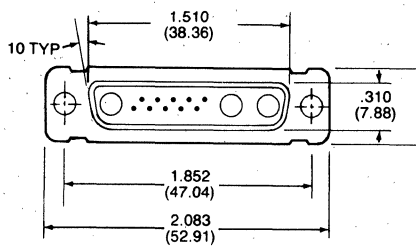
CHICAGO SALES OFFICE
307 S. MILWAUKEE AVENUE, SUITE #113
WHEELING, IL 60090
TEL: 708/215-4670
FAX: 708/215-4673

PORTLAND SALES OFFICE
841 SE 31ST COURT
HILLSBORO, OR 97124
TEL: 503/648-6998
FAX: 503/648-2252

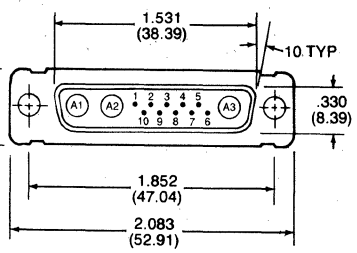
Combination D-Subminiatures—Coaxial
FOR HIGH RESOLUTION GRAPHICS AND OTHER HIGH FREQUENCY APPLICATIONS

FOXCONN®

Receptacle 13W3

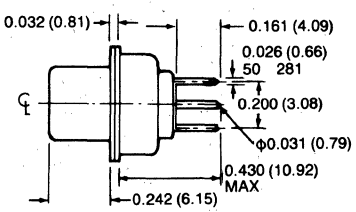


Plug 13W3

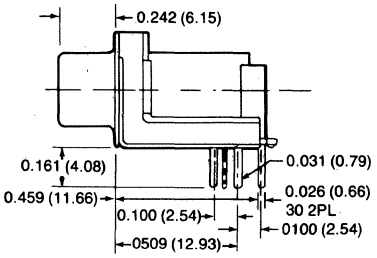


TERMINATION DIMENSIONS

Straight PCB. Mount, Receptacle
(All contacts preinstalled)



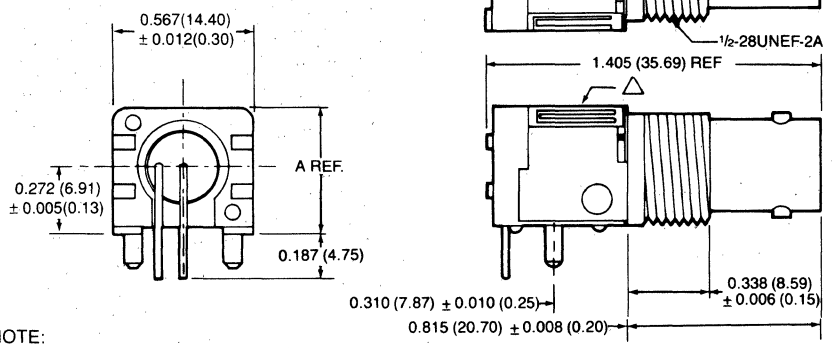
Right Angle PCB. Mount, Receptacle
(All contacts preinstalled)



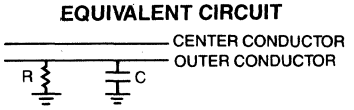
Consult local sales office for other D-sub coax arrangements.

FILTERED 50 OHM BNC, PCB RIGHT ANGLE JACK FOR VARIOUS LOCAL AREA NETWORKING APPLICATIONS.

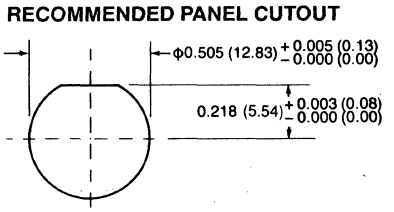
Δ REF.	
HIGH PROFILE	.625
LOW PROFILE	.516



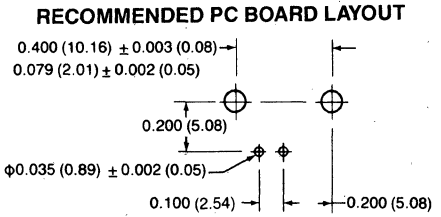
EQUIVALENT CIRCUIT



RECOMMENDED PANEL CUTOUT



RECOMMENDED PC BOARD LAYOUT



NOTE:
- DIMENSIONS ARE IN INCHES, BRACKETED DIMENSIONS ARE METRIC EQUIVALENTS.
- CAPACITORS: TOTAL CAPACITANCE = 9400 pF, VOLTAGE = 1500V.
- RESISTOR: 1 MEGA OHMS.

Δ PHOSPHOR BRONZE, GOLD PLATE OVER NICKEL

For Filter D Or Other Foxconn Catalogs, Contact Any Location Below

USA: HEADQUARTERS
930 W. MAUDE AVENUE
SUNNYVALE, CA 94086
TEL: 408/749-1228, 800/727-3699
FAX: 408/749-1266

LOS ANGELES OFFICE
590 W. LAMBERT ROAD
BREA, CA 92621
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307 S. MILWAUKEE AVENUE, SUITE #113
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TEL: 708/215-4670
FAX: 708/215-4673

PORTLAND SALES OFFICE
841 SE 31ST COURT
HILLSBORO, OR 97124
TEL: 503/648-6998
FAX: 503/648-2252

SILVER ZEBRA® LOW RESISTANCE ELASTOMERIC CONNECTORS

Product Description

FUJIPOLY low resistance ZEBRA® elastomeric connectors are constructed of alternating parallel layers of electrically conductive and nonconductive silicone elastomer. The electrically conductive layer is filled with silver-metal particles.

The composite alternating layers provide reliable electrical connection when placed between two aligned conducting surfaces.

The low resistance ZEBRA provides a redundant connection with a minimum of two conductive layers recommended per PC contact pad. The connector is available with insulating barrier or silicone supports. The connectors are used for connecting electroluminescent (EL) and plasma type displays to PC boards or for connecting hybrid circuits to PC boards, among other applications.

Low resistance ZEBRA connectors are positioned between two aligned surfaces and are mechanically clamped together with a lid or another PC board. The connectors may be free standing or positioned in a retainer depending on packaging profiles and design.

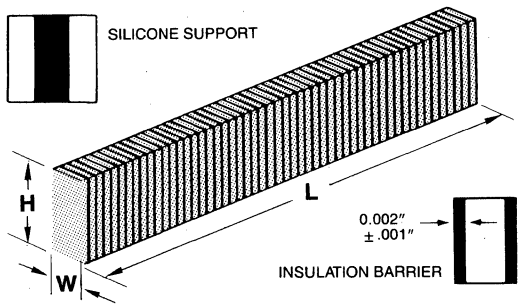
Design Recommendations

Recommended deflection is 5–20% of free height with minimum recommended deflection of 0.020″. Minimum deflection will vary with packaging applications and should consider overall height, PC board warpage, finish, etc. (Contact **FUJIPOLY** Product Application Engineering for assistance.)

Design recommendations for solid ZEBRA over 0.400″ deflect 0.050″ typical. Silicone supported over 0.400″ deflect 0.060″ typical.

The use of an insulating barrier or silicone self-support material on one or both sides of the connector is recommended. The silicone support is utilized to reduce clamping force and provide an element of environmental protection for a cost-effective connection.

Dimensional Specifications



Details show silicone support (left) and insulation barrier (right). Each is available on one or both sides. Configurations may also include support on one side and insulation on the other.

Note: Recommended Height (H) should be twice Width (W) dimension for minimum force deflection. Maximum Skewness 2% of Height.

Dimensional Specification

	INCHES	MM
HEIGHT (H)	0.040 ± .003 to 0.500 ± .007	1 ± .08 to 13 ± .18
WIDTH (W)	0.030 ± .003 to 0.100 ± .005	0.762 ± 0.076 to 2.54 ± 0.127
LENGTH (L)	0.250 ± .005 to 4.000 ± .025	6.35 ± .12 to 101.60 ± .64

(For requirements over 4″ consult factory)

Properties/Performance Characteristics)

CONTACT RESISTANCE	< 1.0 Ohms (Typical)
CURRENT CARRYING CAPACITY	500 milli-amps (Based on 0.050″ wide ZEBRA on 0.050″ x 0.050″ wide contact point)
INSULATION RESISTANCE	10^{12} Ohms Minimum (Between conductive layers
TEMPERATURE RANGE	– 55°F. to 260°F./ – 50°C. to + 125°C.
HUMIDITY RANGE	0–100%
MINIMUM PCB OR DISPLAY CONTACT SPACING	SERIES 5002 0.015″ SERIES 5004 0.025″
CONDUCTIVE LAYER	
LAYER COUNT	SERIES 5002 200 min. per inch SERIES 5004 160 min. per inch
COLOR	Silver Gray
INSULATING LAYER	
LAYER COUNT	SERIES 5002 200 min. per inch SERIES 5004 160 min. per inch
COLOR	Off-White

Calculation of Resistance

For the purpose of calculating the resistance of silver ZEBRA connectors and testing them for compliance, please use the following formula:

$$R = \frac{.001}{W \times Ew} + H$$

WHERE: R = Resistance in Ohms
W = ZEBRA width, inches
Ew = Electrode pad width, inches
H = ZEBRA height, inches.

fujipoly®
750 Walnut Avenue • Cranford, NJ 07016 • 908/272-3850 • FAX: 908/272-2241

Fujipoly Connector W Series

(Elastomeric Connectors)

The high-accuracy rubber connectors of the Fujipoly W series with anisotropic conduction properties have 300–2000 fine metal wires per 1 cm^2 embedded in the thickness direction of the transparent silicone rubber sheet.
After inserting the Fujipoly W series connectors between the opposite electrodes, all that is necessary is to apply the appropriate pressure to allow the electrodes to be properly connected.
All fine metal wires are gold-plated. This finish ensures that requirements such as a low resistance and the ability to withstand a relatively high current flow can be met.

Fujipoly Connector W Series Features

- Ensures proper solder-free connections by mere insertion between the electrodes and applying the pressure.
- The fine metal wires have a fine pitch (the average pitch in the linear direction is 80μ for the L pattern) to allow high-density mounting. This also eliminates the need for positional alignment of the connectors when mounting.
- The continuity (contact) resistance is extremely small (1Ω/mm^2 or less).

Fujipoly Connector W Series Applications

- Mounting and inspection of chip carriers, QFP, TAB, PLCC, hibrid IC boards
- Mounting and inspection of display panels including LCD, LED and ECD.
- Connecting and inspection of printed circuit boards.

Nomenclature

For ordering purposes, use the following numbering.

(1) For L-pattern conductor arrangement

Ex. Fujipoly Connector

WSL—102—(2.0 × 20.0 × 0.5)

- Thickness (T) mm/inches
- Length (L) mm/inches
- Width (W) mm/inches
- No. of conductor pattern rows (Rows are numbered from 1 through 9 and 0 is used to indicate that the number exceeds 9)
- Pitch (P) 08 = 0.8mm/.031, 10 = 1.0mm/.039, 20 = 2.0mm/.079
- Type (Conductor pattern) • L pattern
- Type • WS: Fine metal wire, straight type • WB: Fine metal wire, bent type

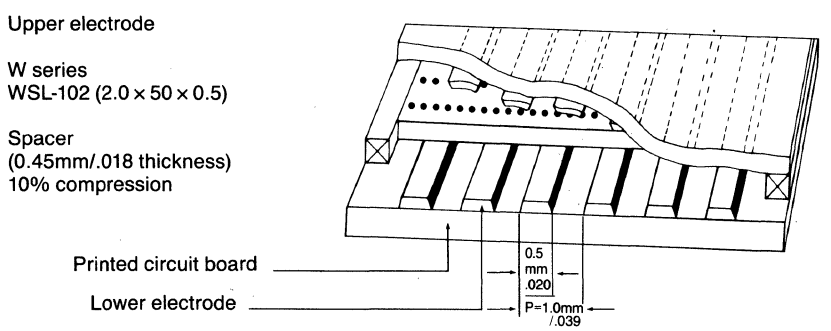
(2) For C-pattern, S-pattern conductor arrangement

Ex. Fujipoly Connector

WSC—050—(5.0 × 20.0 × 0.5)

- Thickness (T) mm/inches
- Length (L) mm/inches
- Width (W) mm/inches
- Pitch (P) 020 = 0.20mm/.008, 025 = 0.25mm/.010, 035 = 0.35mm/.014, 050 = 0.50mm/.020, 080 = 0.80mm/.031
- Type (Conductor pattern) • C pattern • S pattern
- Type • WS: Fine metal wire, straight type • WB: Fine metal wire, bent type

Method of Insertion



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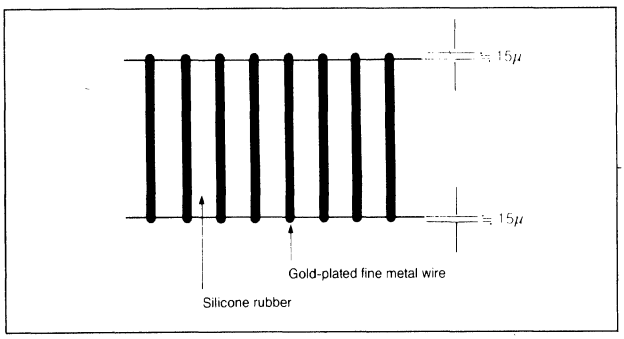
Fujipoly Connector W Series

(Elastomeric Connectors)

Types of W Series Fujipoly Connectors

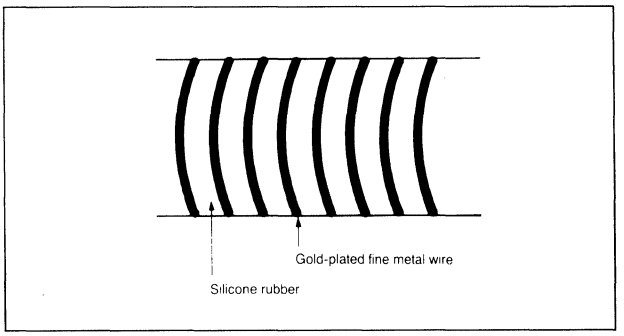
WS□Type

This type of connector has straight fine metal wires embedded in a transparent silicone rubber sheet in a regular arrangement. The fine wires protrude slightly from both ends of the silicone rubber sheet to ensure a perfect connection at a very light touch. Suitable for mounting applications.

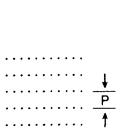
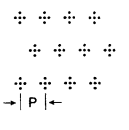
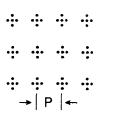


WB□Type

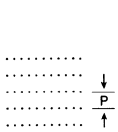
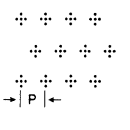
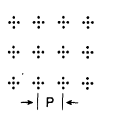
This type of connector has bent or curved fine metal wires embedded in a transparent silicone rubber sheet in a regular arrangement. The fine wires are curved so that these connectors are ideal for application requiring repeated compression. Suitable for inspection applications



Specifications and Dimensions

Type (Conductor Pattern	Conductor pattern (Plan)	Pitch (P) mm/in	Thickness (T) mm/in	Max. Width (W) mm/in, Max. Length (L) mm/in	
				L 120	L 120
WSL		0.8/.031 1.0/.039 2.0/.079	0.3/.012 0.5/.020 1.0/.039	W ≦80 3.150	(120<L ≦145) 4.72 5.71 W ≦10×P
			1.6/.063 2.2/.087	W ≦50 1.969	(120<L ≦140 4.72 5.51 W ≦5×P
		1.0/.039 2.0/.079	3.0/.118 4.0/.157 5.0/.197		
WSC		0.20/.008 0.35/.014 0.50/.020	0.3/.012 0.5/.020 1.0/.039	W ≦80 3.150	(120<L ≦195) 4.72 7.68 W ≦50 1.969
		0.35/.014 0.50/.020	1.6/.063 2.2/.087	W ≦50 1.969	(120<L ≦140 4.72 5.51 W ≦40 1.575
WSS		0.25/.010 0.50/.020 0.80/.031	0.3/.012 0.5/.020 1.0/.039	W ≦80 3.150	(120<L ≦195) 4.72 7.68 W ≦50 1.969
		0.50/.020 0.80/.031	1.6/.063 2.2/.087	W ≦50 1.969	(120<L ≦140 4.72 5.51 W ≦40 1.575

Specifications and Dimensions

Type (Conductor Pattern	Conductor pattern (Plan)	Pitch (P) mm/in	Thickness (T) mm/in	Max. Width (W) mm/in, Max. Length (L) mm/in	
				L 120	L 120
WBL		0.8/.031 1.0/.039 2.0/.079	0.5/.020 1.0/.039	W ≦80 3.150	(120<L ≦145) 4.72 5.71 W ≦10×P
			1.6/.063 2.2/.087	W ≦50 1.969	(120<L ≦140 4.72 5.51 W ≦5×P
		1.0/.039 2.0/.079	3.0/.118 4.0/.157 5.0/.197		
WBC		0.20/.008 0.35/.014 0.50/.020	0.5/.020 1.0/.039	W ≦80 3.150	(120<L ≦195) 4.72 7.68 W ≦50 1.969
		0.35/.014 0.50/.020	1.6/.063 2.2/.087	W ≦50 1.969	(120<L ≦140 4.72 5.51 W ≦40 1.575
WBS		0.25/.010 0.50/.020 0.80/.031	0.5/.020 1.0/.039	W ≦80 3.150	(120<L ≦195) 4.72 7.68 W ≦50 1.969
		0.50/.020 0.80/.031	1.6/.063 2.2/.087	W ≦50 1.969	(120<L ≦140 4.72 5.51 W ≦40 1.575

NOTE) The C pattern and S pattern marks indicate the clusters of fine metal wires.
The number of wires in each cluster varies depending on the type of connector.
Other pitch, thickness and dimensional specifications available upon request.

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Zebra® Connectors for Liquid Crystal Displays

High Resistance Connectors

FUJIPOLY ZEBRA® connectors (see Figure 1) have alternating parallel layers of conductive carbon-filled and non-conductive silicone rubber. They make reliable connections by being deflected between contacting surfaces. ZEBRA connectors are used for connecting any LCD from small displays for watches to large area displays for instruments. Table A shows the different types of ZEBRA connectors available. Table B shows performance characteristics. Figure 1 shows the three dimensions of the ZEBRA connector. When ordering, the three dimensions should be specified within the limits shown in Table C. For best overall performance, ZEBRA connectors must be ordered and used with a ratio of H/W equal to or greater than 1.5.

Series	LCD Contact Spacing Center-to-Center* Minimum	PITCH: Sum of the Thickness of an Adjacent Conductive and non-Conductive Layer Nominal	Maximum	Conductive Layer per inch Minimum	Individual Conductive and Insulating Layer Thickness Minimum	Maximum	Available Lengths
1006	0.030 in. 0.75 mm	0.010 in. 0.25 mm	0.014 in. 0.35 mm	100	0.002 in. 0.05 mm	0.008 in. 0.20 mm	8.00 in. 203 mm
1002	0.010 in. 0.25 mm	0.004 in. 0.10 mm	0.006 in. 0.15 mm	240	0.001 in. 0.025 mm	0.004 in. 0.10 mm	3.00 in. 25.4 mm
2002	0.015 in. 0.38 mm	0.005 in. 0.125 mm	0.007 in. 0.175 mm	200	0.001 in. 0.025 mm	0.005 in. 0.125 mm	6.00 in. 152.4 mm

*This space will assure at least one conductive layer between opposing contacting pads, and at least one insulating layer between adjacent pads.

TABLE A

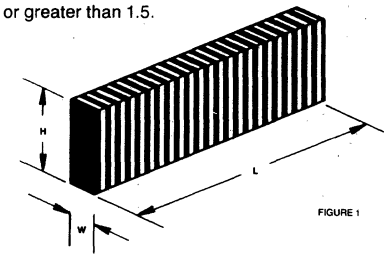


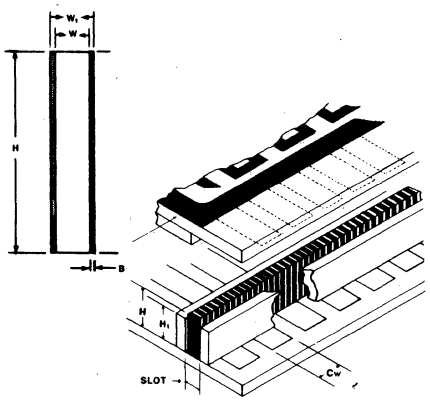
FIGURE 1

Zebra Connectors	Temperature Range Minimum	Maximum	Current Carrying Capacity 0.035" x 0.035" pad	Resistance Between Layers
All Series	−55°F −50°C	260°F 125°C	0.050 amps	10^{12} ohms

TABLE B

Configuration	Inches		Millimeters	
LENGTH = L	Min. .250 to 1.000—±0.007 1.001 to 2.000—±0.015 2.001 to 3.000—±0.020 3.001 to 4.000—±0.025 4.001 to 6.000—±0.030 6.001 to 8.000—±0.035		6.35 to 25.40—±0.18 25.43 to 50.80—±0.38 50.81 to 76.20—±0.51 76.21 to 101.60—±0.64 101.61 to 154.40—±0.76 154.42 to 203.20—±0.89	
WIDTH = W	L = 0.250 to 4.000	L = 4.001 to 8.000	L = 6.35 to 101.60	L = 101.61 to 203.20
	0.010 to 0.070—±0.003 0.071 to 0.110—±0.004 Over 0.110 consult factory	0.020 to 0.070—±0.005 0.071 to 0.110—±0.006 Over 0.110 consult factory	0.510 to 1.780—±0.080 1.790 to 2.800—±0.010 Over 2.800 consult factory	0.510 to 1.780—±0.187 1.790 to 2.880—±0.152 Over 2.800 consult factory
HEIGHT = H	0.050 to 0.200—±0.005 0.201 to 0.250—±0.006 0.251 to 0.300—±0.007 Over 0.300 consult factory		1.27 to 5.08—±0.13 5.09 to 6.35—±0.15 6.36 to 7.62—±0.18 Over 7.62 consult factory	

TABLE C



Supported Zebra® Connectors for Liquid Crystal Displays

Self-Supporting Connector

The Self-Supporting **FUJIPOLY** ZEBRA® connector is a standard 1006 ZEBRA connector element supported by a soft, non-conductive silicone rubber on one or two sides. The silicone rubber creates a larger width that eliminates need for a holder, and yet the force required for deflection is very low. Only 1.0 to 2.0 lbs. force per linear inch is required for proper contact. The standard Self-Supporting ZEBRA connector has 0.020"/0.508mm wide ZEBRA connector element and is available in four different widths to accommodate LCD's with glass lip overhang of 0.060"/1.52mm minimum.

It is used to connect LCD's to printed circuit boards and eliminates bowing of the printed circuit board due to the low force required to make contact.

Connecting Element	1006 ZEBRA
LCD Contact Spacing, Center-to-Center, in./mm minimum	0.030/0.762
Nominal Resistance, ohms	$R = \frac{12 \times H}{Cw \times W}$

TABLE C

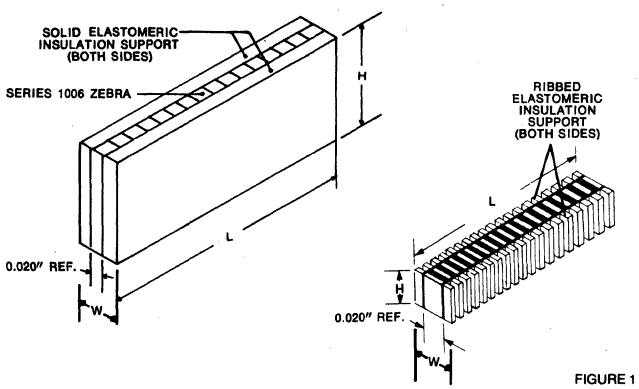


FIGURE 1

Standard Solid Self-Supporting Zebra Connector Sizes

	ZS-060	ZS-070	ZS-100	ZS-120	Tolerance
Height (Standard)	Inches: 0.050 to 0.200 mm: 1.27 to 5.03	0.050 to 0.200 1.27 to 5.03	0.050 to 0.200 1.27 to 5.03	0.050 to 0.200 1.27 to 5.03	±0.005 ±0.127
Width (Standard)	Inches: 0.060 ± 0.006 mm: 1.524 ± 0.152	0.070 ± 0.006 1.78 ± 0.152	0.100 ± 0.007 2.54 ± 0.178	0.120 ± 0.008 3.04 ± 0.203	
Length (Standard)	Inches: 1.00 to 2.5 mm: 25.4 to 63.5 Inches: 2.6 to 8.0 mm: 66.04 to 203	1.00 to 2.5 25.4 to 63.5 2.6 to 8.0 66.04 to 203	1.00 to 2.5 25.4 to 63.5 2.6 to 8.0 66.04 to 203	1.00 to 2.5 25.4 to 63.5 2.6 to 8.0 66.04 to 203	± 0.015 ±0.381 ±0.030 ±0.762

TABLE A

Standard Ribbed Self-Supporting Zebra Connector Sizes

	Ribbed 060	Ribbed 085	Ribbed 100	Ribbed 140	Tolerance
Height (Standard)	Inches: 0.050 to 0.200 mm: 1.27 to 5.08	0.050 to 0.200 1.27 to 5.08	0.050 to 0.200 1.27 to 5.08	0.050 to 0.200 1.27 to 5.08	±0.005 ±0.127
Width (Standard)	Inches: 0.060 ± 0.005 mm: 1.524 ± 0.127	0.085 ± 0.006 2.16 ± 0.152	0.100 ± 0.006 2.54 ± 0.152	0.140 ± 0.008 3.55 ± 0.203	
Length (Standard)	Inches: 1.00 to 2.5 mm: 25.4 to 63.5 Inches: 2.6 to 6.0 mm: 66.04 to 152.4	1.00 to 2.5 25.4 to 63.5 2.6 to 6.0 66.04 to 152.4	1.00 to 2.5 25.4 to 63.5 2.6 to 6.0 66.04 to 152.4	1.00 to 2.5 25.4 to 63.5 2.6 to 5.0 66.04 to 127	± 0.015 ±0.381 ±0.025 ±0.635

For special tolerances, additional sizes and pitch consult factory.
This connector will allow one conductive layer between opposing contacts of 0.030"/0.762mm minimum center-to-center.

TABLE B

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LCD Connector Assemblies

Description

FUJIPOLY® LCD connector assemblies with clear bezels provide an attractive and reliable way of mounting LCD's onto a PC board. Electrical connection between LCD and PC board contact surfaces is made by a Series 1006 ZEBRA® connector which consists of alternating parallel layers of conductive and non-conductive silicone rubber. Because the LCD is mounted on rubber components, the assembly provides shock and vibration protection for the display. The clear bezel provides an extra measure of protection for the LCD.

Standard Assemblies

LCD SIZE	FUJIPOLY® PART NO.
.540″/13.72mm x .940″/23.88mm	09-10050
1.2″/30.5mm x 2.0″/50.8mm	09-19137
1.2″/30.5mm x 2.75″/69.85mm	09-19143
1.5″/38.1mm x 2.75″/69.85mm	09-10067
1.5″/38.1mm x 3.695″/93.85mm	09-10075

Assembly

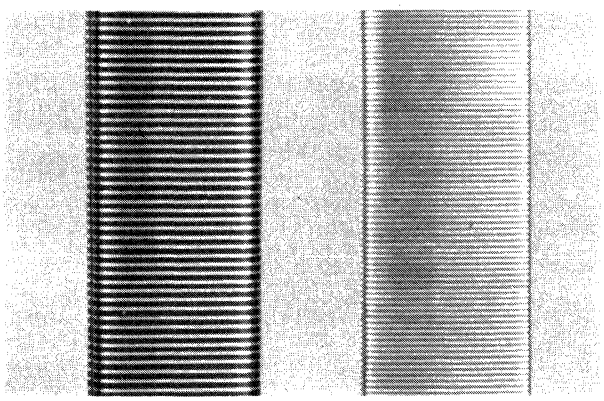
The connector assembly consists of a holder/retainer, two ZEBRA connectors, viewing area mask, and a clear bezel. Assembly is simple: place the holder/retainer on the PC board using the locating studs for alignment, insert the ZEBRA connectors, LCD, and mask and secure the bezel with two screws. The LCD connectors are available in two configurations: one for Dual Inline displays where the viewing area is in the center, and one for Single Inline displays where the viewing area is offset toward the top. The same bezel is used for both formats; however, the masks and holder/retainers are selected to match the LCD.

The operating temperature range for the connector assembly exceeds that for the LCD; the ZEBRA connectors provide a gas-tight seal of the contact surfaces to assure reliable operation in hostile environments. The bezel protects the LCD polarizer from scratches and may be used directly in the window provided in the instrument or clock case.

Series 7000 & 8000–Low Resistance Connectors

Description

The **FUJIPOLY** ZEBRA® Series 7000 and 8000 elastomeric connector elements are "D"-shaped, low durometer silicone elastomer core around which flat metallic conductors are vulcanized in a row parallel to each other. The tips of the metallic conductors are turned upward so that point contact can be effected; in addition, contact is made to the flat area when the connector element is positioned between two printed circuit boards. The point contact will penetrate surface oxides or contaminants which might be present on the surface of the contact pads, thus assuring reliable electrical connection on two planes. Also available are standard board to board assemblies which include connector and holder.



Series 7000 and 8000 Dimensional Specifications

CONNECTOR DIMENSIONS		MINIMUM	MAXIMUM
Height "H"		0.100″ ±0.005″ 2.54mm ±.127mm	0.500″ ±0.015″ 12.70mm ±.381mm
Width "W"		0.060″ ±0.005″ 1.52mm ±.127mm	0.125″ ±0.010″ 3.18mm ±.254mm
Length "L"	7000	0.200″ ±0.005″ 5.08mm ±.127mm	3.500″ ±0.015″ 88.90mm ±.381mm
	8000	0.200″ ±0.005″ 5.08mm ±.127mm	10.000″ ±0.030″ 254.00mm ±.762mm

Note: For good design practice and low deflection force requirements, the height "H" should be twice the width "W".

Series 7000 Materials

Conductive Elements	Tin-plated copper alloy wire.
Wire Size and Spacing	0.002″ x 0.005″ flat wire on 0.015″ center-to-center spacing. (Min. 66 wires/inch.)
Connector body	Nonconductive blue color silicone rubber. UL-94-HB rating, 500 volts/mil dielectric strength, 35 ±5 Shore A durometer.

Series 8000 Materials

Conductive Elements	Gold-plated copper wire, gold 0.00001″, nickel 0.00005″. (Other wires available.)
Wire Size and Spacing (Series 8000 A, B & C)	A. 0.002″ x 0.005″ flat wire on 0.010″ center-to-center spacing. (Min. 100 wires/inch.) B. 0.002″ x 0.004″ flat wire on 0.0075″ center-to-center spacing. (Min. 133 wires/inch.) C. 0.001″ x 0.003″ flat wire on 0.006″ center-to-center spacing. (Min. 166 wires/inch.)
Connector body	Nonconductive tan color silicone rubber. UL-94-HB rating, 500 volts/mil dielectric strength.
Film	0.001″ thick polyamide dielectric strength of film ASTM-D-149, 2000 volts/mil.

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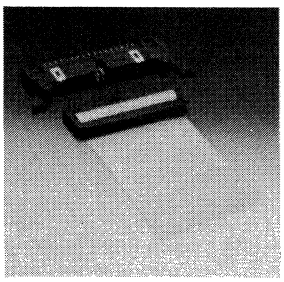
CONNECTORS

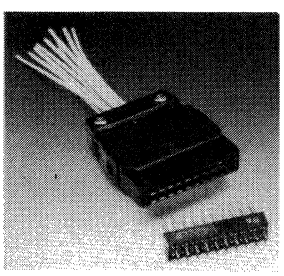
FUJITSU

IDC SOCKETS &HEADERS MODEL FCN-700, FCN-600



FEATURES:
The Model 700 connector has a superior ejector with a unique flexible hook. Header terminals are tin-plated and have superior cost performance; the solder dip section is made into a 0.5 mm (0.020 in.) square and can be used in a 0.8 mm (0.031 in.) through-hole. A special strain relief prevents wire breakage, and incorrect insertion is prevented by two kinds of keys and bump polarization. Connectors with 4 mm (0.157 in.) terminals have also been serialized for mounting on multi-layer PC boards. 10-64 positions. Stackable headers available.

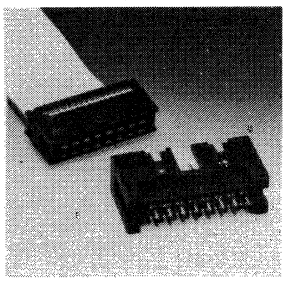
SOCKET HOUSINGS, CRIMP CONTACTS & HEADERS MODEL FCN-720



FEATURES:
The crimp connector has been designed for wide use, and comes in many shapes and contact arrangements (one and two rows). The Model 720 block headers are matable with the Model 700 and 740 sockets, and Model 720 sockets are lockable with Model 700 headers when a special cover is used. Female contacts are secured in the housing by a unique internal spring structure. High-pressure contacts are also available which prevent accidental disconnection in applications using only a few contacts. For the W and S type headers, insulation molds can be broken into the necessary size. 0.100 in. pitch (2.54 mm).

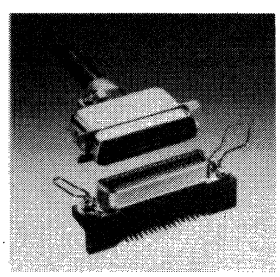
NEW. Also available in 2 mm pitch 0.079

MINI IDC SOCKETS & HEADERS MODEL FCN-740



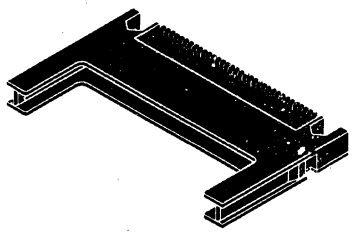
FEATURES:
This mini-header and socket were developed to provide a compact set of connectors – their combined height is less than half that of the Model 700 connector. Unique plastic retention clips prevent disconnection due to vibration. There are up to 34 contact header and socket combinations, and the socket can be mated with all contact numbers of the FCN-700 header with S hooks and locked. The mini-header has an integral polarization to ensure correct insertion.

RIBBON CONTACT TYPE CONNECTORS MODEL FCN-780/FCN-680



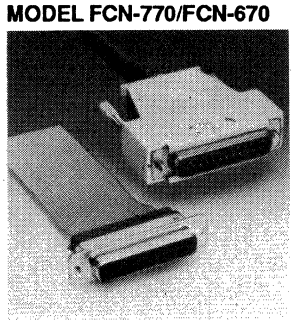
FEATURES:
- Matable with other ribbon-type connectors and have a sturdy metal shell that enables easy EMI shieldings.
- Made of PBT, a superior solvent-resistant material, enabling flux cleaning with chlorisin and other solvents
- UL-recognized (94 V-0) insulation material
- 1.27 mm (0.050 in.) pitch flat cable can be used
- Accessories available
- Interface standards for SCSI, Centronics, HPIB, GPIP, IEEE 488

TWO-PIECE TYPE MEMORY CARD CONNECTORS MODEL FCN-560



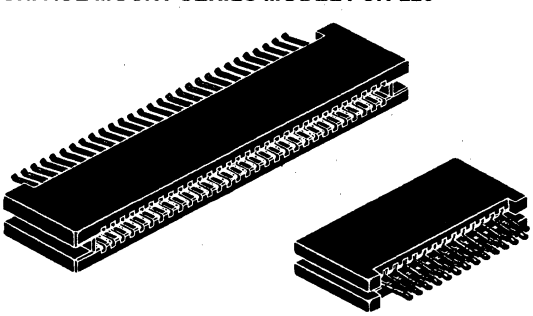
FEATURES:
- Conforms to the Japan Electronic Industry Development Association (JEDIA) and Personal Computer Memory Card International Association (PCMCIA) Standards.
- Incorrect insertion is prevented
- Contact pitch of 1.27 x 1.27 mm (0.050 x 0.050 in.)
- Has a mate-first/break-last power pin
- Ejection function can be attached to plug
- Socket has a surface mounting terminal
- Insulating material is UL(94 V-0) approved
- Parts can be mounted under the card (FCN-565P068-G/Y, Z)

D-SUB CONNECTORS MODEL FCN-770/FCN-670



FEATURES:
- The 1.27 mm (0.050 in.) pitch flat cable can be used
- The connectors are matable with MIL specification D-type connectors
- Fujitsu-developed highly reliable U-contacts are used
- Molded and metalized (plated) holders are available
- UL-recognized (94 V-0) insulation material is used
- RS232, 447, 449

SURFACE MOUNT SERIES MODEL FCN-228

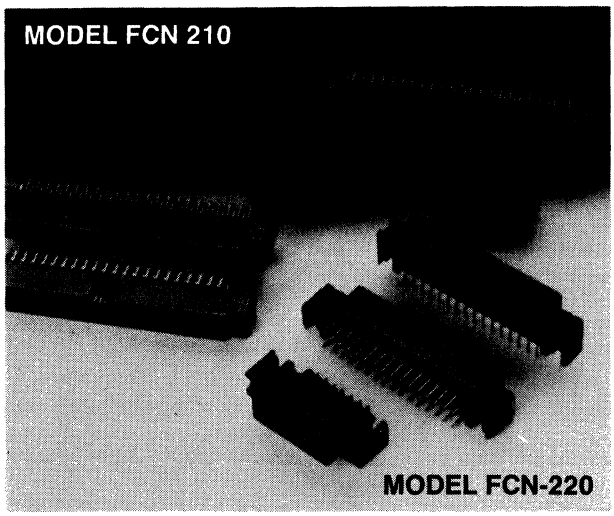


FEATURES:
- Designed to provide a low-profile, trouble-free interface to add-on boards.
- Especially suited to laptop computers or other space-constrained applications.
- 1.27 mm (0.050 in.) contact pitch
- 26, 60, and 100 contacts
- Insulation is UL recognized, cleanable, and allows IR reflow soldering
- Double-side surface-mount connection for 1.6 mm (0.063 in.) thick PCB

CONNECTORS

FUJITSU

BOARD TO BOARD & I.O CONNECTORS
CARD EDGE CONNECTORS



FEATURES (ONE PIECE)

- 1.27 mm (0.05 in.) pitch contact arrangement in two rows enable high-density mounting.
- Can be used for any type of connection between boards.
- The card-edge connectors can accommodate double-sized independent PC boards of 1.6 mm (0.063 in.) in thickness.
- Terminals are spaced in a four-row zig-zag array (1.27 mm (0.050 in.) x 1.905 mm (0.075 in.)) for easy PC board design.
- Insulation is UL-approved (94 V-O), and is cleanable.
- Available in 30-182 contacts.

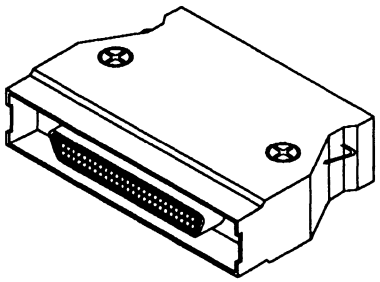
SPECIFICATIONS

Temperature Range	–55 to 105 degrees C
Current Rating	2 ADC
Voltage Rating	250 VAC
Contact Resistance	35 megohm max. (6 VDC, 0.1 A)
Insulation Resistance	1,000 megohm min. (500 VAC)
Dielectric Withstand Voltage	500 VAC for 1 minute
Insertion Force	Two-piece connectors: 3 kg max. (10-way)
	Card-edge connectors: 2 kg max. (10-way)
Withdrawal Force	Two-piece connectors: 250 g min. (10 way)
	Card-edge connectors: 125 min. (10-way)
Applicable PC Board	Two-piece connectors: 250 kg max. (10-way)
	Card-edge connectors: 125 kg max. (10-way)
Applicable Wire	Flat cable: 0.635 mm (0.025 in.) pitch AWG #30 (solid wire) AWG #32 (standard wire)

MATERIALS

Contact	Phosphor bronze
Insulator	PBT, UL94 V-0
Contact Plating	Gold over palladium over nickel (PAGOS plating)

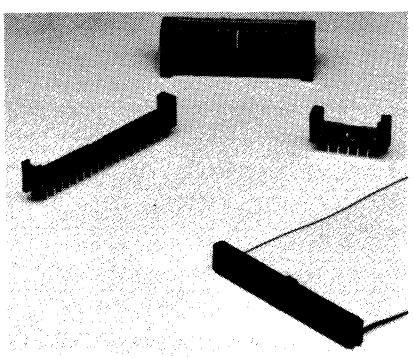
FCN-239P050-G/E, G/C, & G/F
FCN-230 SERIES SCSI II TYPE TERMINATORS



FEATURES

- 1.27 mm pitch, pin contact SCSI II type terminator plug.
- Matable with SCSI II PCB-mount socket connector.
- One-touch lock mechanism.
- Complete EMI protection by die-cast zinc cover.
- SCSI standard resistor value (330 ohms for R1 to R18 and 220 ohms for R19 to R 36).
- Single-ended SCSI II alternatives 1 & 2 and differential types available.

FCN-790 SERIES CONNECTORS



FEATURES

- Low profile two-piece connector: straight-type height 8.6 mm (0.339 in.), right-angle type height 4.6 mm (0.181 in.)
- Unique simple lock prevents connectors being loosened by vibration.
- Reliable ribbon contact.
- (2.54 mm (0.100 in.) grid) through-holes can be used.
- 10 to 40 positions available.

SPECIFICATIONS

Operating Temperature	–55 to +150 degrees C
Rated Current	1 ADC
Contact Resistance	20 megohm maximum
Insulation Resistance	1000 megohm minimum
Dielectric Strength	500 VAC, 1 minute
Applicable Wire	1.27 mm (0.050 in.) pitch flat cable

MATERIALS

Insulator	Polyester
Conductor	Copper Alloy
Contact Plating	Gold
Terminal Plating	Palladium

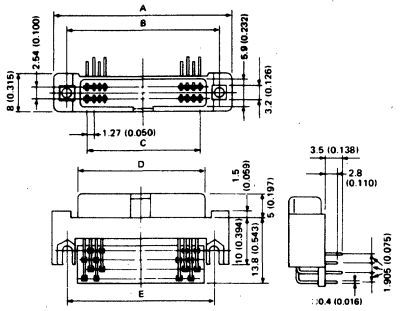
CONNECTORS

FUJITSU

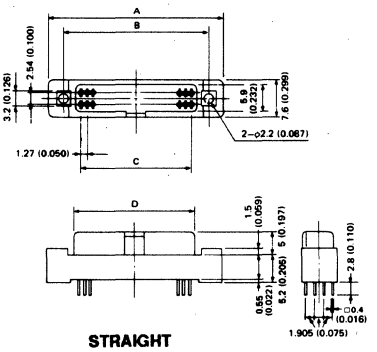
MODEL FCN-210/220 CONTINUED

TWO-PIECE TYPE, SOCKET CONNECTORS/DIMENSIONS
RIGHT ANGLE

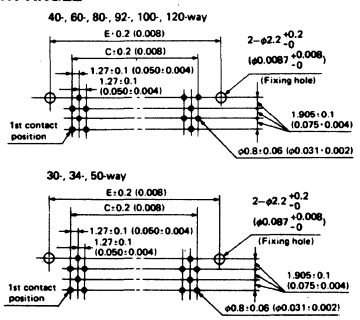
Unit: mm (in.)



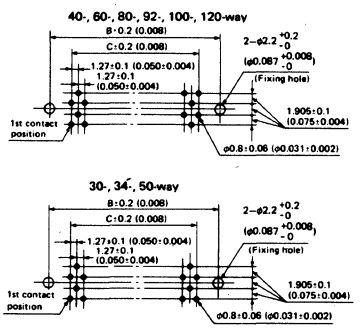
STRAIGHT



MOUNTING HOLE LAYOUT
RIGHT ANGLE



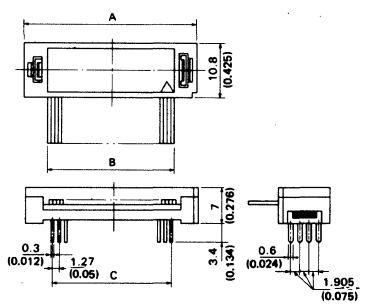
STRAIGHT



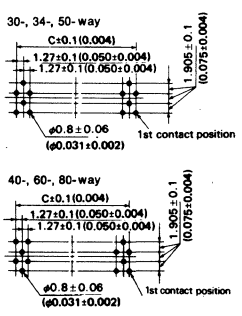
PART NUMBERS

No. of Contacts	Part Number		Dimensions				
	Right-angle	Straight	A	B	C	D	E
30	FCN-215J030-G/O	FCN-214J030-G/O	31.83 (1.253)	26.28 (1.035)	17.78 (0.700)	20.68 (0.814)	25.28 (0.995)
34	FCN-215J034-G/O	FCN-214J034-G/O	34.37 (1.353)	28.82 (1.135)	20.32 (0.800)	23.22 (0.914)	27.82 (1.095)
40	FCN-215J040-G/O	FCN-214J040-G/O	38.18 (1.503)	32.63 (1.285)	24.13 (0.950)	27.03 (1.064)	31.63 (1.245)
50	FCN-215J050-G/O	FCN-214J050-G/O	44.53 (1.753)	38.98 (1.535)	30.48 (1.200)	33.38 (1.314)	37.98 (1.495)
60	FCN-215J060-G/O	FCN-214J060-G/O	50.88 (2.003)	45.33 (1.785)	36.83 (1.450)	39.73 (1.564)	44.33 (1.745)
80	FCN-215J080-G/O	FCN-214J080-G/O	63.58 (2.503)	58.03 (2.285)	49.53 (1.950)	52.43 (2.064)	57.03 (2.245)
92	FCN-215J092-G/O	FCN-214J092-G/O	71.20 (2.803)	65.65 (2.585)	57.15 (2.250)	60.05 (2.364)	64.65 (2.545)
100	FCN-215J100-G/O	FCN-214J100-G/O	76.28 (3.003)	70.73 (2.785)	62.23 (2.450)	65.13 (2.564)	69.73 (2.745)
120	FCN-217-J120-G/O	FCN-214-J120-G/O	88.98 (3.503)	83.43 (3.285)	74.93 (2.950)	77.83 (3.064)	82.32 (3.245)

DIP CONNECTORS FOR 0.635 mm FLAT CABLE/DIMENSIONS

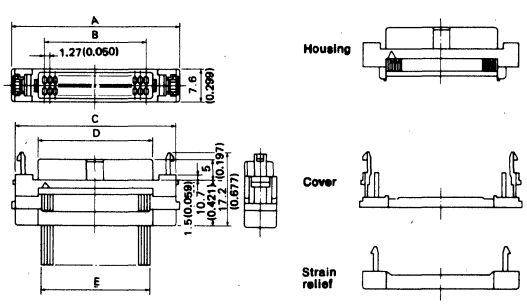


MOUNTING HOLE LAYOUT



IDC SOCKET FOR 0.635 mm FLAT CABLE/ DIMENSIONS

Unit: mm (in.)



PART NUMBERS

No. of Contacts	Part No. FCN- -G/O	Dimensions		
		A	B	C
30	214P030	28.35 (1.116)	19.05 (0.750)	17.78 (0.700)
34	214P034	30.89 (1.216)	21.59 (0.850)	20.32 (0.800)
40	214P040	34.70 (1.366)	25.40 (1.000)	24.13 (0.950)
50	214P050	41.05 (1.616)	31.75 (1.250)	30.48 (1.200)
60	214P060	47.40 (1.866)	38.10 (1.500)	36.83 (1.450)
80	214P080	60.10 (2.366)	50.80 (2.000)	49.53 (1.950)

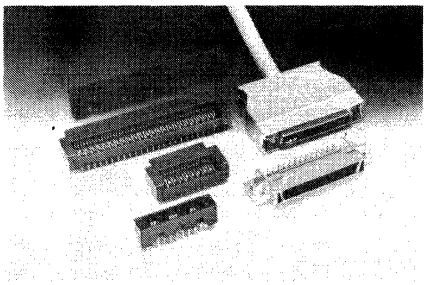
PART NUMBERS

No. of Contacts	Part No. FCN- -G/O	Dimensions				
		A	B	C	D	E
30	217J030	33.43 (1.316)	17.78 (0.700)	31.83 (1.253)	20.68 (0.814)	19.05 (0.750)
34	217J034	35.97 (1.416)	20.32 (0.800)	34.37 (1.353)	23.22 (0.914)	21.59 (0.850)
40	217J040	39.78 (1.566)	23.13 (0.950)	38.18 (1.503)	27.03 (1.064)	25.40 (1.000)
50	217J050	46.13 (1.816)	30.48 (1.200)	44.53 (1.753)	33.38 (1.314)	31.75 (1.250)
60	217J060	52.48 (2.066)	36.83 (1.450)	50.88 (2.003)	39.73 (1.564)	38.10 (1.500)
80	217J080	65.18 (2.566)	49.53 (1.950)	63.58 (2.503)	52.43 (2.064)	50.80 (2.000)
100	217J100	76.28 (3.003)	62.23 (2.450)	77.88 (3.066)	65.54 (2.580)	63.50 (2.500)

CONNECTORS

FUJITSU

BOARD TO BOARD & I.O. CONNECTORS/COVERS MODEL FCN-230



SCSI II STANDARD AND OPPOSITE GENDER AVAILABLE

FEATURES

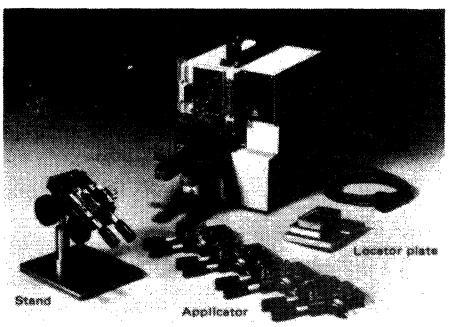
- Keyed backshells are available
- 1.27 mm (0.05 in.) pitch contact arrangement in two rows enables high-density mounting.
- Terminals are spaced in a four-row zigzag array (1.27 mm (0.05 in.) x 1.905 mm (0.075 in.)) for easy PC board design.
- IDC or solder termination for discrete wiring available.
- Metal cover enables EMI protection.
- Insulation materials UL (94 V0)
- Each of the contacts on the female connector of mold type are alternately inset to facilitate two-step coupling, significantly reducing insertion force.

MATERIALS

Material	Copper Alloy
Insulator	Polyester, UL94V-O
Plating	Gold over Palladium over Nickel (PAGOS)

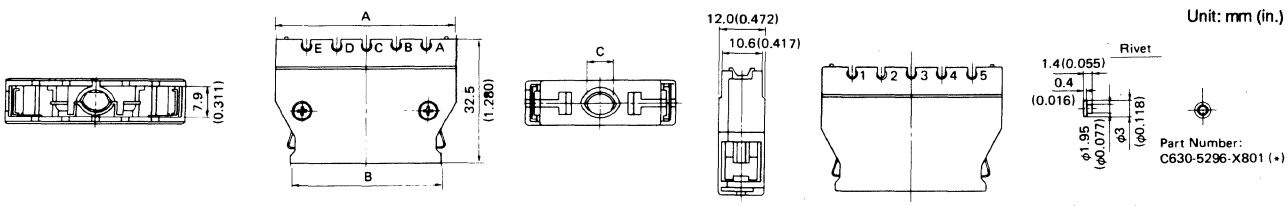
SPECIFICATIONS

Temperature Range	–55 to +105 degrees C					
Max. Rated Current	1 ADC (PCB to cable) 2 ADC (PCB to PCB)					
Max. Rated Voltage	240 VAC					
Contact Resistance	30 megohm max. (6 VDC, 0.1 A)					
Insulation Resistance	1,000 megohm min. (500 VDC)					
Dielectric Withstand Voltage	750 VAC for 1 minute					
Insertion Force (kg)	PC8 to PC8					
	No. of contacts: Force:	34 3.0	48 4.0	68 5.5	96 7.0	
	PC8 to cable					
	No. of contacts: Force:	20 5.5	28 6.0	36 6.5	50 8.0	68 9.0
Withdrawal Force (kg)	PCB to PCB					
	No. of contacts: Force:	34 0.68	48 0.96	68 1.36	96 1.92	
	PCB to cable					
	No. of contacts: Force:	20 0.8	28 1.12	36 1.44	50 2.0	68 2.3
Applicable PC Board	0.8 to 1.5 mm (0.031 to 0.53 in.) thick					
Applicable Wire	IDC type AWG = 28 or = 30 (wire diameter: 0.5 to 0.65 ohm (0.020 to 0.024 ohm)) Solder Type AWG = 26 max.					



CABLE ALIGNER (Hand tools also available)

Set	Main Body	No. of Contacts	Applicator	Head	Stand
FCN-M550-1/A (main body/applicator/ head/stand)	FCN-M551	20	FCN-A550-1/A-020	FCN-H550-1/A	FCN-D550
		28	FCN-A550-1/A-028		
		36	FCN-A550-1/A-036		
		50	FCN-A550-1/A-050		
		68	FCN-A550-1/A-068		



Unit: mm (in.)

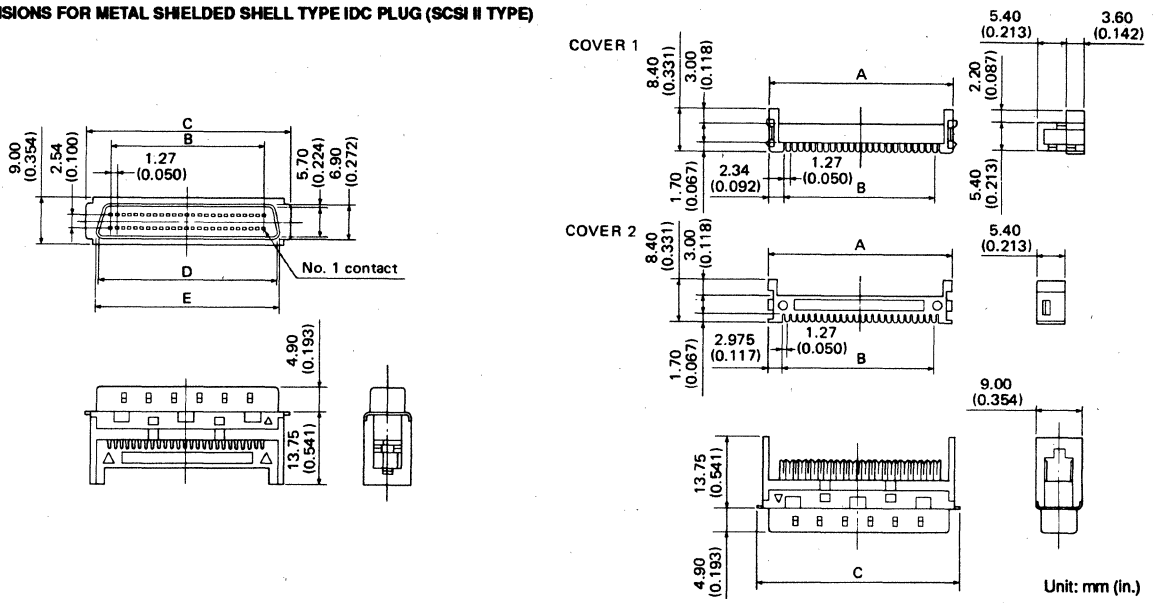
Standard Cable Hole Type

No. of Contacts	Part Number	Dimensions A	B	C
20	FCN-230C020-B/E	28.95 (1.140)	21.15 (0.833)	4.5 x 5.5 (0.177 x 0.217)
28	FCN-230C028-B/E	34.03 (1.340)	26.23 (1.033)	5 x 7 (0.197 x 0.276)
36	FCN-230C036-B/E	39.11 (1.540)	31.31 (1.233)	6 x 8 (0.236 x 0.315)
50	FCN-230C050-B/E	48.00 (1.890)	40.20 (1.583)	6 x 8 (0.236 x 0.315)
68	FCN-230C068-B/E	59.43 (2.340)	51.63 (2.033)	6 x 8 (0.236 x 0.315)
Wide Cable Hole Type				
20	FCN-230C020C/E	28.95 (1.140)	21.15 (0.833)	—
26	FCN-230C026C/E	32.76 (1.290)	24.96 (0.983)	8.00 x 6.75 (0.315 x 0.266)
28	FCN-230C028C/E	34.03 (1.340)	26.23 (1.033)	—
36	FCN-230C036D/E, C/E	39.11 (1.540)	31.31 (1.233)	9.00 x 10.0 (0.354 x 0.394)
40	FCN-230C040C/E	41.65 (1.639)	33.85 (1.332)	9.00 x 10.0 (0.354 x 0.394)
50	FCN-230C050D/E, C/E	48.00 (1.890)	40.20 (1.583)	9.00 x 10.00 (0.354 x 0.394)
68	FCN-230C068D/E, C/E	59.43 (2.340)	51.63 (2.033)	9.00 x 10.00 (0.354 x 0.394)

CONNECTORS

FUJITSU

FCN-230 – DIMENSIONS FOR METAL SHIELDED SHELL TYPE IDC PLUG (SCSI II TYPE)

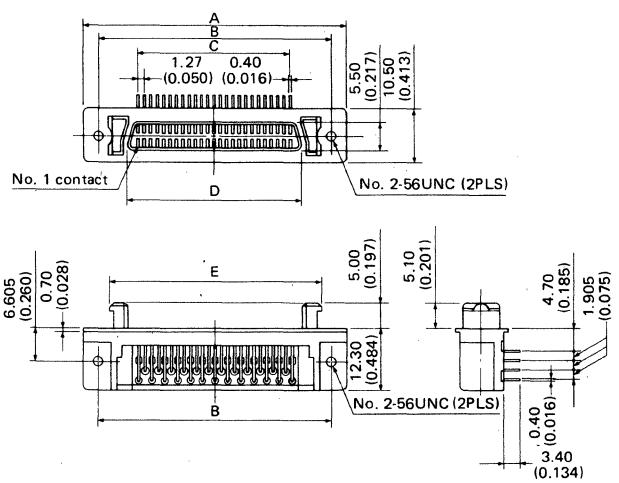


Unit: mm (in.)

No. of Contacts	Part Number	Dimensions				
		A	B	C	D	E
20	FCN-237R020-G/F	16.75 (0.659)	11.43 (0.450)	21.25 (0.837)	15.80 (0.622)	17.00 (0.669)
26	FCN-237R026-G/F	20.56 (0.809)	15.24 (0.600)	25.06 (0.987)	19.61 (0.772)	20.81 (0.819)
28	FCN-237R028-G/F	21.83 (0.859)	16.51 (0.650)	26.33 (1.037)	20.88 (0.822)	22.08 (0.869)
40	FCN-237R040-G/F	29.45 (1.159)	24.13 (0.950)	33.95 (1.337)	28.50 (1.122)	29.70 (1.169)
50	FCN-237R050-G/F	35.80 (1.409)	30.48 (1.200)	40.30 (1.587)	34.85 (1.372)	36.05 (1.419)
68	FCN-237R068-G/F	47.23 (1.859)	41.91 (1.650)	51.73 (2.037)	46.28 (1.822)	47.48 (1.869)
100	FCN-237R100-G/F	67.55 (2.659)	62.23 (2.450)	72.05 (2.837)	66.60 (2.622)	67.80 (2.669)

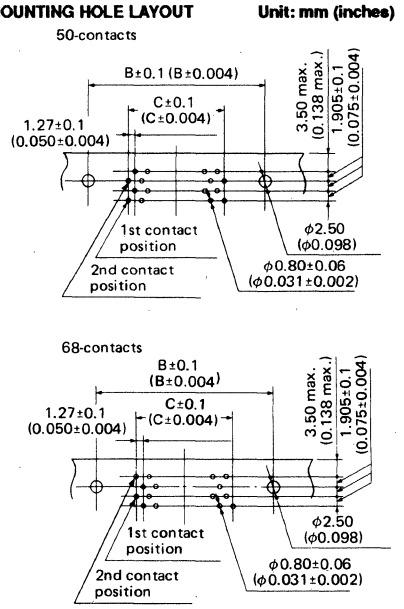
DIMENSIONS FOR METAL SHIELDED TYPE SOCKET (SCSI II TYPE)

RIGHT ANGLE



MOUNTING HOLE LAYOUT

Unit: mm (inches)



No. of Contacts	Part Number	Dimensions				
		A	B	C	D	E
20	FCN-234D020-G/E	33.40 (1.315)	27.43 (1.080)	11.43 (0.450)	15.60 (0.614)	23.24 (0.915)
26	FCN-234D026-G/E	37.21 (1.465)	31.24 (1.230)	15.24 (0.600)	19.41 (0.764)	27.05 (1.065)
28	FCN-234D028-G/E	38.48 (1.515)	32.51 (1.280)	16.51 (0.650)	20.68 (0.814)	28.32 (1.115)
40	FCN-234D040-G/E	46.10 (1.815)	40.13 (1.580)	24.13 (0.950)	28.30 (1.114)	35.94 (1.415)
50	FCN-234D050-G/E	52.45 (2.065)	46.48 (1.830)	30.48 (1.200)	34.65 (1.364)	42.29 (1.665)
68	FCN-234D068-G/E	63.88 (2.515)	57.91 (2.280)	41.91 (1.650)	46.08 (1.814)	53.72 (2.115)

NOTE: 50 and 100 position IPI also available. See local FCA rep or distributor.

CONNECTORS

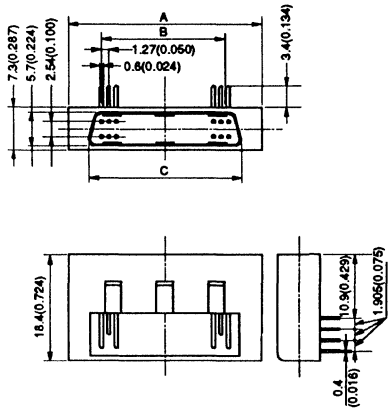
FUJITSU

FCN-230 CONTINUED

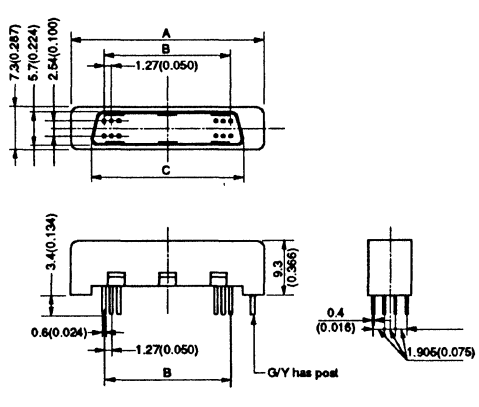
Unit: mm (in.)

UNSHIELDED TYPE PLUG CONNECTOR/DIMENSIONS

RIGHT ANGLE

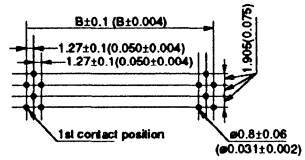


STRAIGHT

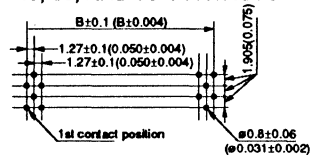


MOUNTING HOLE LAYOUT

RIGHT ANGLE, STRAIGHT
34 CONTACTS



48, 68, AND 96 CONTACTS



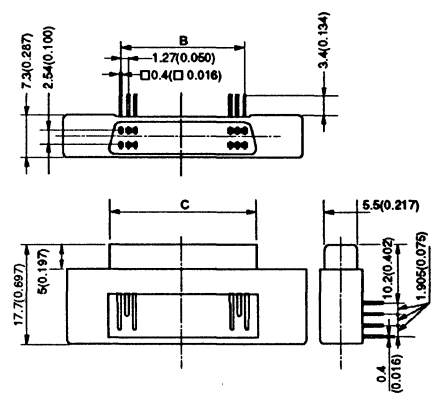
PART NUMBERS

No. of Contacts	Part Number		Dimensions		
	Right Angle	Straight	A	B	C
34	FCN-235P034-G/O	FCN-234P034-G/O	31.63 (1.245)	20.32 (0.800)	24.69 (0.972)
48	FCN-235P048-G/O	FCN-234P048-G/O, G/Y	40.52 (1.595)	29.21 (1.150)	33.58 (1.322)
68	FCN-235P068-G/O	FCN-234P068-G/O, G/Y	53.22 (2.095)	41.91 (1.650)	46.28 (1.822)
96	FCN-235P096-G/O	FCN-234P096-G/O, G/Y	71.00 (2.795)	59.69 (2.350)	64.06 (2.522)

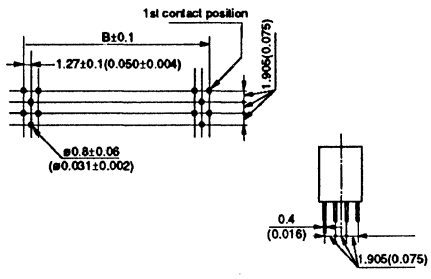
Unit: mm (inches)

UNSHIELDED TYPE SOCKET CONNECTOR/DIMENSIONS

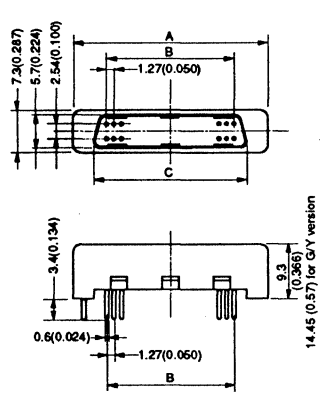
RIGHT ANGLE



STRAIGHT
MOUNTING HOLE LAYOUT
34 CONTACTS



STRAIGHT

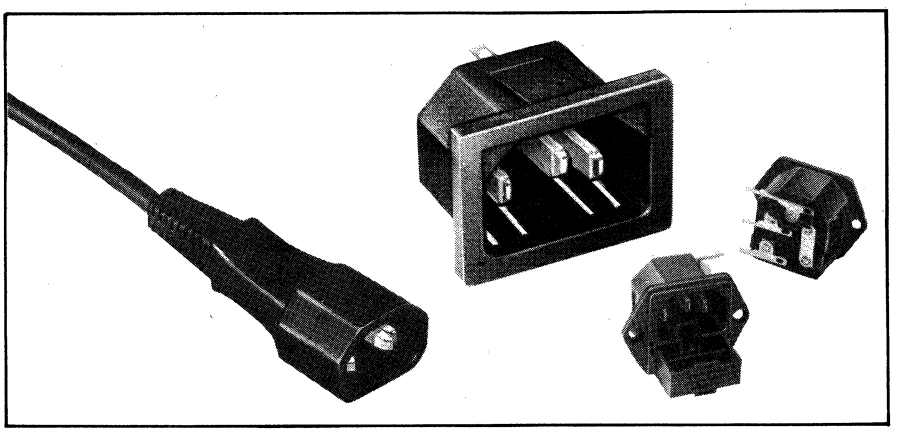


PART NUMBERS

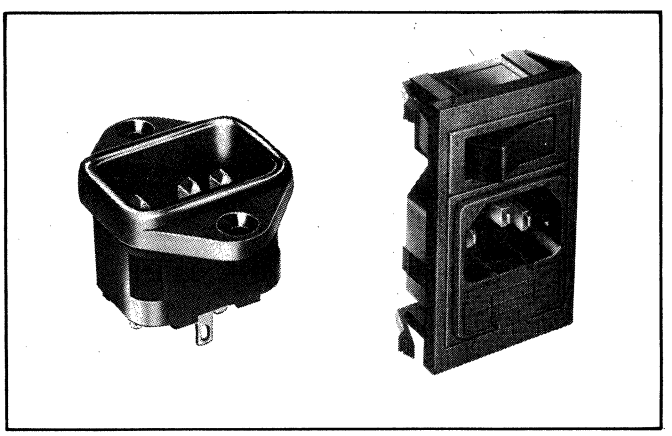
No. of Contacts	Part Number		Dimensions		
	Right Angle	Straight	A	B	C
34	FCN-235J034-G/O	FCN-234J034-G/O	31.63 (1.245)	20.32 (0.800)	24.49 (0.964)
48	FCN-235J048-G/O, G/Y	FCN-234J048-G/O	40.52 (1.595)	20.21 (1.150)	33.38 (1.314)
68	FCN-235J068-G/O, G/Y	FCN-234J068-G/O	53.22 (2.095)	41.91 (1.650)	46.08 (1.814)
96	FCN-235J096-G/O, G/Y	FCN-234J096-G/O	71.00 (2.795)	59.69 (2.350)	64.86 (2.514)

GlobTek, Inc.

CONNECTORS, TERMINALS, SOCKETS



- FUSE HOLDERS
- FILTERS
- RELAYS
- INLET/OUTLETS
- MODULES
- TERMINAL BLOCKS



- PLUGS
- RECEPTACLES
- CONNECTORS
- CORDSETS
- SOCKETS
- POWER INLETS
- ROCKER SWITCHES
- VOLTAGE SELECTORS

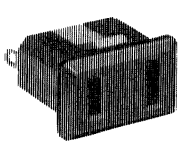
RECEPTACLES, SOCKETS & PLUGS

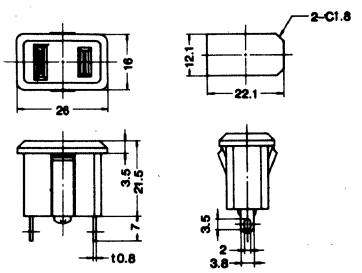
APPROVALS:

Contact Resistance: 30mΩ or less at 1A-2.5VDC
Insulation Resistance: 100MΩ or more at 500VDC
Insulation Withstand Voltage: 1 min. at 1000VAC

Rating: I — 15A - 125VAC
II — 6A - 125VAC
Body Color: B — Black
W — White

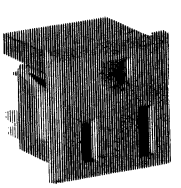
AC-IE

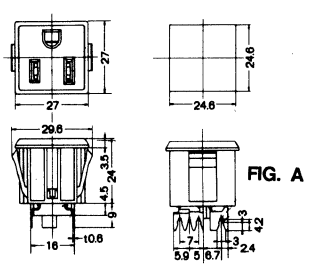




Model No.: AC-IE
Rating: I
Standard: UL/CSA, 41-10886 Body Color: B

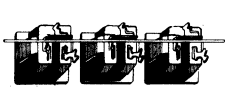
AC-G10BB44





Model No.: AC-G108844
Fig.: A Rating: I
Standard: /CSA 41-14864

Mounting Plate: 1.6/1.2
1.0/0.8
Pole: Body Color: B



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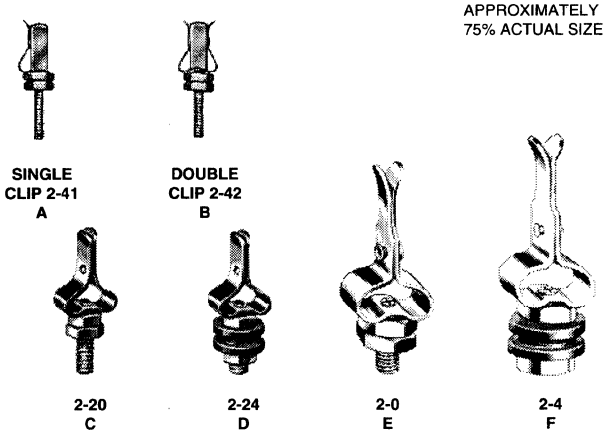
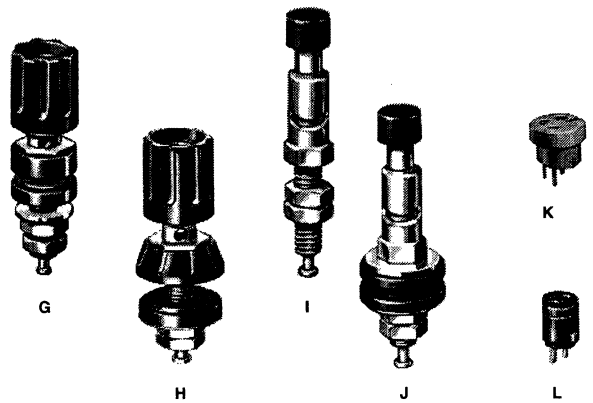




TEST CLIPS (FIGURES A THRU F)

Designed for panel mounting on test equipment or for breadboarding to allow rapid connections without manual opening and closing of jaws. Hex nut under each clip allows for tension adjustment. Insulated, washers for 2-24 (Fig. D) and 2-4 (Fig. F) have shoulder to fit .250 and .375 inch diameter holes, respectively. They fit minimum panel thickness of .125 inches. Spring clips are nickel plated brass (berrylium copper for 2-41 and 2-42); insulators are molded phenolic.

FIG. NO.	TOTAL HEIGHT	ABOVE BOARD	MAX. WIDTH	CLIP WIDTH	THREAD SIZE	HEX FLATS
A	.781	.406	.188	.125	#2-56 UNC-2A	.187
B	.781	.406	.250	.125	#2-56 UNC-2A	.187
C	1.079	.719	.406	.218	#6-32 UNC-2A	.250
D	1.079	.726	.406	.218	#6-32 UNC-2A	.250
E	1.562	1.250	.550	.312	#8-32 UNC-2A	.344
F	1.562	1.257*	.550	.312	#8-32 UNC-2A	.344

*Includes height of thru hole shoulder. For part numbers, see figures.

BINDING POSTS (FIGURES G & H)

Standard screw type posts in dark red (RED suffix) or black (BLK suffix) let you color code connections. Flush hole prevents crimping. Non-turn D style insulating washers fit panels up to .188 inches. Open height above board is 1.02 inches; total length is 1.70 inches reference. Straight skirt style (Fig. G) fits .375 inch diameter hole with optional D shape width .343 inches. Flared skirt (Fig. H) fits .500 inch diameter hole for wider spacing; optional D shape width is .463 inches. Integral solder stud; 2 hex nuts for solder lug connections. Rated at 120 Vdc, 15 A continuously. Insulation Resistance: 120,000 megohms (Fig. G); 200,000 megohms (Fig. H). Voltage Breakdown (stud to panel): 1500 Vac (Fig. G); 3000 Vac (Fig. H). Insulating Material: Thermoset plastic per MIL-M-14, Type CFG.

Binding Post with Straight Skirt: **29-1 RED** or **29-1 BLK**
Binding Post with Flared Skirt: **29-3 RED** or **29-3 BLK**

PUSH POSTS (FIGURES I & J)

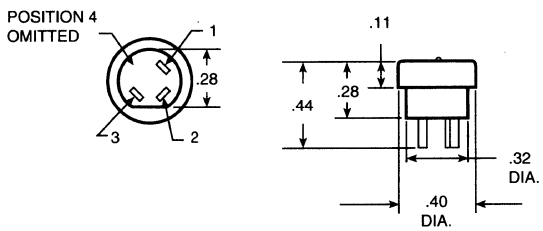
Plunger type binding posts provides quick connect/disconnect action. To operate, press button, place lead in slot, and release button. Spring pressure assures firm positive contact. Red (RED suffix) or Black (BLK suffix) caps let you color code connections. Type 29-104 (Fig. J) has insulating washers .500 inch diameter wide, with shoulder to fit .391 diameter hole. Slot opening measures .06 inches. Post is .25 inches in diameter and total length is 1.44 inches. Height above board is .81 inches and .89 inches for Figures I and J respectively. Rated at 120 Vdc for 20 Amps continuously. Metal parts are nickel plated brass. Spring is tinned music wire; button cap is polyethylene; insulating washers (Fig. J) are black phenolic.

Standard Push Post (Figure I): **29-100 RED** or **29-100 BLK**
Insulated Push Post (Figure J): **29-104 RED** or **29-104 BLK**

TRANSISTOR SOCKET (FIGURE K)

Transistor type accepts standard outline (TO-5, 9 11, 16, 26, 29, 31, & 39). Indicator for aligning transistor tab is molded into top. Solder socket into PC board, or mount thru a D-shaped hole and use retaining ring such as Waldes Truarc ring number 115-31. Socket has wrap around, molded-in terminals. Socket also available with different D flat alignment, or with 4 terminals, or with 4 terminals plus screw/rivet mounting. Operating Temperature: 265°F maximum. Loss Factor: .06 at 1 Meg. Housing is natural color, molded, mica filled phenolic per MIL-M-15, Type MFE. Contacts are wrap-around type, silver plated beryllium, copper with gold plate.

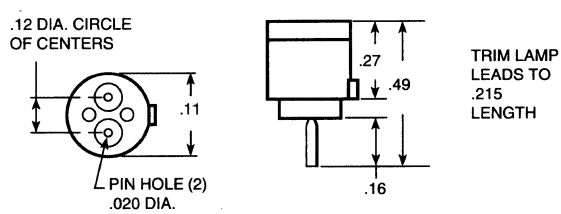
Part Number: **22-16-3**



LAMP SOCKET (FIGURE L)

Use as Bi-pin lamp socket or pencil tube socket. Socket accepts standard T 1-3/4 or Chicago miniature T 1-1/4 lamps with leads trimmed to .215 length. Insulating material is Mica filled phenolic per MIL-M14, Type MFE. Contacts are gold plated beryllium copper.

Part Number: **22-3**



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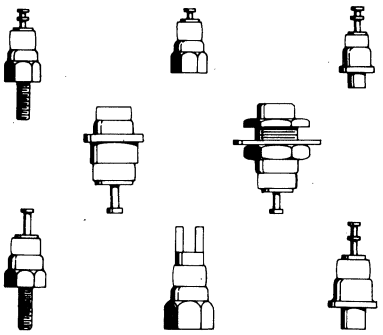

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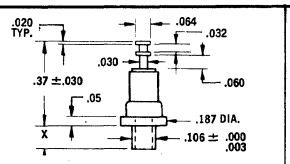
* ONE-PIECE *

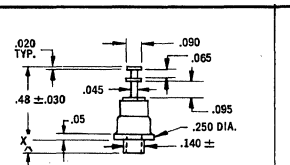
Teflon† Insulated Terminals

Male-Female Threads and Swage Types and Test Jacks



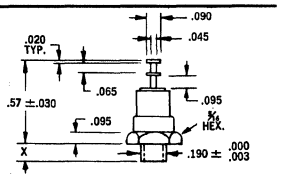
Single Turret also available O/A Height above Board: .30 ±.030 P/N TS-111-A/-4

Part No.	X	Board Thickness
TS-112-A	.055	1/64
TS-112-0	.075	1/32
TS-112-1	.095	.050
TS-112-2	.105	1/16
TS-112-3	.135	3/32
TS-112-4	.165	1/8



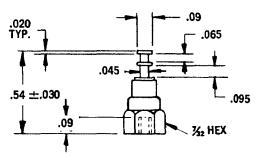
Single Turret also available O/A Height above Board: .39 ±.030 P/N TS-231-0/-4

Part No.	X	Board Thickness
TS-232-0	.075	1.32
TS-232-1	.095	.050
TS-232-2	.105	1/16
TS-232-3	.135	3/32
TS-232-4	.175	1/8



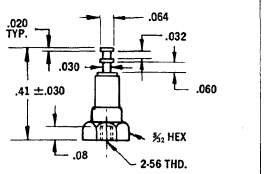
Single Turret also available O/A Height above Board: .50 ±.030 PN TS 351-1/-4

Part No.	X	Board Thickness
TS-352-1	.095	.050
TS-352-2	.105	1/16
TS-352-3	.135	3/32
TS-352-4	.165	1/8



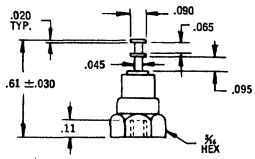
Part No.	Thread
TS-232-8F	4-40
TS-232-9F	6-32

Single Turret also available O/A Length: .47 ±.030 P/N TS-231-8F/-9F



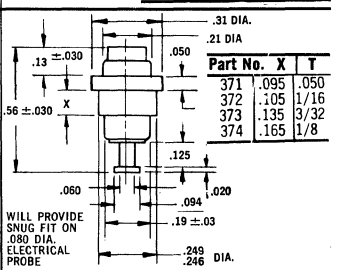
Part No.	Thread
TS-112-6F	2-56

Single Turret also available O/A Length: .35 ±.030 P/N TS-111-6F



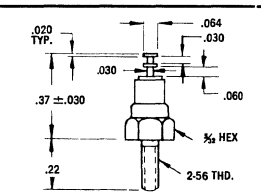
Part No.	Thread
TS-352-8F	4-40
TS-352-9F	6-32

Single Turret also available O/A Length: .54 ±.030 P/N TS-351-8F/-9F



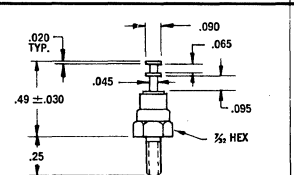
Part No.	X	T
371	.095	.050
372	.105	1/16
373	.135	3/32
374	.165	1/8

SWAGE TEST JACK
Available in 10 Standard E.I.A. colors



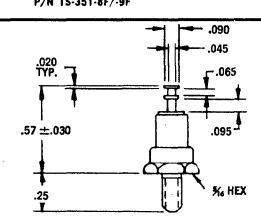
Part No.	Thread
TS-112-6M	2-56

Single Turret also available O/A Height above Board: .34 ±.030 P/N TS-111-6M



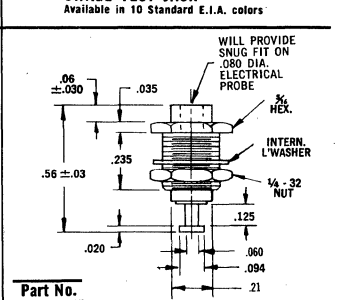
Part No.	Thread
TS-232-8M	4-40
TS-232-9M	6-32

Single Turret also available O/A Height above Board: .42 ±.030 P/N TS-231-8M/-9M



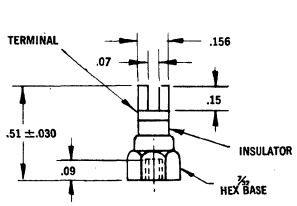
Part No.	Thread
TS-352-8M	4-40
TS-352-9M	6-32

Single Turret also available O/A Height above Board: .50 ±.030 P/N TS-351-8M/9M

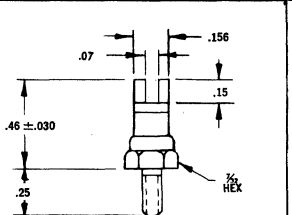


Part No.
375

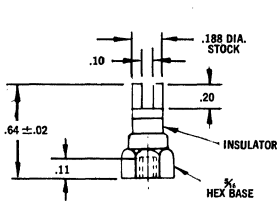
THREADED TEST JACK



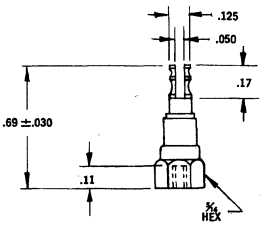
Part No.	Thread
TS-233-8F	4-40
TS-233-9F	6-32



Part No.	Thread
TS-233-8M	4-40
TS-233-9M	6-32



Part No.	Thread
TS-353-8F	4-40 NC-2B
TS-353-9F	6-32 NC-2B



Part No.	Thread
338-2050	6-32

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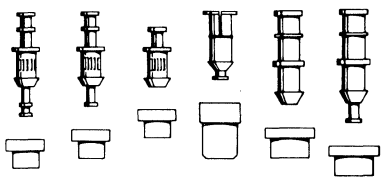

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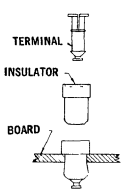
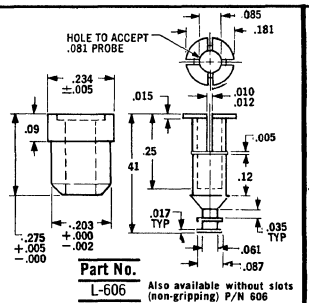
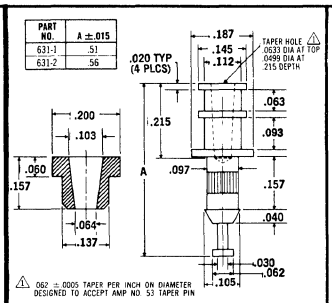
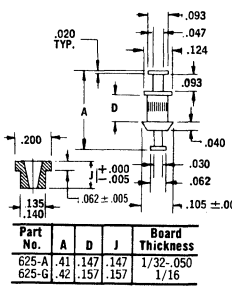
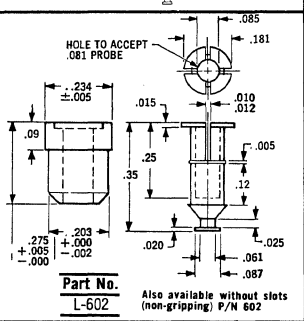


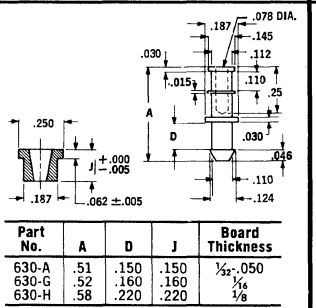




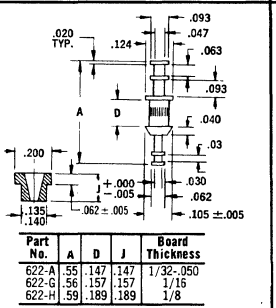


Part No.	A	D	J	Board Thickness
625-A	.41	.147	.147	1/32-.050
625-G	.42	.157	.157	1/16

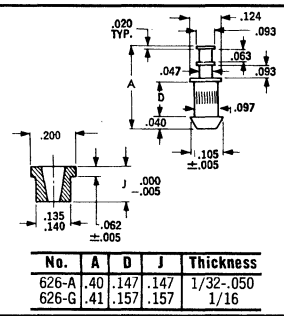




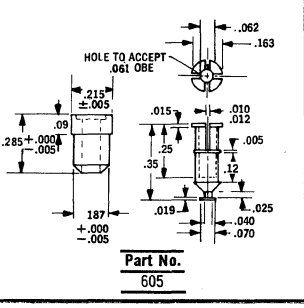
Part No.	A	D	J	Board Thickness
630-A	.51	.150	.150	1/32-.050
630-G	.52	.160	.160	1/16
630-H	.58	.220	.220	1/8

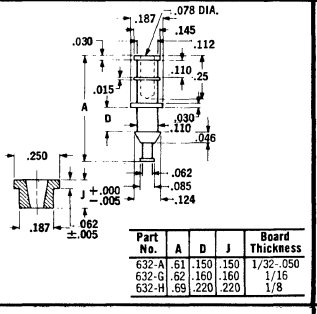


Part No.	A	D	J	Board Thickness
622-A	.55	.147	.147	1/32-.050
622-G	.56	.157	.157	1/16
622-H	.59	.189	.189	1/8

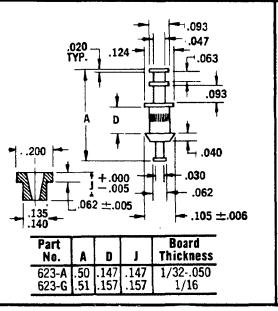


No.	A	D	J	Thickness
626-A	.40	.147	.147	1/32-.050
626-G	.41	.157	.157	1/16

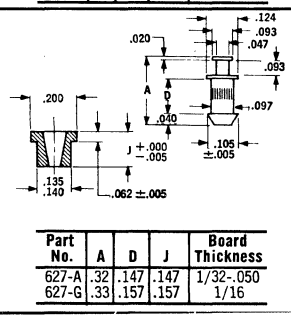




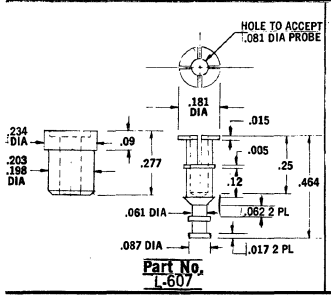
Part No.	A	D	J	Board Thickness
632-A	.61	.150	.150	1/32-.050
632-G	.62	.160	.160	1/16
632-H	.69	.220	.220	1/8

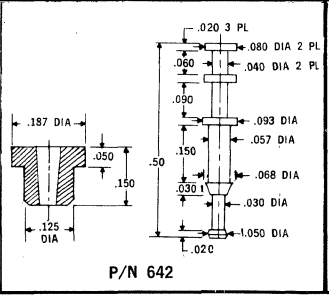


Part No.	A	D	J	Board Thickness
623-A	.50	.147	.147	1/32-.050
623-G	.51	.157	.157	1/16

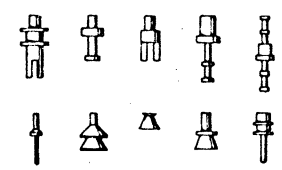


Part No.	A	D	J	Board Thickness
627-A	.32	.147	.147	1/32-.050
627-G	.33	.157	.157	1/16



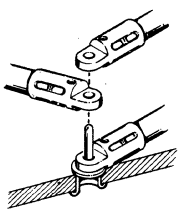


Other Hiram Jones Products:
Non-Insulated Terminals, Test Jacks and Contacts
Printed Circuit, MS and MIL-T-55155 Terminals



HIRAM JONES
manufacture and design of circuit components
11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

9W WIRE TERMINATION SYSTEM



Design Features

SOLDER-WICKING BARRIER

The design of HIRAM JONES 9W Wire Termination Systems provides a solder-wicking barrier, assuring flexibility of the wire and thus minimizing wire failures due to fatigue.

Wires are inserted in the 9W Crimp Terminals and crimped in place. Full engagement of the wire is determined by means of the inspection hole provided in each crimp terminal. The 9W Crimp Terminals are then attached to their mating Terminal Posts and soldered in place.

The entire termination is made without application of solder to the wire itself. It is, therefore, impossible for solder to "wick" up the wire.

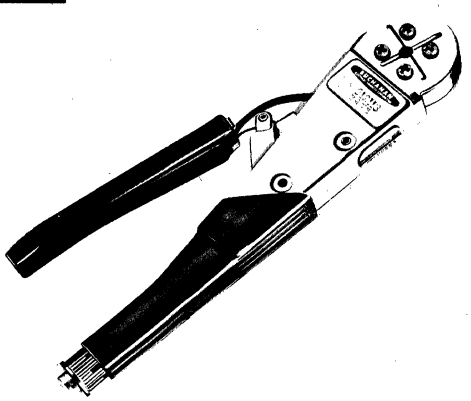
EQUIPMENT SERVICEABILITY

HIRAM JONES 9W Wire Termination System provides all the advantages of a hard wired system without the disadvantages of foreshortening of the service loop when disconnection and reconnection is required. The ease with which connections are made is a feature which is particularly advantageous in systems where connectors are undesirable, yet assemblies or sub-assemblies must be disconnected from time to time for service or replacement. To disconnect HIRAM JONES 9W Crimp Terminals, simply heat and lift off the mating terminal post. Reconnect by resoldering the 9W Crimp Terminals to the terminal post. Neither the mechanical nor electrical joint is affected by repeated removal and resoldering.

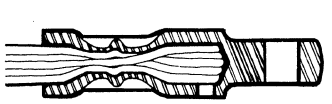
Increased Production Efficiency

By permitting pre-assembly of wires by unskilled operators, HIRAM JONES 9W Wire Termination Systems reduce production costs. Wires may be cut to length, stripped, and the 9W Crimp Terminals crimped in place. Final assembly consists of simply laying the pre-assembled Crimp Terminal on its mating terminal post and soldering in place.

9W MINIATURE MICROCRIMP TOOL



CROSS-SECTION OCTADENT CONFIGURATION



The 9W Miniature Microcrimp Tool (Buchanan No. 612118) is cycle-controlled to assure crimping to the selected depth. Once the crimping operation is started, the tool cannot be opened without completing its cycle.

9W LOCATORS — Specially designed locators are available for each of HIRAM JONES 9W Crimp Terminals. The use of one 9W Miniature Microcrimp Tool and the custom-designed 9W Locators is recommended to guarantee the precise crimp depth setting for each Crimp Terminal. When ordering, specify part number — i.e., 9W-206 Locator.

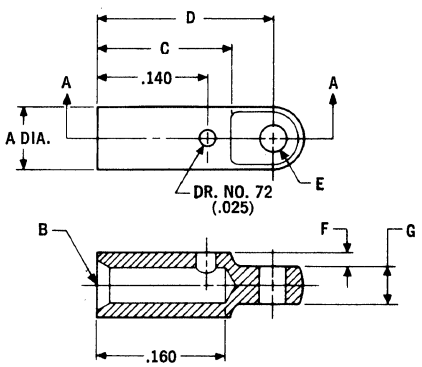
OCTADENT CRIMP — The 9W Miniature Microcrimp Tool produces an octadent configuration which provides uniform displacement of wire and crimp terminal material. The wire strands and the crimp terminal material are formed together in a solid mass with little or no reduction of the mil area of the wire strands.

manufacture and design of circuit components

HIRAM JONES
11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

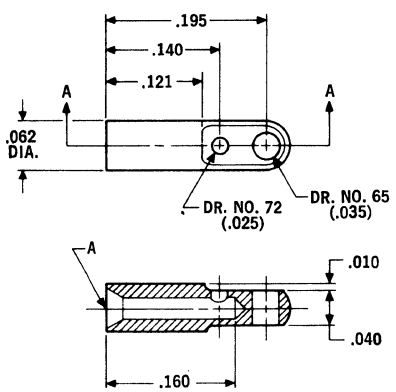
9W WIRE TERMINATION SYSTEM COMPONENTS

CRIMP TERMINAL



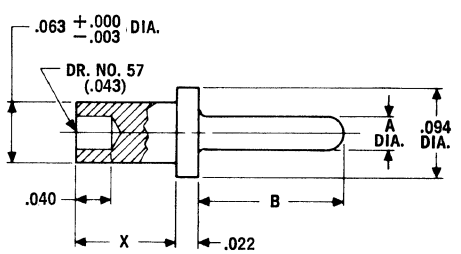
PART NO.	A DIA.	B DRILL	C	D	E DRILL	F	G	WIRE SIZE
9W-206	.078	3/64	.170	.220	.035	.017	.044	20 & 22
9W-230	.094	1/16	.175	.235	.046	.020	.054	16 & 18
9W-209	.078	.028	.170	.220	.046	.017	.044	24 & 26
9W-205	.078	3/64	.170	.220	.046	.017	.044	20 & 22

CRIMP TERMINAL



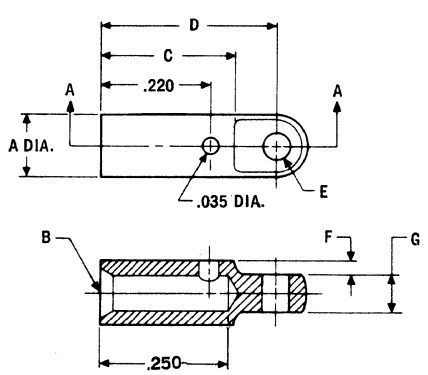
PART NO.	A DIA.	WIRE SIZE
9W-207	.028	24 & 26
9W-208	.020	28 & 30

STANDOFF TERMINAL



PART NO.	A ±.001	B ±.010	X +.004 −.000	T
9W-507-1	.031	.187	.115	3/32"
9W-507-3	.041	.225	.115	3/32"
9W-507-5	.031	.187	.084	1/16"
9W-507-7	.041	.225	.084	1/16"
9W-507-9	.031	.187	.141	1/8"
9W-507-0	.031	.187	.048	1/32"

CRIMP TERMINAL



PART NO.	A DIA.	B DRILL	C	D	E DRILL	F	G	WIRE SIZE
9W-212	.156	.098	.280	.375	.100	.028	.100	12
9W-214	.125	.079	.280	.360	.070	.025	.075	14

TOLERANCES: ±.005 Unless Otherwise Noted.
X = Shank Length T = Board Thickness
Wire size is AWG

MATERIAL: Brass per QQ-B-626, ½ Hard, Composition 22.

FINISH: Electrodeposited Solder Plate over Copper Plate.

Other Sizes Available.
Contact Factory.

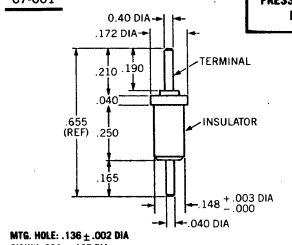
manufacture and design of circuit components

HIRAM JONES

11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

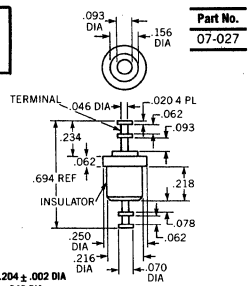
Part No. 07-001

TEFLON INSULATED PRESS-TYPE TERMINAL, FEED-THRUS



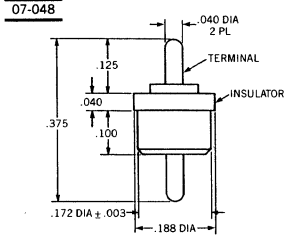
MTG. HOLE: .136 ± .002 DIA
C'SINK: 60° × .165 DIA

Part No. 07-027



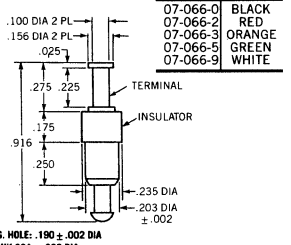
MTG. HOLE: .204 ± .002 DIA
C'SINK 60° × .240 DIA

Part No. 07-048



MTG. HOLE: .158 ± .002 DIA
C'SINK 60° × .180 DIA

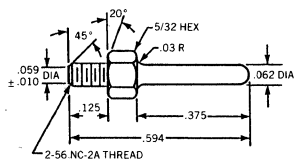
Part No.	Insulator Color
07-066-0	BLACK
07-066-2	RED
07-066-3	ORANGE
07-066-5	GREEN
07-066-9	WHITE



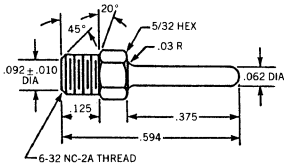
MTG. HOLE: .190 ± .002 DIA
C'SINK 60° × .225 DIA

Part No. 03-020

GROUND TERMINALS

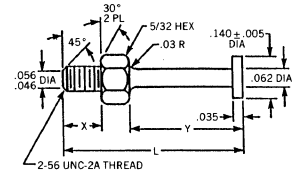


Part No. 03-020-1

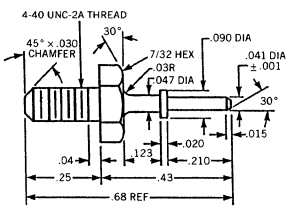


FINISH: GOLD OVER COPPER UNDERCOAT

Part No.	X	Y	L
03-044-1	.125	.375	.594
02-044-2	.195	.255	.544



Part No. 09-117

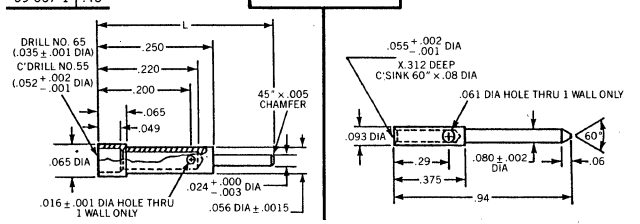


FINISH: GOLD OVER NICKEL UNDERCOAT

Part No. 09-057 / 09-057-1 — **L** .38 / .45

CRIMP TERMINALS

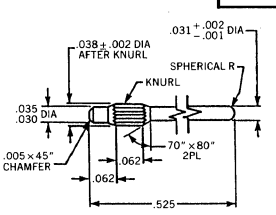
Part No. 09-066



FINISH: TIN-LEAD (SOLDER) PLATE PER MIL P-81728

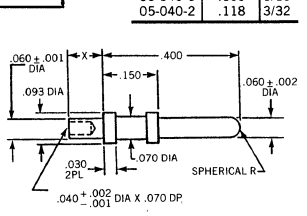
Part No. 09-018

TERMINALS NON-INSULATED



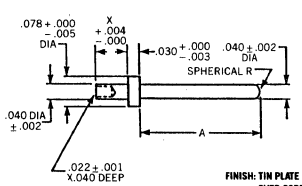
FINISH: GOLD OVER NICKEL UNDERCOAT

Part No.	X +.004 −.000	T
05-040-1	.105	1/16
05-040-2	.118	3/32

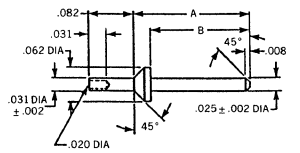


FINISH: GOLD OVER NICKEL UNDERCOAT

Part No.	A	X
09-033	.380	.084
09-033-1	.380	.053
09-033-2	.250	.053
09-033-3	.125	.053



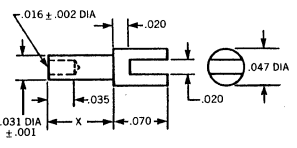
Part No.	A	B
09-106-1	.213	.188
09-106-2	.125	.100
09-106-3	.085	.060



FINISH: TIN PLATE PER MIL-T-10727, TYPE 1 OVER COPPER PLATE

Part No.	X ± .002
09-078-1	.084
09-078-2	.053

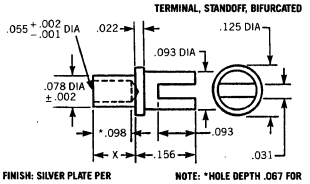
TERMINAL, STANDOFF, BIFURCATED



FINISH: TIN PLATE PER MIL-T-10727, TYPE 1 OVER COPPER PLATE

Part No.	X	T
09-101-1	.078	1/32
09-101-2	.109	1/16
09-101-3	.141	3/32
09-101-4	.172	1/8

TERMINAL, STANDOFF, BIFURCATED

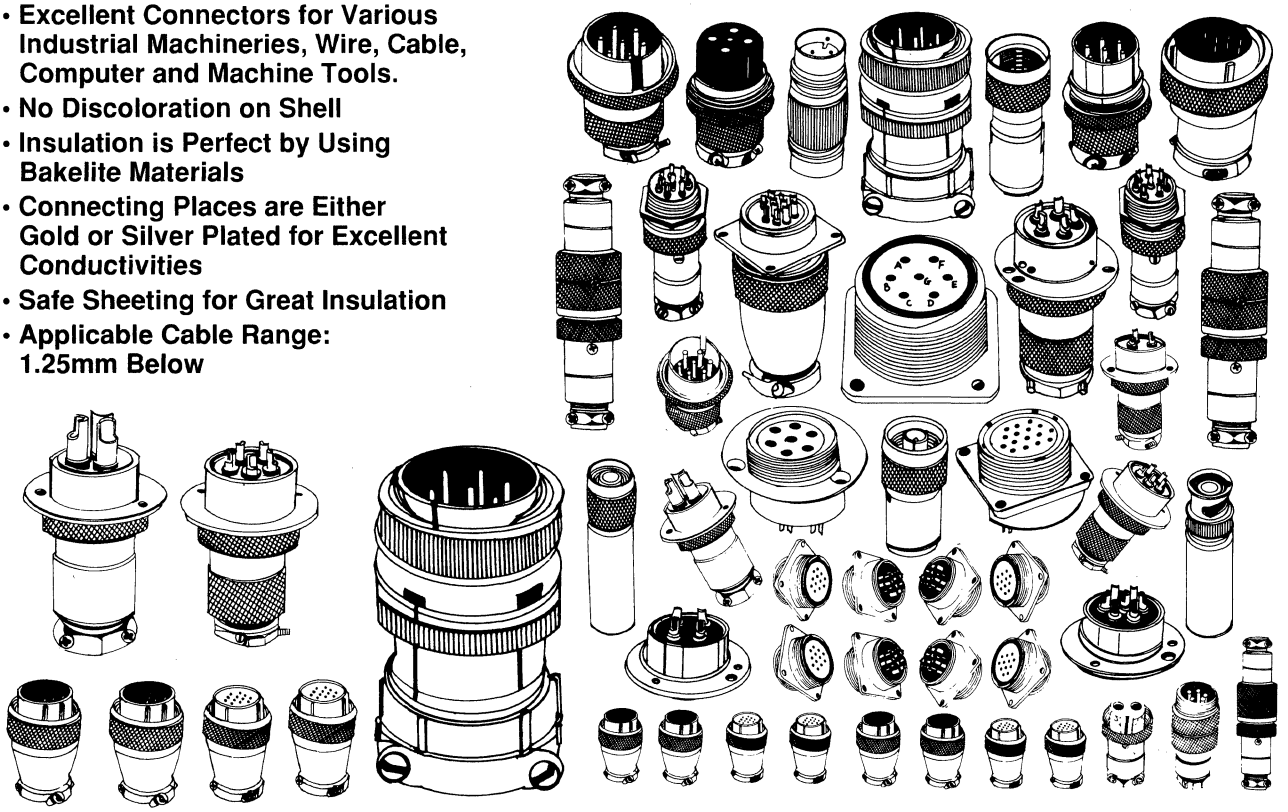


FINISH: SILVER PLATE PER QQ-S-365 OVER COPPER UNDERCOAT

NOTE: *HOLE DEPTH .067 FOR -1 COMPONENT ONLY

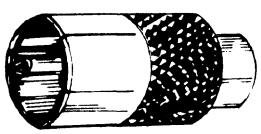
C&C JETRONIC, INC.

- **Excellent Connectors for Various Industrial Machineries, Wire, Cable, Computer and Machine Tools.**
- **No Discoloration on Shell**
- **Insulation is Perfect by Using Bakelite Materials**
- **Connecting Places are Either Gold or Silver Plated for Excellent Conductivities**
- **Safe Sheeting for Great Insulation**
- **Applicable Cable Range: 1.25mm Below**

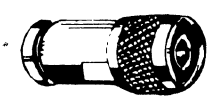


Other Series : UHF, BNC, TNC, N, MINI UHF, F TWINAX PLUGS, SMA, SMB, SMC CON

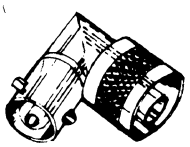
UHF



N



ADAPTER



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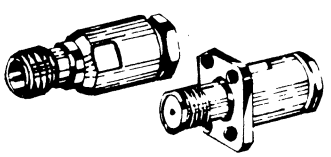

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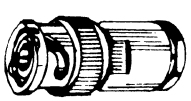

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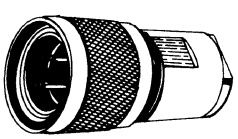
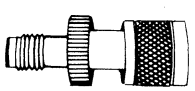


MINI UHF



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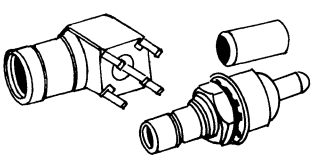
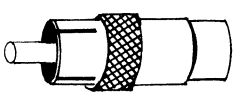


TNC

PLUGS



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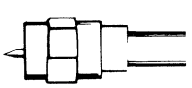

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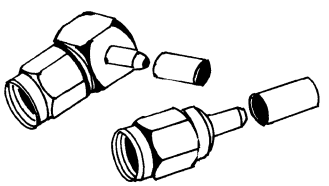

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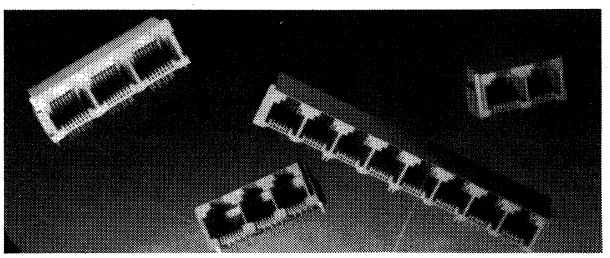
Hirose Electric (U.S.A.) Inc.
2685-C Park Center Drive
Simi Valley, CA 93065
Phone (805) 522-7958 FAX (805) 522-3217

Hirose Electric (U.S.A.) Inc. offers the world's second largest line of electronic connectors, including circular, rectangular, telephone modular, coaxial, printed circuit type, IDC, IC sockets, microwave, fiber optic and other miniature types of connectors.

Hirose Modular Gang-Jack Connectors



Hirose has expanded its line of two-, three-, and four-position auto insertable modular Gang Jack connectors with the introduction of four new multi-cavity connectors.

The new Gang Jacks are TM 5RQ-1414 (one 8-contact and one 6-contact), TM 5RQ-2020 (two 6's and one 8-contact), TM 5RSA-2424 with three 8-contact positions and the TM5RJ1-4848, with eight 6-contact positions.

Hirose's side and top entry Gang Jacks offer the convenience and cost savings of a modular connection system in dual, triple, quad and larger packages.

Ideal for OEM manufacturing, Gang Jacks are widely used in designs for modems, phone answering devices, dictation machines, test instruments and office automation products.

Hirose's innovative 'ganged' design aids in inventory control by eliminating the need to stock more than one connector per installation and permits easy PCB loading either automatically or by hand.

Metal PCB "Lok-Tabs" assure a firm hold between connector and board prior to and during wave soldering operations. These unique tabs help form a "solder-rivet" which bonds the Jack and board.

Hirose Gang Jacks feature ABS insulator, suitable for wave soldering and phosphor bronze round terminals with 1.0 microns of gold plating. The low profile Gang Jack is ideal for trimline designs and is available for side entry and top entry mating. A rectangular shape simplifies automatic insertion and the Gang Jack is supplied in a popular grey color with optional colors available.

TM11 Shielded Modular Connectors

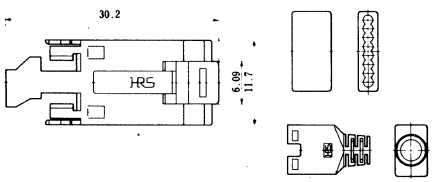
The TM11 series connectors are specifically designed and compatible with industry standards to provide RFI/EMI shielding and protect against ESD discharge. The low profile TM11 has eight signal lines and a grounded shield.

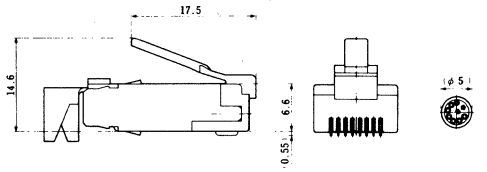
SPECIFICATIONS

Positions:	6-8 currently available
Shielding:	Full EMI protection on plug. 8 signal lines plus ground. ESD protection cover for plug. Standard receptacle entry shielded including 4 grounding tabs. Full shielded receptacles available.
Cable Assemblies:	Custom, straight or coiled, 100% tested.
Colors:	Beige or Black Standard, custom colors available.
Electrical:	
Current rating:	500ma
Voltage rating:	125VAC
Insulation Resistance:	100MΩ DC100V min
Dielectric withstanding voltage	500VAC (RMS) (1 min)
Plug Materials:	
Phosphor Bronze contacts. Gold Nickel Plating. Polycarbonate insulator and Copper Alloy/Tin EMI shell.	
Receptacle Materials:	
Phosphor Bronze receptacle. Gold/Nickel plating. PBT or ABS insulator and Copper Alloy/Tin EMI shell.	

APPLICATIONS

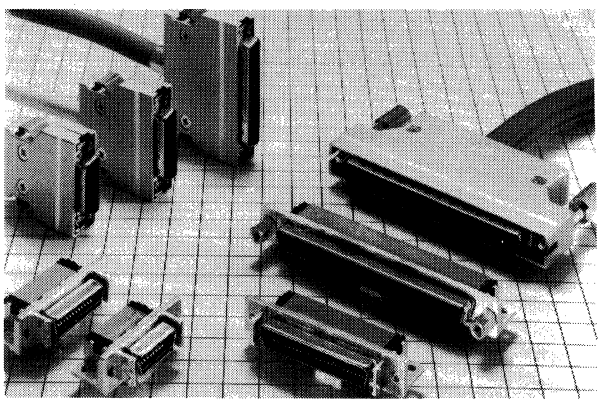
Computers, office automation equipment, and medical equipment are some of the applications for these shielded modular connectors.





MINIATURE DX SERIES I/O CONNECTORS

(0.050 center Mating Face)



Hirose Electric's new miniature bellows contact connector series is currently available in 20, 28, 36, 50, 80 and 100-position shells. Future connectors include 60 to 68 position inserts.

The new 1.27mm (0.050") I/O connector, the "DX",™ incorporates bellows, or "ribbon" type contacts to eliminate problems encountered with other miniature connector designs using pin and socket configurations.

The new "DX"™ design provides positive locking, precise coupling, anti-scooping terminal protection and EMI shielding in a compact and rugged package. Using IDC termination to AWG #28 or #30 wires, this new series offers flexibility of using ribbon or discrete wire cable.

The unique Hirose shell design assures first make/last break gounding and offers complete protection from ESD, to the exposed terminals on the board side, when the connector is unmated. Positive locking is accomplished through the use of an integral "One-Touch" mechanism to assure repeated quick and effortless closures without damage to the lock or the terminals.

SPECIFICATIONS

Items	Standard
Current rating	0.5A
Voltage rating	125VAC
Insulation resistance	250MΩ min at 100VDC
Contact resistance	35mΩ max at 100ADC
Dielectric withstanding voltage	300VAC r.m.s. for 1 minute

MATERIAL & FINISH

Parts	Materials	Finish
Plug shell	Zinc alloy die-cast	Silver finish
Receptacle shell	Zinc alloy die-cast	Nickel plating
Insulator	PBT resin or equivalent*	Black, UL94V-0
Pin contact	Copper alloy	Selective gold plating
Socket contact	Copper alloy	Selective gold plating

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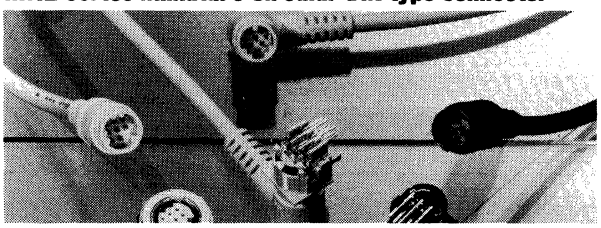
HR12 Series Miniature Circular DIN type connector



Smaller package sizes and FCC regulations are placing more demands on new designs than ever before. To fulfill the need for better and smaller interconnects, HIROSE has developed a number of new 'miniature' I/O connectors.

The HR12 MINIATURE CIRCULAR DIN Type Connector offers a scaled-down circular with Full Shielding, Push-Pull Locking and a Molded Plug/Cord Assembly in a choice of colors.

FEATURES

1. Matte finish helps to maintain appearance and aids in plug/unplug operation.
2. Full Shielding on Plug and Receptacle.
3. PUSH/PULL Locking System.
4. Right Angle Plug/Cord Assembly can be molded for Right or Left orientation.
5. Strain Relief is molded to main body for extra holding.
6. PLUG is available with. . .Straight or Right Angle Configuration.
   RECEPTACLE is available with. . .Straight, Right Angle and Crimp to Wire.
7. Standard Color is Black. Easily available optional colors are Ivory and Grey. Contact HIROSE for other colors.

MATERIAL AND FINISH

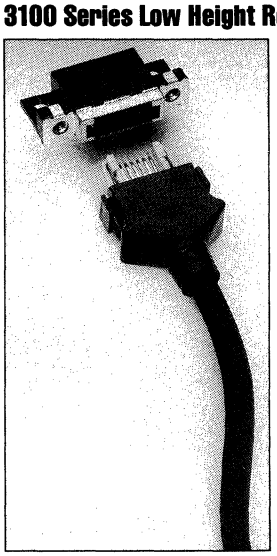
Description	Material	Finish
Receptacle	Insulation/PBT (UL94V-0)	
	Grounding shell/brass	
Plug	Glass filled polycarbonate (UL94V-1) PBT (UL94V-0)	
Male contact	Phosphor bronze	Tin or selective gold plating
Female contact	Phosphor bronze	Solder or selective gold plating

PERFORMANCE

Description	Test Data
Contact resistance	30mΩ max
Insulation resistance	DC250V/200 MΩ min
Dialectric withstanding voltage	AC300/1 minute
Voltage rating	AC100/DC140V
Current rating	1 Amp

Description	4	5	8
Outside diameter	ϕ3.8mm	ϕ4.8mm	ϕ4.8mm
Number of positions	4 (max.)	4 (max.)	8 (max.)
Cable/wire type	18 strands ϕ0.08 (AWG #28)	7 strands ϕ0.127 (AWG #28)	7 strands ϕ0.127 (AWG #28)

3100 Series Low Height Reduced-Pin Connector



The 3100 series low-height reduced pin I/O connectors for preventing EMI are perfect for today's compact electronic equipment. Available in 6 and 8 pins* (*12 pin will be available in the near future.)

FEATURES

1. The metal shell guide structure for the receptacle connector reduces drastically the height for the substrate to 7 mm.
2. The metal shell with a moulded cover case is designed to shield it from electrostatic discharge (ESD).
3. The cantilever profile of the female contact assures effortless coupling and long service life.
4. The effective engagement length is of sequence structure and sufficient to allow the shielded part to engage first when connecting.
5. The cable can be terminated efficiently just by crimping with a jig after passing the cable through the guide plate hole.
6. Cables AWG 26 to AGW 30 are applicable by partically changing the guide plate since the male connector adopts a U-slit type connection.
7. The side latching method of the moulded cover assures easy locking of the plug connector.

APPLICATION

Office Automation, Communications, Home Automation and Other equipment.

PERFORMANCE

Specification	
Current capacity	0.5A
Rated Voltage	AC 125V
Insulation Resistance	Min. 250MΩ at DC 100V
Contact resistance	Max. 35mΩ at DC 1mA
Withstanding Voltage	AC300V r.m.s. for 1 minute

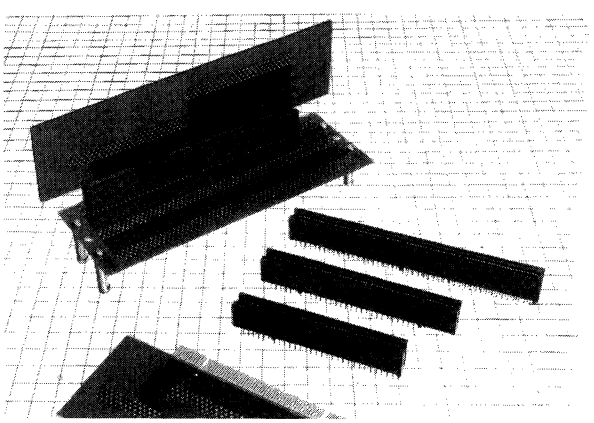
Hole dia (mm) of Wire Configuration Guide Plate	ϕ0.65	ϕ0.85	ϕ1
Applicable Cable Cutdia (mm)	ϕ0.57 ~ ϕ0.63	ϕ0.75 ~ ϕ0.83	ϕ0.88 ~ ϕ0.98

MATERIAL AND FINISH

Material Finish			
Receptacle	Insulation	PBT resin	Black UL94V-0
	Contact	Brass	Selective sold plating
	Shell	Brass	Solder plating
Plug	Insulation	Polycarbonate Resin	White for AWG #28
			Black for AWG #30
	Contact	Brass	Selective gold plating
	Guide Plate	Polycarbonate resin	Transparent
	Shell	Brass	Solder plating
	Cover	Polycarbonate resin	

CR24 Series Half Pitch (1.27mm Center Line) Card Edge Connector

The CR24 series half pitch card edge connectors were designed to fulfill the applications where high density multipin one connector systems are needed. The CR24 series is in production in 112, 132, and 182 positions with more arrangements presently under development. The typical application for this connector is in the areas like computer, peripheral, OA equipment and many other applications.



FEATURES

1. Most common application is computer bus.
2. Contact design insures excellent electrical integrity.
3. Connector is designed to be scoop proof.
4. Guide keys were designed to prevent failures caused by vibration.

APPLICATIONS

FDD, HDD, TAX, PRINTER, VTR, and other electronic equipment.

MATERIAL & FINISH

Insulator: UL94V-0 PPS Brown
Contact: Phosphor Bronze
Plating: Contact area Gold over nickel
PCB post Tin/lead over nickel

ELECTRICAL PERFORMANCE

Current rating: 1A
Voltage rating: 125VAC
Insulation resistance: 1000mΩ min 500VDC
Contact resistance: 30mΩ max 100VDC*
Withstanding voltage: 500VAC min for 1 minute

*Including conductor resistance

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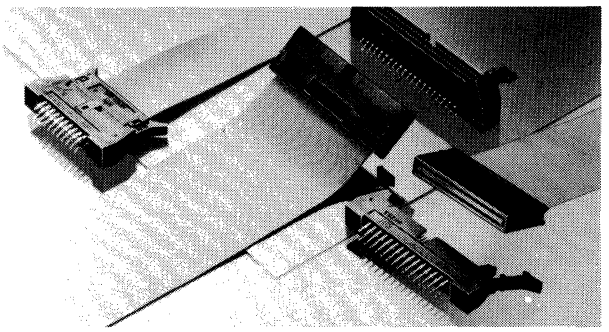
HIF6 Mini-Flex™ Ribbon Connector



Hirose's new HIF6 series Mini-Flex™ miniature connector joins the new HIF6 family of miniature connectors.

The HIF6 connector has an 0.050" (1.27mm) center mating face and terminates to std. 0.050" (0.635mm) flat ribbon cable.

This new connector allows pin #1 to pin #1 and reverse termination. Daisy chain (bus line) connections are possible with the use of a special cover.

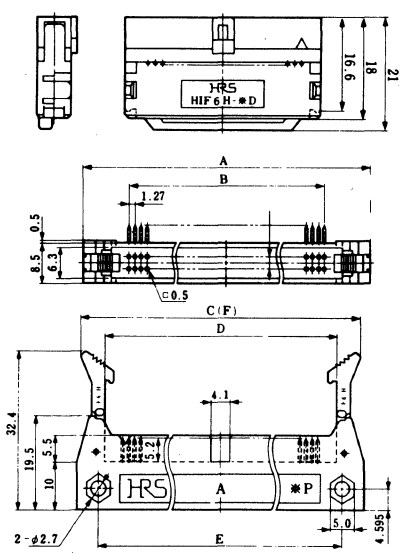
Use of the HIF6 limits overall weight and reduces space needed for cable. Available circuits are 34, 40, 50, 60, 80, and 100. Mating latching header series is HIFH6. HIF6 sockets will also mate to HIF6A+(B) series box pin headers.

Typical high density applications include medical equipment, hand-held instrumentation, robotics, computer peripherals, office equipment, lap-top computers test and measurement equipment.

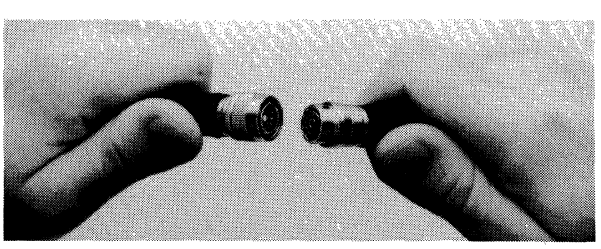
Item	Material	Finish
Insulator	PBT Resin	Black
Socket contacts	Copper alloy	Selective gold plating
Pin contacts	Brass	Selective gold plating

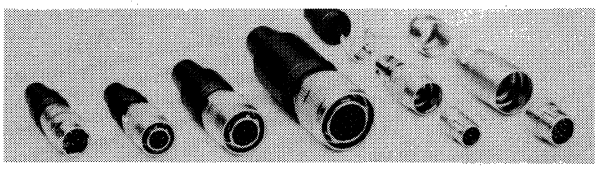
Current rating	0.5A
Voltage rating	125VAC
Insulation resistance	1000MΩ min at DC250V
Dielectric withstanding voltage	300VAC r.m.s. for 1 minute
Contact resistance	*30mΩ max at #DC100mA

*Including conductor resistance of AWG30 cable.



HR10 Series Snap-Lok™ Circular Connectors





HR 10 and HR10A

To meet the needs for low-cost, ultra-small multiple connectors, Hirose engineers, through an extensive Value Analyzation process, have developed the new HR10A Series, compatible with current HR10 series connectors. Crimping type and P.C. mounting type have been newly added to the HR10A series.

FEATURES

1. Compatible with current HR10 Series and low cost via volume production.
2. Cable crimping tool maintains consistent cable clamp force.
3. To prevent slipping, HR10A Series connectors are accompanied with knurled holding surfces on coupling nut.
4. Simple and slim design is well-matched with any equipment.
5. Crimping type and P.C. moutning types are available.
6. 4, 6, 12 and 20 pins are available.

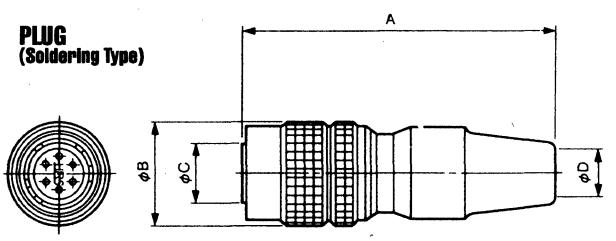
MATERIAL & FINISH

Shell: Zinc alloy and brass with nickel plating, matte finish.
Insulator: Glass-reinforced 66 nylon, black color
Male Pin: Brass with silver plating
Female Pin: Phosphor bronze with sliver plating

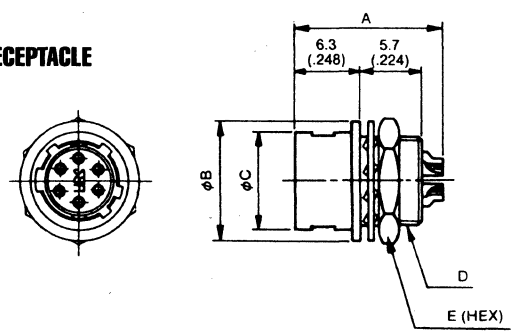
PERFORMANCE

No. of Pin	4	6	12
Withstand voltage	AC 500V a minute	AC 300V	AC 300V
Insulation resistance	1000MΩ or more	1000MΩ	1000MΩ
Contact Resistance	10mΩ or less	10mΩ	10mΩ

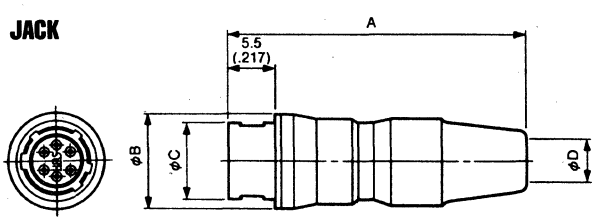
PLUG (Soldering Type)



RECEPTACLE



JACK



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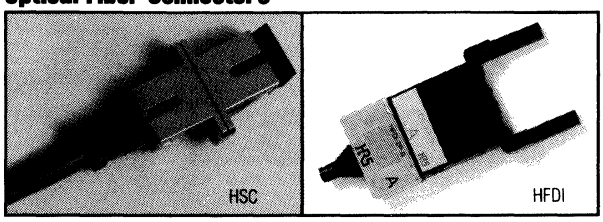
Optical Fiber Connectors



HSC—The New International F.O. Standard

The HSC series optical fiber connector corresponds to the NTT SC type optical fiber connector. It is available in either single mode or multi-mode for various applications such as "long-haul telecommunication networks, short-link systems and equipment to equipment data links."

Technical features of the HSC include "push-pull" locking, a Zirconia ferrule, plastic housing and positive clamping of the optic cable in the housing. As such, the HSC offers users high density mounting, compact size and high performance while achieving an economical cost.

Assemblies from Hirose are available with either flat polishing or with convex polishing (PC) type for low reflection and ultra low insertion loss.

FEATURES

1. Excellent operation—easy to use
2. Compact and lightweight design
3. High density mounting, including multiple units
4. High performance and high reliability
5. Economical costs
6. Easy to assemble
7. A choice of single or multi-mode fiber cord available
8. Easy connect/disconnect or semi-permanent security locking
9. A full range of accessories—adaptors, receptacles, multiple connection blocks and attenuators

APPLICATIONS

Public communication network, LAN, CATV, Measuring equipment etc.

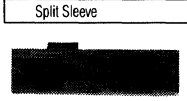
PERFORMANCE

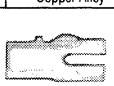
Conforming to or exceeding NTT Specifications

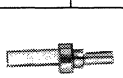
1. Insertion Loss (Conditions required)
   - SM-10/125 Convex Polishing: 0.5dB Max.
   - Flat Polishing : 1.0dB Max.
   - SGI-50/125 Convex Polishing : 0.3dB Max.
   - Flat Polishing : 0.6dB Max.
2. Reflection Loss (Conditions required)
   - SM-10/125 Convex Polishing : 22dB Min.
   - SGI-50/125 Convex Polishing : 22dB Min.
3. Applicable Fiber Cord
   SM-10/125, SGI-50/125 optical fiber cord insulation diameter ϕ3 mm and ϕ2 mm
4. Life—500 times, Deviation of insertion loss should be max. 0.2dB
5. Temperature Cycle— −25°C ~ 70°C, 100 cycles. Deviation of insertion loss: Max. 0.2dB.
6. Vibration—10 ~ 55Hz, Amplitude: 1.5mm, Deviation of insertion loss: Max. 0.2dB.
7. Shock—100G, Deviation of insertion loss: Max 0.2dB

MATERIAL AND FINISH

Plug Housing	PBT resin	
Coil Spring	Stainless Steel	
Ferrule	Zirconia	
Adaptor	PBT resin	Short Type
	Zinc Alloy Die-Cast	NTT, SC Type
4 Cavities Adaptor	PBT resin	
5 Cavities Adaptor	PBT resin	Short Type
Receptacle	PBT resin	Short Type
	Zinc Alloy Die-Cast	NTT, SC Type
Attenuator	Stainless Steel	
Split Sleeve	Copper Alloy	


QUICK-LOCK™ COVER PBT


PLUG HOUSING PBT


FERRULE ZIRCONIA

FERRULE ALIGNMENT SPRING STAINLESS STEEL

STOPPER RING

CLAMP RING

CRIMP SLEEVE COPPER ALLOY

STRAIN RELIEF PBT

HFDI Series F.O. Connectors

The HFDI series optical fiber connector is FDDI, a spec. connector. It is available in multi mode type dual optic connectors applicable to LAN and Computer Transmission Systems.

Technical feature of the HFDI include "push-pull" locking, a Zirconia ferrule, plastic Housing and positive clamping of the optic cable, which offers excellent operation, high performance while achieving an economical cost.

FEATURES

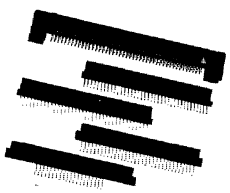
1. Hirose original "Slide Cover Locking" mechanism offers easy operation of mating and unmating at any position.
2. Since the lock lever is not exposed, it can not be unlocked by accident.
3. 4 kinds each of plug and receptacle with different key position are available.
4. Ferrule floating construction and spring butting-joint mechanism offer high performance and reliability.

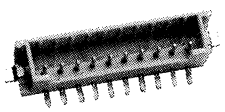
PERFORMANCE

1. Insertion Loss
   GI-50/125 Flat Polishing: 0.7dB Max.
2. Applicable Fiber Cord
   50/125, 62.5/125 GI type optical fiber cord

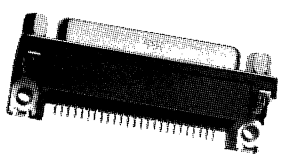
Convex Polishing Version is also available: Insertion loss for convex polishing version: 0.3dB Max.

SURFACE MOUNT CONNECTORS

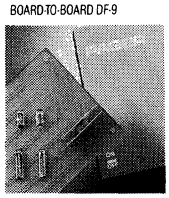

MEMORY CARD CONNECTORS
MIF29-90S-1.27 SH ICIA-68 RD-1.27 SH
IC5-38 RS-1.27 SH ICIA-40-ICI 1.27 SH
IC3-38 RS-1.27 SHA

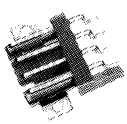

DF-3 MATES TO DISCRETE WIRE SOCKET

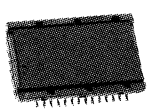
EDGE MOUNT D-SUB
RDBS-25SA-LNA (4-40)



BOARD-TO-BOARD DF-9




BOARD MOUNT FOR USE WITH DISCRETE WIRE MDF2-4P-2.5H


COVERED CHIP CARRIER DL3-28S

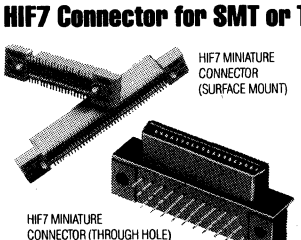
With Hirose's new surface mount connectors, your miniature designs can be on the cutting edge of technology.

Leave it to Hirose engineers to develop and manufacture an entire family of SMT connectors that are precise, rugged and reliable.

Every terminal tail uses the strongest and most advanced metal alloys and mechanically sound designs to assure the correct amount of flex under severe stress and thermal cycling conditions. Solder joint failure is thus reduced to zero.

Hirose assembly and production methods produce precise axial alignment of the terminals, allowing the greatest possible area of contact with the PCB pads. This precision reduces the amount of solder required for mechanical strength and limits the potential for failure from repeated stress.

HIF7 Connector for SMT or Through-Hole Applications


HIF7 MINIATURE CONNECTOR (SURFACE MOUNT)

HIF7 MINIATURE CONNECTOR (THROUGH HOLE)

HIF7 miniature connector has applications for both through-hole and the new surface mount technology.

The HIF7 is a newly developed .050″ miniature connector featuring low insertion force and a 1.27mm pitch PCB pattern to meet designer needs.

Versions of the new Hirose HIF7 are available with PCB lock tabs. The new HIF7 is now available in a .050″ SMT version.

MATERIAL

The Hirose HIF7 features PBT resin insulators, and the SMT connectors PPS resin. Both have phospor bronze receptacle contacts, and plug insulators feature brass contacts.

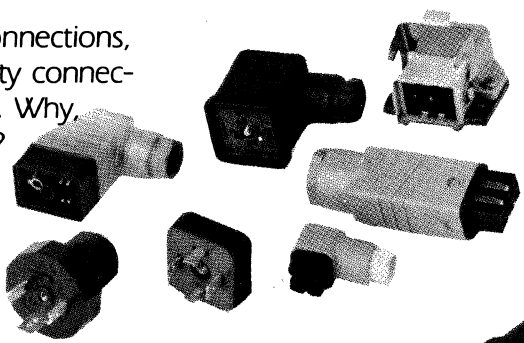
PERFORMANCE

Current rating of the HIF7 is 0.5A, voltage is AC125V, insulation resistance is 1,000Mohms or more at DC250V, withstanding voltage is AC300VRMS for 1 minute and contact resistance is 40mOhms or less at DC100mA.

OUR CUSTOMERS RELY ON US

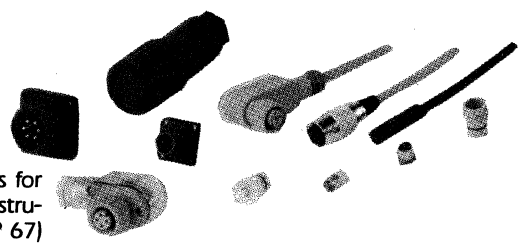
CONNECTORS and SPECIALTY PROBES

When it comes to interconnections, you want the finest quality connectors and probes available. Why, then, settle for imitations? Unfortunately, there are a lot of them out there. And they all claim to be "Just like a Hirschmann."

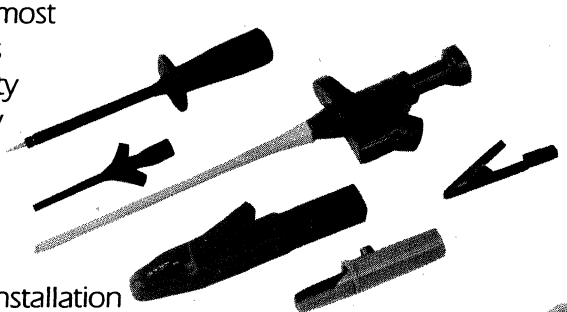


Water-tight industrial connectors for control and machine tool applications (DIN 43650/IP65)

For over 60 years Hirschmann has engineered interconnection solutions for industrial controls, sensors and test equipment, as well as computer and medical diagnostic equipment. Our connectors meet the most stringent requirements for reliability and safety — measured not only by industry standards, but by our customers who rely on them.

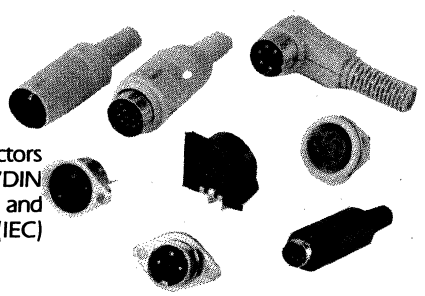


Circular connectors for sensors and instrumentation (IP 67)



Speciality probes and clips for medical diagnostic and test equipment (VDE)

Whether it's a basic installation or an intricate custom assembly, specify Hirschmann. Because when it comes to quality and performance, there's nothing like a Hirschmann but a Hirschmann.



Circular DIN connectors including miniature "DIN Style" for datacom and instrumentation (IEC)

Hirschmann

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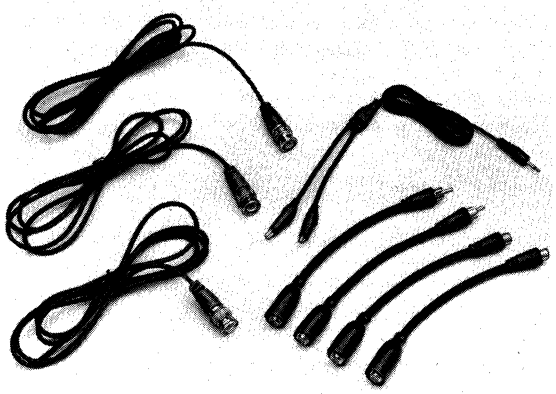
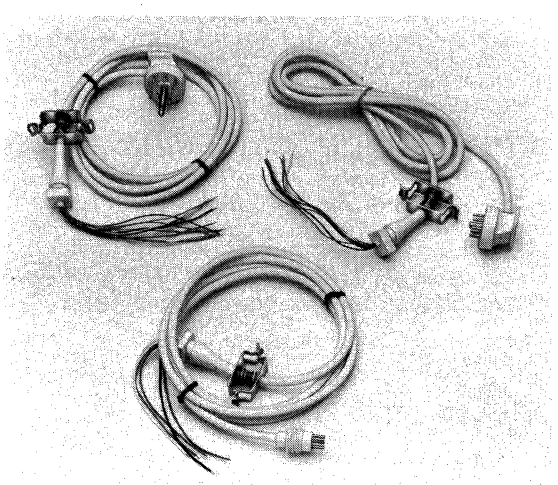


TOOLING SERVICES AVAILABLE FOR CUSTOM MOLDED CABLE ASSEMBLIES AND CUSTOM CONNECTORS

DESIGN OPTIONS

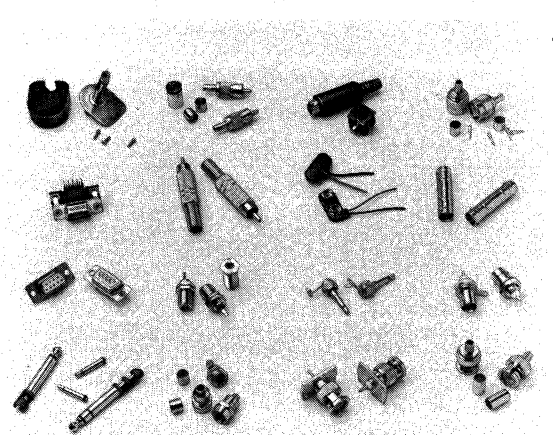
CABLE
- Conductor Type
  - Solid, Stranded, & Gauge
  - Number of Conductors
  - Paired or Unpaired
- Dielectric Type
- Types of Shields
  - Braided Copper
  - Foil/Drain Wire
  - Foil/Braid
  - 100% Shield
- Insulation of Conductors & Jacket
- Other

TERMINATION
- Stripped and Tinned
- Terminals
- Connectors
- Other



CONNECTORS

- AUDIO
- F CONNECTORS
- BNC
- TNC
- DIN CONNECTORS
- D SUB CONNECTORS
- UHF
- PCB MOUNT COAXIAL



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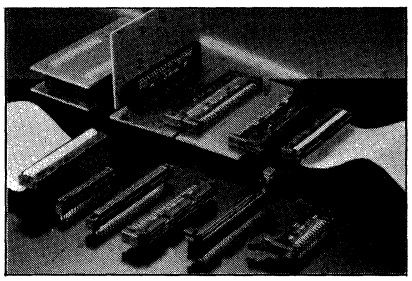
LOW PROFILE, HIGH DENSITY CONNECTORS

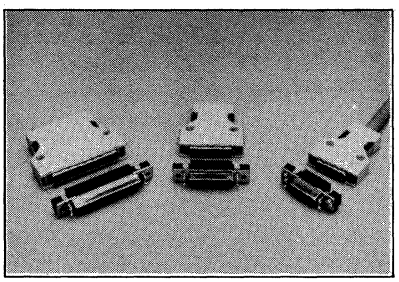
TX1-5 SERIES: TWO-PIECE HALF PITCH PCB CONNECTORS



This connector family offers two-piece PCB connectors with 0.050" high density contact spacing. These low profile, high density connectors provide design flexibility for board-to-board and board-to-cable applications. TX1, TX2, and TX3 is available in 20 through 100 contact arrangements. TX4 and TX5 is available in 40 through 100 contact arrangements.

- TX1: IDC Sockets for flat ribbon cable on 0.025" centers.
- TX2: IDC Sockets for flat ribbon cable on 0.050" centers.
- TX3: Pin Headers with standard or short latches, and straight or right angle through hole mounting.
- TX4: Socket Receptacles with straight or right angle through hole mounting
- TX5: Pin Headers with straight or right angle through hole mounting.

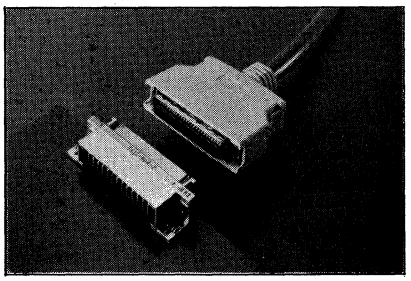
TX7 SERIES: HIGH DENSITY I/O CONNECTORS



Designed specifically for state-of-the-art electronic systems, the TX7 Series two-piece PCB connectors are high density, low profile, EMI shielded, IDC terminated connectors with 0.050" contact pitch and available in 26, 36, and 60 contact arrangements.

- Pin on plug and socket on receptacle limit contact exposure.
- Simple base pattern--0.050"X 0.077" 4-row offset pattern.
- D-shaped metal shell prevents mismating.
- Plug accommodates 26 or 28AWG discrete wire or ribbon cable.
- Latching mechanism permits end-to-end stackability.
- Panel mount receptacle.
- Option of hook pin or ground lug for stabilizing the receptacle on circuit board.
- Meets all EMI specifications for die-cast hoods.

TX10 SERIES: HIGH DENSITY I/O LEAF SPRING TYPE CONNECTORS

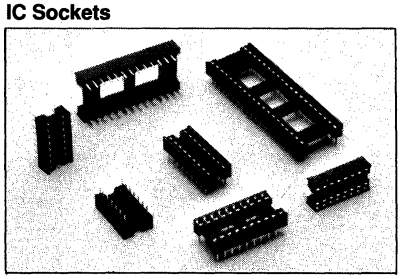


This series was developed to meet the needs of small computer interface systems requiring high density, shielded Input/Output connectors. Available in 20, 26, 36, and 50 contact arrangements.

- Low-profile, high density 50 mil pitch leaf spring contacts.
- Receptacle-on-board configuration minimizes possible damage to the systems connector.
- 4-row 0.050" X 0.077" board footprint.
- D-shaped metal shell prevents mismating.
- IDC termination accommodates 26 and 28AWG discrete or flat ribbon cable.
- Optional hook-pin or threaded ground lug for board mounting and grounding.
- Meets EMI specifications for shielded connectors.

SOCKETS

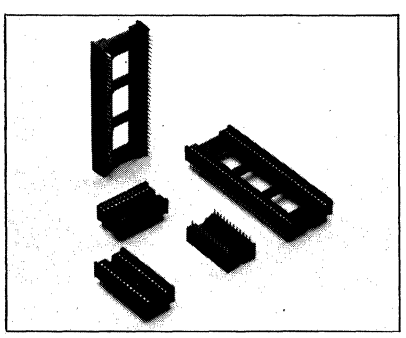
IC Sockets



DICF SERIES E

These low profile sockets have the bottom side of the insulator filled and sealed with a special synthetic resin to prevent any flux invasion from the bottom while soldering. In addition, the contact portion of the socket is protected from scattered flux invasion from the top with masking tape.

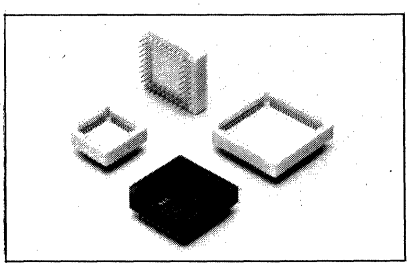
- Low profile design
- .197" (5.0mm) socket height.
- Dual wipe contacts.
- Gold or tin plated contacts.
- 8,14,16,22,24,28,40 and 42 contact layouts (additional layouts available)
- 1A rated current.



DICS SERIES

The DICS Series of IC sockets is suitable for "shrink" -type DIP ICs with spacing of .070" (1.78mm) spacing between adjacent contacts.

- Low profile.
- Highly reliable, with double contact configuration and excellent spring characteristics.
- UL approved insulator material.
- Anti-flux version also available.
- 24,28,30,42, and 64 contact layouts.
- 1A rated current.



PLPS SERIES

The PLPS Series of chip carrier sockets accepts the JEDEC type A plastic leaded chip carriers with 44, 68, and 84 leads on .050" (1,27mm) spacing.

- Solder posts on .100"(2.54mm) square grid.
- Index for polarization.
- Excellent spring action of preloaded contacts.
- Standoffs and drain holes for easy PC board cleaning.
- Substrate removal tool available.

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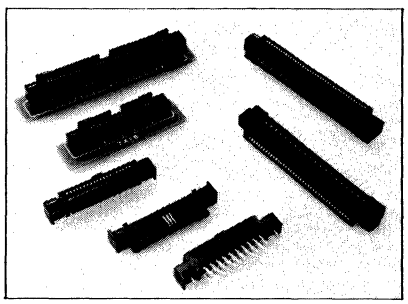
PCB CONNECTORS

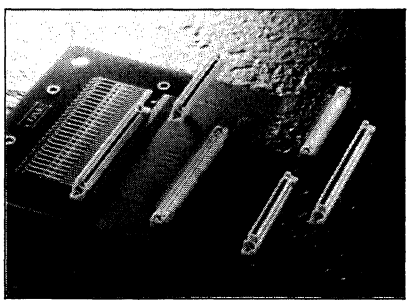
TX 14/15 SERIES: HIGH DENSITY PCB CONNECTORS



Designed for high density applications. Board-to-board leaf spring contact design (non pin/socket type) features superior reliability and stability. Available in 40, 60, 80, 100, 120, 140, 160, 180 and 200 contact arrangements.

- Receptacle (TX14) and plug (TX15) can be arranged in horizontal, vertical or parallel positions.
- Straight through hole and angled through hole types available.
- Adaptable to parallel board assemblies spaced within a 0.472" (12mm) to 0.787" (20mm) range.
- Extra long contact wipe and static contact area insure greater reliability and stability.
- Leaf spring-type contact resists damage from tortional loads.
- Two sets of four contacts at each end of male connector extend 0.315" (8.0mm), providing a first make /last break feature to protect against ESD damage.
- Anti-wicking feature protects against flux contamination.
- Available with 16 optional polarized keying positions.
- Hook pin mounting eliminates threaded board mounting hardware.

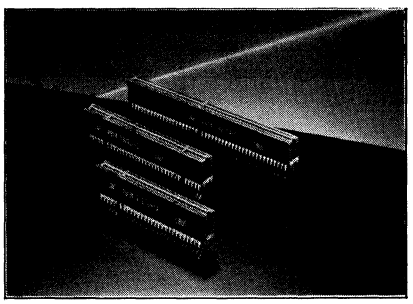
SX SERIES: HIGH DENSITY SMT CONNECTOR SYSTEMS



High density, surface mount connector systems designed for parallel board-to-board stacking. Two optional board stacking heights of .250" and .315" are available. Contact arrangements of 40, 50, 70, 80, and 100 are available on 0.050" contact pitch.

- High temperature thermoplastic insulator.
- High density 0.050" contact pitch.
- Gull wing type surface mount terminals.
- Leaf spring type contacts.
- Hook-pin board mounts allow double sid ed mounting.

PB24 SERIES MICRO-CHANNEL™ CONNECTORS

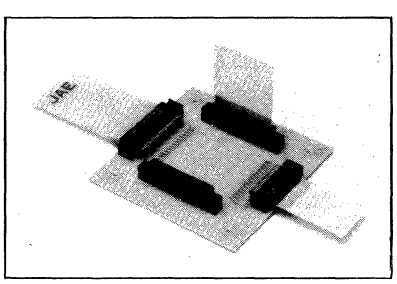


PB24 Series card-edge connectors provide the critical connection between motherboard and daughterboard. Available in 112,132 and 182 pin counts on 0.050" contact pitch.

- 100% compatible with IBM® Personal System/2™ microchannel configuration.
- 0.050" contact pitch accommodates 0.62" thick, double-sided PC boards.
- Pre-tinned terminals tails are arranged on 0.10", 4 row, staggered hole pattern.

Micro-Channel is a registered trademark of International Business Machines, Inc.

PB22 SERIES: EDGE CARD CONNECTORS



These high density, lightweight edge card connectors have contact spacing of just .050" and are ideal for compact, high density packing applications.

- Straight through hole and right angle through hole types.
- Two rows of the right angle through hole solder tails are staggered, and the third row is a surface mount configuration.
- 40 and 60 contact layouts.
- 0.5A rated current
- Applicable PCB thickness of .039" and .063".

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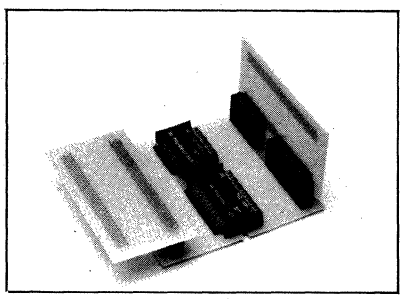
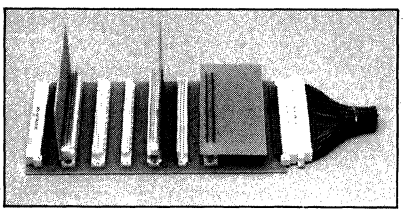
PCB CONNECTORS

TWO PIECE CIRCUIT BOARD CONNECTORS



PICL

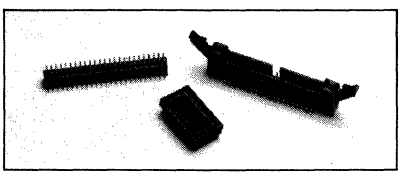
These two-piece, miniature connectors are ideal for use in products having limited space for PC interconnections.
- High contact density (.050" pitch).
- Board-to-board applications.
- Through hole, right angle and straight interconnections.
- Optional polarizing key available.
- 30, 40, 50 and 60 contact layouts.
- 5A rated current.



ME03 SERIES

The ME03 Series of two-piece circuit board connectors are compatible with IEC Pub. 603-2 and DIN41612 Standards. Used worldwide as internationally standard connectors, their space saving construction makes them suitable for use in communications, telecommunications and computer equipment, and with 19" card frames designed to IEC Standards.
- .100" contact spacing.
- Low insertion/removal force.
- Dual wipe contact configuration.
- Low cost.
- 64, 90 and 96 contact layouts.
- 3A rated current.
- Crimp and press fit termination options available.

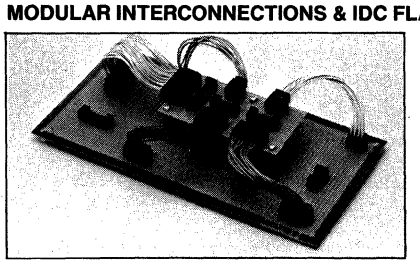
MODULAR INTERCONNECTIONS & IDC FLAT RIBBON CABLE CONNECTORS



PS SERIES

These IDC connectors are designed for flat ribbon cable applications. The PS Series includes socket connectors for discrete wires; board mounting pin headers with pin posts; and high performance connectors compatible with MIL-C-83503
- High contact density (.100" pitch).
- Board-to-board and board-to-cable applications.
- Crimp-socket contacts for high volume termination of discrete wires.
- 10, 16, 20, 26, 30, 34, 40, 50 and 60 standard contact layouts.
- 3A rated current.
- Insulators constructed of UL94V-0 flame-retardant material.

MODULAR INTERCONNECTIONS & IDC FLAT RIBBON CABLE CONNECTORS

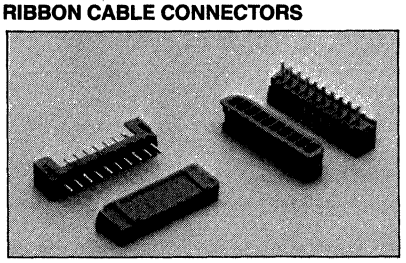


LY SERIES

Similar to the PS Series and other .100" pitch connectors, the LY Series offers high density packaging with its 2mm contact pitch.
- High contact density (.079", 2mm pitch).
- Dual wipe crimp contacts.
- Straight through hole and right angle through hole pin headers with tinned leads.
- 4 to 30 contact layouts (even numbers).
- 3A rated current.
- Accommodates 26 to 36AWG wire.

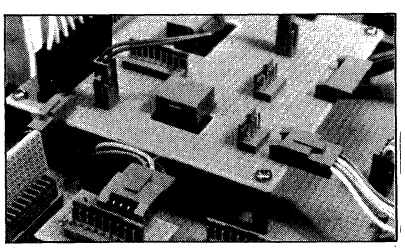
IL-S/T SERIES

The low cost IL-S/T Series of connectors feature compact spacing of 2.00mm for high contact density. Suitable for cable-to-board applications, with combinations of straight, right angle and bottom pin headers, and crimp sockets.
- 2.00mm contact spacing.
- Mated height is just .295-inches.
- Light locking mechanicsm.
- 2 to 15 contact layouts.
- 3A rated current.
- Accommodates 24 to 28AWG wire.



PS-LA SERIES

Low cost and compact, the PS-LA Series of low profile connectors are ideal for high density packaging in board-to-cable applications.
- Mated height is just .374-inches.
- Locking mechanism to resist high vibration levels and tensile forces.
- Dual wipe contact crimp contacts.
- Straight through hole and right angle through hole pin headers.
- 4 to 20 contact layouts.
- 3A rated current.
- Accommodates 24 to 28 AWG wire.



IL SERIES

These general purpose connectors are designed for indirect PCB interconnect applications in commercial/industrial and consumer electronics equipment. The IL Series includes the Original IL Series; the IL/G/J/M/P Series; and the IL-W Series.
- High contact density (2.00mm and 2.5mm pitch).
- Low cost.
- IDC, crimp and through hole types.
- Friction locking mechanism.
- 3A rated current.
- Accommodates 22 to 28AWG wire.

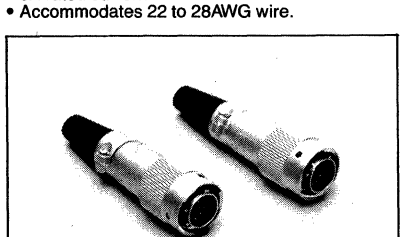
INPUT/OUTPUT CONNECTORS CIRCULAR CONNECTORS

SRC SERIES

The low cost and lightweight SRC Series of miniature circular connectors is ideal for use in general purpose applications where size and reliability are primary considerations.
- Panel-to-cable and cable-to-cable applications.
- Machined or stamped contacts.
- Solder termination.
- Insulators constructed of UL94V-0 flame-retardant material.
- Three shell styles and four shell sizes with pin and socket inserts provided.
- 3, 5, 7, 10 (2 versions), 16 (2 versions) and 24 contact layouts.
- 5A and 10A current ratings.
- Recognized under UL Component Program, File No. E-67741(S).
- Bayonet and threaded couplings.

JA SERIES

This highly reliable series of general purpose circular connectors is similar to MIL-C-5015 for use in applications not requiring a MIL-qualified connector. Available in a wide variety of styles, sizes and contact layouts, the JA Series offers combinations of receptacles, plugs and accessories for panel-to-cable and cable-to-cable connections for all types of electronic equipment.
- Similar to MIL-C-5015.
- High performance and high reliability.
- Available in most popular contact arrangements.
- 13A to 150A current rating.
- Solder and crimp terminations are available.



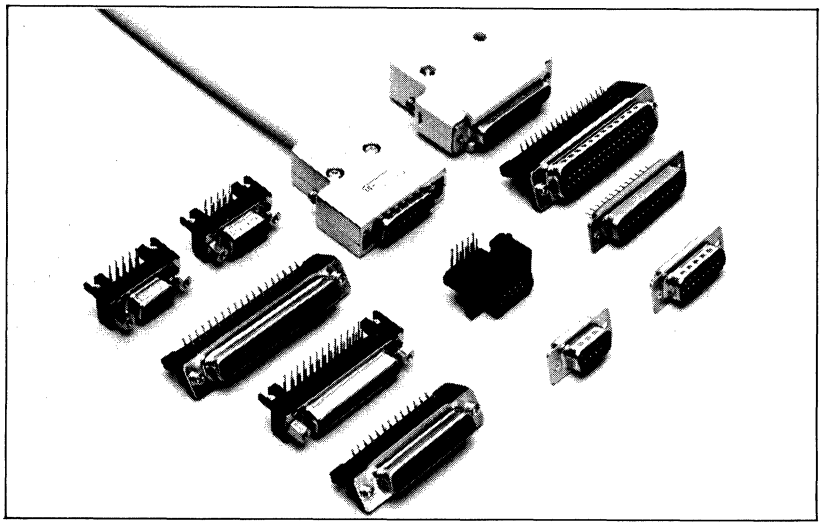
SRC SERIES

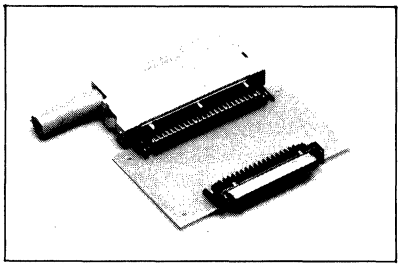
JA SERIES

JAE Electronics, Inc.
142 TECHNOLOGY DRIVE, SUITE 100,IRVINE, CA 92718-2401
TEL: 800/JAE-PART (523-7278) • IN CA. 714/753-2600 • FAX: 714/753-2699

INPUT/OUTPUT CONNECTORS

RECTANGULAR CONNECTORS





D05 SERIES

These connectors combine the standard features of D Subminiature connectors with .100" (2.54mm) contact spacing and EMI shielding.
- Receptacle with .100" right angle through hole contacts.
- Plug with metal front shell and easy-termination contacts.
- Clamp hood junction shell has a spring locking mechanism and provides for EMI protection of complete connector.
- 20, 26, 36 and 50 contact layouts.
- 5A current rating.

D SUBMINIATURE

The versatile D Subminiature Series of rectangular connectors is available in a wide variety of styles. These popular general-purpose connectors are ideal for use in applications such as computers, office equipment, telecommunications, instrumentation and industrial equiment. Features include:
- Five shell sizes and five contact arrangements (9, 15, 25, 37 and 50 contacts).
- Various termination styles: crimp, insulation displacement, solder, PCB through hole, and wire wrapping.
- Optional accessories for cable-to-panel, cable-to-PC board (straight and right angle mount), and cable-to-cable applications.

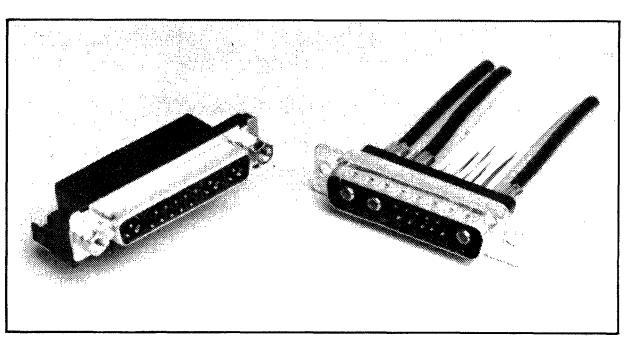
Standard D Subminiature Connectors
- **D*U:** Low cost general purposes connectors with crimp or through hole contacts.
- **D*SP:** Insulation displacement contacts for ribbon cable.
- **D*-N:** Low cost, stamped contact connectors with solder or through hole contacts.
- **D*M:** High reliability connectors available with standard contacts, or contact arrangements to accommodate coaxial contacts.
- **D*MA:** High reliability, crimp contact type connectors.

EMI Shielding D Subminiature Connectors

Designed to meet the demand for noise suppression and FCC regulations controlling electromagnetic interference (EMI). Features include lightweight and compact aluminum or plastic clamp hoods and nickel-plated metal shells with grounding dimples on plug side of connector to ensure firm connections and meet shielding requirements.
- **D*U-F:** Crimp terminations.
- **D*SP-F:** Insulation displacement terminations.
- **D*-F-N:** Solder terminations.
- **D*LC:** Through hole terminations.
- **D*-AF-N:** Through hole terminations.

Low Cost D Subminiature Connectors
- **D*LC:** PCB connectors with right angle through hole contacts. 5A rated current. 9, 15, 25, and 37 contact layouts. Standard or metric screw-lock assembly. Grounding lugs available.

DBML SERIES: HIGH DENSITY D-SUBMINIATURE MIXED SIGNAL CONNECTORS

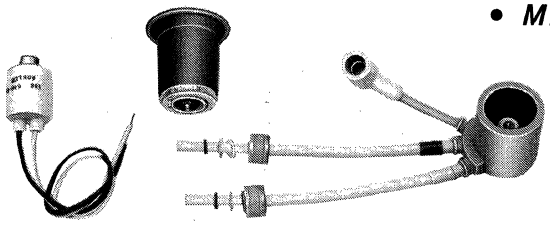


Designed for use with high resolution graphics I/Os for new generation Engineering Work Stations requiring 75Ω signal impedance. Combines Red-Green-Blue or gray scale graphics signals with data lines in a single shielded connector.
- Combines formed coaxial inserts and standard signal contacts in a single, low-cost, injection molded insulator.
- UL94V-O flammability rating.
- Snap-in expansion post mounting eliminates costly threaded hardware on board mount connector.
- Contacts produced on high speed stamping equipment.
- Dual crimp termination of coaxial cable contacts.
- Available in standard shell sizes.

PROBLEM SOLVERS IN High-voltage

A COMPLETE DESIGN-ENGINEERING AND MANUFACTURING SERVICE FOR ALL O.E.M. PROPRIETARY PRODUCTS FOR OVER 32 YEARS

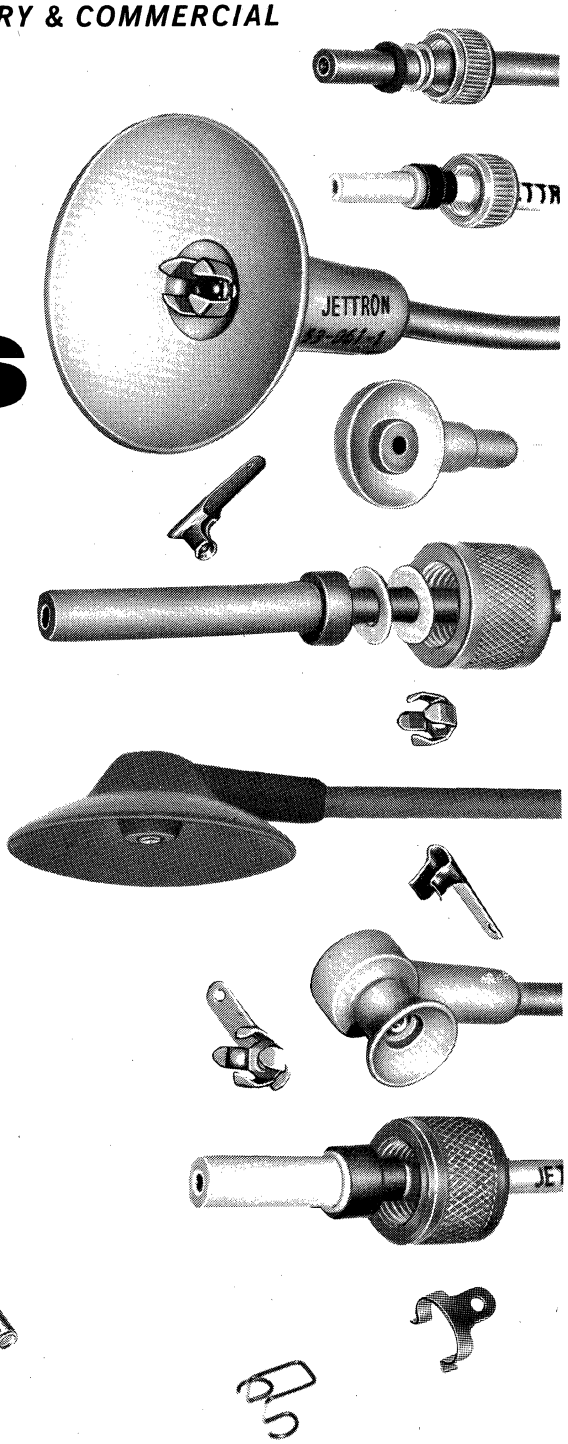
• ***MILITARY & COMMERCIAL***



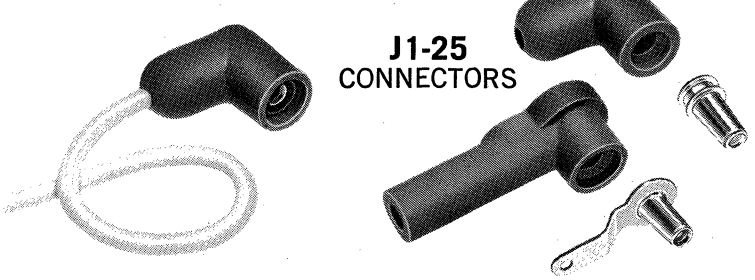
MAGNETRON CONNECTORS

JETTRON'S

Extensive line of high voltage connections to 50KVDC including molded silicone CRT anode leads (leakproof & corona free), in-line connectors, splices, and CRT anode connector kits for customer assembly. Potting contacts of BeCu for the JEDEC J1-21, J1-22, J1-25, J1-30, and J1-32 anode terminals.



Custom Molding
IN SILICONE RUBBER



J1-25
CONNECTORS

Page 1 of 2

JETTRON PRODUCTS, INC.
56 ROUTE 10, P.O. BOX 337E, EAST HANOVER, N.J. 07936
Telephone (201) 887-0571 • Fax (201) 887-4182

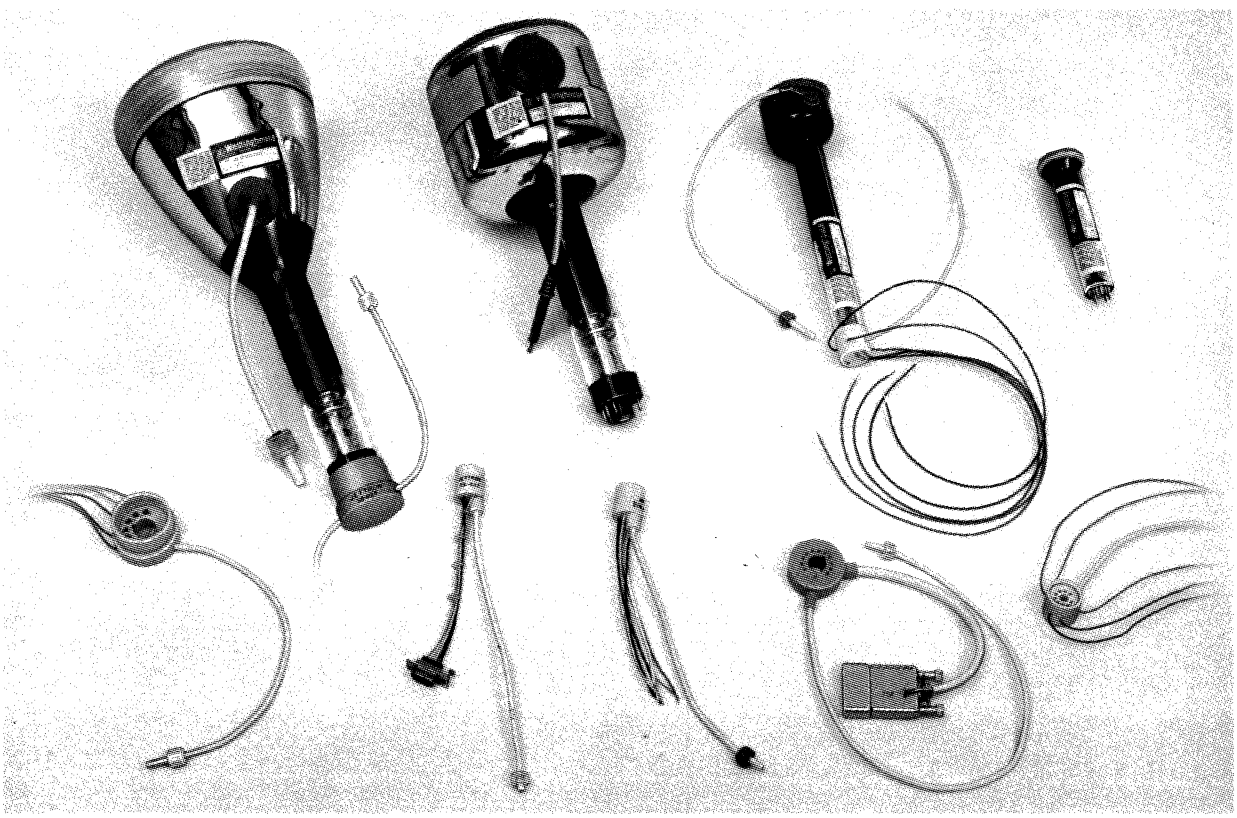
MOLDED HV RECEPTACLES

- THE ULTIMATE IN DEPENDABILITY EVEN UNDER SEVERE AND HOSTILE ENVIRONMENTAL CONDITIONS
- ENCAPSULATED, FLANGED, AND SPLICED TYPES FOR 10 AND 20 KVDC

★ NOTE: HIGHER KV RECEPTACLES ARE MADE ON SPECIAL ORDER FOR TEST AND APPLICATION REQUIREMENTS

SILICONE CRT ANODE CONNECTORS

BONDED TO WIRE INSULATION OR KITS FOR EASY ASSEMBLY



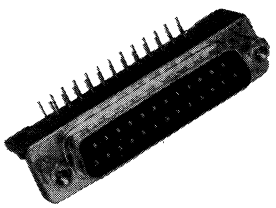
SILICONE CRT BASE CONNECTORS

jettron®
JETTRON PRODUCTS, INC.
56 ROUTE 10. P.O. BOX 337E. EAST HANOVER. N.J. 07936
Telephone (201) 887-0571 • Fax (201) 887-4182

JH America, Inc.

20809 Higgins Court, Torrance, California 90501
Telephone (213) 328-0051 FAX (213) 328-0057

E112102 E110892
E118077 LR 83825



D □ □ — □ K — □ F □
1 2 3 4 5

1. Shell Size (*A, B, C. . .etc.*)
2. M=Male with ground detents
   P=Male without detents S=Female
3. T=Tin (*standard*)
4. J=4-40 Threaded Insert
   K=Economy Version (*no insert*)
5. Blank=RS-232 Hex
   (*hex installed*)/Economy Version
   N=RS-232 Hex (*hex not installed*)/
   4-40 Insert
   NO=4-40 insert without RS-232 Hex
   NI=RS-232 Hex (*hex installed*)/4-40 Insert

9(e), 15(A), 19(F), 23(G), 25(B), 37(C)

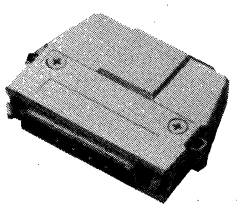
ORDER INFORMATION

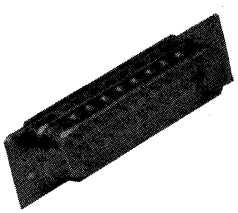
NO. OF PINS

MD □ — TK IIF □
1 2

1. Number of Contacts
2. Cable Exit 1=180°
   7=75°

50 *(available from stock)*
(contact factory for availability of other sizes)





D □ □ — □ K — SF
1 2 3

1. Shell Size (*A, B, C. . .etc.*)
2. M=Male with ground detents
   P=Male without detents
   S=Female
3. T=Tin (*standard*)
   Z=Zinc (*special order*)

9(e), 15(A), 19(F), 23(G), 25(B), 37(C), 50(D)

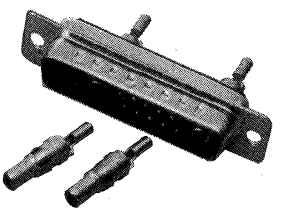
ORDER INFORMATION

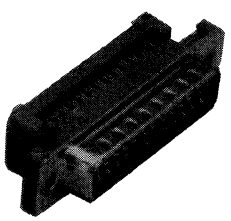
NO. OF PINS

D□□—TK—XF—□□□□
1 2 3 4

1. Shell Size (*A, B, C. . .etc*)
2. M=Male with ground detents
   S=Female
3. Number of ⌀ 1.02 pins
4. Number of coaxial contacts

EX: 9 Pin shell=04C1
15 Pin shell=00C3, 05C2, 10C1
25 Pin shell=05C4, 10C3*, 15C2, 20C1
*=standard part





D □ □ — □ B — IF
1 2 3

1. Shell Size (*A, B, C. . .etc*)
2. M=Male with ground detents
   S=Female
3. T=Metal shell (*tin standard*)
   O=All plastic shell
   (*special order*)

9(e), 15(A), 19(F), 23(G), 25(B), 37(C)
(strain relief not included, must be ordered separately)

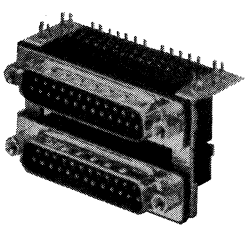
ORDER INFORMATION

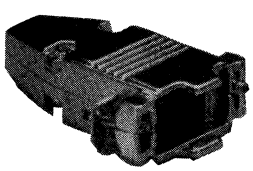
NO. OF PINS

D□□—□□—IK—ZF—□
1 2 3 4 5

1. Upper connector shell size (*A, B, C, etc.*)
2. Upper connector gender:
   M=Male with detents S=Female
3. Lower connector shell size: (*A, B, C, etc.*)
4. Lower connector gender:
   M=Male with detents S=Female
5. Mounting style
   (contact factory for details)

Standard D-Sub: 15(A), 25(B), 37(C)
High Density: 9(E), 15(O), 26(I), 44(M), 62(H)





HD □ — □ □ □
1 2 3 4

1. Material: 1=Plastic
   3=Zinc alloy
2. Color: 1=Black* 2=Grey*
   3=Electro Plated
   (*metal or plastic*)
3. Shell size (*A, B, C. . .etc.*)
4. Hardware: 1=4-40 Screws
   2=4-40 Thumb Screws
   (**plastic hood only*)

9(e), 15(A), 19(F), 23(G), 25(B), 37(C)
50(D)

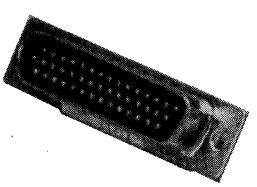
ORDER INFORMATION

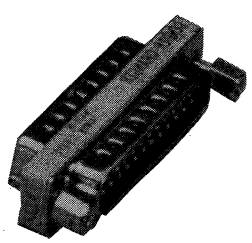
NO. OF PINS

D □ □ — TK — TF
1 2

1. Shell Size (*A, B, C. . .etc*)
2. M=Male with ground detents
   S=Female

15(A), 26(I), 44(M), 62(H), 78(J), 104(N)





D □ □ — □ K — YF
1 2 3

1. Shell Size (*A, B, C. . .etc*)
2. M=Male with ground detents
   S=Female
3. N=Nickel (*standard*)
   T=Tin (*special order*)

9(e), 15(A), 19(F), 23(G), 25(B), 37(C)

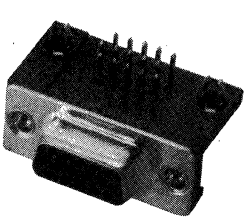
ORDER INFORMATION

NO. OF PINS

D □ □ — TK — RFN
1 2

1. Shell Size (*A, B, C. . .etc*)
2. M=Male with ground detents
   S=Female

Available from stock: 15(A) Female
(contact factory for availability of other sizes)



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20809 Higgins Court, Torrance, California 90501
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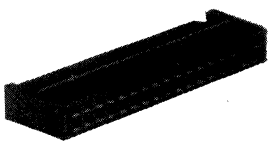
E112102 E118077 E110892 LR 83825



FC — □□ □□
1 2

1. Number of Contacts
2. AA=with Strain Relief
   AB=without Strain Relief

ORDER INFORMATION

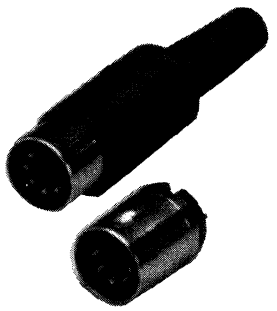
10, 12, 14, 16, 20, 24, 26, 30, 36, 40, 50, 60, 64 (*with polarization per MIL-C-83503*)

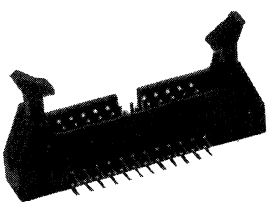
NO. OF PINS

DIN — □ □ — □
1 2 3

1. Number of Contacts
2. P=Male
   S=Female
3. M=Molding Type (*insert only*)
   A=Assembly Type (*with boot*)

3, 4, 5, 6, 7, 8 (*contact factory for special configurations on 5 & 8 pos.*)





SP — □ □ — □□
1 2 3

1. W=with Ejector
   N=No Ejector
2. Contacts: S=Straight
   R=Right Angle
3. Number of Contacts

ORDER INFORMATION

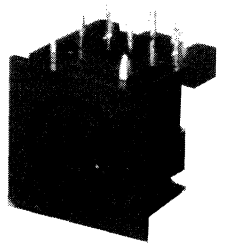
10, 12, 14, 16, 20, 26, 30, 36, 40, 50, 60, 64 (*with polarization per MIL-C-83503*)

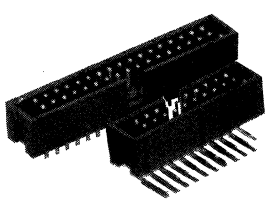
NO. OF PINS

DIN — □ S — □□
1 2

1. Number of Contacts
2. PH=All Plastic
   MH=MetalShell Shielding

3, 4, 5, 6, 7, 8 (*contact factory for special configurations on 5 & 8 pos.*)





LSP — □ □□
1 2

1. Contacts: S=Straight
   R=Right Angle
2. Number of Contacts

ORDER INFORMATION

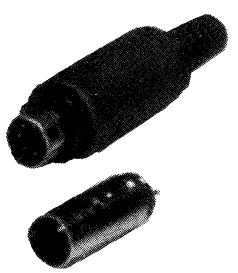
10, 14, 16, 20, 26, 30, 34, 36, 40, 50, 60, 64

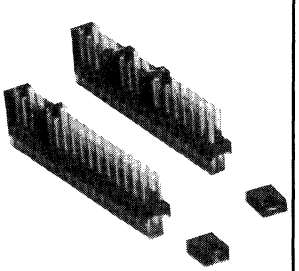
NO. OF PINS

MINIDIN — □ □ — □
1 2 3

1. Number of Contacts
2. P=Male
   S=Female
3. M=Molding Type (*insert only*)
   A=Assembly Type (*with boot*)

3, 4, 5, 6, 7, 8, 9* (**molding type only*)





MJ — F
Low Profile Shunt, Gold Flash

□ H — □ □□
1 2 3

1. S=Straight (180°)
   R=Right Angle (90°)
2. 1=Single Row
   2=Dual Row
3. Number of Contacts (*total all rows*)

Full Single Row: 40 Contacts (*1×40*)
Full Dual Row: 80 Contacts (*2×40*)

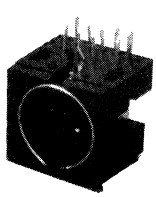
ORDER INFORMATION

NO. OF PINS

MINIDIN — □ S □□
1 2

1. Number of Contacts
2. PH=All Plastic
   MH=Metal Shell Shielding

3, 4, 5, 6, 7, 8



EC — □□ □□
1 2

1. Number of Contacts
2. AA=with Strain Relief
   AB=without Strain Relief*

10, 20, 26, 34, 40, 50, 60
(*standard without strain relief*)

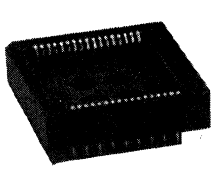
ORDER INFORMATION

NO. OF PINS

PLCC — □□ — □
1 2

1. Number of Contacts
2. Blank=Tin Plating
   G=Flash Gold Plating

44, 52, 68, 84



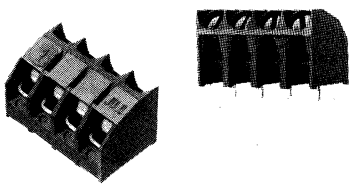
JOLO
13921 NAUTILUS DRIVE, GARDEN GROVE, CA 92643
(714) 554-6840 / FAX 714-554-0306
ELECTRONIC INTERCONNECTION HARDWARE

NEW! LOW PROFILE TERMINAL BLOCKS

THE TERMINAL BLOCKS FOR THE 90'S

BB-125 SERIES

Available in 2-12 Positions
For P.C. board mounting



MATERIALS

Terminal:	Brass, tin-lead plated
Spring:	Stainless steel
Insulator:	Polyester, blue (UL94 V-O)
Screws:	Steel, zinc plated

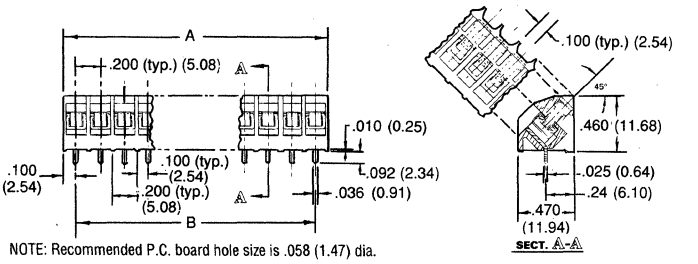
SPECIFICATIONS

Current Rating:	15 amps
Voltage Rating:	500 Volts RMS
Wire Size:	#16 AWG maximum

Terminals	A	B	JOLO Part No.
2	.400 (10,16)	.200 (5,08)	BB-125-02
3	.600 (15,24)	.400 (10,16)	BB-125-03
4	.800 (20,32)	.600 (15,24)	BB-125-04
5	1.000 (25,40)	.800 (20,32)	BB-125-05
6	1.200 (30,48)	1.000 (25,40)	BB-125-06
7	1.400 (35,56)	1.200 (30,48)	BB-125-07
8	1.600 (40,64)	1.400 (35,56)	BB-125-08
9	1.800 (45,72)	1.600 (40,64)	BB-125-09
10	2.000 (50,80)	1.800 (45,72)	BB-125-10
11	2.200 (55,88)	2.000 (50,80)	BB-125-11
12	2.400 (60,96)	2.200 (55,88)	BB-125-12

FEATURES

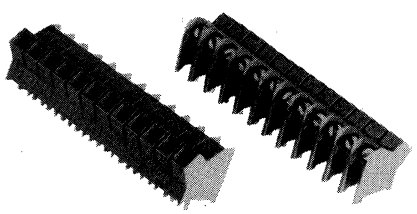
- Low profile, compact size - only .460" high, ideal for high density applications
- 45° angled entry - easy access where space is limited
- Polyester insulator (UL94 V-O) - low moisture absorption, excellent electrical characteristics
- Pedestal design - simplifies flux removal
- Butt mountable/end stackable
- Captive stainless steel screws



NOTE: Recommended P.C. board hole size is .058 (1.47) dia.

BB-122-XX SERIES

Available in 3,4, 6, 8, 10 and 12 positions
For P.C. board mounting



MATERIALS

Terminal:	Brass, tin-lead plated
Spring:	Stainless steel
Insulator:	Polyester, blue (UL94 V-O)
Screws:	Stainless steel

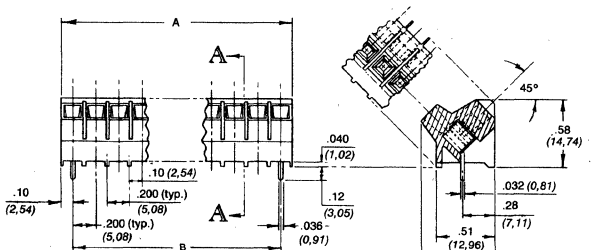
SPECIFICATIONS

Current Rating:	15 amps
Voltage Rating:	500 Volts RMS
Wire Size:	#16 AWG maximum
Resistivity:	Minimum 10^{10} ohms at 40°C and 95% relative humidity

Terminals	A	B	JOLO Part No.
3	.600 (15,24)	.400 (10,16)	BB-122-03
4	.800 (20,32)	.600 (15,24)	BB-122-04
6	1.200 (30,48)	1.000 (25,40)	BB-122-06
8	1.600 (40,64)	1.400 (35,56)	BB-122-08
10	2.000 (50,80)	1.800 (45,72)	BB-122-10
12	2.400 (60,96)	2.200 (55,88)	BB-122-12

FEATURES

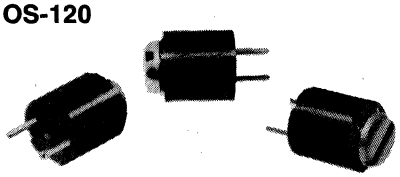
- Designed to conform to IEC Standard 348
- 45° angled entry – easy access where space is limited
- Polyester insulator (UL 94 V-O) – low moisture absorption, excellent electrical characteristics
- Pedestal design – simplifies flux removal
- Butt mountable/end stackable
- Captive stainless steel screws

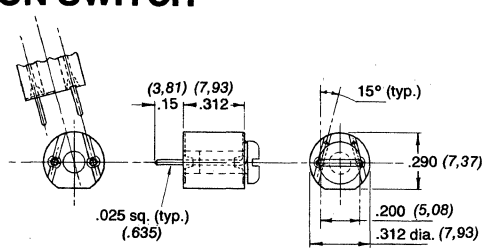


NOTE: Recommended P.C. board hole size is .058 (1.47) dia.

OPTION SWITCH

OS-120





FEATURES

- Simple, reliable design
- Cost effective
- Vibration resistant
- P.C. Mount, .200" centers
- Polyester insulator (UL94 V-O)

MATERIALS

Terminal:	Phosphor Bronze, tin plated
Screw:	Steel, tin plated
Insulator:	Polyester, black (UL94 V-O)

SPECIFICATIONS

Current Rating:	10 amps @ 110 V.R.M.S.
Breakdown Voltage:	1800 V.R.M.S. (Min.) with screw backed out two full turns

JOLO
13921 NAUTILUS DRIVE, GARDEN GROVE, CA 92643
(714) 554-6840 / FAX 714-554-0306

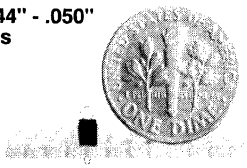
ELECTRONIC INTERCONNECTION HARDWARE

P.C. TEST JACKS

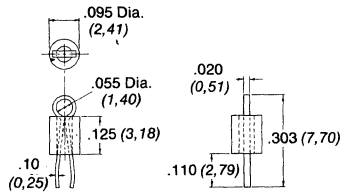
Vertical Test Jack (Snap-In)

Snaps into .044" - .050" diameter holes

Subminiature size for high density packaging



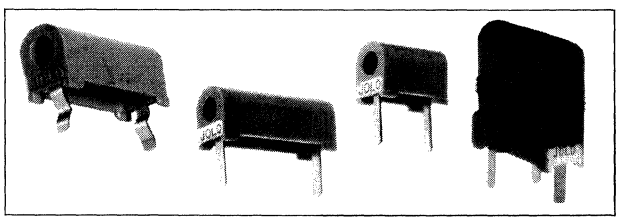
FEATURES
- For use with hook or clip probes
- Stands less than .200" off P.C. board
- Self-supporting during wave soldering
- Mounts on .100" grid pattern
- 3 standard colors (red, white, black)



Contact Material	Contact Finish	JOLO Series
Phosphor Bronze	.0002" electrotin	SPCJ-123-XX*

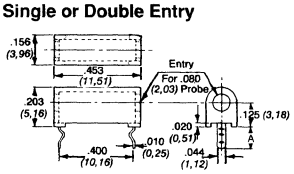
*XX=Insulator color code

Horizontal Test Jacks

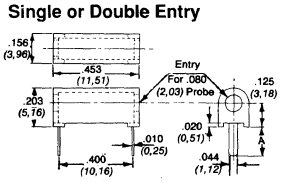


Ctr Spacing	Entry	Style	A	Contact Finish	Contact Mat'l	JOLO Series
.400"	Double	Std	.150	Gold or Tin	BeCu	PCJ-100
.400"	Double	Std	.150	Tin	Phos Br	PCJ-200
.400"	Double	Snap-in	.110	Gold	BeCu	PCJ-124
.400"	Double	Std	.110	Gold or Tin-Lead	Phos Br	PCJ-219
.400"	Single	Std	.150	Gold or Tin	BeCu	PCJ-300
.400"	Single	Std	.150	Tin	Phos Br	PCJ-400
.400"	Single	Snap-in	.110	Gold	BeCu	PCJ-424
.400"	Single	Std	.110	Gold or Tin-Lead	Phos Br	PCJ-419
.200"	Single	Std	.150	Gold or Solder	BeCu	PCJ-112
Tri-Mount	Double	Std	.130	Gold or Tin	Phos Br	PCJ-216

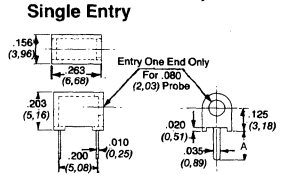
.400" Ctrs/Snap-in style
Single or Double Entry



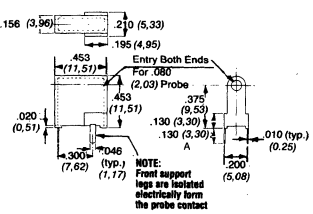
.400" Centers/ Std style
Single or Double Entry



.200" Centers/ Std style
Single Entry



Tri-Mount/Std style
Double Entry



FEATURES
- For use with .080" probes
- Pedestal design enables flux removal
- Closed entry prevents insertion of probes greater than .085" diameter
- Snaps into .060" dia. holes (Snap-in style)
- Ten colors available

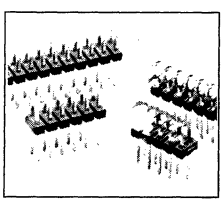
MATERIALS
Insulator: Nylon
Contact: Beryllium Copper or Phosphor Bronze
Support: Brass (Tri-Mount Only)

SPECIFICATIONS
Current Rating: 5 amps
Operating voltage: 1500 V.R.M.S.
Contact resistance: 5 milliohms max. at 5 amps
Probe insertion force: 8 oz. min., 5 lbs. max.

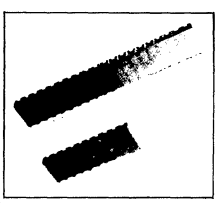
INSULATOR COLOR CODE

–01	white	–06	orange
–02	red	–07	blue
–03	black	–08	yellow
–04	brown	–09	gray
–05	green	–10	purple

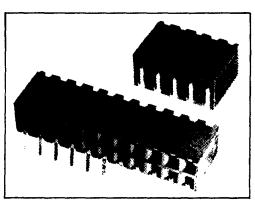
.025 SQ. PIN HEADERS and SOCKETS (.100" ctrs.)



Pin Headers
- mate with .025 sockets and shunts
- straight / right angle



Top Entry Sockets
- high density packaging
- mate with .025 pin headers



Horizontal Sockets
- mother-daughter board applications
- mate with .025 pin headers

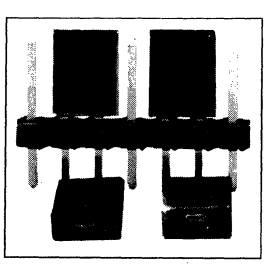
Description	Style	JOLO Series
Pin header	Single row, straight	1-PHS-977
Pin header	Single row, rt. angle	1-PHS-975
Pin header	Dual row, straight	1-PHD-976
Pin header	Dual row, rt. angle	1-PHD-974
Socket	Top entry, single row	1-TSS-982
Socket	Top entry, dual row	1-TSD-983
Socket	Horizontal entry, single row	1-HSS-989
Socket	Horizontal entry, dual row	1-HSD-988

FEATURES
Pin headers and sockets available in single or dual row, 72 contacts max.

MATERIALS
Contact: Phosphor bronze
Insulator: Glass-filled polyester, UL 94V-0
Plating: Tin-lead or selective gold/tin-lead

SPECIFICATIONS
Current rating: 3 amps
Contact resistance: 15 milliohms maximum
Insulation resistance: 1 x 10^6 megohms @ 500V dc
Insertion force: 5.40 ozs. maximum, per contact (gold
Withdrawal force: 1.08 ozs. minimum, per contact (gold)

JUMPER SOCKETS / SHUNTS (.100" ctrs.)



FEATURES
- hardware programming switches
- side and end stackable
- four styles (open, closed, w/handle, double)
- four colors (red, black, blue, gray)

MATERIALS
Contact: Phosphor bronze
Insulator: Glass-filled polyester, UL 94V-0
Plating: Tin-lead or selective gold/nickel

Style	JOLO Series
Open top	1-JSO-75
Closed top	1-JSC-77
Closed top w/handle	1-JSH-79
Double, open top	1-JSD-85

SPECIFICATIONS
Current rating: 2 amps
Contact resistance: 20 milliohms maximum
Insertion force: 14.4 ozs. nominal, per contact (gold
Withdrawal force: 3.3 ozs. nominal, per contact (gold)

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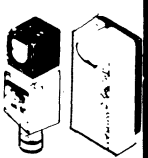
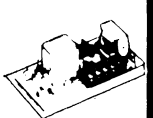
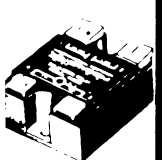

PHOTOELECTRICS

RELAYS


LIQUID LEVEL CONTROLS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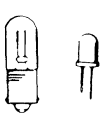
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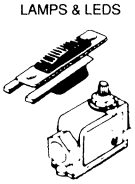
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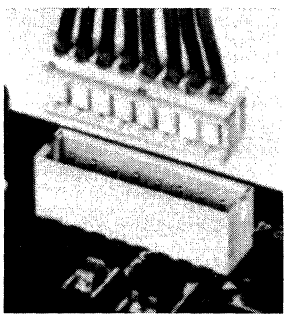

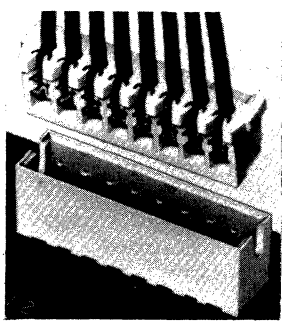

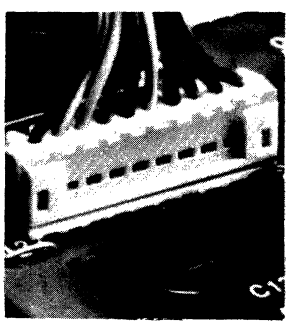

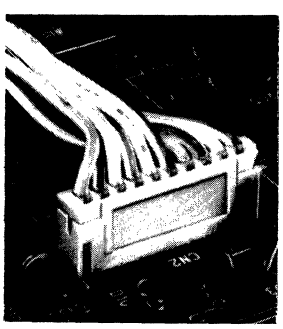

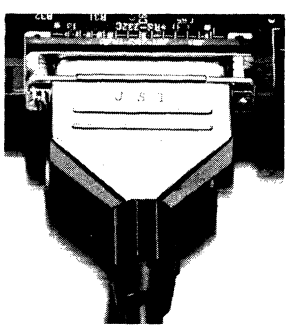

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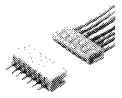
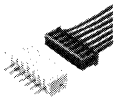
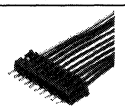
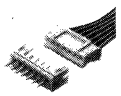
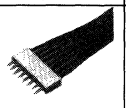
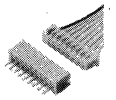
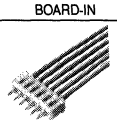
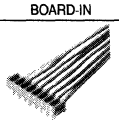
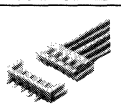
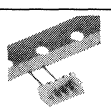
APPLICATION		WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD
PITCH in. (mm)		.059 (1.5)	.059 (1.5)	.059 (1.5)	.059 (1.5)	.079" (2.0)	.079" (2.0)	.079" (2.0)
TYPE		CRIMP DISCONNECTABLE	CRIMP BOARD-IN	IDC DISCONNECTABLE	IDC BOARD-IN	CRIMP DISCONNECTABLE	CRIMP BOARD-IN	IDC DISCONNECTABLE
STYLE								
PCB ENTRY		STRAIGHT/RIGHT ANGLE	STRAIGHT	STRAIGHT/RIGHT ANGLE	STRAIGHT	STRAIGHT/RIGHT ANGLE	STRAIGHT	STRAIGHT/RIGHT ANGLE
NO. OF CIRCUITS		2-13	2-13	2-13	2-13	2-16	2-15	2-16
WIRE SIZE		AWG #32-#28	AWG #30-28	AWG #30, #28 7 STRANDS, TIN COATED O.D. .028"-.031" (0.7-0.8)	AWG #30, #28 7 STRANDS, TIN COATED O.D. .028"-.031" (0.7-0.8)	AWG #30-#24	AWG #30-#24	AWG #28, #26, 7 STRANDS TIN COATED O.D. .035"-.039" (0.9-1.0)
RATINGS	CURRENT	0.7 A AC/DC	0.7 A AC/DC	0.7 A AC/DC	0.7 A AC/DC	2.0 A AC/DC	2.0 A AC/DC	1 A AC/DC
	VOLTAGE	50V AC/DC	50V AC/DC	50V AC/DC	50V AC/DC	250V AC/DC	250V AC/DC	100V AC/DC
	TEMP. RANGE	-25°C TO +85°C	-25°C TO +85°C	-25°C TO +85°C	-25°C TO +85°C	-25°C TO +85°C	-25°C TO +85°C	-25°C TO +85°C
MATERIAL AND FINISH	HOUSING	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	2-12 NYLON, UL94V-0 13-16 GL. FILLED NYL., UL94V-0
	CONTACTS	PHOSPHOR BRONZE TIN PLATED	BRASS TIN PLATED	PHOSPHOR BRONZE COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE TIN PLATED	BRASS TIN PLATED	PHOSPHOR BRONZE COPPER UNDERCOAT TIN LEAD PLATED
	HEADER	GLASS FILLED, 66 NYLON UL94V-0	—	GLASS FILLED, 66 NYLON UL94V-0	—	66 NYLON UL94V-0	—	66 NYLON, UL94V-0
	HEADER POST	BRASS COPPER UNDERCOAT TIN LEAD PLATED	—	BRASS COPPER UNDERCOAT TIN LEAD PLATED	—	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	—	BRASS, COPPER UNDERCOAT TIN LEAD PLATED
PART NOS.		CONTACT-SZN-003T-P0.5 HOUSING-ZHR-( ) TOP ENTRY HEADER-B( )B-ZR SIDE ENTRY HEADER-S( )B-ZR	CONTACT-SZN-003T-0.7K HOUSING-( )P-SZN	RECEPTACLE-( )ZR-3H: 30AWG ( )ZR-8H-28AWG TOP ENTRY HEADER-B( )B-2R SIDE ENTRY HEADER-S( )B-2R	CONNECTOR-( )ZA-3H; 30 AWG ( )ZA-8M; 28 AWG	CONTACT-SPH-002T-P0,S,S HOUSING-PHR-( ) TOP ENTRY HEADER-B( )-PH-K SIDE ENTRY HEADER-S( )-PH-K	CONTACT-SAN-002T-0.8A HOUSING-( )P-SAN	RECEPTACLE-( )KR-8M; 28 AWG ( )KR-6S; 26 AWG TOP ENTRY HEADER-B( )B-PH-K SIDE ENTRY HEADER-S( )B-PH-K

( ) # OF CIRCUITS

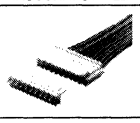
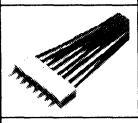
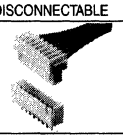
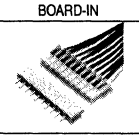
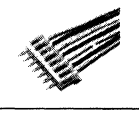
SERIES		DR	DA	DD/DS	EH	EH (Header on Tape)	XH
APPLICATION		WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD
PITCH in. (mm)		.079" (2.0)	.079" (2.0)	.079" (2.0)	.098" (2.5)	.098" (2.5)	.098" (2.5)
TYPE		IDC DISCONNECTABLE	IDC BOARD-IN	IDC BOARD-IN	CRIMP DICONNECTABLE	HEADER	CRIMP DISCONNECTABLE
STYLE							
PCB ENTRY		STRAIGHT/RIGHT ANGLE	STRAIGHT	RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT	STRAIGHT/RIGHTANGLE
NO. OF CIRCUITS		2-10	2-15	2-15	2-15	2-8	2-15,20
WIRE SIZE		AWG #28, 7 STRANDS TIN COATED O.D. .035"-.039" (0.9-1.0)	AWG #28-#26 7 STRANDS, TIN COATED O.D. .035"-.039" (0.9-1.0)	AWG #28 7 STRANDS, TIN COATED O.D. .035" (0.9)	AWG #30-#22	—	AWG #30-#22
RATINGS	CURRENT	1 A AC/DC	1 A AC/DC	0.7 A AC/DC	3 A AC/DC	EH (AWG #22 3 A AC/DC HR (AWG #24) 2 A AC/DC	3 A AC/DC
	VOLTAGE	100V AC/DC	100V AC/DC	100V AC/DC	250V AC/DC	—	250V AC/DC
	TEMP. RANGE	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
MATERIAL AND FINISH	HOUSING	66 NYLON, UL94V-0	66 NYLON, UL94V-0	2-11 NYLON, UL94V-0 12-15, GL. FILLED NYL. 66 UL94V-0	66 NYLON, UL94V-0	—	66 NYLON, UL94V-0
	CONTACTS	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	—	PHOSPHOR BRONZE BRASS TIN PLATED
	HEADER	66 NYLON, UL94V-0	—	—	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0
	HEADER POST	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	—	—	—	BRASS, COPPER UNDERCOAT, TIN LEAD PLATED	BRASS COPPER UNDERCOAT, TIN LEAD PLATED
PART NOS.		RECEPTACLE-( )DR-N-E8E; 28 AWG ( )DR-N-E6S; 26 AWG TOP ENTRY HEADER-B( )- DR SIDE ENTRY HEADER-S( )B-DR	CONNECTOR-( )DA-8M; 28 AWG ( )DA-6S; 26 AWG	CONNECTOR-( )DD-8M ( )DS-8E	CONTACT-SEH-00IT-P0.6 HOUSING-EHR-( ) TOP ENTRY HEADER-B( )B-EH-A SIDE ENTRY HEADER-S( )B-EH-A	HEADER-B( )-B-EH—T* * CONTACT JST FOR PACKAGING SPECIFICATIONS	CONTACT-SXH-00IT-*0.6 *BLANK FOR BRASS "P" FOR PHOSPHOR BRONZE HOUSING-XHP-( ) TOP ENTRY HEADER-B( )B-XH-A SIDE ENTRY HEADER-S( )B-XH-A

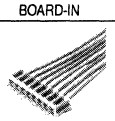
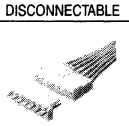
( ) # OF CIRCUITS

1200 Business Center Drive Suite #400, Mt. Prospect, IL 60056 U.S.A.
Phone 1-800-292-4243 (708) 803-3300/Int'l 1-708-8033300 Fax: (708)-803-4918/Int'l 1-708-8034918

CONNECTORS

J.S.T. CORPORATION

SERIES		NH	SCN	NR	NRD	HR	DB
APPLICATION		WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD
PITCH in. (mm)		.098″ (2.5)	.098″ (2.5)	.098″ (2.5)	.098″ (2.5)	.098″ (2.5)	.098″ (2.5)
TYPE		CRIMP DISCONNECTABLE	CRIMP BOARD-IN	IDC DISCONNECTABLE	IDC DISCONNECTABLE	IDC BOARD-IN	IDC
STYLE							
PCB ENTRY		STRAIGHT/RIGHT ANGLE BOTTOM	STRAIGHT	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT
NO. OF CIRCUITS		2-16, 18, 20-22, 24,25	2-16	2-10, 12, 13	2-4, 6-10, 12, 14, 16	2-13	2-13
WIRE SIZE		AWG #30-#22	AWG #28-#22	AWG #28, #26, #24 7 STRANDS, TIN COATED O.D. .043″ (1.1)-.059″ (1.5)	AWG #28, #26, #24 7 STRANDS, TIN COATED O.D. .043″-.059″ (1.1-1.5)	AWG #28, #26, #24 7 STRANDS, TIN COATED O.D. .039″-.059″ (1.0-1.5)	AWG #28, #26, #24 7 STRANDS, TIN COATED O.D. .039″-.055″ (1.0-1.4)
RATINGS	CURRENT	3 A AC/DC	3 A AC/DC	2 A AC/DC	2 A AC/DC	2 A AC/DC	2 A AC/DC
	VOLTAGE	250V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC
	TEMP. RANGE	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 85°C
MATERIAL AND FINISH	HOUSING	6 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0
	CONTACTS	PHOSPHOR BRONZE/ BRASS TIN PLATED	BRASS, TIN PLATED	PHOSPHOR BRONZE TIN PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT, TIN LEAD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT, TIN LEAD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT, TIN LEAD PLATED
	HEADER	66 NYL., UL94V-0 BOTTOM TYPE; 6 NYLON, UL94V-0	—	66 NYLON UL94V-0	66 NYLON UL94V-0	66 NYLON UL94V-0	—
	HEADER POST	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	—	BRASS, COPPER UNDERCOAT TIN PLATED	BRASS, COPPER UNDERCOAT TIN-LEAD PLATED	BRASS, COPPER UNDERCOAT TIN-LEAD PLATED	—
PART NOS.		CONTACT-SHF-001T-0.8*S; 28 TO 22 AWG SHF-002T-0.8*S; 30 TO 28 AWG *-S FOR BRASS MATERIAL B FOR PHOSPHOR BRONZE HOUSING- H( )P-SHF-AA TOP ENTRY HEADER- B( )P-SHF-1AA SIDE ENTRY HEADER- .BE( )P-SHF-1AA ( )-# OF POSITIONS	CONTACT- SCN-001T-1.0 HOUSING- ( )P-SCN	RECEPTACLE- ( )NR-E8M; 28 AWG ( )NR-E6S; 26 AWG ( )NR-E4K; 24 AWG ( )NR-E2R; 22 AWG TOP ENTRY HEADER- B( )B-XH-A SIDE ENTRY HEADER- S( )B-XH-A	RECEPTACLE- ( )NR-D8M; 28 AWG ( )NR-D6S; 26 AWG ( )NR-D4K; 24 AWG TOP ENTRY HEADER- B( )B-XH-A SIDE ENTRY HEADER- S( )B-XH-A	RECEPTICAL- ( )HR-8M; 28 AWG ( )HR-6S; 26 AWG ( )HR-4K; 24 AWG TOP ENTRY HEADER- B( )B-EH-A SIDE ENTRY HEADER- S( )B-EH	CONNECTOR- ( )DB-8M; 28 AWG ( )DB-6S; 26 AWG ( )DB-4k; 24 AWG

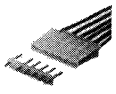
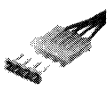
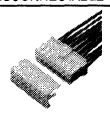
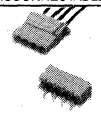
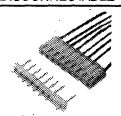
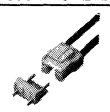
SERIES		ER	DC	RE	RF	VH	VR
APPLICATION		WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD
PITCH in. (mm)		.100″ (2.54)	.100″ (2.54)	.100″ (2.54)	.100″ (2.54)	.156″ (3.96)	.156″ (3.96)
TYPE		IDC DISCONNECTABLE	IDC BOARD-IN	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	IDC DISCONNECTABLE
STYLE							
PCB ENTRY		STRAIGHT/RIGHT ANGLE	STRAIGHT	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE
NO. OF CIRCUITS		2-10, 12	4-6, 8-10, 12	5, 9	6, 8, 10, 12 14, 16, 20, 28	2-10	2-6, 8-10, 12, 15
WIRE SIZE		AWG #24, #26, #28, #22 7 STRANDS, TIN COATED O.D. .043″-.059″ (1.1-1.5)	AWG #24, #26, #28 7 STRANDS O.D. .039″-.055″ (1.0-1.4)	AWG #30-#24	AWG #30-#24	AWG #22-#18	AWG #26, #24, #22, #20, #18* #26-#22: 7 STRANDS† #20:-7 & 26 STRANDS† #18;-34 & 43 STRANDS O.D. .051″-.083 (1.3-2.1)
RATINGS	CURRENT	2 A AC/DC	2 A AC/DC	2 A AC/DC	2 A AC/DC	7 A AC/DC	7 A AC/DC
	VOLTAGE	250V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC
	TEMP. RANGE	– 25°C to + 85°C	– 25°C to + 85°C	– 55°TO + 105°C (TIN PLATED: – 65%C to + 85°C)	– 55°TO + 105°C (TIN PLATED: – 65%C to + 85°C)	– 25°C to + 85°C	– 25°C to + 85°C
MATERIAL AND FINISH	HOUSING	66 NYLON, UL94V-0	66 NYLON, UL94V-0	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	6 NYLON, UL94V-0	66 NYLON, UL94V-2
	CONTACTS	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD PLATED)	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD PLATED)	PHOSPHOR BRONZE BRASS, TIN PLATED	BRASS TIN PLATED
	HEADER	66 NYLON, UL94V-0	—	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	66 NYLON, UL94V-0	2-10 CKTS.-66 NYL. UL94V-0 12 & 15 CKTS.-PBT, UL94V-0
	HEADER POST	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	—	BRASS, COPPER UNDERCOAT TIN LEAD PLATED (SELECTIVE GOLD PLATING)	BRASS, COPPER UNDERCOAT TIN LEAD PLATED (SELECTIVE GOLD PLATING)	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED
PART NOS.		RECEPTACLE- ( )ER-E8M; 28 AWG ( )ER-E6S; 26 AWG ( )ER-E4K; 24 AWG TOP ENTRY HEADER- B( )-ER SIDE ENTRY HEADER- S( )-B-ER	CONNECTOR- ( )DC-8M; 28 AWG ( )DC-6S; 26 AWG ( )DC-4K; 24 AWG	CONTACT- RF-SC22*0 *1 FOR GOLD PLATED 9 FOR TIN PLATED HOUSING- RE-0( ) HEADER- SEE 82802 BREAK-A-WAY HEADERS	CONTACT-RF-SC22*0 *-1 IS GOLD PLATED -9 IS TIN PLATED HOUSING-RF-0( ) HEADER-SEE 82804 BREAK-AWAY HEADERS	CONTACT-SVH-21T-*1.1 *BLANK IS BRASS MATERIAL P IS PHOSPHOR BRONZE MATERIAL HOUSING-VHR-( )N TOP ENTRY HEADER- B*P-VH SIDE ENTRY HEADER- B*PS-VH	RECEPTACLE- ( )VR-6S; 26 AWG ( )VR-4K; 24 AWG ( )VR-2R; 22 AWG ( )VR-AN; 20 AWG ( )VR-B0; 218AWG TOP ENTRY HEADER- B( )P-VR SIDE ENTRY HEADER- B( )PS-VR COVER-VRC( )E; FOR END CONNECTION VRC-( )D; FOR DAISY CHAIN CONNECTION

( ) # OF CIRCUITS

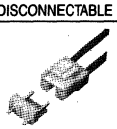
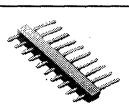
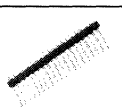
1200 Business Center Drive Suite #400, Mt. Prospect, IL 60056 U.S.A.
Phone 1-800-292-4243 (708) 803-3300/Int'l 1-708-8033300 Fax: (708)-803-4918/Int'l 1-708-8034918

CONNECTORS

J.S.T. CORPORATION

SERIES		NV	V	SV	XL	LC	VB	LB
APPLICATION		WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD	WIRE-TO-BOARD
PITCH in. (mm)		.197" (5.0)	.197" (5.0)	.197" (5.0)	.197" (5.0)	.200" (5.08)	.200" (5.08)	.244" (6.2)
TYPE		CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE
STYLE								
PCB ENTRY		STRAIGHT	STRAIGHT	STRAIGHT	STRAIGHT	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT
NO. OF CIRCUITS		2	2-6	2, 4, 6, 8, 10	2, 4, 8, 12, 16	4	2, 3, 6-9, 12	2, 3, 4
PCB THICKNESS RANGE in. (mm)		.063" (1.6)	.063" (1.6)	.063" (1.6)	.063" (1.6)	.063" (1.6)	—	.063"-.079" (1.6-2.0)
PANEL THICKNESS RANGE in. (mm)		—	—	—	—	—	—	—
WIRE SIZE		AWG #22-#18	AWG #26-#20	AWG #24-#20	AWG #26-#16	AWG #22-#18	AWG #22-#18	AWG #22-#18
RATINGS	CURRENT	7A AC/DC	5 A AC/DC	5 A AC/DC	10 A AC/DC	7 A AC/DC	7 A AC/DC	8 A AC/DC
	VOLTAGE	250V AC/DC	250V AC/DC	250V AC/DC	150V AC/DC	250V AC/DC	250V AC/DC	300V AC/DC
	TEMP. RANGE	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 90°C	– 25°C to + 90°C	– 25°C to + 85°C	– 25°C to + 90°C
MATERIAL AND FINISH	HOUSING	6 NYLON UL94V-0	6 NYLON UL94V-0 UL94V-2	6 NYLON UL94V-2	66 NYLON UL94V-0	6 NYLON UL94V-0	6 NYLON UL94V-0	6 NYLON UL94V-0
	CONTACTS	PHOSPHOR BRONZE TIN PLATED	BRASS TIN PLATED	BRASS TIN PLATED	PHOSPHOR BRONZE, BRASS TIN PLATED	BRASS TIN PLATED	PHOSPHOR BRONZE, BRASS TIN PLATED	BRASS TIN PLATED
	HEADER	66 NYLON UL94V-0	66 NYLON UL94V-0, UL94V-2	GLASS FILLED 66 NYLON UL94V-0	66 NYLON UL94V-0	66 NYLON UL94V-0	66 NYLON UL94V-0	66 NYLON UL94V-0
	HEADER POST	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT TIN PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, NICKEL UNDERCOAT TIN LEAD PLATED
PART NOS.		CONTACT-SVH-21T-P1.1 HOUSING-NVR-02 HEADER-B02P-NV	CONTACT-SVF-01T-1.5A HOUSING-( )P-SVF HEADER-RTB-1.5-( )	CONTACT-SVF-01T-1.5N HOUSING-S( )P-SVF HEADER-RTB-1.5-( )F	CONTACT-SXF-01T-*0.7; 26-20 AWG SXF-41T-*0.7; 20-16 AWG * BLANK FOR BRASS MATERIAL P FOR PHOSPHOR BRONZE HOUSING-XLP-( )V HEADER-B( )P-XL	CONTACT-SLC-21T-20 ONE WIRE CRIMP SLC-22T-2.0 TWO WIRE CRIMP HOUSING-LCP-04 TOP ENTRY HEADER-LC-04T SIDE ENTRY HEADER-LC-04A	CONTACT-SHV-21T-*1.1 * BLANK FOR BRASS P FOR PHOSPHOR BRONZE HOUSING-VBR-( )* EX. 3(4) IS 3 POSITION TOP ENTRY HEADER-B( )P*-VB *=( )+1 SIDE ENTRY HEADER-B( )P*S-VB *=( )+1	CONTACT-SLF-21T-20S HOUSING-LP-0( )-1V HEADER-LB-0( )-TV

( ) # OF CIRCUITS

SERIES		VA	LV	SMF	SIN	BC	SB
APPLICATION		WIRE-TO BOARD	WIRE-TO BOARD	WIRE-TO BOARD	WIRE-TO BOARD	BREAKAWAY HEADERS	STRAIGHT HEADER
PITCH in. (mm)		.312" (7.92)	.315" (8.0)	—	—	.079"(2.0)	.098" (2.5) 1.00" (2.54)
TYPE		CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP BOARD-IN	HEADER	HEADER
STYLE							
PCB ENTRY		STRAIGHT/RIGHT ANGLE	STRAIGHT	STRAIGHT	STRAIGHT	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE
NO. OF CIRCUITS		2	1-6	SINGLE	2-10	2-10	2-20
PCB THICKNESS RANGE in. (mm)		.063" (1.6)	.063" (1.6)	.063" (1.6)	CONTACT FACTORY	.063" (1.6)	.063" (1.6)
PANEL THICKNESS RANGE in. (mm)		—	—	—	—	—	—
WIRE SIZE		AWG #20-#18	AWG #24-#20	AWG #26-#20	AWG #30-#18	—	—
RATINGS	CURRENT	7 A AC/DC	5 A AC/DC	5 A AC/DC	DEPENDS UPON WIRE SIZE	—	—
	VOLTAGE	250V AC/DC	—	—	—	—	—
	TEMP. RANGE	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 85°C	– 25°C to + 85°C	—	—
MATERIAL AND FINISH	HOUSING	6 NYLON, UL94V-0	NORYL, UL94VV-1	66 NYLON, UL94V-0	—	—	
	CONTACTS	PHOSPHOR BRONZE, TIN PLATED	PHOSPHOR BRONZE, TIN PLATED	BRASS TIN PLATED	BRASS TIN PLATED	—	—
	HEADER	6 NYLON, UL94V-0	GLASS FILLED 66 NYLON UL94V-0	—	—	66 NYLON, UL94V-0	66 NYLON, UL94V-0
	HEADER POST	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT NICKEL PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	—	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED
PART NOS.		CONTACT-SVA-41T-P1.1 HOUSING-VAR-2 TOP ENTRY HEADER-B2P3-VH SIDE ENTRY HEADER-B2P3S-VH	CONTACT-SVF-01T-2.36N HOUSING-SIP-LV (1ST POSITION) ( )P-LV (2-6 POSITIONS) HEADER-B( )P-LV-TN	CONTACT-SMF-01T-1.0 SMF-01T-1.3 HOUSING-1P-SMF PIN-RT-01T-1.0B RT-01T-1.3B	CONTACT JST FOR PART #	TOP ENTRY HEADER-B( )P-BC-2 SIDE ENTRY HEADER-B( )PS-BC-1	TOP ENTRY HEADER-T( )B-SQ SIDE ENTRY HEADER-TS( )B-SQ

( ) # OF CIRCUITS

1200 Business Center Drive Suite #400, Mt. Prospect, IL 60056 U.S.A.
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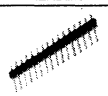
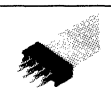
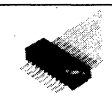
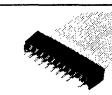
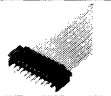
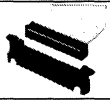
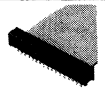
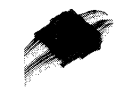
CONNECTORS

J.S.T. CORPORATION

SERIES		BREAKAWAY HEADERS		RK	VS	FM	FF/SF	FE
APPLICATION		PC BOARD HEADER	PC BOARD HEADER	PC BOARD HEADER	STRAIGHT HEADER	FLEXIBLE PRINTED CIRCUIT FLAT CABLE CONNECTOR	FLEXIBLE PRINTED CIRCUIT FLAT CABLE CONNECTOR	FLEXIBLE PRINTED CIRCUIT FLAT CABLE CONNECTOR
PITCH in. (mm)		.100" (2.54)	.100" (2.54)	.100" (2.54)	.156" (3.96)	.039" (1.0)	.049" (1.25)	.049" (1.25)
TYPE		HEADER	HEADER	HEADER	HEADER	—	SMT	—
STYLE								
PCB ENTRY		STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	RIGHT ANGLE	STRAIGHT/RIGHT ANGLE
NO. OF CIRCUITS		36	72	14, 34, 40	2-15	3-8, 10-12	5, 6, 7, 10, 17 21,23	5-15, 17-19, 21, 23 25-28, 32
PCB THICKNESS RANGE in. (mm)		.063" (1.6)	.063" (1.6)	.063" (1.6)	—	.031"-.063" (0.8-1.6)	.063" (1.6)	.063" (1.6)
PANEL THICKNESS RANGE in. (mm)		—	—	—	—	—	—	—
WIRE SIZE		—	—	—	—	FFC/FPC 1.0mm PITCH THICKNESS = .013" (0.33) COND. WIDTH = .028" (0.7)	FFC/FPC 1.25mm PITCH THICKNESS = .013" (0.33) COND. WIDTH = .031" (0.8)	FFC/FPC 1.25mm PITCH THICKNESS = .012" (0.3) COND. WIDTH = .031" (0.8)
RATINGS	CURRENT	—	—	—	—	.05 A AC/DC	1 A AC/DC	1 A AC/DC
	VOLTAGE	—	—	—	—	50V AC/DC	50V AC/DC	200V AC/DC
	TEMP. RANGE	—	—	—	—	– 25°C TO + 85°C	– 25°C TO + 85°C	– 25°C TO + 85°C
MATERIAL AND FINISH	HOUSING	—	—	—	—	PBT (PPS) UL94V-0	PPS UL94V-0	GLASS FILLED PBT UL94V-0
	CONTACTS	—	—	—	—	PHOS. BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	PHOS. BRONZE, COPPER UNDERCOAT TIN LEAD PLATED	PHOS. BRONZE, COPPER UNDERCOAT TIN LEAD PLATED
	HEADER	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	66 NYLON, UL94V-0	—	—	—
	HEADER POST	BRASS, COPPER UNDERCOAT TIN-LEAD PLATED (SELECTIVE GOLD)	BRASS, COPPER UNDERCOAT TIN-LEAD PLATED (SELECTIVE GOLD)	BRASS, COPPER UNDERCOAT TIN-LEAD PLATED (SELECTIVE GOLD)	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	—	—	—
PART NOS.		CONTACT JST FOR PART #'S	CONTACT JST FOR PART #'S	CONTACT JST FOR PART #'S TOP ENTRY- RK-H( )IT0-01*0 SIDE ENTRY- RK-H( )1SD-01*0 *1-GOLD PLATED 9-TIN PLATED	TOP ENTRY- B( )P-VS SIDE ENTRY- B( )PS-VS	TOP ENTRY- ( )FM-1.0BT SIDE ENTRY- ( )FM-1.0ST TOP ENTRY SMT- ( )FM-1.0BP SIDE ENTRY SMT- ( )FM-1.05P	CONNECTOR- ( )FF-SF	TOP ENTRY- ( )FE-BT SIDE ENTRY- ( )FE-ST

( ) # OF CIRCUITS

SERIES		FPZ	FDZ	RX	RA	RC	REC	SM
APPLICATION		FLEXIBLE PRINTED CIRCUIT FLAT CABLE	FLAT CABLE CONNECTOR	RIBBON CABLE CONNECTORS	RIBBON CABLE CONNECTORS	RIBBON CABLE CONNECTORS	RIBBON CABLE CONNECTORS	WIRE-TO-WIRE
PITCH in. (mm)		.039" (1.0)	.100" (2.54)	.100" (2.54)	.100" (2.54)	.100" (2.54)	.100" (2.54)	.098" (2.5)
TYPE		SMT	ZIF	IDC DISCONNECTABLE	IDC DISCONNECTABLE	IDC BOARD IN	IDC CARD EDGE	CRIMP DISCONNECTABLE
STYLE								
PCB ENTRY		RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	STRAIGHT/RIGHT ANGLE	RIGHT ANGLE	—	—
NO. OF CIRCUITS		7-25	5, 6, 8-13, 17	20, 34, 40, 50, 60	10, 14, 16, 20 26, 34, 40, 50, 60	10, 14, 16, 20 26, 34, 40, 50, 60	20, 34	2-12, 18
PCB THICKNESS RANGE in. (mm)		.063" (1.6)	.063" (1.6)	.063" (1.6)	.063" (1.6)	.063" (1.6)	.063" (1.6)	—
PANEL THICKNESS RANGE in. (mm)		—	—	—	—	—	—	—
WIRE SIZE		FFC/FPC 1.0mm PITCH THICKNESS = .012" (.03) COND. WIDTH = .027" (0.7mm)	FPC & MEMBRANE SWITCH LEADS: .100" (2.54) THICKNESS: .002"-.008" (0.05-0.02) LEAD WIDTH: .051" (1.3)	AWG #28 .050" (1.27) PITCH, FLAT CABLE	AWG #28 .050" (1.27) PITCH, FLAT CABLE	AWG #28 .050" (1.27) PITCH, FLAT CABLE	AWG #28 .050" (1.27) PITCH, FLAT CABLE	AWG #28-#22
RATINGS	CURRENT	.05 A AC/DC	1 A AC/DC	1 A AC/DC	1 A AC/DC	1 A AC/DC	1 A AC/DC	3 A AC/DC (max)
	VOLTAGE	50 V AC/DC	250V AC/DC	300V AC/DC	300V AC/DC	300V AC/DC	50V AC/DC	—
	TEMP. RANGE	– 25°C TO + 85°C	– 40°C TO + 85°C	– 55°C TO + 125°C (TIN PLATED: – 55°C TO + 105°C)	– 55°C TO + 125°C (TIN PLATED: – 55°C TO + 105°C)	– 55°C TO + 125°C (TIN	– 55°C TO + 105°C	– 25°C TO + 85°C
MATERIAL AND FINISH	HOUSING	PPS UL94V-0	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	6 NYLON UL94V-0
	CONTACTS	PHOSPHOR BRONZE COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE TIN PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD PLATED)	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD PLATED)	PHOS. BRONZE, COPPER UNDERCOAT TIN-PLATED (SELECTIVE GOLD)	PHOSPHOR BRONZE (SELECTIVE GOLD PLATED)	PHOSPHOR BRONZE, BRASS, TIN PLATED
	HEADER	—	—	GLASS FILLED PBT UL94V-0	GLASS FILLED PBT UL94V-0	GLASS FILLED PBT UL94V-0	—	—
	HEADER POST	—	—	BRASS, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD PLATED)	BRASS, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD PLATED)	—	—	—
PART NOS.		CONNECTOR- ( )FPZ-SM	TOP ENTRY- ( )FDZ-BT ( )FDZ-ST	CONTACT JST FOR PART #	CONTACT JST FOR PART #	CONNECTOR- RC-D( ); GOLD PLATED RC-D( )-290; TIN PLATED	CONNECTOR- REC-( )A-*412; WITH POLARIZING KEY *1-WITH STRAIN RELIEF 0-W/OUT STRAIN RELIEF REC-( )A-*412-0; W/OUT POLARIZING KEY	PIN CONTACT- SYM-001T-*0.6 SOCKET CONTACT- SHF-001T-0.8☆S *BLANK; BRASS P; PHOS. BRONZE ☆S; BRASS B; PHOS. BRONZE RECEPTACLE HOUSING- SMR-( )V-B PLUG HOUSING- SMP-( )V-B

( ) # OF CIRCUITS

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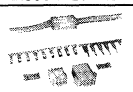
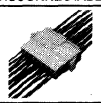
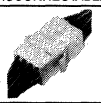
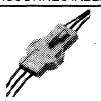
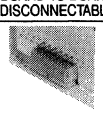
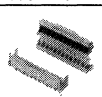
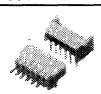
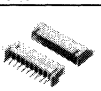
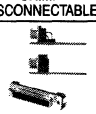
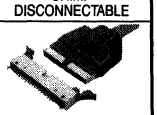
CONNECTORS

J.S.T. CORPORATION

SERIES		YL	EL	ZL	XL	L	LL	CL
APPLICATION		WIRE-TO-WIRE	WIRE-TO-WIRE	WIRE-TO-WIRE	WIRE-TO-WIRE	WIRE-TO-WIRE	WIRE-TO-WIRE	WIRE-TO-WIRE
PITCH in. (mm)		.177" (4.5)	.177" (4.5)	.197" (5.0)	.197" (5.0)	.244" (6.2)	.244" (6.2)	—
TYPE		CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	SECONDARY RETAINER	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE	BRANCH OR SHORT CIRCUIT MODE
STYLE								
PCB ENTRY		—	—	—	—	—	—	—
NO. OF CIRCUITS		2, 3, 4, 6, 8, 9 12, 15, 16	2-4, 6, 9, 12, 15	2, 4, 8, 12, 16	2, 4, 8, 12, 16	1-4, 6, 9, 12, 15	2-4, 6, 9, 12, 15	—
PCB THICKNESS RANGE in. (mm)		—	—	—	—	—	—	—
PANEL THICKNESS RANGE in. (mm)		.031"-.079" (0.8-2.0)	.031"-.079" (0.8-2.0)	.028"-.094" (0.7-2.4)	.028"-.094" (0.7-2.4)	.031"-.079" (0.8-2.0)	.031"-.063" (0.8-1.6)	—
WIRE SIZE		AWG #26-#18	AWG #26-#16	AWG #26-#16	AWG #26-#16	AWG #24-#14	AWG #24-#14	AWG #22-#14
RATINGS	CURRENT	7 A AC/DC	10 A AC/DC (max)	10 A AC/DC (max)	10 A AC/DC (max)	15 A AC/DC (max)	15 A AC/DC (max)	7 A AC/DC 20-22 AWG 15 A AC/DC 18-14 AWG
	VOLTAGE	300V AC/DC	300V AC/DC	300V AC/DC	300V AC/DC	300V AC/DC	600V AC/DC 300V AC/DC WHEN 2-WIRE CRIMP CONTACTS ARE USED	300V AC/DC
	TEMP. RANGE	– 25°C TO + 90°C	– 25°C TO + 90°C	– 25°C TO + 90°C	– 25°C TO + 90°C	– 25°C TO + 90°C	– 25°C TO + 90°C	– 25°C TO + 90°C
MATERIAL AND FINISH	HOUSING	6 NYLON UL94V-0	NYLON UL94V-0	6 NYLON UL94V-0	66 NYLON UL94V-0	6 NYLON, UL94V-2/UL94V-0 (SEE FACTORY)	6 NYLON/UL94V-0 66 NYLON/UL94V-2	6 NYLON UL94V-2
	CONTACTS	PHOSPHOR BRONZE, BRASS, TIN PLATED	PHOSPHOR BRONZE, BRASS, TIN PLATED	PHOSPHOR BRONZE, BRASS, TIN PLATED	PHOSPHOR BRONZE, BRASS, TIN PLATED	BRASS, TIN PLATED	BRASS, TIN PLATED	BRASS, TIN PLATED
	HEADER	—	—	—	—	—	—	—
	HEADER POST	—	—	—	—	—	—	—
PART NOS.		CONTACT JST	SOCKET CONTACT-SLF-*1T-☆1.3E PIN CONTACT-SLM-*1T-☆1.3E *0 FOR 26-20 AWG 4 FOR 20-16 AWG ☆BLANK FOR BRASS P FOR PHOS. BRONZE PLUG HOUSING-ELP-( )V RECEPTACLE HOUSING-ELR-( )V	PIN CONTACT-SZM-*1T-☆0.7 SOCKET CONTACT-SZF-*1T-☆0.7 *0 FOR 26-20 AWG 4 FOR 20-16 AWG ☆BLANK FOR BRASS P FOR PHOS. BRONZE PLUG HOUSING-XLP-( )V RECEPTACLE HOUSING-XLR-( )V	PIN CONTACT-SYM-*1T-☆0.7 SOCKET CONTACT-SXF-*1T-☆0.7 *1-26-20 AWG 4-18-16 AWG ☆BLANK-BRASS P-PHOSPHOR BRONZE PLUG HOUSING-XLP-( )V RECEPTACLE HOUSING-XLR-( )V	PIN CONTACT-SLM-*1T-2.0 SOCKET CONTACT-SLF-*1T-2.0 *0 FOR 24-20 AWG 6 FOR 20-14 AWG PLUG HOUSING-LP-( )V RECEPTACLE HOUSING-LR-( )F	PIN CONTACT-SLM-*1T-2.0 SOCKET CONTACT-SLF-*1T-2.0 *0 FOR 24-20 AWG 6 FOR 20-14 AWG PLUG HOUSING-LLP-( )V RECEPTACLE HOUSING-LLR-( )V	BRANCH-CL-2218T CL-1814T SHORT CIRCUIT-CL-2218S CL-1814S

( ) # OF CIRCUITS

SERIES		JE	JED	FJ	MQ	JQ	JH	RJ
APPLICATION		BOARD-TO-BOARD	BOARD-TO-BOARD	BOARD-TO-BOARD	BOARD-TO-BOARD	BOARD-TO-BOARD	WIRE-TO-BOARD (EMI SHIELDED)	WIRE-TO-BOARD (EMI SHIELDED)
PITCH in. (mm)		.049" (1.25)	.049" (1.25)	.079" (2.0)	.079" (2.0)	.098" (2.5)	.100" (2.54)	.100" (2.54)
TYPE		BOARD-TO-BOARD DISCONNECTABLE	BOARD-TO-BOARD DISCONNECTABLE	BOARD-TO-BOARD DISCONNECTABLE	BOARD-TO-BOARD DISCONNECTABLE	BOARD-TO-BOARD DISCONNECTABLE	CRIMP DISCONNECTABLE	CRIMP DISCONNECTABLE
STYLE								
PCB ENTRY		PERPENDICULAR	PERPENDICULAR	ANY ANGLE	PERPENDICULAR PARALLEL	PERPENDICULAR, HORIZONTAL, PARALLEL	RIGHT ANGLE THROUGH HOLE	STRAIGHT/RIGHT ANGLE
NO. OF CIRCUITS		5, 9, 11, 13, 15, 19	8, 16, 22	6, 8-10, 11, 12, 14	5-10, 12	3-13, 15	25	34
PCB THICKNESS RANGE in. (mm)		.047"-.063" (1.2-1.6)	.031"-.047" (0.8-1.2)	.063" (1.6)	.047"-.063" (1.2-1.6)	.063" (1.6)	.063" (1.6)	.063" (1.6)
PANEL THICKNESS RANGE in. (mm)		—	—	—	—	—	—	—
WIRE SIZE		—	—	—	—	—	#24-#28 AWG	AWG #30-#24 CABLE O.D.: .354"-.433" (9.0-11.0)
RATINGS	CURRENT	1 A AC/DC	0.1 A AC/DC	1 A AC/DC	1 A AC/DC	3 A AC/DC	3.0 A AC/DC	2 A AC/DC
	VOLTAGE	50V AC/DC	50V AC/DC	50V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC	250V AC/DC
	TEMP. RANGE	– 25°C TO + 85°C	– 25°C TO + 85°C	– 25°C TO + 85°C	– 25°C TO + 85°C	– 25°C TO + 85°C	– 40°C TO + 85°C	– 55°C TO + 85°C
MATERIAL AND FINISH	HOUSING	GLASS FILLED 66 NYLON UL94V-0	GLASS FILLED NYLON 66, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0
	CONTACTS	PHOS. BRONZE COPPER UNDERCOAT TIN LEAD PLATED	PHOSPHOR BRONZE COPPER UNDERCOATED TIN LEAD PLATED	RECP. CONTACT: PHOS. BRONZE, COPPER UNDERCOAT, TIN LEAD PLATED	PHOSPHOR BRONZE, TIN PLATED	PHOSPHOR BRONZE, TIN PLATED	BRASS SELECTIVE GOLD PLATED	PHOSPHOR BRONZE, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD)
	HEADER	GLASS FILLED, 66 NYLON UL94V-0	GLASS FILLED NYLON 66, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	66 NYLON, UL94V-0	—	—
	HEADER POST	BRASS TIN PLATED	BRASS TIN PLATED	PLUG CONTACT: PHOS. BRONZE, TIN PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	BRASS, COPPER UNDERCOAT TIN LEAD PLATED	—	—
PART NOS.		PLUG-( )PS-JE RECEPTACLE-( )R-JE	PLUG-( )P-JED RECEPTACLE-( )R-JED RIGHT ANGLE PLUG-( )PS-JED	PLUG-( )P-FJ RECEPTACLE-( )R-FJ	RECEPTACLE-TOP ENTRY-( )MQ-BT SIDE ENTRY-( )MQ-ST HEADER-B( )P-MQ	RECEPTACLE-TOP ENTRY-( )JQ-BT SIDE ENTRY-( )JQ-ST HEADER-SIDE ENTRY-S( )B-XH-A TOP ENTRY-B( )B-XH-A	CONTACT JST FOR PART #	CONTACT-RF-SC22*0 *1 FOR GOLD PLATED 9 FOR TIN PLATED HOUSING-RJ-341 SHIELDING COVER-RJ-34EM *CONTACT JST FOR HEADER PART #

( ) # OF CIRCUITS

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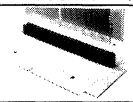
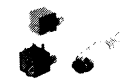
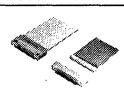
CONNECTORS

J.S.T. CORPORATION

SERIES		D SUBJ	D SUB JK	MF	MD
APPLICATION		WIRE-TO-BOARD (EMI SHIELDED)	WIRE-TO-BOARD	CARD EDGE	WIRE-TO-BOARD
PITCH in. (mm)		—	—	.050" (1.27)	—
TYPE		CRIMP, SOLDER POT DISCONNECTABLE	CRIMP DISCONNECTABLE	CARD EDGE FOR IBM 05/2 EXPANSION BOARDS	CRIMP, DISCONNECTABLE
STYLE					
PCB ENTRY		RIGHT ANGLE THROUGH-HOLE	STRAIGHT/RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
NO. OF CIRCUITS		9, 15, 25, 37	15, 26	112, 132, 182	PLUG: 4-6, 8,9 RECEPTACLE: 4-9
PCB THICKNESS RANGE in. (mm)		.063" (1.6)	.063" (1.6)	—	.063" (1.6)
PANEL THICKNESS RANGE in. (mm)		—	—	—	—
WIRE SIZE		AWG #28-#24 CABLE O.D.: 9-15 POS. .276" (7.0): 25 POS. .315" (8.0); 37 POS. 3.94" (10.0)	AWG #28-#24 CABLE O.D.: 15 POS. .237" (7.0) 26 POS. .273" (7.0)	—	AWG #30-#24 CABLE O.D.: .217" (5.5)
RATINGS	CURRENT	3 A AC/DC	1 A AC/DC	0.5 A AC/DC	1 A AC/DC
	VOLTAGE	250V AC/DC	250V AC/DC	250V AC/DC	50V AC/DC
	TEMP. RANGE	– 40°C TO + 85°C	– 40°C TO + 85°C	—	– 25°C TO + 85°C
MATERIAL AND FINISH	HOUSING	GLASS FILLED PBT, UL94V-0	GLASS FILLED PBT, UL94V-0	—	GLASS FILLED PBT, UL94V-0
	CONTACTS	RECEPTACLE: PHOS. BRONZE, COPPER UNDERCOAT PLUG: BRASS, COPPER UNDERCOAT (TIN OR SELECTIVE GOLD PLATED)	RECEPTACLE: PHOS. BRONZE, COPPER UNDERCOAT PLUG: BRASS, COPPER UNDERCOAT (TIN OR SELECTIVE GOLD PLATED)	PHOSPHOR BRONZE NICKEL UNDERCOAT SELECTIVE GOLD PLATING	RECEPTACLE: PHOS. BRONZE: PLUG: COPPER UNDERCOAT (TIN OR SELECTIVE GOLD PLATE)
	HEADER	—	—	—	—
	HEADER POST	—	—	—	—
PART NOS.		CONTACT JST FOR PART #	CONTACT JST FOR PART NO #	112 POSITION MF-112AD-0414 132 POSITION MF-132AD-0414 182 POSITION MF-182AD-0414	CONTACT JST FOR PART #

( ) # OF CIRCUITS

SERIES		ICM-A	ICM-B	ICM-C	JM
APPLICATION		MEMORY CARD	MEMORY CARD	MEMORY CARD	JUMPER
PITCH in. (mm)		.039" (1.0)	.050" (1.27)	.050" (1.27)	.100" (2.54)
TYPE		IC MEMORY CARD DISCONNECTABLE	IC MEMORY CARD DISCONNECTABLE	IC MEMORY CARD DISCONNECTABLE	JUMPER
STYLE					
PCB ENTRY		RIGHT ANGLE	RIGHT ANGLE	RIGHT ANGLE	STRAIGHT/RIGHT ANGLE
NO. OF CIRCUITS		45	60	68	2
PCB THICKNESS RANGE in. (mm)		—	—	—	.063" (1.6)
PANEL THICKNESS RANGE in. (mm)		—	—	—	—
WIRE SIZE		—	—	—	—
RATINGS	CURRENT	0.5 A AC/DC	0.5 A AC/DC	0.5 A AC/DC	3 A AC/DC
	VOLTAGE	—	—	—	250V AC/DC
	TEMP. RANGE	– 40°C TO + 85°C	– 40°C TO + 85°C	– 40°C TO + 85°C	– 55°C TO + 125°C
MATERIAL AND FINISH	HOUSING	GLASS FILLED 66 NYLON UL94V-0	GLASS FILLED 66 NYLON UL94V-0	GLASS FILLED 66 NYLON UL94V-0	PBT, UL94V-0
	CONTACTS	COPPER ALLOY, NICKEL UNDERCOAT WITH SELECTIVE GOLD PLATING	COPPER ALLOY, NICKEL UNDERCOAT WITH SELECTIVE GOLD PLATING	COPPER ALLOY, NICKEL UNDERCOAT WITH SELECTIVE GOLD PLATING	PHOS. BRONZE, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD)
	HEADER	GLASS FILLED, 66 NYLON UL94V-0	GLASS FILLED, 66 NYLON UL94V-0	GLASS FILLED, 66 NYLON UL94V-0	GLASS FILLED PBT UL94V-0
	HEADER POST	BRASS, NICKEL UNDERCOAT (SELECTIVE GOLD PLATED)	BRASS, NICKEL UNDERCOAT (SELECTIVE GOLD PLATING)	BRASS, NICKEL UNDERCOAT (SELECTIVE GOLD PLATING)	BRASS, COPPER UNDERCOAT TIN PLATED (SELECTIVE GOLD PLATED)
PART NOS.		RECEPTACLE- ICM-A45S-TS14 HEADER- ICM-A45H-SD14-1	SOCKET-ICM-B60S-TS13-2232 HEADER-ICM-B60H-TD14-1	SOCKET-ICM-C68S-TS13-1032 HEADER-ICM-C68H-SD14-1002	RECEPTACLE-JM2BK-61; 4µIN. GOLD JM2BL-63; 15µIN. GOLD JM2R-64; 30µIN. GOLD JM2W-96; TIN PLATED HEADER-SEE BREAKAWAY HEADER

( ) # OF CIRCUITS

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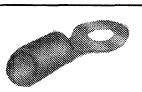
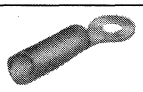
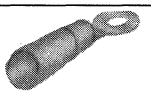
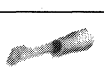
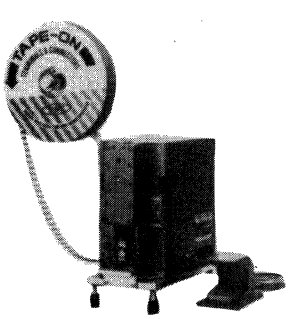
CLOSED BARREL TERMINALS

J.S.T. CORPORATION

BODY STYLE	Insulation	NON-INSULATED									
	Sleeve	STANDARD		EXTENDED (COPPER SLEEVE)				LONG BARREL		INSULATION STRAIN RELIEF	
	Configuration	Straight		Straight		Flared		Straight		Straight	
	Style										
	Seam	butted	brazed	butted	brazed	butted	brazed	butted	brazed	butted	brazed
	Vinyl or Nylon Insulation	—									
RING TONGUE (R TYPE)		THRU 10-12 AWG •	•	•	•	•	•	•	•	•	•
RING TONGUE, BENT (45° & 90°)		•	•								
LARGE RING (R TYPE)			•								
MEDIUM RING (R TYPE)			•								
HEAVY DUTY RING (E/ES TYPE)		•	•								
NICKEL RING (NIP TYPE)			•								
DOUBLE HOLE RING (RD TYPE)			•								
RING FLAG			•								
FORKED TONGUE (X-Y TYPE)		•	•	•	•	•	•				
HOOK TYPE (H TYPE)		•	•	•	•	•	•				
SPADE TONGUE (A TYPE)		•	•	•	•	•	•				
FLANGE SPADE TYPE (B TYPE)		•	•	•	•	•	•				
SQUARE TONGUE (R TYPE)		•	•								
SLOT TONGUE (C TYPE)			•								
STRAIGHT/LIPPED BLADE (AF/AH TYPE)		•	•								
PIN (PC TYPE)		•	•								
KNIFE DISCONNECT (K TYPE)		•									
DISCONNECT RECEPTABLE (ALSO FULLY INSULATED)		•		•		•					
MALE DISCONNECT		•		•		•					
PIGGYBACK		•		•		•					
SNAP/BULLET		•		•		•					
MULTIPLE WAY (2, 3 & 4 WAY)		•	•								



TAPE-ON TERMINALS PROVIDE AUTOMATIC WIRE CRIMPING (P-29)

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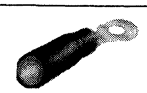
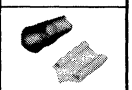
CLOSED BARREL TERMINALS

J.S.T. CORPORATION

INSULATED

STANDARD										EXTENDED (copper sleeve)									
Straight				Flared				Funnel		Straight				Flared				Funnel	
																			
butted		brazed		butted		brazed		butted	brazed	butted		brazed		butted		brazed		brazed	
V	N	V	N	V	N	V	N	V	N	V	N	V	N	V	N	V	N	V	N
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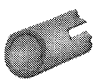
CLOSED BARREL SPLICES, SHUNTS, LUGS

J.S.T. CORPORATION

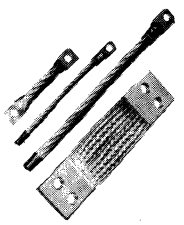
SPLICE SELECTOR CHART

BODY STYLE	Insulation	NON-INSULATED	INSULATED				
	End Configuration	STRAIGHT	STRAIGHT		FLARED		
	Style						
	Insulation Type	—	VINYL	NYLON	VINYL	NYLON	NYLON
STD PARALLEL		•	•	•	•	•	
STD. BUTT		•*	•*	•*	•*	•*	
WINDOW BUTT		•	•	•	•	•	•†
OVAL PARALLEL		•					
OVAL BUTT		•					
WATERPROOF BUTT		•					
CLOSED END				•			

• INDICATED AVAILABILITY *BUTTED SEAM AVAILABLE † BUTTED SEAM ONLY

COPPER TUBULAR LUGS			
TYPE	AWG RANGE	POST DIA. RANGE	CONFIGURATION
1 HOLE Tu/T2 TYPE	16 AWG TO 650 CM	.126 TO 1.142	
2 HOLE Tu-A TYPE	8 AWG TO 650 CM	.169 TO .551	

SHUNTS & LUGS

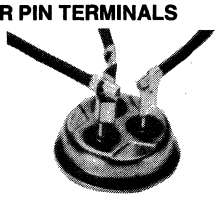


APPLICATIONS INCLUDE SCR's, CIRCUIT BREAKERS, GROUNDING FOR PLATING TANKS, MOTORS AND ELECTRICAL APPLIANCES, ETC.

OPEN BARREL SOLDERLESS TERMINALS & SPLICES

SPECIAL INTERCONNECTS

CLUSTER PIN TERMINALS

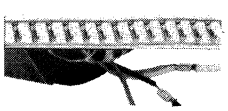


CONNECTS CLUSTER PIN TO A LEAD OF A MOTOR IN A HERMECTIALLY SEALDED DEVICE, SINGLE POLE, SINGLE CIRCUIT.

SPLICES

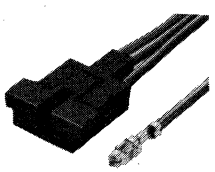
SPC TYPE-USED FOR STRAIGHT, BRANCHING OR END SPLICES.

SHC TYPE (Heater wire)-CONNECTS HEATER WIRES TO VINYL INSULATED WIRES.



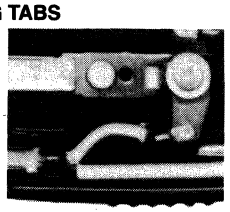
PSL TYPE (Piercing splice)-FOR IDC SPLICES OF INSULATION-COATED WIRES.

CLUSTER SOCKETS



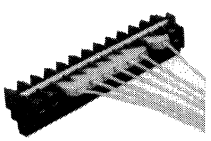
CONNECTS CLUSTER PINS TO LEADS OF A MOTOR IN A HERMETICALLY SEALED DEVICE, THREE CIRCUITS.

WELDING TABS



PROVIDES FOR SPOT WELDING OF CRIMPED WIRE LEADS TO A MATING DEVICE.

INSULATED TAB-IN CONNECTORS

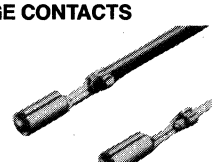


SERIES 187 OR 250 TAB-IN TERMINALS WITH LOCKING NYLON HOUSING.

BUTTON CONTACTS

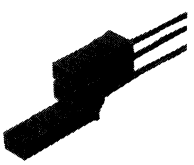
USED IN LAMP SOCKETS & FUSE HOLDERS IN AUTOMOTIVE APPLICATIONS FOR OPTIMUM INTERCONNECTION FLEXIBILITY.

CARTRIDGE CONTACTS



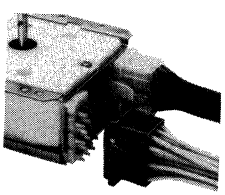
CONNECTS SHIELDED AWG #32-#26 WIRES TO TURNTABLE CARTRIDGES.

MICROSWITCH CONNECTORS



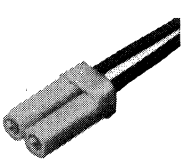
THREE CIRCUIT TAB CONNECTOR FOR MICROSWITCHES.

WASHING MACHINE TIMER CONNECTORS



18 CIRCUIT CONNECTOR WITH LOCKING, ANTI-VIBRATION MECHANISM.

TV CONNECTORS



CONNECTS TWIN LEAD IN CABLE TO .093" PINS OF TV, VCR TUNERS.

1200 Business Center Drive Suite #400, Mt. Prospect, IL 60056 U.S.A.
Phone 1-800-292-4243 (708) 803-3300/Int'l 1-708-8033300 Fax: (708)-803-4918/Int'l 1-708-8034918

J.S.T. CORPORATION

OPEN BARREL TERMINALS & SPLICES

TYPE	AWG RANGE	WIDTH RANGE in (mm)	POST OR STUD RANGE in (mm)	MATERIAL & FINISH	DIMENSIONS
STANDARD RING W/INSUL. GRIP	#24-#14	.181"-.335" (4.6)-(8.5)	.126"-.201" (3.2)-(5.1)	BRASS TIN PLATED	
HEAVY DUTY RING W/INSUL. GRIP	#20-#13	.374"-.315" (9.5)-(8.0)	.126"-.256" (3.2)-(6.5)	BRASS TIN PLATED	
STANDARD RING W/O INSUL. GRIP	#22-#14	.181"-.335" (4.6)-(8.5)	.098"-.209" (2.5)-(5.3)	BRASS TIN PLATED	
STANDARD FORK W/INSUL. GRIP	#24-#14	.248"-.323" (6.3)-(8.2)	.126-.209" (3.2)-(5.3)	BRASS TIN PLATED	
STANDARD FORK W/O INSUL. GRIP	#20-#14	.283" (7.2)	.126-.169" (3.2)-(4.3)	BRASS TIN PLATED	
LOCKING FORK W/INSUL. GRIP	#22-#18	.283" (7.2)	.126-.169" (3.2)-(4.3)	BRASS TIN PLATED	
TAB-ON .250" MATING TAB	#22-#10	.299"-.303" (7.6)-7.7)	—	BRASS TIN PLATED	
TAB-ON PIGGY BACK .250" MATING TAB	#18-#14	.299" (7.6)	—	BRASS TIN PLATED	
TAB-ON FLAG .250" MATING TAB	#18-#14	.315" (8.0)	—	BRASS TIN PLATED	
TAB-ON .205" MATING TAB	#22-#18	.252" (6.4)	—	BRASS TIN PLATED	
TAB-ON FLAG .187" MATING TAB	#20-#16	.220" (5.6)	—	BRASS TIN PLATED	
TAB-ON .187" MATING TAB	#24-#16	.220" (5.6)	—	BRASS TIN PLATED	
TAB-ON .110" MATING TAB	#24-#16	.146" (3.7)	—	BRASS TIN PLATED	
TAB-ON TAB .250" MATING TAB	#20-#14	.250" (6.35)	—	BRASS TIN PLATED	
TAB-ON .187" MATING TAB	#22-#18	.187" (4.75)	—	BRASS TIN PLATED	
TAB-IN .250" MATING TAB	#22-#14	.295" (7.5)	—	BRASS TIN PLATED	

OPEN BARREL SOLDERLESS TERMINALS & SPLICES

TYPE	AWG RANGE	WIDTH RANGE in (mm)	POST OR STUD RANGE in (mm)	MATERIAL & FINISH	DIMENSIONS
TAB-IN .110" MATING TAB	#22-#16	.146" (3.7)	—	BRASS TIN PLATED	
TAB-IN .250" MATING TAB	#22-#14	.236" (6.0)	—	BRASS TIN PLATED	
TAB-IN TAB .110" MATING TAB	#24-#16	.110" (2.8)		BRASS TIN PLATED	
BULLET MALE .157" DIA.	#20-#14	—	MATING FEMALE BULLET .138" DIA. (3.5)	BRASS TIN PLATED	
BULLET FEMALE .157" DIA.	#20-#16	—	MATING MALE BULLET .138" DIA. (3.5)	BRASS TIN PLATED	
BULLET MALE .197" DIA.	#22-#14	—	MATING FEMALE BULLET .156" DIA. (3.96)	BRASS TIN PLATED	
BULLET FEMALE .197" DIA.	#22-#14	—	MATING MALE BULLET .197" DIA. (5.0)	BRASS TIN PLATED	
STO SERIES 110"-250" TAB	#20-#9	.146"-.299" (3.7)-(7.6)	—	BRASS TIN PLATED	
SFO SERIES 250" TAB	#20-#13	.299" (7.6)	—	BRASS TIN PLATED	
SPB SERIES 250" TAB	#20-#13	.299" (7.6)	—	BRASS TIN PLATED	
MPB SERIES 250" PIGGYBACK (3 WAY)	—	.299" (7.6)	—	BRASS TIN PLATED	
STI W/DIMPLE	#20-#13	.291" (7.4)	—	BRASS TIN PLATED	
STI-W/O DIMPLE	#20-#13	.291" (7.4)	—	BRASS TIN PLATED	
SIM SERIES MALE 250" TAB	#20-#13	.248" (6.3)	—	BRASS TIN PLATED	
SRT SERIES	#20-#13	.374" (9.5)	.209" (5.3)	STEEL TIN OR NICKEL PLATED	
SPC SERIES SPLICE	#20-#13	LENGTH .236"-.276" (6.0)-(7.0)	—	BRASS TIN PLATED	

1200 Business Center Drive Suite #400, Mt. Prospect, IL 60056 U.S.A.
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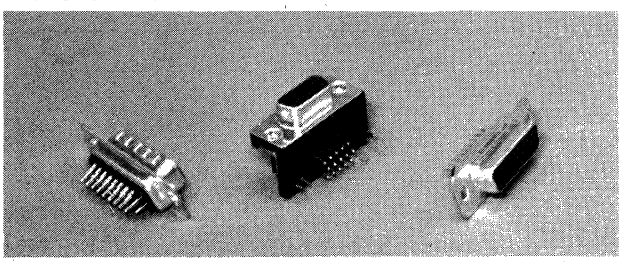
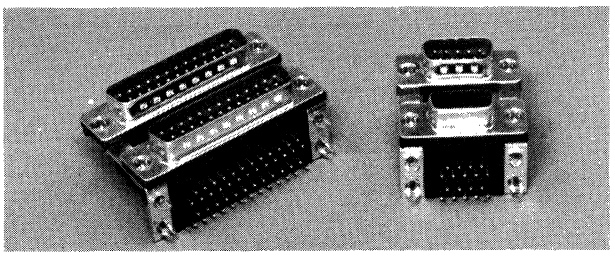
KYCON CABLE AND CONNECTOR, Inc.

HIGH DENSITY D-SUBMINIATURE
K66/K86 SERIES



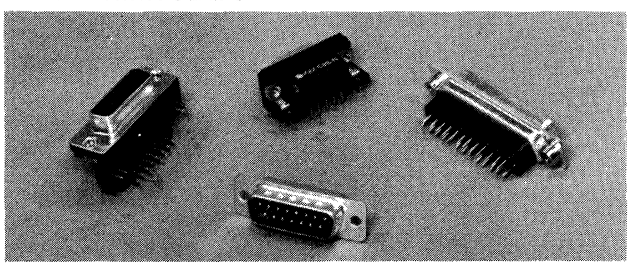
- Right angle and vertical P.C. mount, solder cup
- Number of contacts: 15, 26, 44, 62
- Bright tin shells for exceptional conductivity and grounding
- With grounding bracket
- PBT thermoplastic material, 30% glass-filled, UL 94V-O rated
- Contact material: phosphor bronze gold-plated
- Current rating: 5 amps • Temperature rating: – 55° to + 125°C

DUAL PORT D-SUBMINIATURE
K42 SERIES



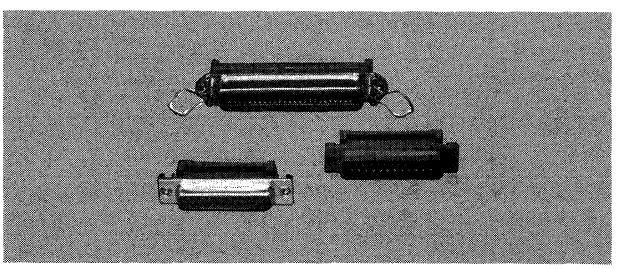
- DB9, DB15, and DB25, any gender combination available
- Bright tin shells for exceptional conductivity and grounding
- .625″; .750″; .900″ center to center
- Available with grounding bracket
- PBT thermoplastic material, 30% glass-filled, UL 94V-O rated
- Contact material: Pin: brass gold-plated Socket: phosphor bronze
- Current rating: 5 amps • Temperature rating: – 55° to + 125°C

RIGHT ANGLE/SOLDER CUP/VERTICAL D-SUBS
K22/K44/K85/K88 SERIES



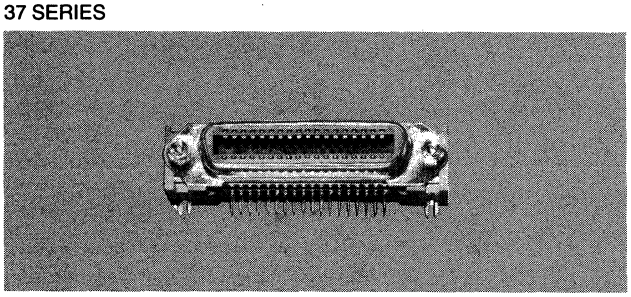
- Right angle termination, P.C. mount • .318 and .590 footprints
- Both high and low vertical P.C. mount
- Five shell sizes: 9, 15, 19, 25, 37
- Bright tin shells for exceptional conductivity and grounding
- Indentations (dimples) on plugs • 4-40 threaded inserts
- Many different mounting options available
- PBT thermoplastic material, 30% glass-filled, UL 94V-O rated
- Contact material: Pin: brass gold-plated Socket: phosphor bronze
- Current rating: 5 amps • Temperature rating: – 55° to + 125°C

D-SUBMINIATURE IDC - K98/K99 SERIES
RIBBON IDC - 37F SERIES



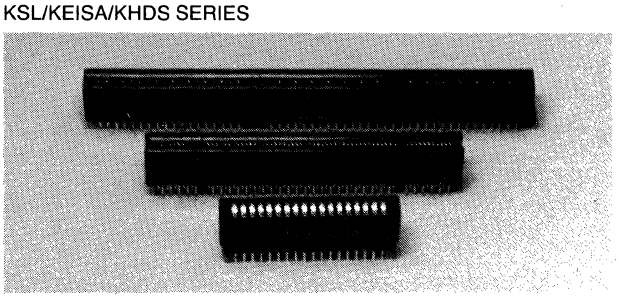
- IDC D-Subs 4 sizes: 9, 15, 25, and 37
- IDC Ribbons 4 sizes: 14, 24, 36, and 50
- Metal or plastic
- Available with 4-40 riveted threaded bushing
- Bright tin shells
- PBT thermoplastic material, 30% glass-filled, UL 94V-O rated
- Wire accommodation: flat cable or discrete wire, 26 or 28 AWG
- Contact material: Pin: brass gold-plated Socket: phosphor bronze
- Current rating: 5 amps
- Temperature rating: – 55° to + 125°C

RIBBON CONNECTORS
37 SERIES



- Right angle P.C. mount, solder cup, rack and panel, cable to panel, cable to cable, vertical P.C. mount types
- 4 shell sizes: 14, 24, 36, 50
- Right angle P.C. mount available with grounding bracket
- PBT thermoplastic material, 30% glass-filled, UL 94V-O rated,
- Contact material: phosphor bronze gold-plated
- Current rating: 5 amps • Temperature rating: – 55° to + 125°C

CARD EDGE CONNECTORS
KSL/KEISA/KHDS SERIES

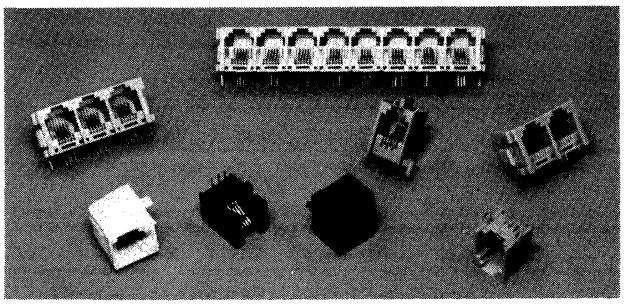


- 0.10″ PITCH CARD EDGE: 24, 36, 62, 80, 86, 98, 100 positions available, retention tails, PBT material, brass contacts, gold-plated
- 0.05″ PITCH EISA CONNECTOR: 188 position available, PPS material, brass contacts, gold-plated
- 0.05″ PITCH HIGH DENSITY CARD EDGE: for microchannel architecture, 112, 120, 132, 182 positions available, PPS material, brass contacts, gold-plated

KYCON 1772 Little Orchard St., San Jose, CA 95125 (408) 295-1110 FAX: (408) 295-8054 Outside CA: (800) 544-6941

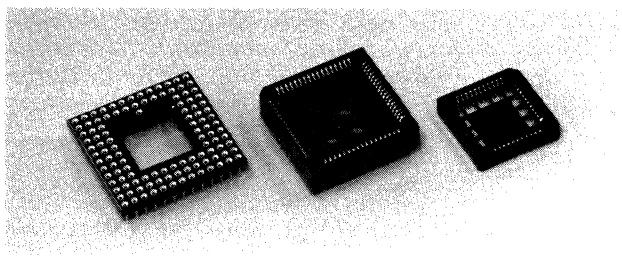
KYCON CABLE AND CONNECTOR, Inc.

MODULAR JACKS



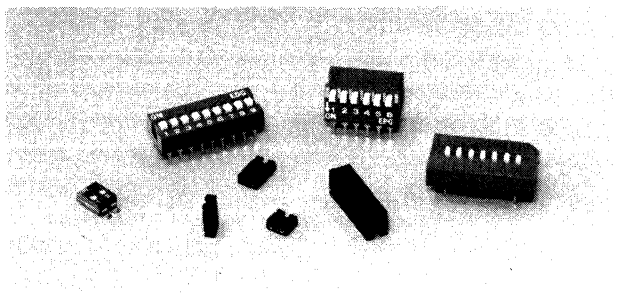
- RJ, low-profile, ganged from 2 to 8 position
- Both right angle and perpendicular P.C. mount available
- UL recognized E134345
- Available in polarized and non-polarized versions
- PBT thermoplastic material, 30% glass-filled, UL 94V-0 rated
- Contact material: phosphor bronze gold-plated
- Current rating: 1.5 amps

CHIP CARRIERS



- PLCC: 28, 32, 44, 52, 68, and 84 positions; PPS or PBT body; phosphor bronze contacts.
- SURFACE MOUNT PLCC: 28, 32 and 68 positions, open frame design
- PGA: low insertion force Swiss contacts in 11 x 11 through 17 x 17 grid positions

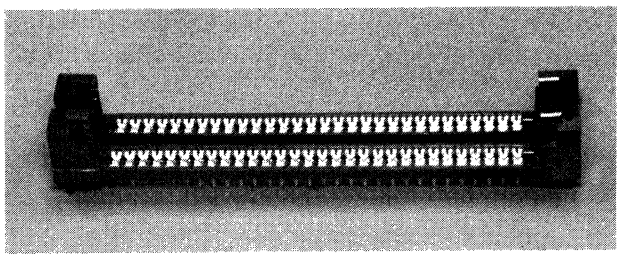
DIP SWITCHES - SHUNTS



- Standard, surface mount, piano type, and tri-state dip switches
- 2–12 positions
- Low profile, standard, or extended actuators available
- Bottom sealed, top tape sealed optional
- Mini, micro, and multiple position shunts
- 0.10″ pitch mates to 0.025″ square posts
- Current rating 3–5 amps

SIMM SOCKETS

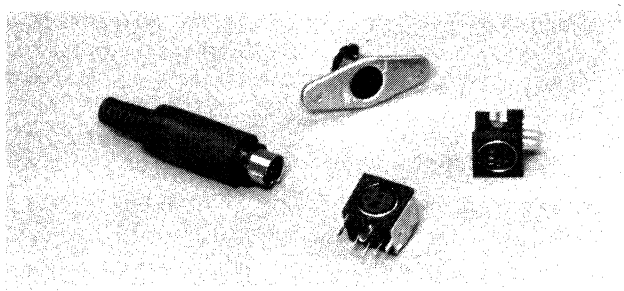
KSS SERIES



- Vertical, 1 x 30 and 2 x 30 positions
- 0.10″ spacing
- Recommended PCB thickness for SIMM module: 1.25mm–1.40mm
- Redundant leaf contacts
- PBT and LCP material available, UL 94V-O rated
- Contact material: phosphor bronze, tin or gold-plated
- Current rating: 1 amp • Temperature rating: – 55 to + 105 C

MINI-DINS

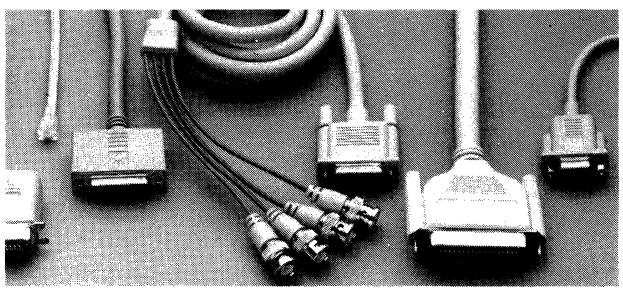
KMD/KMDP/KMDA SERIES



- Right angle socket, panel mount socket, cable assembly type plug and socket
- Shielded and non-shielded
- 7 Positions: 3, 4, 5, 6, 7, 8, 9
- PBT thermoplastic, UL 94V-0 rated, black color
- Contact material: phosphor bronze, silver or gold-plated
- Current rating: 1 amp

CABLES

CUSTOM MOLDED CABLES



- Completely custom molded cables built to exact customer specifications
- Engineering of cables to help reduce EMI/RFI emissions
- Pre- and Post-mold 100% tested
- Specialized texturing and color matching
- Customized molds with company logos and part numbers
- Special packaging and labeling
- Drop-shipping worldwide

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L-COM® DATA LINE CABLES

Data Cables w/Molded D-Sub Connectors

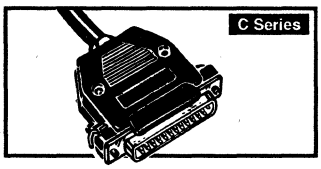
Conductive metal shield provides optimum shielding. All cable wires and connector pins are encapsulated & fused together for strength. These cables are fully populated. Each wire is soldered to the same pin on both D-Sub connector ends. **Specify gender:** MM (Male/Male) or MF (Male/Female) when ordering.

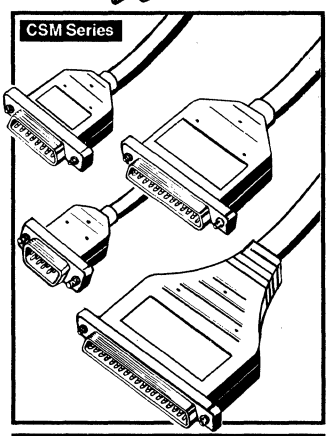
MODEL(Gender)	D-Sub	Lgt / Ft	Price
CSM9( )-2.5	9	2.5	15.25
CSM9( )-5	9	5.0	16.50
CSM9( )-10	9	10.0	19.00
CSM9( )-15	9	15.0	21.50
CSM9( )-25	9	25.0	26.50
CSM9( )-50	9	50.0	39.00
CSM15( )-2.5	15	2.5	19.50
CSM15( )-5	15	5.0	21.00
CSM15( )-10	15	10.0	24.00
CSM15( )-15	15	15.0	27.00
CSM15( )-25	15	25.0	33.00
CSM15( )-50	15	50.0	48.00
CSM25( )-2.5	25	2.5	27.90
CSM25( )-5	25	5.0	29.75
CSM25( )-10	25	10.0	33.50
CSM25( )-15	25	15.0	37.25
CSM25( )-25	25	25.0	44.75
CSM25( )-50	25	50.0	63.50
CSM37( )-2.5	37	2.5	42.25
CSM37( )-5	37	15.0	44.50
CSM37( )-7.5	37	7.5	46.75
CSM37( )-10	37	10.0	49.00
CSM37( )-15	37	15.0	53.50
CSM37( )-25	37	25.0	62.50
CSM37( )-50	37	50.0	85.00

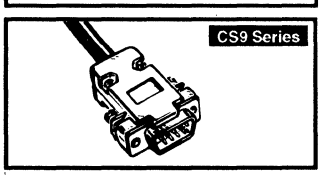
Data Cables w/Finger Screw Fasten

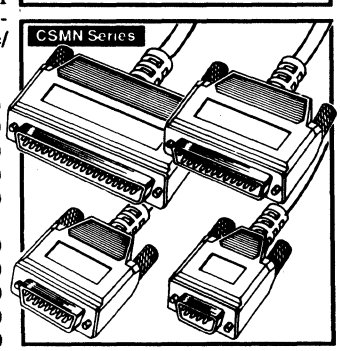
Cable design eliminates the need for screwdrivers. Internal construction is virtually the same as the CSM series above. Custom wiring orders solicited in moderate to large quantities. **Specify gender:** MM (Male/Male) or MF (Male/Female) when ordering.

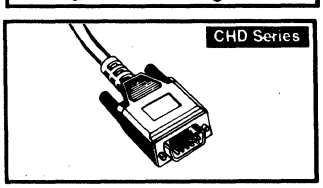
CSMN9( )-2.5	9	2.5	15.25
CSMN9( )-5	9	5.0	16.50
CSMN9( )-10	9	10.0	19.00
CSMN9( )-15	9	15.0	21.50
CSMN9( )-25	9	25.0	26.50
CSMN15( )-2.5	15	2.5	19.50
CSMN15( )-5	15	5.0	21.00
CSMN15( )-10	15	10.0	24.00
CSMN15( )-15	15	15.0	27.00
CSMN15( )-25	15	25.0	33.00
CSMN25( )-2.5	25	2.5	27.90
CSMN25( )-5	25	5.0	29.75
CSMN25( )-10	25	10.0	33.50
CSMN25( )-15	25	15.0	37.25
CSMN25( )-25	25	25.0	44.75
CSMN25( )-50	25	50.0	63.50
CSMN37( )-2.5	37	2.5	42.25
CSMN37( )-5	37	5.0	44.50
CSMN37( )-10	37	10.0	49.00
CSMN37( )-15	37	15.0	53.50
CSMN37( )-25	37	25.0	62.50
CSMN37( )-50	37	50.0	85.00

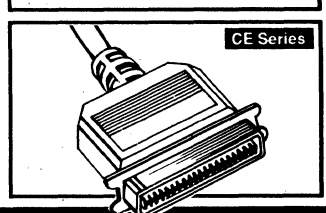












Unshielded RS232C Serial Cables

Economical data cables are suitable for short distances. Unshielded are not recommended for areas with noise radiating fluorescents. Black cable and connector hoods. **Specify gender:** MM (Male/Male) or MF (Male/Female).

MODEL(Gender)	D-Sub	Lgt / Ft	Price
C25( )-2.5	25	2.5	16.00
C25( )-5	25	5.0	17.50
C25( )-10	25	10.0	20.50
C25( )-15	25	15.0	23.50
C25( )-25	25	25.0	29.50

Shielded DB25, RS232C Serial Cables

Meets all FCC system requirements. Exclusive inner shield design connector & mylar foil plus drain wire. For short, intermediate and long runs. Gray cable & hoods. **Specify gender:** MM (Male/Male) or MF (Male/Female).

CS25( )-2.5	25	2.5	23.90
CS25( )-5	25	5.0	25.75
CS25( )-10	25	10.0	29.50
CS25( )-15	25	15.0	33.25
CS25( )-25	25	25.0	40.75
CS25( )-50	25	50.0	59.50

Double Shielded RS232C Serial Cables

Premium line offers protection from radiation. Mylar foil plus copper braid shield the 25 conductors. Ends have inner shields & outer metalized connector covers. Black cable & chrome plated connector hoods. **Specify gender:** MM (Male/Male) or MF (Male/Female) when ordering.

CDS25( )-5	25	5.0	39.00
CDS25( )-10	25	10.0	43.00
CDS25( )-15	25	15.0	47.00
CDS25( )-25	25	25.0	55.00
CDS25( )-50	25	50.0	75.00
CDS25( )-100	25	100.0	115.00

Shielded RS449 Cables w/ DB9 D-Sub

All 9 wires terminate to two D-Sub 9 Pin Connectors. **Specify gender:** MM (Male/Male) or MF (Male/Female) when ordering.

CS9( )-2.5	9	2.5	9.75
CS9( )-5	9	5.0	11.00
CS9( )-10	9	10.0	13.50
CS9( )-15	9	15.0	16.00
CS9( )-25	9	25.0	21.00

Shielded Cable w/ Hi Density 15 D-Sub

Designed for PS/2 CPU/Remote monitor connections. Full VGA support and fully populated, Hi Density DB15 connectors on each end. **Specify gender:** MM (Male/Male) or MF (Male/Female) when ordering.

CHD15( )-2.5	15	2.5	19.50
CHD15( )-5	15	5.0	21.00
CHD15( )-7.5	15	7.5	22.50
CHD15( )-10	15	10.0	24.00
CHD15( )-15	15	15.0	27.00
CHD15( )-25	15	25.0	33.00

Shielded Centronics Type Printer Cable

Used to connect or extend your parallel printer lines. Centronics to Centronics. **Specify gender:** MM (Male/Male) or MF (Male/Female) when ordering.

CE36( )-5	36	5.0	19.50
CE36( )-7.5	36	7.5	20.75
CE36( )-10	36	10.0	22.00
CE36( )-15	36	15.0	24.50
CE36( )-25	36	25.0	29.50

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L-com® ADAPTORS & RGB CABLES

Modular Adaptor Kits-Thumb Screws

Eliminate the need for screwing/unscrewing data cables to move a peripheral. Replace with appropriate adaptor listed below. Insert the prepared flying lead into correct position, snap connector in place and attach to system. TDT tool listed is necessary for programming. **Specify gender:** (M) Male, (F) Female.

MODEL(Gender)	Desc.	Price
RA096( )	DB9 to 6 Pin RJ11, 6x6	6.45
RA096( )D	DB9 to 6 Pin MMJ (DEC), 6x6	6.95
RA098( )	DB9 to 8 Pin RJ45, 8x8	6.95
RA156( )	DB15 to 6 Pin RJ11, 6x6	6.95
RA158( )	DB15 to 8 Pin RJ45, 8x8	7.45
RA256( )	DB25 to 6 Pin RJ11, 6x6	7.45
RA256( )D	DB25 to 6 Pin MMJ (DEC), 6x6	7.95
RA258( )	DB25 to 8 Pin RJ45, 8x8	7.95

Modular Adaptor Kits-Screw Mtg.

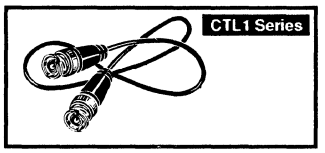
Identical to series above except the thumb-knurl is replaced with a shorter screwhead. Screwdriver is needed to fasten to system. All modular contacts have 30 micro inches of gold for lower contact resistance and longer life. **Specify gender:** (M) Male, (F) Female.

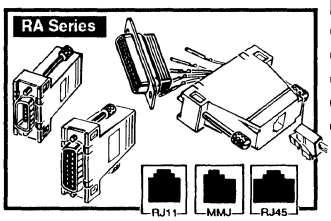
RBA096( )	DB9 to 6 Pin RJ11, 6x6	6.25
RBA096( )D	DB9 to 6 Pin MMJ (DEC), 6x6	6.75
RBA098( )	DB9 to 8 Pin RJ45, 8x8	6.75
RBA156( )	DB15 to 6 Pin RJ11, 6x6	6.75
RBA158( )	DB15 to 8 Pin RJ45, 8x8	7.25
RBA256( )	DB25 to 6 Pin RJ11, 6x6	7.25
RBA256( )D	DB25 to 6 Pin MMJ (DEC), 6x6	7.75
RBA258( )	DB25 to 8 Pin RJ45, 8x8	7.75
TDT	Pin Insertion/Extraction Tool	2.95

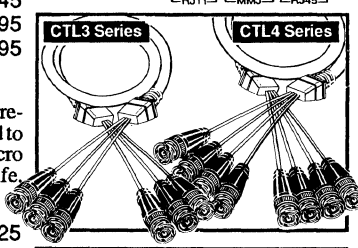
Modular Cable/Adaptor-Easy Pinning

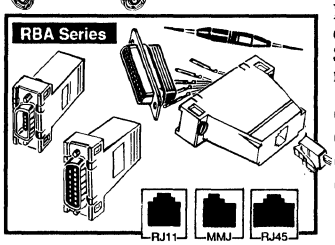
Each wire of the modular cable is terminated by an insulated receptacle which is simply inserted into the D-sub PC terminals. The programming may be altered or converted at any time by simply repositioning the wires. Molded strain relief for protection against failure due to bending, flexing and twisting. NOTE: Custom orders in quantities or with variations in lengths, MMJ or RJ45 keyed connectors or ready wired cables quoted on request. **Specify gender:** (M) Male, (F) Female.

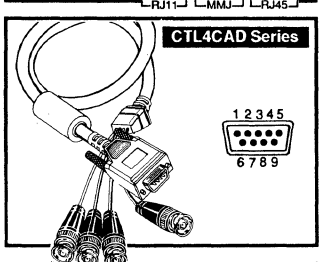
MODEL(Gender)	Desc.	Feet	Price
TDE9( )J12-4	DB9 to RJ12, 6x6	4	6.15
TDE9( )J12-10	DB9 to RJ12, 6x6	10	7.35
TDE9( )J12-20	DB9 to RJ12, 6x6	20	9.35
TDE9( )J45-4	DB9 to RJ45, 8x8	4	7.35
TDE9( )J45-10	DB9 to RJ45, 8x8	10	9.15
TDE9( )J45-20	DB9 to RJ45, 8x8	20	12.05
TDE15( )J12-4	DB15 to RJ12, 6x6	4	6.65
TDE15( )J12-10	DB15 to RJ12, 6x6	10	7.85
TDE15( )J12-20	DB15 to RJ12, 6x6	20	9.85
TDE15( )J45-4	DB15 to RJ45, 8x8	4	7.85
TDE15( )J45-10	DB15 to RJ45, 8x8	10	9.55
TDE15( )J45-20	DB15 to RJ45, 8x8	20	12.55
TDE25( )J12-4	DB25 to RJ12, 6x6	4	8.25
TDE25( )J12-10	DB25 to RJ12, 6x6	10	9.45
TDE25( )J12-20	DB25 to RJ12, 6x6	20	11.45
TDE25( )J45-4	DB25 to RJ45, 8x8	4	9.45
TDE25( )J45-10	DB25 to RJ45, 8x8	10	11.25
TDE25( )J45-20	DB25 to RJ45, 8x8	20	14.15
TD-JP	"Y" Jumper Wire Connects 3 Pins (Pac of 5)		3.45

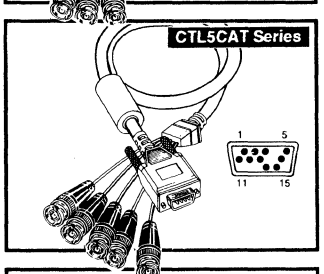


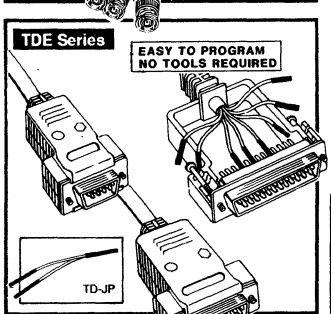












"Thin-Line" 75 ohm Coaxial Cables

Substitute our smaller diameter Thin-Line Series cables for your 75 ohm coaxial cables. Has 100% spiral tinned copper shield over air foamed dielectric. Little less than one tenth inch in diameter. Each end terminates to a molded BNC male connector.

MODEL	Desc.	Feet	Price
CTL1B-1	(M) BNC / (M) BNC	1.0	4.95
CTL1B-2.5	(M) BNC / (M) BNC	2.5	5.50
CTL1B-5	(M) BNC / (M) BNC	5.0	6.35
CTL1B-10	(M) BNC / (M) BNC	10.0	8.10
CTL1B-15	(M) BNC / (M) BNC	15.0	9.85

Three Line Coaxial Cables

These miniature low loss coax cables are particularly suitable for transmitting RGB video signals. Performance exceeds most RG59 equivalents. Light weight and flexible. Color code is Red, Green and Blue. With molded strain reliefs.

CTL3B-5	(M) BNC / (M) BNC	5.0	23.55
CTL3B-7.5	(M) BNC / (M) BNC	7.5	26.30
CTL3B-10	(M) BNC / (M) BNC	10.0	29.05
CTL3B-15	(M) BNC / (M) BNC	15.0	34.55

Four Line Coaxial Cables

Four Thin-Line low loss coax cables in a PVC jacket are colored Red, Green and Blue with optional Black line. Strain reliefs on each cable end. BNC terminations are molded for added life expectancy.

CTL4B-5	(M) BNC / (M) BNC	5.0	29.90
CTL4B-7.5	(M) BNC / (M) BNC	7.5	33.40
CTL4B-10	(M) BNC / (M) BNC	10.0	36.90
CTL4B-15	(M) BNC / (M) BNC	15.0	43.90

3-4 Line Color Monitor Cables

Features 3 or 4 "Thin-Line" coax cables; color coded; Red, Green, Blue and Black for easy identification. Connect graphic board to color monitor. Three RGB lines terminate to color-identifed BNC plugs or receptacles and fourth line is for optional sync if needed. All lines terminate to standard D9 D-Sub connector. Wiring as listed below. The optional ferrite core is molded in place close to the D9 end to minimize EMI/RFI problems.

CTL3CAD-6	D9 (M) to 3 BNC (M)	6.0	26.90
CTL3CAD-6F	D9 (M) to 3 BNC (M)	6.0	29.90
D9 Connections:	Pin #1 Red, 2 Grn, 3 Blue, 6, 7, 8 Common Wired Shields		
CTL4CAD-1.5	D9 (M) to 4 BNC (M)	1.5	24.60
CTL4CAD-3	D9 (M) to 4 BNC (M)	3.0	26.70
CTL4CAD-3F	D9 (M) to 4 BNC (M)	3.0	29.70
CTL4CAD-6	D9 (M) to 4 BNC (M)	6.0	30.90
CTL4CAD-6F	D9 (M) to 4 BNC (M)	6.0	33.90
D9 Connections:	Pin #1 Red, 2 Grn, 3 Blue, 4 Blk, 6, 7, 8 & 9 Common Wired Shields		

RGB Color Monitor Cables

Five 75 ohm Slim-Line Coaxial Cables with Male BNC terminations. Easily identified colored cables: Red, Green, Blue and Black/White for Vertical/Horizontal use. The other end terminates to a ***High Density*** 15 pin D-sub connector and wired as listed below.

CTL5CAT-3	HD15 (M) to 5 BNC (M)	3.0	28.75
CTL5CAT-6	HD15 (M) to 5 BNC (M)	6.0	34.00
CTL5CAT-6F	HD15 (M) to 5 BNC (M)	6.0	38.50
HD15Connections:	Pin #1 Red, 2 Grn, 3 Blue, 13 Vert., 14 Horiz. All shields terminate to pins 5 thru 10.		

Made to Order

Custom RGB cables made up of multiple 75 ohm "Thin-Line" coaxials, quoted upon request. Makeup consists of 3, 4 or 5 coax lines terminating to any type D-sub connector. Any length or wiring arrangements. Check factory for minimum order requirements.

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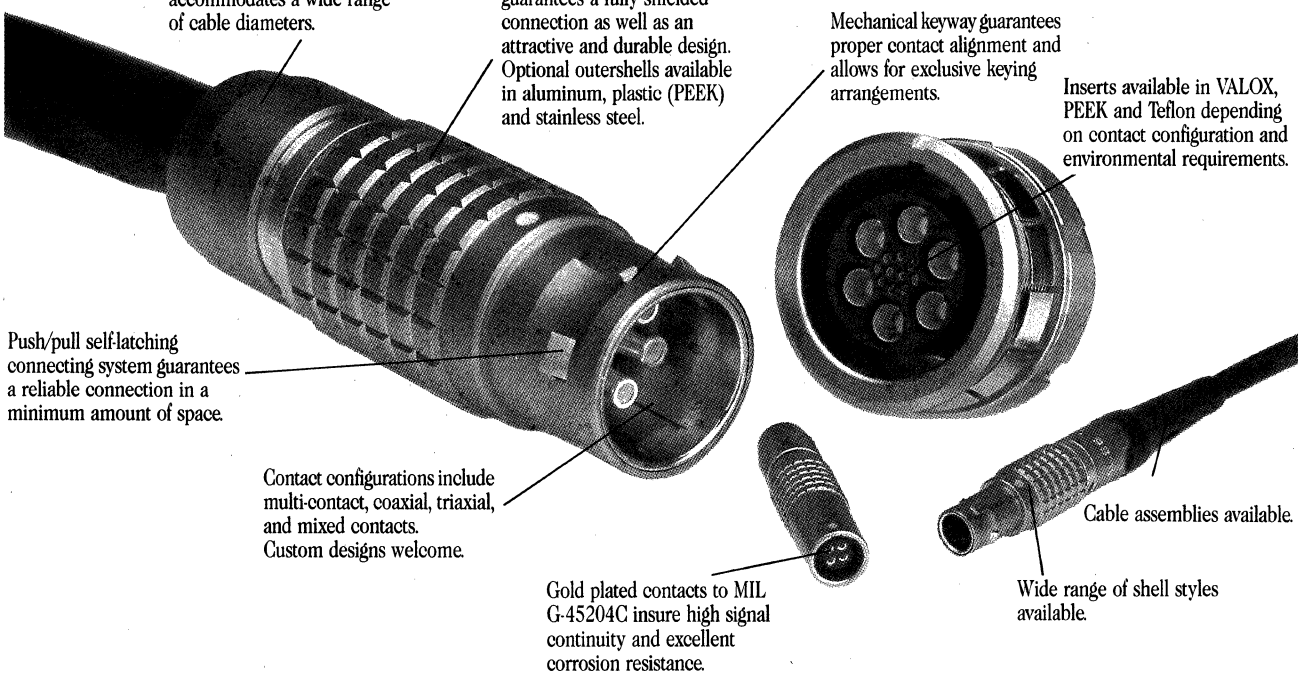
When your connections are critical . . .



. . . count on LEMO

LEMO connectors are specified for critical applications such as medical life support and monitoring systems, test and measurement instruments, high speed process control equipment, military and aerospace control and simulation systems, secured communication devices and nuclear power facilities, to mention only a few of the environments where you will find LEMO connectors.

If your application requires high reliability, high quality and consistency of a signal and/or power transmission, please consider LEMO connectors for your next product design.

For information and assistance on your specific application please contact us.
LEMO USA has a nationwide network of product specialists.

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(707) 578-8811, (800) 444-LEMO (5366)

LEMO USA inc®
ELECTRONIC CONNECTORS

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Connector Types

LEMO manufactures precision engineered cylindrical self-latching quick connect-disconnect electronic connectors for a wide variety of applications.

B SERIES: These connectors are mechanically keyed to protect contacts and insulators, and have very high contact density.
Range of contact configurations: Multi-contact: 2-64 contacts. Mixed: Combinations include coax, fiber optic, fluidic, pneumatic, and high voltage with signal contacts.
Range of cable outer diameter: .059″ to .984″/ 1.5 mm to 25.0 mm.

K SERIES: (environmental) These connectors are mechanically keyed and feature triple wall construction to provide water and dust resistance.
Range of contact configurations: Multi-contact and mixed: Identical to B series above.
Range of cable outer diameter: 0.028″ to .591″/ 0.7 mm to 15 mm.

S SERIES: LEMO's S Series features hermaphroditic inserts which assure proper contact alignment.
Range of contact configurations: Coax 50 and 75 ohm. Triax 50 and 75 ohm. Multi-contact: 2-106 contacts. Mixed: Wide variety of coax, high voltage and signal contacts.
Range of cable outer diameter: .039″ to 1.181″/ 1.0 mm to 30.0 mm.

E SERIES: (environmental) LEMO's E Series features hermaphroditic inserts and triple wall construction to provide water and dust resistance.
Range of contact configurations: Identical to S Series above.
Range of cable outer diameter: 0.028″ to 1.181″/ 0.7 mm to 30.0 mm.

SPECIAL COAXIAL SERIES: LEMO has developed a wide range of coaxial connectors to meet most applications.
01-MINAX Series: LEMO's smallest coaxial connector accommodates cable sizes RG.174A/U, RG.178B/U, RG.188A/U, RG.196A/U, RG.316/U, CCE.99.281.505, CCH.99.281.505.
00-NIM (nuclear instrumentation module)—**CAMAC** (computer automated measurement and control) Series: Designed for cables RG.58C/U, RG.174A/U, RG.178B/U, RG.179B/U, RG.180B/U, RG.187A/U, RG.188A/U, RG.196A/U, RG.316/U, CCE.99.281.505, CCH.99.281.505, HF-2115 Dätwyler.
OA-Telecommunications Series: Designed with contacts to accommodate telecommunications requirements. These accommodate cables RG.58C/U, RG.59B/U, RG.174A/U, RG.179B/U, RG.316/U, CCE.99.281.505, CCH.99.281.505, 2YCY (0.4/2.5) Siemens, 2YCCY (0.4/2.5) Siemens, 0722 102 11 001 Philips, 0722 102 29 011 Philips, HF-5408/1 Dätwyler.
Other coaxial connectors are available in Standard S-Series to accommodate cables up to .866″/ 22.0 mm.

VIDEO TRIAXIAL SERIES: LEMO's triaxial series is used mainly for video camera applications. LEMO has a number of standard connectors in this series and is in the forefront of developing new ones to meet clients' needs.

HIGH VOLTAGE SERIES: LEMO's High Voltage Series is designed for applications where there is a constant non-fluctuating flow of electricity and where power can be cut prior to connecting and disconnecting connector.
Range of contact configuration: 1-21 contacts.
Voltage capacity: Up to 50 kV.

P SERIES: (plastic) LEMO's plastic series is made of PSU (polysulfone), especially well suited for corrosive environments or where sterilization is needed.
Range of contacts: 6, 10, 14 or 18 contacts plus one ground or 9 contacts + 1 high voltage.
Range of cable outer diameter: .236″ to .354″/6-9 mm.

MINIATURE PLASTICS–REDEL: Autoclaveable PSU shells ranging in contact arrangements from 2-9 (solder or pc) contacts.

FIBER OPTIC: LEMO's fiber optic connectors are designed for multimode transmission on single or multi-fibers. Terminations are made by the cut and epoxy/polish method.
Fibers accommodated: 50, 100, 200 micron core fibers.

THERMOCOUPLE SERIES: LEMO's Thermocouple connectors are designed to assure continuous and accurate monitoring of hostile environments where extreme surface or ambient temperatures, gases or liquids must be controlled.

FLUIDIC/PNEUMATIC: LEMO's fluidic/pneumatic connectors are available in single or multiple tubes as well as mixed with electrical contacts.
Working pressure: Up to 20 bar (290 PSI).

VACUUM SEALED RECEPTACLES: LEMO's sealed-through connectors are used in applications where moisture or some types of gas should be prevented from escaping from or to a closed circuit process and where connections and disconnections are necessary only for overhauling work.

The leakage rate of LEMO's sealed through connectors is 1×10^{-6} torr.1/sec.

UNDERWATER CONNECTORS–03 SERIES: LEMO's new connectors for underwater applications where watertightness and stability are guaranteed for up to 870 psi or severe vibration conditions.

PRINTED CIRCUIT CONTACT CONNECTORS: LEMO has many connectors, coaxial and multi-contact in the B and S Series designed for printed circuit board mounting.

CABLE ASSEMBLY: LEMO offers quality cable assemblies to match their precision engineered connectors.

CUSTOM DESIGNS: For more information, please contact LEMO U.S.A., INC.

LEMO's Family of Connectors

Introduction for Connector Specifiers

There are 4 variables you should identify in specifying a connector:

1. Number of contacts
2. AWG
3. Voltage and current
4. Cable jacket outer diameter (for collet)

The tables on the following pages present this information concisely.

FIRST: Find the tables for the connector family which interests you.

SECOND: On the table selected, locate the size which accommodates the 4 variables noted above.

THIRD: Locate the outer shell configuration after the insert tables. Other configurations may be available for special applications.

If after using this reference you require additional information, please request our full-line catalogs for more details and other special application connectors.

PLEASE NOTE: If you do not see what you need please ask us. LEMO is constantly developing new products; therefore, all available connectors could not be included in this reference.

Connector Materials

INSULATOR MATERIALS

Series	Valox	Peek	Teflon
B & K Series	X	X	N
S & E Series	X	X	X[1]
Coaxial & Triaxial Series	N	O	X
Video Triax	N	N	X
C Series	X	O	N
P Series	N	X	N
High Voltage	N	X	X

Codes: X – Standard
X[1] – Standard for Coaxial and Triaxial Connectors
O – Optional
N – Not Available

SHELL MATERIALS

Shells are constructed of precision machined brass with a hard satin chrome plated finish assuring rugged housing for maximum safety and uniform mating. Black, green or yellow chrome plating optional.

Optional materials include stainless steel, aluminum alloy (anodized in 6 colors: blue, yellow, black, red, green and transparent) or PEEK.

LEMO's lightweight Plastic Series of connectors are made of polysulfone PSU (MIL-P-461/20 MR). These connectors can be autoclaved.

Voltage Test Procedure—

PROCEDURE FOR DETERMINING TEST VOLTAGES AND WORKING VOLTAGES FOR LEMO CONNECTORS:

Test Voltage: Test voltages are determined by taking an average of the points at which arcing occurred and reducing it by ⅓.

Working Voltage: Working voltages are determined by taking test voltages and reducing them further by ⅔.

For high-voltage connectors, IEC publication 130-1 § 14.5 b) applies:

$$\text{Working voltage} = \frac{\text{Test voltage}}{1{,}5}$$

LEMO guarantees the proper functioning of the connector at working voltages.

Although this may appear quite conservative, it is in keeping with LEMO's insistence on assuring proper functioning and maintenance of high-quality standards.

Current ratings noted are per contact.

B & K Series Inserts Multi-Contact Connectors

Wire sizes in this table are valid for solder-type contacts (standard version). AWG may vary depending on wire type (solid or stranded).

Contact types: C = crimp contact S = solder contact
P = printed circuit contact

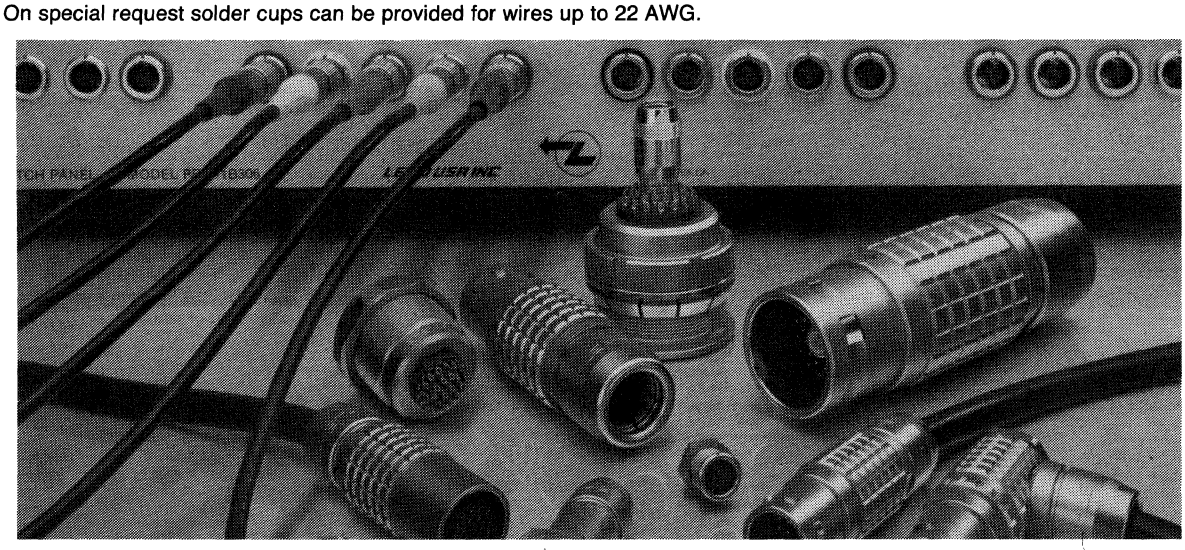
MULTI-CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
2	S	30	350	500	4	00
3 or 4	S	30	350	500	3	
Maximum Collet Range 3 MM. (.12 In.)						
2	C S P	22	460	660	10	0
3	C S P	22	420	600	8	
4	C S P	*26	460	660	7	
5	C S P	*26	260	400	6.5	
6 or 7	S P	28	220	320	2.5	
Collet Range 1.5 - 5.5 MM. (.059 - .217 In.)						
2	C S P	20	530	760	15	1
3	C S P	20	420	600	12	
4	C S P	22	630	900	10	
5	C S P	22	460	660	9	
6, 7 or 8	C S P	*26	460	660	7	
10	S	28	200	300	3	
Collet Range 2.0 - 7.5 MM. (.079 - .295 In.)						
2	C S	16	700	1000	30	2
3	C S	18	560	830	17	
4	C S P	20	1000	1300	15	
5	C S P	20	860	1200	14	
6	C S P	20	630	900	12	
7	C S P	20	500	730	11	
8	C S P	22	1000	1500	10	
10	C S P	22	560	830	8	
12	C S P	*26	560	830	7	
14	C S P	*26	560	830	6.5	
16	C S P	*26	500	730	6	
18	C S P	*26	460	660	5.5	
19	C S P	*26	460	660	5	
Collet Range 1.5 - 9.7 MM. (.059 - .382 In.)						
2	C	12	760	1100	50	3
3	C S	16	1200	1600	25	
4	C S	16	830	1100	22	
5	C S	18	860	1200	19	
6	C S	18	730	1000	17	

MULTI-CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
7	C S	18	730	1000	15	3
8	C S P	20	700	1000	13	
10	C S P	20	460	660	12	
12	C S P	22	560	830	9	
14	C S P	22	560	830	9	
16	C S P	22	460	660	8	
18	C S P	22	460	660	7	
20	C S P	*26	500	730	6	
22	C S P	*26	400	560	5.5	
24	C S P	*26	400	560	5	
26	C S P	*26	260	400	4.5	
28	C S P	*26	260	400	4	
30	C S P	*26	260	400	3.5	
Collet Range 4.1 - 11.7 MM. (.161 - .461 In.)						
4	C	12	930	1300	30	4
6 or 7	C	16	930	1300	24/20	
10	C S	18	700	1000	17	
12	C	20	1000	1400	12	
16	C S	22	1000	1400	10	
20	C S	22	700	1000	8	
24	C S	22	630	900	7	
30	C S	22	460	660	5	
40	C	*26	560	800	2	
Collet Range 5.1 - 16.0 MM. (.201 - .630 In.)						
4	C S	10	2500	3500	25	5
10	C S	12	1200	1800	20	
14	C S	16	1500	2100	18	
16	C S	16	1500	2100	12	
20	C S	18	1300	1800	10	
30	C S	20	1200	1700	8	
40	C S	20	760	1100	7	
48	C S	20	630	900	6	
50 or 54	C S	22	760	1100	5	
64	C S	22	530	700	3	
Collet Range 11.6 - 25.0 MM. (.457 - .984 In.)						

* On special request solder cups can be provided for wires up to 22 AWG.



B & K Series Inserts Mixed Contact Connectors

MIXED CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
2 HV	S	26	2100	3000		1
1 multi	C S	20	400	600	12	
1 coax 50 ohms 2 multi	S C S	26 22	300 330	480 500	5 8	2
1 coax 50 ohms 4 multi	S C S	26 *26	300 400	480 600	5 5	
1 coax 50 ohms 6 multi	S C S	26 *26	300 400	480 600	5 5	
1 coax 50 ohms 10 multi	C C S	22 22	300 560	480 830	5 65	
Collet Range 1.5 - 9.7 MM. (.059 - .382 In.)						
1 coax 50 ohms 6 multi	S C S	26 *26	300 400	480 600	5 5	3
1 coax 50 ohms 9 multi	S C S	26 *26	300 400	480 600	5 5	
1 coax 50 ohms 12 multi	S C S	26 22	300 400	480 600	5 5	
1 coax 50 ohms 13 multi	S C S	26 *26	300 400	480 600	5 5	
2 coax 50 ohms 4 multi	C C S	26 22	500 400	730 600	2 8	
2 coax 50 ohms 10 multi	C C S	26 *26	500 200	730 280	2 5	
1 HV 9 multi	S C S	22 26	5600 400	8000 600	6 5	
1 HV 18 multi	S C S	22 22	2000 400	3000 600	6 5.5	
2 HV 10 multi	S C S	22 26	5600 200	8000 280	6 5	
Collet Range 4.1 - 11.7 MM. (.161 - 4.61 In.)						
1 coax 50 ohms OR 75 ohms 2 multi	S S C S	18 20 22	600 800 400	900 1100 600	12 7 8	4
1 coax 50 ohms OR 75 ohms 4 multi	S S C S	18 20 22	600 800 400	900 1100 600	12 7 7	
1 coax 50 ohms OR 75 ohms 6 multi	S S C S	18 20 22	600 800 400	900 1100 600	12 7 5	
2 coax 50 ohms 2 multi	S C S	26 22	300 400	480 600	5 8	

MIXED CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
2 coax 50 ohms 4 multi	S C S	26 22	300 400	480 600	5 7	4
2 coax 50 ohms 12 multi	**C C S	22 22	500 400	700 600	2 4	
2 coax 50 ohms 16 multi	**C C S	22 22	500 400	700 600	2 4	
2 coax 50 ohms 18 multi	**C S	22 24	500 500	700 700	2 2	
3 coax 50 ohms 12 multi	**C S	26 *26	500 300	700 500	2 2	
4 coax	**C	22	300	500	2	
Collet Range 5.1 - 16.0 MM. (.201 - .630 In.)						
2 coax 50 ohms OR 75 ohms 10 multi	**C C S	20 22 22	280 700 500	460 1000 700	11 6 8	5
2 coax 50 ohms OR 75 ohms 16 multi	**C C C	20 22 22	280 700 500	460 1000 700	11 6 8	
2 coax 50 ohms OR 75 ohms 17 multi	**C C C	20 22 16,22	280 700 500	460 1000 700	11 6 30/8	
10 coax	**C	24	300	500	2	
1 triax 75 ohms 32 multi	S C S	22 20	800 500	1100 700	7 8	
Collet Range 11.6 - 25.0 MM. (.457 - .984 In.)						

* On special request solder cups can be privided for wires up to 22 AWG.

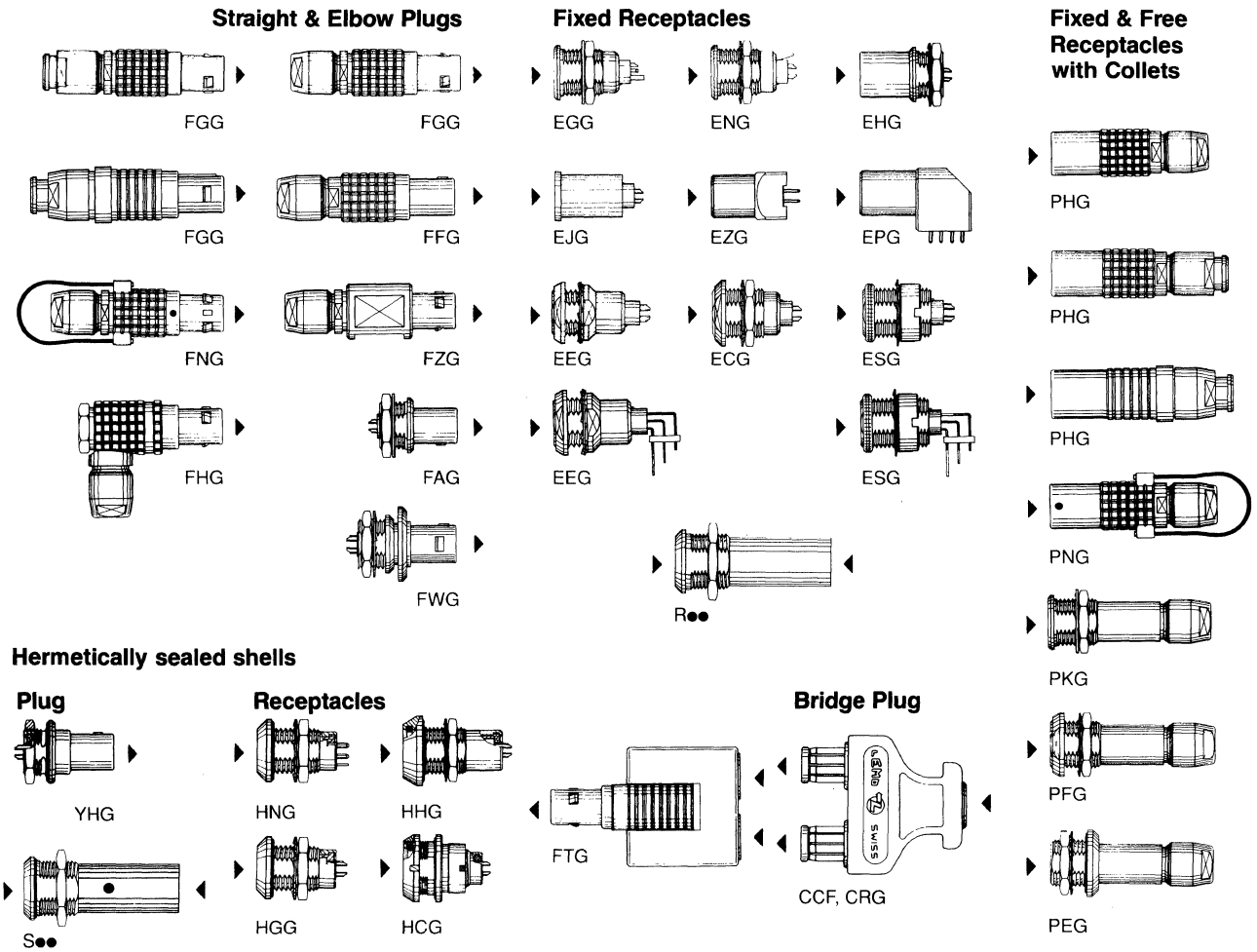
**** In cases where Type C Coaxial Contacts are shown you may substitute Fluidic/Pneumatic, High Voltage or Fiber Optic Contacts.**

Many new mixed contact configurations are available. Please call for information.

K SERIES: Environmentally sealed and keyed connectors. Insert configurations available are identical to B Series sizes 0 through 5. Cable collet range for cable O/D is the same as E Series, sizes 0 through 5.

B Series Shells

Shell Configurations for Multi- and Mixed Contact Connectors

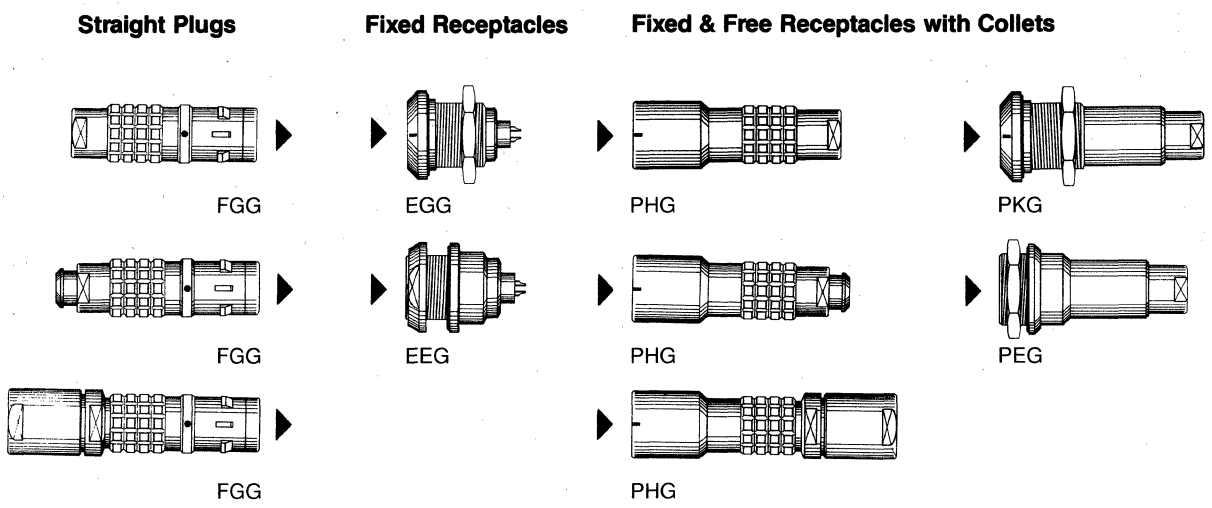


Model description

CFF Bridge plug with two non-latching plugs
CRG Bridge plug with two non-latching plugs and one monitoring receptacle with key (G)
ECG Fixed receptacle, with two nuts, key (G) or keys (code A to M) (back panel mounting)
EEG Fixed receptacle, nut fixing, with key (G) or keys (code A to M) with 90° contacts for printed circuit (back panel mounting)
EGG Fixed receptacle, nut fixing, with key (G) or keys (code A to M)
EHG Fixed receptacle, nut fixing, with key (G) or keys (code A to M) visible shell
EJG Fixed receptacle, force or adhesive fit, with key (G)
ENG Fixed receptacle with tag, nut fixing, with key (G) or keys (code A to M)
EPG Elbow plug (90°) with key (G) for printed circuit
ESG Fixed receptacle with two round nuts, key (G) or keys (code A to M) threaded shell
EZG Straight receptacle for printed circuit with key (G)
FFG Straight plug, non-latching with key (G) and cable collet
FGG Straight plug with key (G) or keys (code A to L) and cable collet
FGG Straight plug with key (G) or keys (code A to L) cable collet and collet nut for fixing a strain relief
FGG Straight plug with key (G) or keys (code A to L) cable collet and collet nut for fixing a strain relief (plastic shell)
FHG Elbow plug with key (G) or keys (code A to L) and cable collet
FNG Straight plug with (G) or keys (code A to L) and cable collet with lanyard release
FTG Straight plug with two parallel receptacles, key (G)
FWG Straight plug, nut fixing, with key (G)
FZG Straight plug for remote handling, with key (G) or keys (code A to L) and cable collet
HCG Fixed receptacle, nut fixing, with key (G) or keys (code A to L) watertight when mated (back panel mounting)
HGG Fixed receptacle, nut fixing, watertight, with key (G) or keys (code A to L)
HHG Fixed receptacle, nut fixing, with key (G) watertight
HNG Fixed receptacle with tag, nut fixing, waterproof
PEG Fixed receptacle, nut fixing, with key (G) and cable collet (back panel mounting)
PFG Fixed receptacle, with two nuts, with key (G) and cable collet or keys (code A to M) (back panel mounting)
PHG Free receptacle with key (G) or keys (code A to M) and cable collet
PHG Free receptacle with key (G) or keys (code A to M) cable collet and collet nut for fixing a strain relief
PHG Free receptacle with key (G) or keys (code A to M) cable collet and collet nut for fixing a strain relief (plastic shell)
PKG Fixed receptacle, nut fixing, with key (G) or keys (code A to M) and cable collet
PNG Free receptacle with key (G) or keys (code A to M) and cable collet, with lanyard release
R•• Fixed coupler, nut fixing, with keys (J,K,L and M) on one side and key (G) or keys (A,B and C) on the other
S•• Fixed coupler, watertight, nut fixing, with keys (J,K and L) on one side and key (G) or keys (A,B) on the other
YHG Straight plug, non latching, watertight, with key (G) or keys (code A to M)

K Series (Environmentally Sealed) Shells

Shell Configurations for Single, Coaxial, Triaxial, Multi- and Mixed Contact Connectors



Model description

EEG Fixed receptacle, nut fixing, with key (G) or keys (code A-F and L) with 90° contacts for printed circuit (back panel mounting)
EGG Fixed receptacle, nut fixing, with key (G) or keys (code A-F and L)

FGG Straight plug with key (G) or keys (code A-F and L) and cable collet
FGG Straight plug with key (G) or keys (code A-F and L), cable collet and collet nut for fixing a strain relief
FGG Straight plug with key (G) or keys (code A-F and L) and oversized collet

PEG Fixed receptacle, nut fixing, with key (G) and cable collet (back panel mounting)
PHG Free receptacle with key (G) or keys (code A-F and L) and cable collet
PHG Free receptacle with key (G) or keys (code A-F and L) cable collet and collet nut for fixing a strain relief
PHG Free receptacle with key (G) or keys (code A-F and L) cable collet and collet nut for fixing a strain relief (plastic shell)
PKG Fixed receptacle, nut fixing, with key (G) or keys (code A-F and L) and cable collet

S Series Inserts Multi-Contact Connectors

MULTI-CONTACT INSERTS

Solder-type contacts are standard. Printed circuit contacts may be available upon request.

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
2	22	500	700	10	0
3,4	26	300	500	7	
Collet Range 1.7 - 4.2 MM. (.066 - .165 In.)					
2	20	400	600	12	1
3,4	22	400	600	10	
5,6	26	500	700	7	
Collet Range 1.7 - 6.2 MM. (.066 - .244 In.)					
2	18	600	900	20	2
3,4,5,6	20	500	700	17-11	
3 4	20 22	250 250	400 400	10 8	
8,10	24	250	400	9,7	
Collet Range 2.7 - 8.5 MM. (.106 - .334 In.)					
2,3	14	1000	1400	23,20	3
4	14	500	700	18	
2 3	14 20	500 500	700 700	16 9	
6	20	700	1000	14	
7,8,10	20	350	500	12-9	
12,13,14	22	400	600	8-7	
16	22	350	500	7	
18	22	350	400	6	
Collet Range 3.7 - 10.7 MM. (.145 - .421 In.)					
2	10	700	1000	35	4
3	12	700	1000	24	
4	12	700	1000	22	
2 3	12 14	700 700	1000 1000	22 16	
6	14	700	1000	16	
3 4	14 20	700 700	1000 1000	16 13	
8	20	900	1300	13	
9,10,12,13,14	20	700	1000	12-7	
16,18,20 22,24	22	700	1000	7	
Collet Range 5.2 - 13.2 MM. (.204 - .519 In.)					

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
2	5	1100	1600	50	5
1 2	5 10	1100 1100	1600 1600	50 35	
4	10	1100	1600	35	
2 3	10 12	1000 1000	1400 1400	35 25	
6	12	1000	1400	25	
8	12	700	1000	22	
10,12	16	700	1000	18	
2 12	12 16	600 600	800 800	20 15	
16	16	600	800	15	
2 16	12 18	600 600	800 800	18 11	
20	18	600	800	11	
2 20	12 18	600 600	800 800	16 9	
24	18	900	1300	9	
30,36	20	600	800	8,7	
40,44,48	20	400	600	7,6,6	
Collet Range 8.2 - 22.2 MM. (.539 - .874 In.)					
4	4	1000	1400	60	6
12	10	700	1000	22	
18	10	400	600	16	
20	12	500	700	14	
24	12	400	600	12	
30	16	700	1100	10	
36	16	500	700	8	
48	16	500	700	7	
60	18	500	700	5	
62	18	500	700	5	
64	20	400	600	4	
72	20	400	600	4	
106	22	250	400	2	
Collet Range 12.2 - 30.2 MM. (.480 - 1.188 In.)					

MIXED CONTACT INSERTS High Voltage + Signal or Coax + Signal

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 HV 2 multi	20 16	2100 500	3000 700	6 18	3
1 HV 3 multi	20 20	2100 700	3000 1000	6 14	
1 HV 4 multi	20 20	2100 350	3000 500	6 10	
1 HV 5 multi	20 20	2100 350	3000 500	6 9	
1 HV 6 multi	20 20	2100 350	3000 500	6 8	
1 HV 7 multi	20 20	2100 350	3000 500	6 8	
1 HV 8 multi	20 20/22	2100 300	3000 500	6 8	
1 HV 9 multi	20 22	2100 250	3000 400	6 6	

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 HV 11 multi	20 22	2100 250	3000 400	6 6	3
2 HV 2 multi	20 20	2100 700	3000 1000	6 14	
2 HV 4 multi	20 20	2100 300	3000 500	6 10	
2 HV	20	2100	3000	6	
1 coax 00 50 ohms 1 multi	26 20	700 900	1000 1300	5 14	
1 coax 00 50 ohms 2 multi	26 20	700 400	1000 600	5 14	
1 coax 00 50 ohms 3 multi	26 20	700 900	1000 1300	5 14	

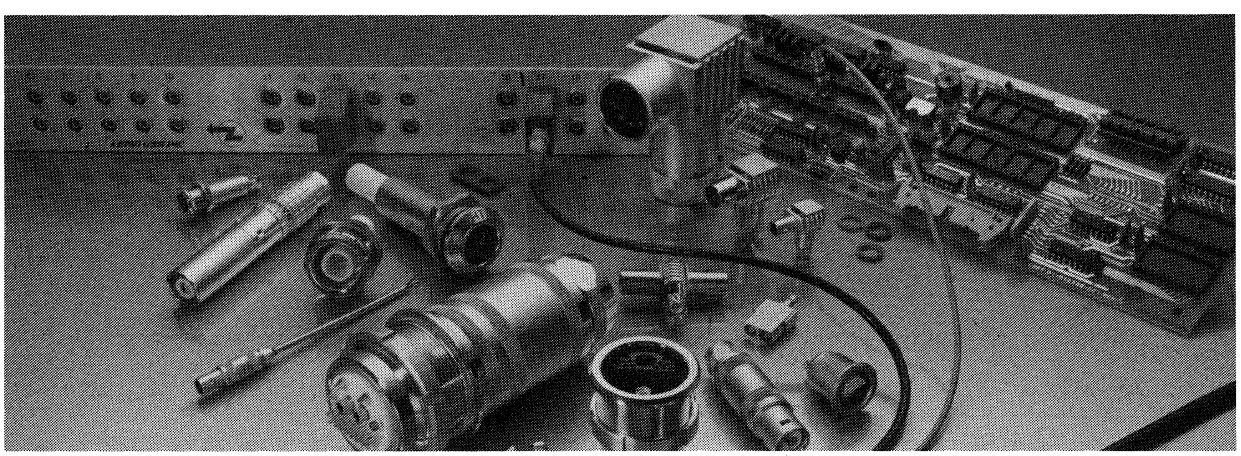
S Series Inserts Mixed Contact Inserts

MIXED CONTACT INSERTS High Voltage + Signal or Coax + Signal

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 coax 00 50 ohms 4or5 multi	26 20/22	700 400/600	1000 600/800	5 10/8	3
1 coax 00 50 ohms 6or7 multi	26 20/22	300 250	500 400	5 8/7	
Collet Range 3.7 - 10.7 MM. (.145 - .421 In.)					
1 HV 2or3 multi	16 16	2100 700	3000 1000	8 22/16	4
1 HV 4-8 multi	14 20	2100 700	3000 1000	8 13-9	
1 HV 9or10 multi	16 22	2100 700	3000 1000	8 7	
1 HV 12,14or16 multi	16 22	2100 700	3000 1000	8 7	
2 HV 2,3or4 multi	16 12,14,20	2100 700	3000 1000	8 22,16,13	
2 HV 5 multi	16 20	2100 700	3000 1000	8 11	
2 HV 6or7 multi	16 20	2100 700	3000 1000	8 9	
2 HV 9 multi	16 22	2100 700	3000 1000	8 7	
2 HV 10or12 multi	16 22	2000 700	3000 1000	8 7	
2 HV	16	3500	7000	8	
3 HV	16	2100	3000	8	
4 HV	16	2100	3000	8	
1 coax 00 50 ohms 2-6 multi	26 12-20	700 700	1000 1000	5 22-9	
1 coax 00 50 ohms 7-10 multi	26 20-22	700 700	1000 1000	5 7	
1 coax 00 50 ohms 12 multi	26 22	700 700	1000 1000	5 7	
2 coax 00 50 ohms 2or4 multi	26 20	700 700	1000 1000	4 13	

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
2 coax 00 50 ohms 6,8or12 multi	26 22	700 600	1000 800	4 7	4
Collet Range 5.2 - 13.2 MM. (.204 - .519 In.)					
1 HV 6or8 multi	16 14	3500 400	5000 1000	6 18/15	5
2 HV 4or6 multi	16 12/14	3500 700	5000 1000	6 22/18	
2 HV 8or10 multi	16 14/18	3500 700	5000 1000	6 15/11	
1or2 HV 24 multi	16 20	3500 400	5000 600	6 6	
1 HV 10 multi	16 14	7000 400	10000 600	8 15	
2-4 HV	16	3500	5000	6	
8 HV	16	2100	3000	5	
2 coax 0 50 ohms 2,4or8 multi	24 16/16/18	1000 600	1400 800	7 18/18/12	
2 coax 0 50 ohms 10or12 multi	24 18or20	1000 600	1400 800	7 11or9	
2 coax 0 50 ohms 20or24 multi	24 20	1000 250	1500 400	7 7or6	
4 coax 2 50 ohms 26 multi	24 20	700 250	1000 400	4 6	
Collet Range 8.2 - 22.2 MM. (.322 - .874 In.)					
4 coax 1 75 ohms	20	800	1100	7	6
3 coax 0 50 ohms 26 multi	24 16	1000 500	1400 700	6 7	
3 coax 1 75 ohms 26 multi	20 20	600 400	700 600	7 4	
8 coax 00 50 ohms 20 multi	26 18	700 500	1000 700	5 7	
Collet Range 12.2 - 30.2MM. (.480 - 1.188 In.)					

More contact configurations are available. Please contact LEMO USA.



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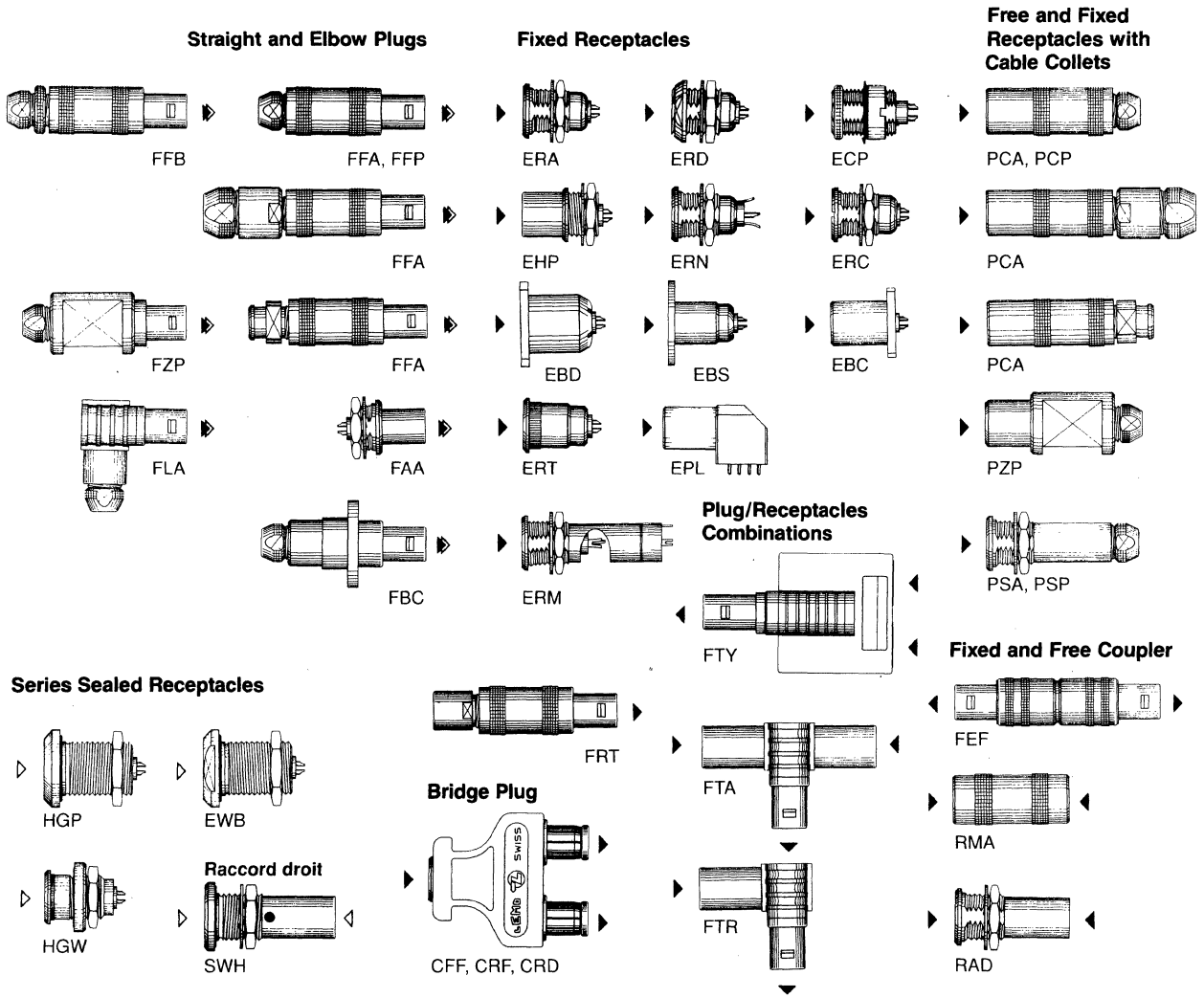
S Series Shells



Model description

CFF Bridge plug with two non latching plugs
CRD Bridge plug with two non latching plugs and one receptacle for measurement
CRF Bridge plug with two non latching plugs and one monitoring receptacle
EBC Fixed receptacle with square flange, visible shell (screw fixing)
EBD Fixed receptacle with square flange (screw fixing)
EBS Fixed receptacle with round flange (screw fixing)
ECP Fixed receptacle with two round fixing nuts
EHP Fixed receptacle, visible shell
EPL Elbow plug (90°) for printed circuit
ERA Fixed receptacle
ERC Fixed receptacle with slot on flange
ERD Fixed receptacle (back panel mounting)
ERM Fixed receptacle with microswitch
ERN Fixed receptacle with tag
ERT Fixed receptacle force or adhesive fit
EWB Fixed receptacle, nut fixing, with two flats on flange (waterproof)
FAA Straight plug non latching, nut fixing
FBC Straight plug with round flange and cable collet (screw fixing)
FEF Straight coupler with two plugs
FFA Straight plug with cable collet
FFA Straight plug with cable collet and oversized collet
FFA Straight plug with cable collet and collet nut for fixing a strain relief
FFB Straight plug with cable collet and safety nut
FFP Straight plug with inner anti-rotating device and cable collet
FLA Elbow plug (90°) with cable collet
FRT Straight plug with resistor
FTA T-plug with two receptacles in line
FTR Elbow plug (90°) with receptacle
FTY Straight plug with two parallel receptacles
FZP Straight plug for remote handling with cable collet
HGP Fixed receptacle, nut fixing, (watertight)
HGW Fixed receptacle, nut fixing, with back washer, (waterproof)
PCA Free receptacle with cable collet
PCA Free receptacle with cable collet and oversized collet
PCA Free receptacle with cable collet and collet nut for fixing a strain relief
PCP Free receptacle with inner anti-rotating device and cable collet
PSA Fixed receptacle with cable collet, nut fixing
PSP Fixed receptacle with inner anti-rotating device and cable collet
PZP Free receptacle for remote handling with cable collet
RMA Free coupler
RAD Fixed coupler, nut fixing
SWH Fixed coupler, nut fixing, (waterproof)

E Series Inserts

Environmentally Sealed Single, Coaxial, Triaxial, Multi-Contact Connectors

SINGLE CONTACT INSERTS

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1	18	500	700	12	0
Collet Range 1.2 - 5.2 MM. (.047 - .204 In.)					
1	16	600	900	18	1
1	12	500	700	26	
Collet Range 1.7 - 6.7 MM. (.066 - .263 In.)					
1	12	700	1000	30	2
1	10	600	800	40	
Collet Range 2.2 - 8.5 MM. (.086 - .334 In.)					
1	10	800	1000	43	3
1	6	600	800	65	
Collet Range 3.2 - 10.5 MM. (.125 - .413 In.)					
1	6	900	1300	70	4
1	4	500	700	230	5

COAXIAL INSERTS

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 50 ohms	24	1000	1400	6	0
Collet Range 1.2 - 5.2 MM. (.047 - .204 In.)					
1 50 ohms	18	1000	1400	12	1
1 75 ohms	20	800	1200	10	
Collet Range 1.7 - 6.7 MM. (.066 - .263 In.)					
1 50 ohms	14	1000	1400	15	2
1 75 ohms	18	500	700	12	
Collet Range 2.2 - 8.5 MM. (.086 - .334 In.)					
1 50 ohms	12	1000	1400	26	3
1 75 ohms	14	900	1300	15	
Collet Range 3.2 - 10.5 MM. (.125 - .413 In.)					
1 50 ohms	10	700	1000	36	4
1 75 ohms	12	600	900	26	
Collet Range 5.2 - 14.2 MM. (.204 - .559 In.)					
1 50 ohms	8	1000	1400	45	5
1 75 ohms	10	1000	1400	36	
Collet Range 9.6 - 23.5 MM. (.375 - .915 In.)					

TRIAXIAL INSERTS

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 50 ohms	22	350	500	6	0
Collet Range 1.2 - 5.2 MM. (.047 - .204 In.)					
1 50 ohms	22	350	500	6	1
Collet Range 1.7 - 6.7 MM. (.066 - .263 In.)					
1 50 ohms	18	500	700	12	2
1 75 ohms	24	500	700	6	
Collet Range 2.2 - 8.5 MM. (.086 - .334 In.)					
1 50 ohms	16	800	1200	15	3
1 75 ohms	22	600	800	6	
Collet Range 3.2 - 10.5 MM. (.125 - .413 In.)					
1 50 ohms	12	900	1300	26	4
1 75 ohms	16	1000	1400	15	
Collet Range 5.2 - 14.2 MM. (.204 - .559 In.)					

MULTI-CONTACT INSERTS

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
2	22	500	700	10	0
3,4	26	300	500	8,7	
Collet Range 1.2 - 5.2 MM. (.047 - .204 In.)					
2	20	400	600	12	1
3,4	22	400	600	11,10	
5,6	26	500	700	8,7	
Collet Range 1.7 - 6.7 MM. (.066 - .263 In.)					
2	18	600	900	20	2
3,4,5,6	20	500	700	15-12	
3 4	20 24	250 250	400 400	12 9	
8,10	22	250	400	9,7	
Collet Range 2.2 - 8.5 MM. (.086 - .334 In.)					
2,3	16	1000	1400	23,20	3
4	16	500	700	18	
2 3	16 20	500 500	700 700	16 9	
6	20	700	1000	14	
7,8,10	20	350	500	12,10,9	
12,14	22	500	700	8,7	
16,18	22	350	500	7,6	
Collet Range 3.2 - 10.5 MM. (.125 - .413 In.)					
2	10	700	1000	35	4
3	12	700	1000	25	
4	12	700	1000	22	
2 3	12 16	700 700	1000 1000	22 16	
6	16	700	1000	16	
3 4	16 20	700 700	1000 1000	16 13	
8	20	900	1300	13	
9,10,12,14	20	700	1000	12-7	
16,18,20, 22	22	700	1000	7	
24	24	700	2000	7	
Collet Range 5.2 - 14.2 MM. (.204 - .559 In.)					
2	6	1100	1600	50	5
1 2	6 10	1100 1100	1600 1600	50 35	
4	10	1100	1600	35	
6	12	1000	1400	25	
8	12	700	1000	22	
10,12	16	700	1000	18	
2 12	12 16	600 600	800 800	20 15	
2 16	12 18	600 600	800 800	18 11	
20	18	600	800	11	
2 20	12 18	600 600	800 800	16 9	
24	18	900	1300	9	
30,36	20	600	800	8,7	
44,48	20	400	600	6	
Collet Range 10.2 - 22.2 MM. (.401 - .874 In.)					

P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, (800) 444-LEMO (5366)

LEMO USA inc® ELECTRONIC CONNECTORS

Telefax 707/578-0869

E Series Inserts/Shells

MULTI-CONTACT INSERTS

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
3,4	6,4	1000	1400	50,60	6
12	10	700	1000	22	
16,20	12	500	700	14	
24	12	400	600	12	
30,32	16	700	1000	10	
36	20	500	700	4	
40,48	16	500	700	8,7	
60,62	18	500	700	5	
64	20	400	600	4	
72	20	400	600	4	
96,106	22	250	400	2	
Collet Range 15.2 - 27.2 MM. (.598 - 1.070 In.)					

MIXED CONTACT INSERTS

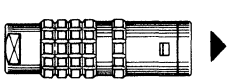
Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1HV 2-5 multi	20 20	2100 350	3000 500	6 8-9	3
1 HV 6 multi	20 20	2100 350	3000 500	6 8	
1 HV 8 multi	20 24	2100 350	3000 500	6 7	
2 HV 4 multi	20 20	2100 350	3000 500	6 10	
1 coax 00 50 ohms 1-7 multi	26 22-20	700 600/900	1000 800/1300	5 14-7	
Collet Range 3.2 - 10.5 MM. (.125 - .413 In.)					
1 HV 3 multi	14 14	2100 700	3000 1000	8 16	4
1 HV 10 multi	14 24	2100 700	3000 1000	8 7	
2 HV 5 multi	14 20	2100 700	3000 1000	8 11	
2 HV 12 multi	14 24	2100 700	3000 1000	8 7	

MIXED CONTACT INSERTS

Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 coax 00 50 ohms 6,7 multi	26 20	700 700	1000 1000	5 8	4
1 coax 00 50 ohms 9,10,12 multi	26 24	700 700	1000 1000	5 7	
2 coax 00 50 ohms 4 multi	26 20	700 700	1000 1000	5 13	
Collet Range 5.2 - 14.2 MM. (.204 - .559 In.)					
2 HV 8 multi	14 14	3400 700	5000 1000	5 14	5
8 HV	14	2100	3000	3	
2 coax 0 50 ohms 12 multi	24 20	1000 600	1400 800	6 9	
2 coax 0 50 ohms 24 multi	24 20	600 250	800 400	6 6	
1 coax 1 75 ohms 4 multi	18 12	1000 700	1400 1000	6 22	
Collet Range 10.2 - 22.2 MM. (.401 - .874 In.)					
3 coax 0 75 ohms 26 multi	24 20	800 400	1100 600	7 4	6
2 coax 1 75 ohms 26 multi	20 16	800 500	1100 700	7 7	
4 coax 00 50 ohms 20 multi	20 20	700 400	1000 600	5 4	
3 coax 1 75 ohms 26 multi	20 20	800 400	1100 600	7 4	
6 coax 00 50 ohms 30 multi	26 18	700 500	1000 700	5 5	
8 coax 00 50 ohms 20 multi	26 18	700 500	1000 700	5 5	
Collet Range 14.2 - 30.2 MM. (.559 - 1.188 In.)					

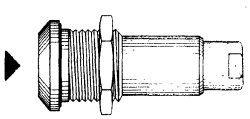
E Series Shells **Environmentally Sealed Single, Coaxial, Triaxial, Multi-Contact Connectors**

PLUG

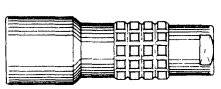


FFA Plug

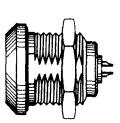
RECEPTACLES



PSA Panel Mount Cable Terminated Receptacle



PCA Cable Receptacle



ERA Panel Mount Receptacle

More shell styles are available.
Please contact LEMO USA for a full line catalog.

Coaxial & Triaxial Connectors

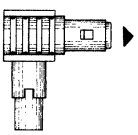
S Series Coaxial & Triaxial Connectors

MINAX — 01 SERIES 50 Ohms — Subminiature Coaxial

Range of Contacts: Coaxial 50Ω
Electrical Properties:
Impedance: 50 ohms ± 4% Rated Current: 4 amps
VSWR: 1,16 @ 1 GHz Working Voltage: 300 AC
Insulator Resistance: $>10^{12}$ Ω Test Voltage: 1000 AC
Contact Resistance: <6m Ω
Recommended Cables: RG.174A/U, RG.178B/U, RG.188A/U, RG.196A/U, RG.316/U, CCE.99.281.505, CCH.99.281.505

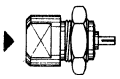
PLUGS

FPS.01.250
Cable Plug

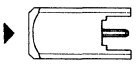


FLS.01.250
Right Angle Plug

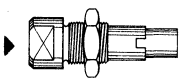
RECEPTACLES



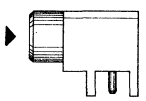
ERA.01.250
Receptacle



EPA.01.250 –
Straight Receptacle for Printed Circuit



PSS.01.250
Receptacle



EPL.01.250 - Right Angle Receptacle for Printed Circuit

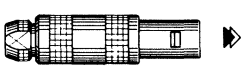
PCS.01.250
Cable Receptacle

NIM-CAMAC — 00 SERIES 50 Ohms — Miniature Coaxial

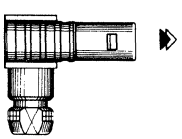
Range of Contacts: Coaxial 50Ω
Electrical Properties:
Impedance: 50 ohms ± 2% Rated Current: 4 amps
Frequency: over 1 GHz Working Voltage: 700 VAC
Contact Resistance: <8mΩ Test Voltage: 2100 AC
Insulator Resistance: $>10^{12}$Ω
Recommended Cables: RG.58C/U, RG.174A/U, RG.178B/U, RG.179B/U, RG.180B/U, RG.187A/U, RG.188A/U, RG.196A/U, RG.316/U, CCE.99.281.505, CCH.99.281.505, HF-2114 Dätwyler.

PLUGS

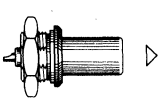
(Brass is the standard shell material. Aluminum & PEEK are available upon request.)



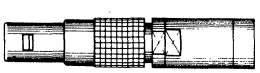
FFA Straight Plug



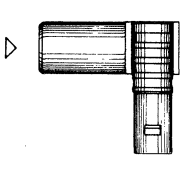
FLA Right Angle Plug



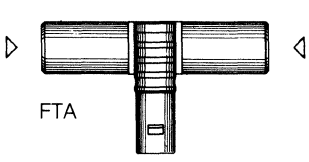
FAA Panel Mounting Plug



FRT Plug with Resistor

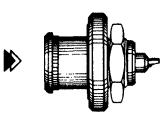


FTR Right Angle Plug with Receptacle

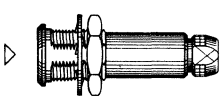


FTA T-Piece

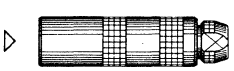
RECEPTACLES



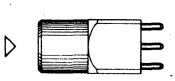
HGW
Sealed Receptacle



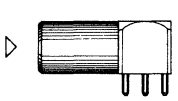
PSA Receptacle with Cable Collet



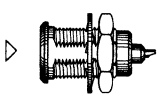
PCA Free Receptacle



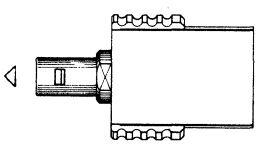
EPA Receptacle for Printed Circuit



EPL Right Angle Receptacle for Printed Circuit

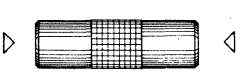


ERA Receptacle

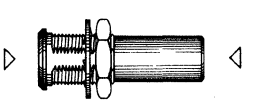


FTY Twin Receptacle with Male Exit

FEEDTHROUGHS



RMA Free Double Receptacle



RAD Double Receptacle

P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, (800) 444-LEMO (5366)
LEMO USA inc ELECTRONIC CONNECTORS
Telefax 707/578-0869

Coaxial & Triaxial Connectors/Shells

OA SERIES - 50 AND 75 OHM

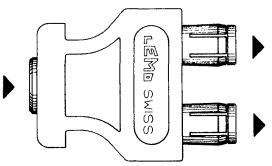
Range of Contacts: Coaxial 50Ω or 75Ω

Electrical Properties:
Working Voltage: 280 AC (50 ohms) 700 AC (75 ohms)
Impedance: 50 or 75 ohms
VSWR: 1.03 + 0.2f (50 ohm) 1.03 + 0.5f (75 ohm) (f in GHz)
Insulator Resistance: $>10^{12}$ Ω
Contact Resistance: <4.5Ω

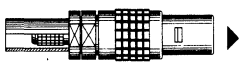
Recommended Cables: RG.58C/U, RG.59B/U, RG.174A/U, RG.179B/U, RG316/U, CCE.99.281.505, CCH.99.281.505, 2YCY(0.4/2.5) Siemens, 2YCCY(0.4/2.5) Siemens, 0722 102 11 001 Philips, 0722 102 29 011 Philips, HF 5408/1 Dätwyler

PLUGS

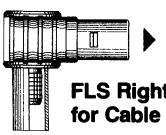
FFA Straight Plug with Collet



CRF Bridge Plug

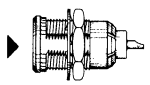


FFS Straight Plug with Backnut for Cable Crimping

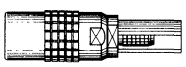


FLS Right Angle Plug for Cable Crimping

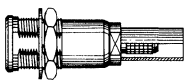
RECEPTACLES



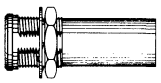
ERA Standard Receptacle



PCS Free Receptacle

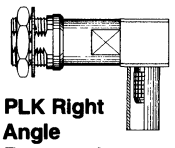


PSS Receptacle with Backnut for Cable Crimping



RAD Double Receptacle

RMA Double Free Receptacle



PLK Right Angle Receptacle

STANDARD SERIES COAXIAL INSERTS

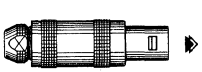
Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 50 ohms	24	1000	1400	6	0
Collet Range 1.7 - 4.2 MM. (.066 - .165 In.)					
1 50 ohms	18	1000	1400	12	1
1 75 ohms	20	800	1200	10	
Collet Range 1.7 - 6.2 MM. (.066 - .244 In.)					
1 50 ohms	14	1000	1400	15	2
1 75 ohms	18	500	700	12	
Collet Range 2.7 - 8.5 MM. (.106 - .334 In.)					
1 50 ohms	12	1000	1400	26	3
1 75 ohms	14	900	1300	15	
Collet Range 3.7 - 10.7 MM. (.145 - .421 In.)					
1 50 ohms	8	700	1100	36	4
1 75 ohms	12	600	900	26	
Collet Range 5.2 - 13.2 MM. (.204 - .519 In.)					
1 50 ohms	10	1000	1400	45	5
1 75 ohms	10	1000	1400		
Collet Range 8.2 - 22.2 MM. (.322 - .874 In.)					

STANDARD SERIES TRIAXIAL INSERTS

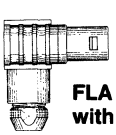
Number of Contacts	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 50 ohms	24	350	500	6	0
Collet Range 1.7 - 4.2 MM. (.066 - .165 In.)					
1 50 ohms	24	350	500	6	1
Collet Range 1.7 - 6.2 MM. (.066 - .244 In.)					
1 50 ohms	18	500	700	12	2
1 75 ohms	24	500	700	6	
Collet Range 2.7 - 8.5 MM. (.106 - .334 In.)					
1 50 ohms	14	800	1200	15	3
1 75 ohms		600	800	6	
Collet Range 3.7 - 10.7 MM. (.145 - .421 In.)					
1 50 ohms	12	900	1300	26	4
1 75 ohms		1000	1400	15	
Collet Range 5.2 - 13.2 MM. (.204 - .519 In.)					

PLUGS

FFA Straight Plug with Cable Collet

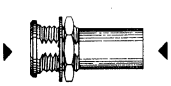


FFA Straight Plug Non-Latching



FLA Elbow Plug (90°) with Cable Collet

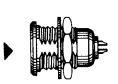
FEEDTHROUGHS



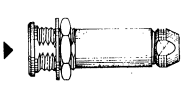
RAD Straight Coupler with Two Receptacles
- only available in coaxial

RMA Straight Coupler with Two Receptacles
- only available in coaxial

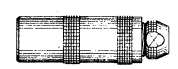
RECEPTACLES



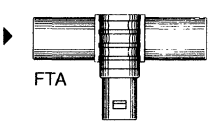
ERA Straight Receptacle



PSA Straight Receptacle with Cable Collet



PCA Straight Receptacle with Cable Collet



FTA T-Plug with Two Receptacles In Line
- only available in coaxial

Other shell configurations are available. See S Series Shells.

P.O. Box 11488, Santa Rosa, CA 95406
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LEMO USA Inc® ELECTRONIC CONNECTORS
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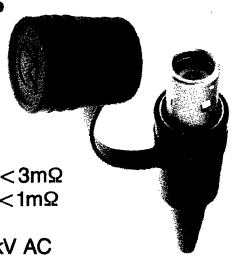
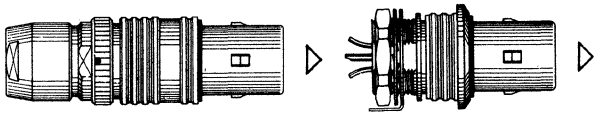
Video Triax Connectors Triaxial Connectors

VIDEO 4A (American) SERIES



TECHNICAL CHARACTERISTICS:
Nominal impedance: 75 ohms
Operating frequency: 2.5 GHz
VSWR: 1.01 + 0.076f[GHz]
Insertion loss: <0.4dB
Contact resistance: center contacts <3mΩ
internal ground <1mΩ
Breakdown voltage:
center contact/internal ground: 4 kV AC
internal/external ground: 9.5 kV AC
Operating temperatures: −55°C + 230°C (−67°F + 446°F)
Connector retention force, engaged: min. 28N
Cable retention force: min. 500N
Recommended cables:
Felten & Guillaume Part Nos. 12765700, 12766400, 12766601 and 12766700
BIW Part No. 10069-C-G20 and 10070-C-G14
Belden types 9232, 8233, 9267 and 8232
Dätwyler HF-2426, Fujikura 4.6/2.0 EFTX

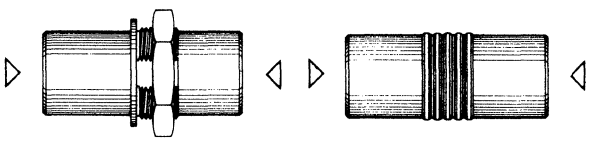
PLUGS



FFB.4A.675CTLL
Straight Plug with Cable Collet and Safety Ring

FBF.4A.675CTA
Straight Plug with Nut Fixing and Round Flange

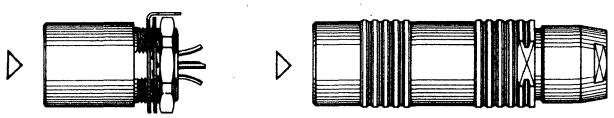
FEEDTHROUGHS



RAR.4A.675.CTM
Fixed Coupler with Visible Shell

RMA.4A.675.CTM
Straight Coupler

RECEPTACLES



EHN.4A.675.CTC
Fixed Receptacles with Nut Fixing and Visible Shell

PCA.4A.675.CTRC
Free Receptacles with Cable Collet

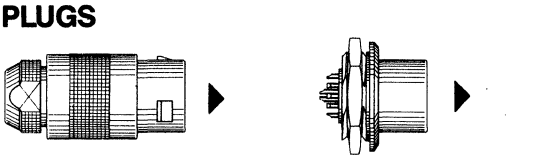
C & G Series—Short Type Connectors

LEMO's Short Series of connectors are ideal for applications where space limitation does not allow the use of a normal-size connector. 2C Series connectors do not mate with standard S Series connectors nor with E Series environmentally sealed connectors. Contact types are available in solder only.

LEMO's 2G connector features the same short shell design as the C Series but with a mechanical keyway. It is available in an 18 contact version.

Number of Contacts	Contact Types Available	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
1 Coax 50Ω	S	20	700	1000	10	2C
2	S	18	600	800	20	
3	S	20	500	700	15	
4	S	20	600	800	15	
6	S	20	500	700	12	
8	S	24	300	450	7	
10	S	24	300	450	7	
12	S	24	200	300	5	
14	S	24	200	300	5	
18	S	24	200	300	5.5	2G

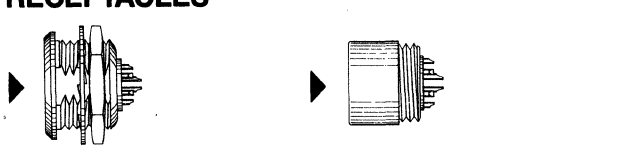
PLUGS



FGG
Plug

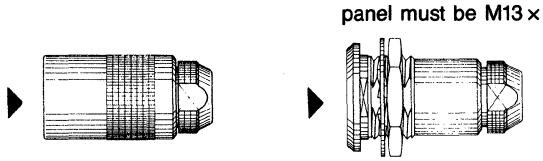
FAA
Panel Mounted Plug

RECEPTACLES



ERA
Receptacle

ERY Protruding Receptacle Screwed On Panel
For ERY the threading in the panel must be M13 x 0.75



PCA
Free Receptacle

PSA Receptacle With Cable Collet

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P Series—Plastics Multi-Contact Connectors

TECHNICAL CHARACTERISTICS

Electrical Properties

Number of Contacts	Contact Types Available	Wire Max AWG	Working Voltage AC	Working Voltage DC	Rated Current	Shell Size
6	C S PC	22	900	1300	6	3P
10	C S PC	22	800	1100	5	
14	C S PC	22	400	600	4	
18	C S	24	600	900	3	
Mixed						
9	C S	22	400	600	4	
1 HV	S	22	5600	8000	4	

Contacts/screen insulating resistance > 10^{12} Ohms per MIL STD. 1344A meth. 3003.1; IEC-130-1 § 14.4a

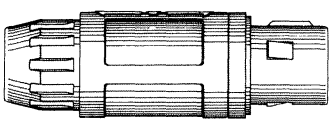
Material

Outershell, sleeve, collet	PSU (MIL-P-46120 (MR)
Insulator	PEEK
Male contacts solder	Brass UNS C 385
Male crimp and earthing	Brass UNS C 345
Female contact solder, crimp and earthing	Bronze UNS C 544
Collet washer	Silicone rubber VRP 3003/40 A-B (FS ZZ-R765, cl. 2a/2b, gr. 40)

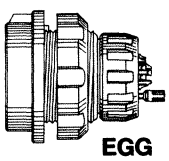
Climatic Properties

Working temperature	−50°C + 150°C (−58°F + 302°F)
Waterproofness	Splashproof
	CEI 61 (mated connectors)
Sterilization	Steam (130° C to 140°C)
	Steam with formol (70°C)
	Gas (60°C)

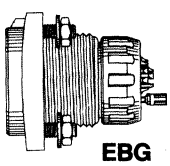
PLUG



FGG



EGG



EBG

RECEPTACLES

Also available through LEMO USA is a family of miniature plastic connectors with 2 - 9 contacts.

High Voltage Connectors—

HIGH VOLTAGE INSERTS

Number of Contacts	Wire Max AWG	Working Voltage KVdc	Test Voltage KVdc	Rated Current	Shell Size
1	24	8	12	4	0S
1	22	12	18	6	1S
1	20	7	10.5	8	1Y
1	20	10	15	8	1Y
1	22	23	35	6	1Y
1	8	15	22.5	15	3Y
1	8	28	42	15	3Y
1	18	35	52	8	3Y
10	22	8	12	3	4B
4	22	12	18	4	4B
7	22	12	18	4	4B
14	22	12	18	4	5B
21	22	12	18	4	5B
1	4	27	40	25	6Y

Working voltage as per IEC 130.1 section 14.56

$$= \frac{\text{Test Voltage}}{1.5}$$

Test voltage as per MIL-Std 1344A medth. 3001.1

Please contact LEMO USA for collet specifications and information on other High Voltage connectors.

For applications which require HV contacts mixed with signal contacts please see MIXED CONTACT SERIES under B & S SERIES sections.

P.C.B. MOUNT TERMINAL BLOCKS

lmi

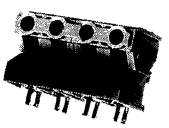
P.C.B. TERMINAL BLOCKS (Parallel screw & wire entry)

Technical data	
Pin (plating)	Brass (nickel / tin-lead)
Screw-clamp (plating)	Steel (zinc)
Housing	UL 94 V 0 grey polycarbonate
Operating temperature	– 40°F + 258°F / – 40°C + 125°C
Insulation resistance	≧ 10^{12} Ω
Captive screws	Ø .098" / M 2.5
Blade of screwdriver	.138" × .20" / 3.5 mm × 0.5 mm
Recommended tightening torque	3.48 lb./in. / 0.4 mN
Insulation stripping length	.236" ± .20" / 6 mm ± 0.5 mm
P.C.B. thickness	≦ .094" / ≦ 2.4 mm
Testing hole	Ø .078" / Ø 2 mm

- Screw & wire entry on the same plane
- Vertical wire entry,
  14 AWG, 20 A, 300 V

SERIES	CENTER TO CENTER SPACING	NO. OF POSITIONS
102 100 103 100	.200" / 5.08 MM .300" / 7.62 MM	2 to 36 2 to 24

- Screw & wire entry on the same plane
- Horizontal wire entry,
  14 AWG, 20 A, 300 V



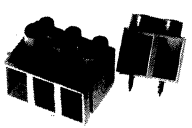
102 200 103 200	.200" / 5.08 MM .300" / 7.62 MM	2 to 36 2 to 24

- Screw & wire entry on the same plane
- Vertical wire entry,
  14 AWG, 20 A, 300 V

102 300 103 300	.200" / 5.08 MM .300" / 7.62 MM	2 to 36 2 to 24

P.C.B. MOUNT POWER TERMINAL BLOCKS

- With test point
- Wire perpendicular to clamping screw
- Horizontal wire entry,
  12 AWG, 20 A, 300 V



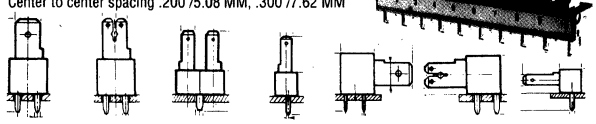
107 200	.300" / 7.62 MM	2 and 3 (Positions interlocking)

P.C.B. MOUNT TAB TERMINALS / QUICK CONNECTS

- Choice of tab sizes and configurations 8 A*, 300 V

* Series 117 100 = 25 A

* Center to center spacing .200"/5.08 MM, .300"/7.62 MM



117 100 250" x 32" TAB 2-10 POS

117 600 250" x 32" TAB or 110" x 32" TAB 2-10 POS

115 200 2" x 110" x 20" TAB 2-20 POS

115 100 110" x 20" TAB 2-20 POS

117 300 250" x 32" TAB 2-10 POS

117 800 250" x 32" TAB or 110" x 32" TAB 2-10 POS

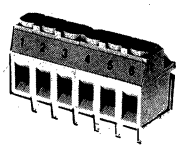
115 300 110" x 20" TAB 2-20 POS

P.C.B. MOUNT TERMINAL BLOCKS

Technical data	
Pin (plating)	Brass (nickel / tin-lead)
Screw-clamp (plating)	Steel (zinc)
Housing	UL 94 V 0 grey polycarbonate
Operating temperature	– 40°F + 258°F / – 40°C + 125°C
Insulation resistance	≧ 10^{12} Ω
Captive screws	Ø .118" / M 3
Blade of screwdriver	.138" × .20" / 3.5 mm × 0.5 mm
Recommended tightening torque	5.22 lb./in. / 0.6 mN
Insulation stripping length	.315" ± .20" / 8 mm ± 0.5 mm
P.C.B. thickness	≦ .094" / ≦ 2.4 mm

- With test point
- Wire perpendicular to clamping screw
- Horizontal wire entry,
  14 AWG, 10 A, 300 V*

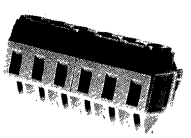
* Series 109 200 = 600 V



SERIES	CENTER TO CENTER SPACING	NO. OF POSITIONS
105 200 106 200 108 200 109 200	.200" / 5.08 MM .300" / 7.62 MM .400" / 10.16 MM .600" / 15.24 MM	2 to 36 2 to 24 2 to 18 2 to 12

- With test point
- Wire perpendicular to clamping screw
- 45° wire entry,
  14 AWG, 10 A, 300 V*

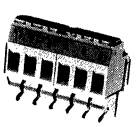
* Series 109 500 = 600 V



105 500 106 500 108 500 109 500	.200" / 5.08 MM .300" / 7.62 MM .400" / 10.16 MM .600" / 15.24 MM	2 to 36 2 to 24 2 to 18 2 to 12

- With test point
- 45° through panel terminal block
- Wire perpendicular to clamping screw
- 14 AWG, 10 A, 300 V*

* Series 109 400 = 600 V



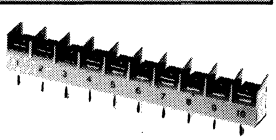
105 400 108 400 109 400	.200" / 5.08 MM .400" / 10.16 MM .600" / 15.24 MM	2 to 36 2 to 18 2 to 12

- With test point
- Wire perpendicular to clamping screw
- Double level horizontal wire entry,
  14 AWG, 10 A, 300 V

105 600	.200" / 5.08 MM	4 to 72

P.C.B. MOUNT BARRIER TERMINAL BLOCKS

- Single row barrier block
- Horizontal wire entry,
  2 × 16 AWG, 10 A, 300 V



107 100	.300" / 7.62 MM	2 to 20

lmi Connectors Inc.
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PLUGGABLE CONNECTORS FOR P.C.B.

lmi

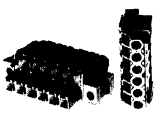
DEPLUGGABLE SCREW CONNECTORS (with polarizing & locking features)

- Wire perpendicular to clamping screw
- Horizontal wire entry, 14 AWG, 15 A, 300 V*
- Option polarizing keys

* Series 269 200 = 600 v

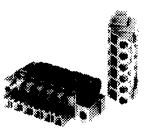
SERIES	CENTER TO CENTER SPACING	NO. OF POSITIONS
202 200	.200" / 5.08 MM	2 to 36
268 200	.400" / 10.16 MM	2 to 18
269 200	.600" / 15.24 MM	2 to 12

- Wire parallel to clamping screw
- Vertical wire entry, 14 AWG, 15 A, 300 V
- Option polarizing keys



202 400	.200" / 5.08 MM	2 to 36

- With locks
- Wire parallel to clamping screw
- Vertical wire entry, 14 AWG, 15 A, 300 V
- Option polarizing keys



202 400-1	.200" / 5.08 MM	2 to 36

MATING HEADERS

- Vertical header
- Sides open or closed 15 A, 300 V*
- Option polarizing keys

* Series 279 100 and 279 100-1 = 600 V

232 100	.200" / 5.08 MM	2 to 30 sides open
278 100	.400" / 10.16 MM	2 to 15 sides open
279 100	.600" / 15.24 MM	2 to 10 sides open
232 100-1	.200" / 5.08 MM	2 to 30 sides closed
278 100-1	.400" / 10.16 MM	2 to 15 sides closed
279 100-1	.600" / 15.24 MM	2 to 10 sides closed

- Horizontal header
- Sides open or closed 15 A, 300 V*
- Option polarizing keys

* Series 279 300 and 279 300-1 = 600 V

232 300	.200" / 5.08 MM	2 to 30 sides open
278 300	.400" / 10.16 MM	2 to 15 sides open
279 300	.600" / 15.24 MM	2 to 10 sides open
232 300-1	.200" / 5.08 MM	2 to 30 sides closed
278 300-1	.400" / 10.16 MM	2 to 15 sides closed
279 300-1	.600" / 15.24 MM	2 to 10 sides closed

- Double horizontal header
- Sides closed
- With locks 15 A, 300 V*
- Option polarizing keys

* Series 279 200 = 600 V

232 200	.200" / 5.08 MM	2 to 30
278 200	.400" / 10.16 MM	2 to 15
279 200	.600" / 15.24 MM	2 to 10

- Double level vertical header
- Sides open 15 A, 300 V
- Option polarizing key

232 700	.200" / 5.08 MM	4 to 72

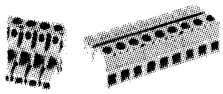
- Double level horizontal header
- Sides open 15 A, 300 V
- Option polarizing key

232 600	.200" / 5.08 MM	4 to 72

INDUSTRY STANDARD DEPLUGGABLE SCREW CONNECTORS

- Wire perpendicular to clamping screw
- Horizontal wire entry, 14 AWG, 10 A, 300 V*

* Series 249 200 = 600 V



SERIES	CENTER TO CENTER SPACING	NO. OF POSITIONS
245 200	.200" / 5.08 MM	2 to 36
248 200	.400" / 10.16 MM	2 to 18
249 200	.600" / 15.24 MM	2 to 12

MATING HEADERS

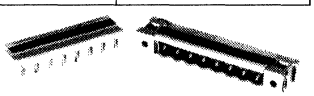
- Vertical header
- Sides open or closed 10 A, 300 V*

* Series 259 100 and 259 100-1 = 600 V

255 100	.200" / 5.08 MM	2 to 36 sides open
258 100	.400" / 10.16 MM	2 to 18 sides open
259 100	.600" / 15.24 MM	2 to 12 sides open
255 100-1	.200" / 5.08 MM	2 to 36 sides closed
258 100-1	.400" / 10.16 MM	2 to 18 sides closed
259 100-1	.600" / 15.24 MM	2 to 12 sides closed

- Horizontal header
- Sides open or closed 10 A, 300 V*

* Series 259 300 and 259 300-1 = 600 V



255 300	.200" / 5.08 MM	2 to 36 sides open
258 300	.400" / 10.16 MM	2 to 18 sides open
259 300	.600" / 15.24 MM	2 to 12 sides open
255 300-1	.200" / 5.08 MM	2 to 36 sides closed
258 300-1	.400" / 10.16 MM	2 to 18 sides closed
259 300-1	.600" / 15.24 MM	2 to 12 sides closed

- Double horizontal header
- Sides closed 10 A, 300 V*

* Series 259 200 = 600 V

255 200	.200" / 5.08 MM	2 to 30
258 200	.400" / 10.16 MM	2 to 15
259 200	.600" / 15.24 MM	2 to 10

LOW INSERTION FORCE DEPLUGGABLE SCREW CONNECTORS

With optional locks

- With optional polarizing keys
- Wire perpendicular to clamping screw
- Horizontal wire entry, 14 AWG, 10 A, 300 V*

* Series 209 200 = 600 V

205 200	.200" / 5.08 MM	2 to 36
206 200	.300" / 7.62 MM	2 to 24
208 200	.400" / 10.16 MM	2 to 18
209 200	.600" / 15.24 MM	2 to 12

MATING HEADERS

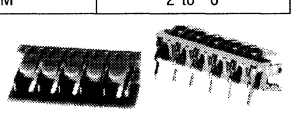
- Horizontal header
- With .110" / 2.8 MM TABS
- Sides open 10 A, 300 V*

* Series 239 100 = 600 V

235 100	.200" / 5.08 MM	2 to 18
236 100	.300" / 7.62 MM	2 to 12
238 100	.400" / 10.16 MM	2 to 9
239 100	.600" / 15.24 MM	2 to 6

- Horizontal header
- With .110" / 2.8 MM TABS
- Sides open 10 A, 300 V*

* Series 239 300 = 600 V



235 300	.200" / 5.08 MM	2 to 18
236 300	.300" / 7.62 MM	2 to 12
238 300	.400" / 10.16 MM	2 to 9
239 300	.600" / 15.24 MM	2 to 6

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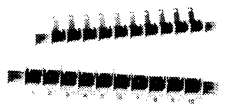
P.C.B. & PANEL MOUNT CONNECTORS

lmi

BARRIER TERMINAL BLOCKS

- Screw connection or solder tab
  2 × 16 AWG, 10 A, 300 V



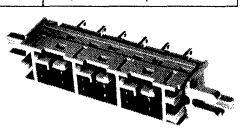
SERIES	CENTER TO CENTER SPACING	NO. OF POSITIONS
44 100	.300" / 7.62 MM	2 to 20 screw connection
44 200	.300" / 7.62 MM	3 to 20 screw and tab connections

POWER HEADER CONNECTORS

- With perpendicular or parallel screw and wire contact
- Mates with all power socket connectors
  12 AWG, 25 A, 300 V

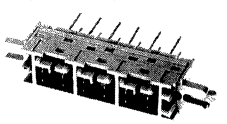
207 100	.300" / 7.62 MM	4 to 12 perpendicular
207 300	.300" / 7.62 MM	4 to 12 parallel

- With terminal tab contacts
- Mates with all power socket connectors
  12 AWG, 25 A, 300 V



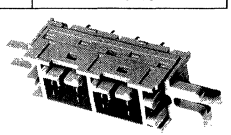
217 100	.300" / 7.62 MM	4 to 10

- With wire wrap contacts
- Mates with all power socket connectors
  12 AWG, 25 A, 300 V



227 100	.300" / 7.62 MM	4 to 10

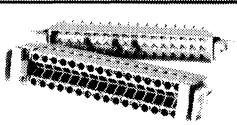
- With pin P.C.B. contacts
- Mates with all power socket connectors
  12 AWG, 25 A, 300 V



237 100	.300" / 7.62 MM	4 to 10

DIN 41612 TYPE E CONNECTORS

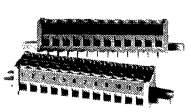
- 32 screw contacts
- Mates with 09050486924 vertical header or 09050486921 horizontal header
  14 AWG, 10 A, 300 V
- Option polarizing key



302 432-02/-32	.200" / 5.08 MM	32

EDGE CARD / TERMINAL BLOCK CONNECTORS

- Various configurations 45° etc.
  14 AWG, 5 / 10 A, 300 V
- Option polarizing keys
- Option card guides



505 100	.200" / 5.08 MM (Panel mount)	12-15-18-20-24 screw connectors
505 200	.200" / 5.08 MM P.C.B.	12-15-18-20-24 P.C.B. / screw connectors
505 316-2	.200" / 5.08 MM 45°	16 pos. for 19 inch racks / Horizontal
505 416-2	.200" / 5.08 MM 45°	16 pos. for 19 inch racks / angled
515 000	.200" / 5.08 MM	6-9-12-15-18 tab terminals

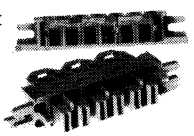
QUICK CONNECT TERMINAL BLOCKS

- With .250" / 6.3 MM tabs
- Various configurations available
  20 A

SERIES	CENTER TO CENTER SPACING	NO. OF POSITIONS
47 000	.512" / 13 MM	2 to 20

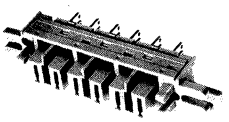
POWER SOCKET CONNECTORS

- With perpendicular or parallel screw and wire contact
- Mates with all power header connectors
  12 AWG, 25 A, 300 V



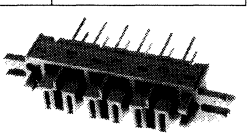
207 200	.300" / 7.62 MM	4 to 12 perpendicular
207 400	.300" / 7.62 MM	4 to 12 parallel

- With tab terminals
- Mates with all power header connectors
  12 AWG, 25 A, 300 V



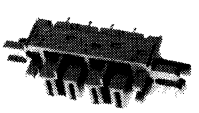
217 200	.300" / 7.62 MM	4 to 10

- With wire wrap contacts
- Mates with all power header connectors
  12 AWG, 25 A, 300 V



227 200	.300" / 7.62 MM	4 to 10

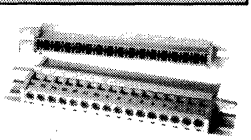
- With pin P.C.B. contacts
- Mates with all power header connectors
  12 AWG, 25 A, 300 V



237 200	.300" / 7.62 MM	4 to 10

THROUGH PANEL EDGECARD CONNECTORS

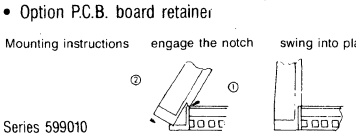
- Horizontal or 45 degree wire entry
  14 AWG, 5 / 10 A, 300 V

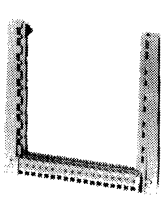


505 300	.200" / 5.08 MM	8-12-16-20-24-25 horizontal
505 400	.200" / 5.08 MM	8-12-16-20-24-25 45 degree

CARD GUIDES

- P.C.B. thickness = .63" / 1.6 MM
- Heights from 1.575" / 40 MM to 4.724" / 120 MM
- Option P.C.B. board retainer





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DIN RAIL MOUNTED ELECTRONIC INTERFACE MODULES

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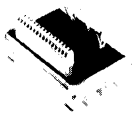
FLAT RIBBON AND D-SUB INTERFACE MODULES

91 01..76

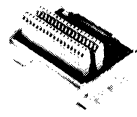
91 01..61



- Discrete wire to flat ribbon interface module
- 1 amp, 125 volts
- 10-64 poles
- Option: pluggable terminal block

91 02..76

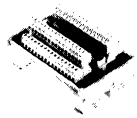
91 02..61



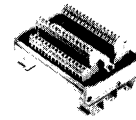
- Discrete wire to D sub interface module
- 1 amp, 125 volts
- 9-50 volts
- Option: pluggable terminal block

DIN 41612

91 21..76



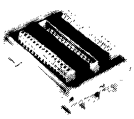
91 22..76



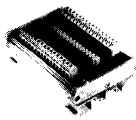
- Discrete wire to Din 41612 type C interface module
- 2 amps, 250 volts
- 32 or 64 poles male or female

DIN 41612 TYPE C, D, E, AND F INTERFACE MODULES

91 31..76

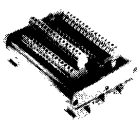


91 32..76

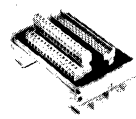


- Discrete wire to Din 41612 type D interface module
- 6 amps, 250 volts
- 16 or 32 poles male or female

91 41..76

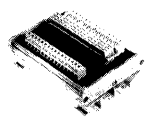


91 51..76

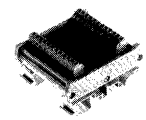


- Discrete wire to 41612 type E interface module
- 6 amps, 250 volts
- 32 or 48 poles male or female

91 52..76



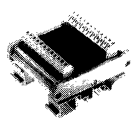
92 41 12 72



- Discrete wire Din 41612 type F interface module
- 6 amps, 250 volts
- 32 or 48 poles male or female

DIODE MODULE

92 42..72



- 10 or 22 diodes, 250 volts
- Common anode or common cathode

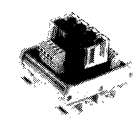
1, 4, 8, 16, RELAY MODULES

92 31 01 72

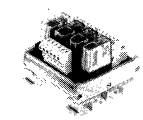
92 34 01 76

- Single Relay Module (SPDT or DPDT)
- Choice of AC or DC
- Relays range from 6-125 volts
- 5-10 amps

92 31..76



91 34..76



- 4-8-16 Relay Module (SPDT or DPDT)
- Choice of AC or DC
- 4, 8, or 16 relays per module
- Relays range from 6-125 volts
- 10 amps

- All modules include universal locking feet enabling you to snap into din 50022, 50035, 50045 rails.
- Empty module shells, locking feet, and a variety of terminal blocks are available for your special applications.
- Call us with your custom module requirements for fast prototypes.
- Call **Toll Free 1-800-247-0564** or our latest catalog and specifications on our complete line of electronic modules.

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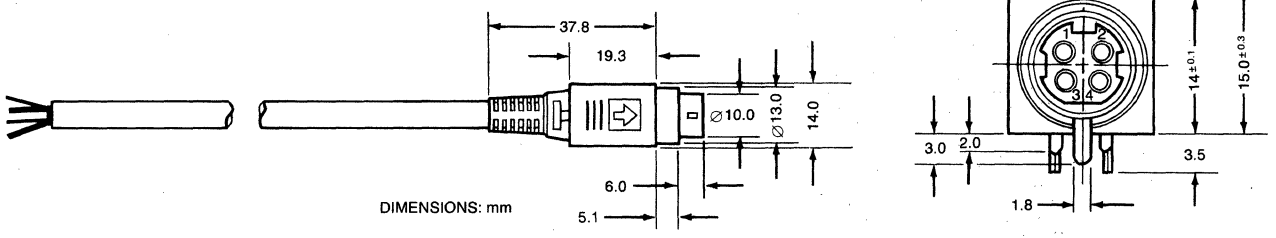
NEW CONNECTOR PRODUCTS FOR 1991–92

LOCKING POWER CONNECTORS & PLUGS

NEW

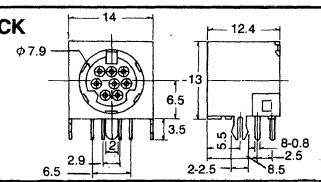
Available in 3 and 4 positions.
Applications: Computers, peripherals, medical, communications, power supplies.



PN	DESCRIPTION
LZJ3PC	3 pos. Circular Locking Connector
LZJ4PC	4 pos. Circular Locking Connector
LZLP3P6	3 pos. Locking Plug Assembly, 6 ft. long
LZLP4P6	4 pos. Locking Plug Assembly, 6 ft. long

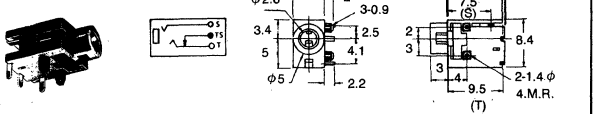
FULLY SHIELDED MINI DIN JACK (WRAP SHIELD)

PN	DESCRIPTION
MDJ4PSW	4 position
MDJ6PSW	6 position
MDJ8PSW	8 position

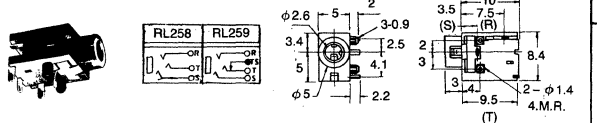


MINIATURE PHONO JACKS, 2.5, 3.5mm dia.

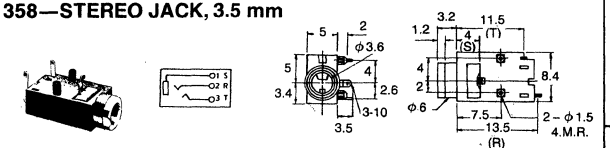
RL 257, 2.5 mm



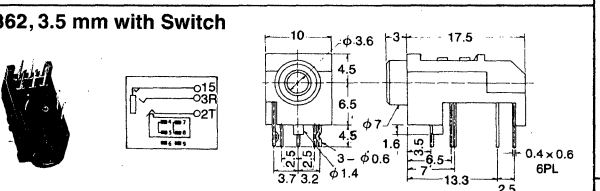
RL 258-259, STEREO 2.5 mm



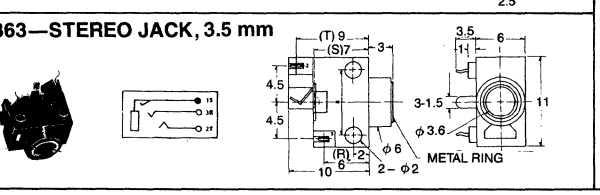
RL 358—STEREO JACK, 3.5 mm



RL 362, 3.5 mm with Switch

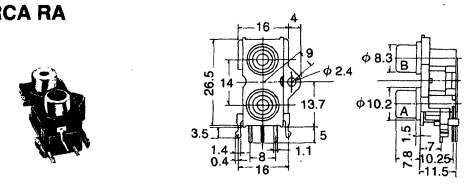


RL 363—STEREO JACK, 3.5 mm

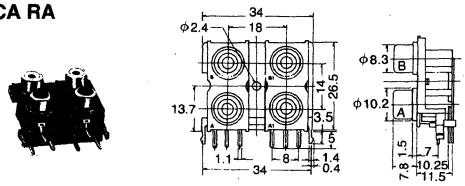


PC BOARD MOUNT RCA JACKS

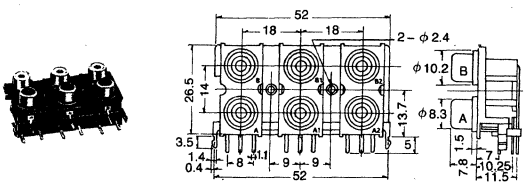
2P RCA RA



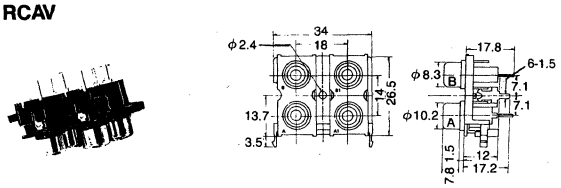
4P RCA RA



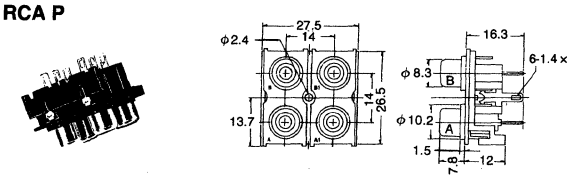
6P RCA RA



4P RCAV



4P RCA P



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2.5mm MINIATURE JACKS

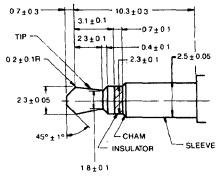


Fig. 1 Matching Plug (Mono)

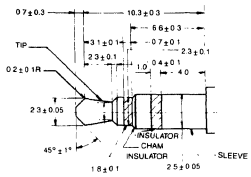
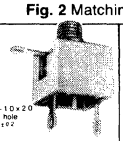
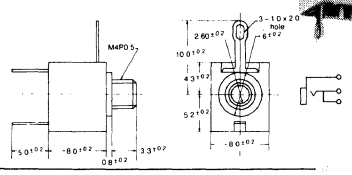


Fig. 2 Matching Plug (Stereo)

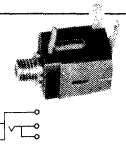
Contact Resistance: 30mΩ MAX.
Insulation Resistance: 50mΩ Min. at 100V DC
Insulation Withstand Voltage: AC250V r.m.s. for one minute

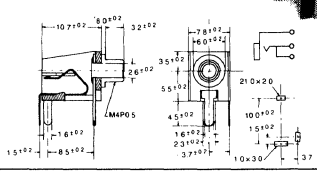
SJ250
2.5 φ Miniature Phone Jack



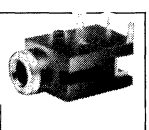


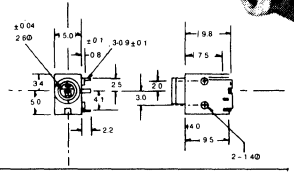
SJ251
2.5 φ Miniature Phone Jack



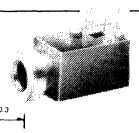


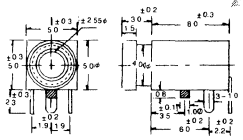
RL252
2.5 φ P.C.B. Type Earphone Jack



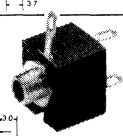


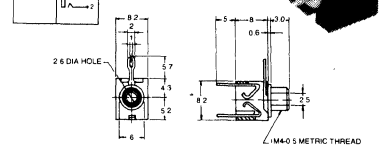
RL254
2.5 φ P.C.B. Type Earphone Jack



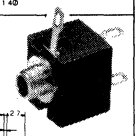


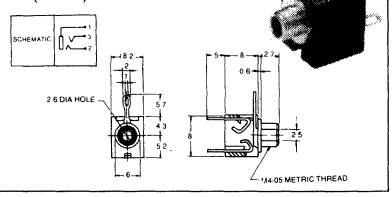
RL255
Switch (Mono)





RL256
Switch (Stereo)





3.5mm PHONE/STEREO JACKS

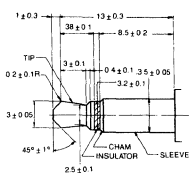


Fig. 1 Matching Plug (Mono)

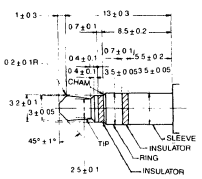
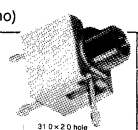
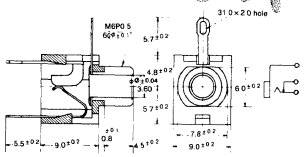


Fig. 2 Matching Plug (Stereo)

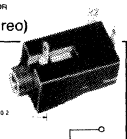
Contact Resistance: 30mΩ MAX.
Insulation Resistance: 50mΩ Min. at 100V DC
Insulation Withstand Voltage: AC250V r.m.s. for one minute

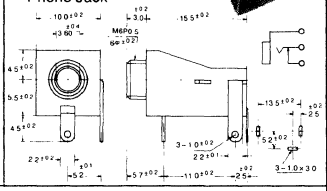
SJ350
3.5 φ Miniature
Phone Jack



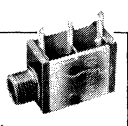


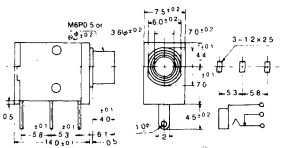
SJ352
3.5 φ Miniature
Phone Jack



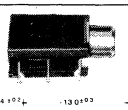


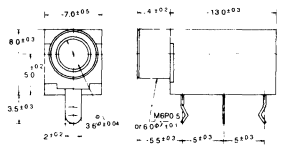
SJ360
3.5 φ Miniature
Phone Jack



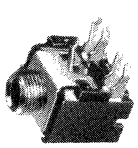


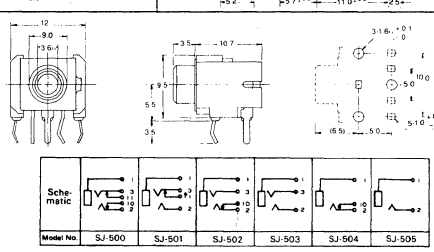
SJ370
3.5 φ Miniature
Phone Jack





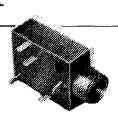
SJ 500
3.5φ Stereo Jack

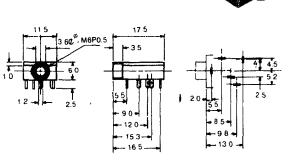




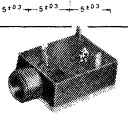
Schematic					
Model No.	SJ-500	SJ-501	SJ-502	SJ-503	SJ-504	SJ-505

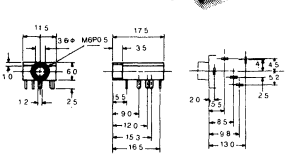
SJ362
3.5 φ Stereo Jack



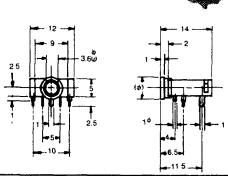


SJ363
3.5 φ Stereo Jack

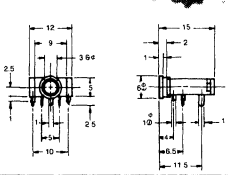




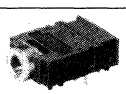
SJ100
3.5 φ Stereo Jack

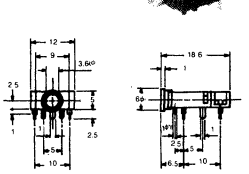


SJ200
3.5 φ Stereo Jack

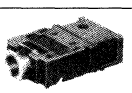


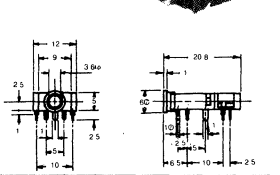
SJ300
3.5 φ Stereo Jack
with 1P2T Switch





SJ400
3.5 φ Stereo Jack
with 2P2T Switch





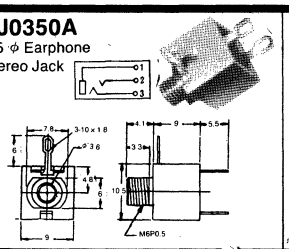
NOTE: For mating plugs & inline jacks see next page

3.5mm Phone Jacks Continue on next page

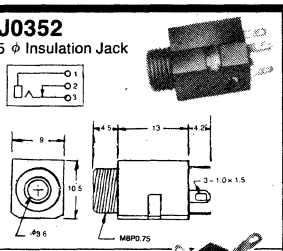
LZRelectronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 LZR

3.5mm JACKS, continue

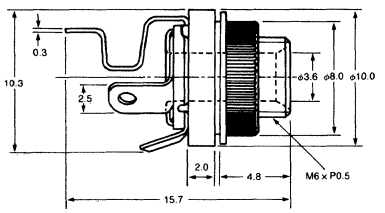
LJ0350A
3.5 φ Earphone
Stereo Jack



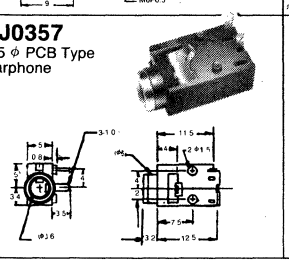
LJ0352
3.5 φ Insulation Jack



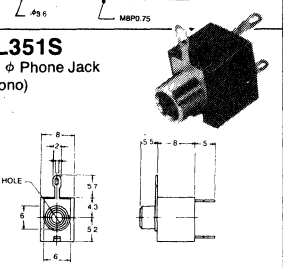
RL390
3.5 mm Miniature Jack



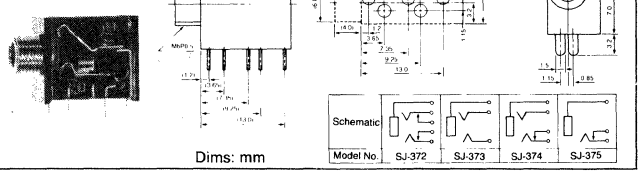
LJ0357
3.5 φ PCB Type
Earphone



RL351S
3.5 φ Phone Jack
(Mono)



SJ372-375
3.5 mm Stereo Jack

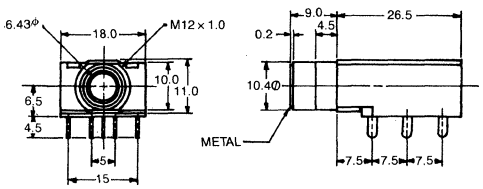


Dims: mm

Model No.	SJ-372	SJ-373	SJ-374	SJ-375
Schematic				

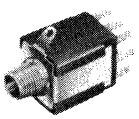
1/4" -6.3φ PHONE JACKS

PCB MOUNT

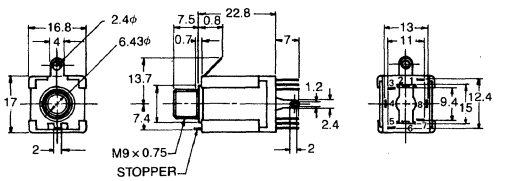


Schematic	LJ901	LJ900	LJ903	LJ904	LJ902

PANEL MOUNT

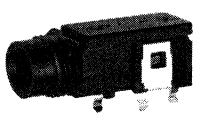


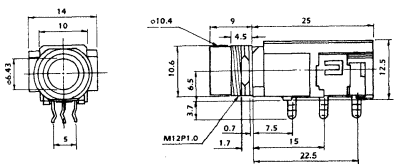
Stopper \ Schematic			
With	LJ651SHW(SRW)	LJ650SHW(SRW)	LJ666SHW(SRW)
Without	LJ651OHW(ORW)	LJ650OHW(ORW)	LJ666OHW(ORW)



MINIATURE HEADPHONE JACKS, 1/4" (6.3 φ mm)

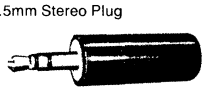
PCB MOUNT



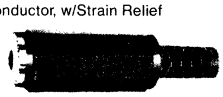


RL66-1	RL66-2	RL66-3	RL66-4
1S, 2T	1S, 2T, 3R	1S, 2T, 4TS	1S, 2T, 4TS, 3R

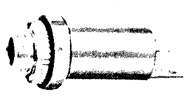
HP113 –2.5mm Mono Submini Plug, Plastic Handle, Solder Term.
HP113S–2.5mm Stereo Plug



HP053–2.5mm Mono Inline Jack, 2-Conductor, w/Strain Relief
HP054–2.5mm Stereo Inline Jack, 3-Conductor, w/Strain Relief



Stereo Panel Mount Phone Jack
HP055–3.5mm 3-conductors
HP056–2.5mm 3-conductors



MATING PLUGS & INLINE JACKS

HP147–3.5mm Mono Plug, w/Strain Relief, Solder Term.
HP148–3.5mm Stereo plug

1/4" Plug, Solder Terminals with strain relief
HP146–Mono Type
HP145–Stereo Type

HJ243–3.5mm Mono Inline Jack, 2-Condcutor, w/Strain Relief
HJ242–3.5mm Stereo Inline Jack, 3-Conductor, w/Strain Relief

1/4" Inline Jack Solder Terminals with strain relief
HJ241–Mono Type
HJ240–Stereo Type

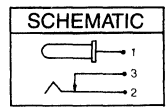
LZRelectronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

DC POWER JACKS

SPECIFICATIONS: Contact Resistance: 30 MΩMax
Insulation Resistance: 50 MΩ min at 100 VDC
Insulation Withstand Voltage: AC 250V
R.M.S. for 1 minute

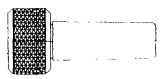
Pin Diameter: 2.0mm or 2.5mm
Specify "A" Suffix for 2.0mm E.G. DJ001A
Specify "B' Suffix for 2.5mm E.G. DJ001B
except for PN's: WK01, WK02, RL24

SCHEMATIC



Locking Power Plug

NEW

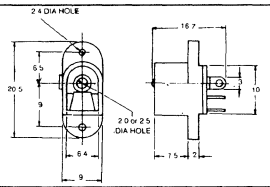


LZ1001A: 2.1/5.5/10mm

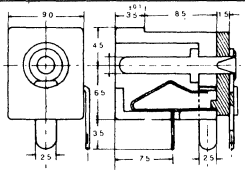
LZ1001B: 2.5/5.5/10mm

MATES WITH RL25, RL26, RL27 Below

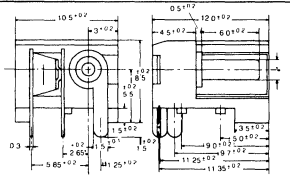
DJ001
Panel Mount



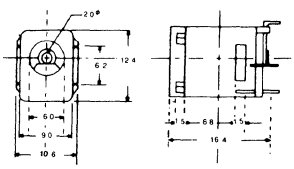
DJ005
PCB Mount



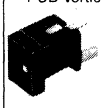
DJ009
PCB Mount

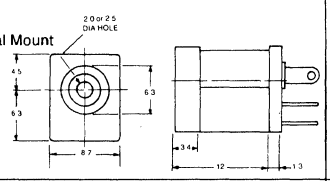


RL11
Vertical Mount

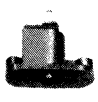


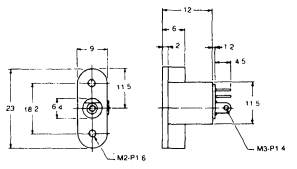
RL9
PCB Vertical Mount



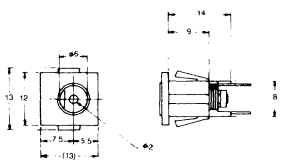


RL201
Panel Mount

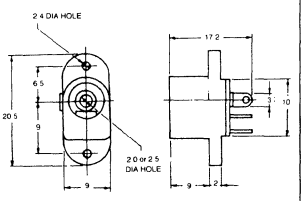




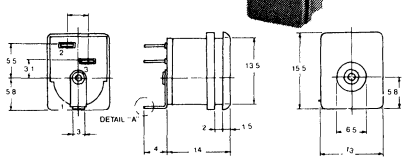
WK01: 2.0mm Pin dia.
WK02: 2.35mm Pin dia.
Vertical Mount



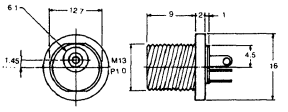
RL204
Panel Mount



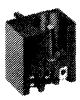
RL15
Panel Mount

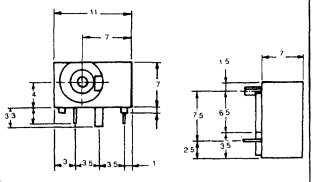


RL17
Panel Mount

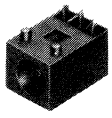


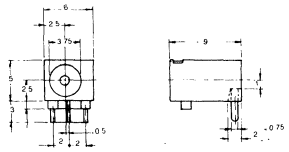
RL16
PCB Mount





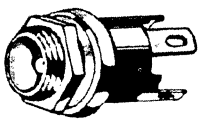
RL24
PCB Mount
PIN DIA: 1.3mm



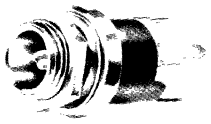


RL25
Panel Mount
2 circuit

RL26
Panel Mount
3 Circuit



RL27
Vertical PCB Mount
3 Circuit



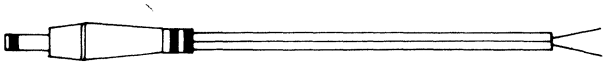
DC Power Plugs
Assembly
Type

HP114A:2.1/5.5/10 mm I.D./O.D./Shaft Length
HP114B:2.5/5.5/10 mm I.D./O.D./Shaft Length
HP114C:1.3/3.4/10 mm I.D./O.D./Shaft Length

DC power cords 6 ft. long 22 AWG, stripped and tinned leads

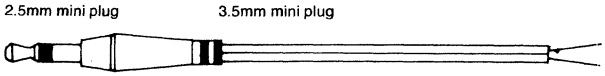
DC10A
5.5 x 2.1mm plug

DC10B
5.5 x 2.5mm plug



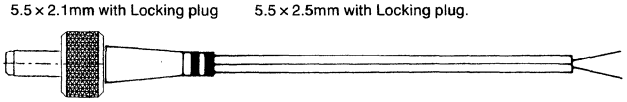
DC11A
2.5mm mini plug

DC11B
3.5mm mini plug

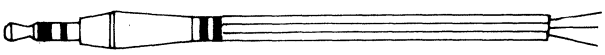


DC16A
5.5 x 2.1mm with Locking plug

DC16B
5.5 x 2.5mm with Locking plug.



DC12
3.5mm Stereo plug–3 cond.



DC15A
Fused Cigarette Lighter Plug Assembly to DC10A Type Plug 2.1 x 5.5mm

DC15B
Same except to DC10B Type Plug 2.5 x 5.5mm

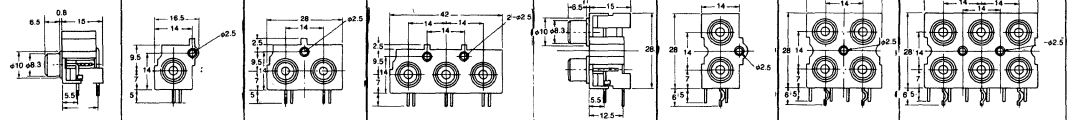
OPTIONS:
- Plugs on both ends
- Round Cords
- Round Shielded Cords
- Special Lengths
- Right Angle Plugs

We can make any cable or molded cable assembly to your specifications.

LZRelectronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

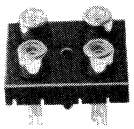
PCB MOUNT RCA CONNECTORS

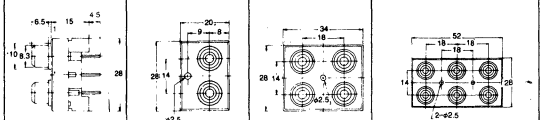
Right Angle PC Board Mount



01P0601 02P0602 03P0603 02P0604 04P0605 06P0606

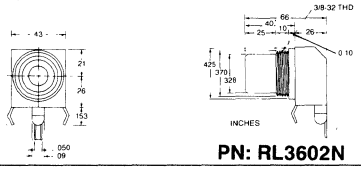
PC Board Vertical Mount



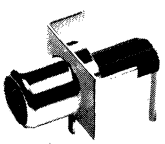


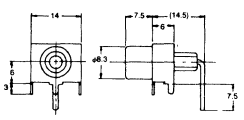
02P0413 04P0317 06P0414

Right Angle PCB Mount with Mounting Threads

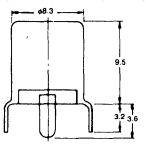


PN: RL3602N



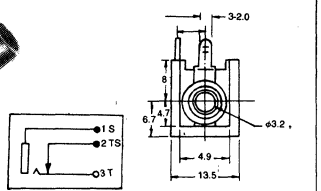


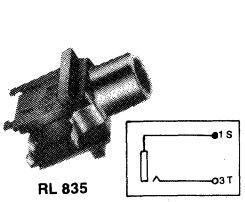
1811P382



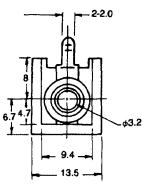
1771P145

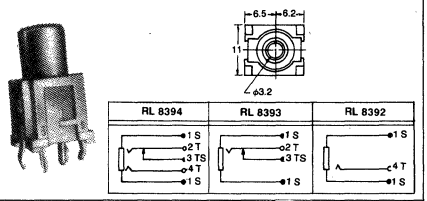
RL 834

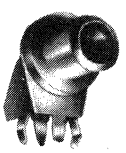




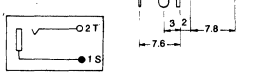
RL 835

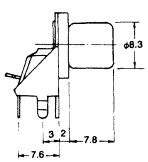


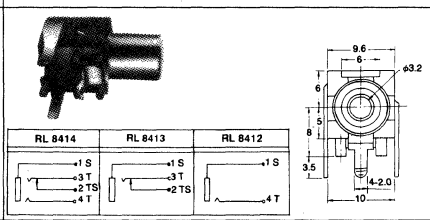


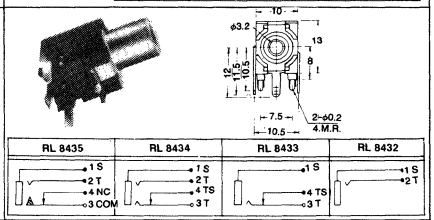


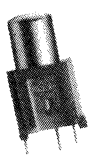
RL 840

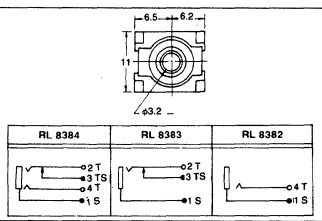


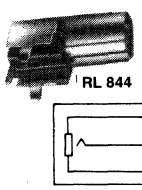




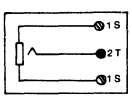


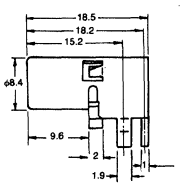


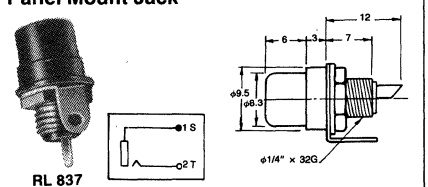




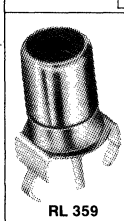
RL 844



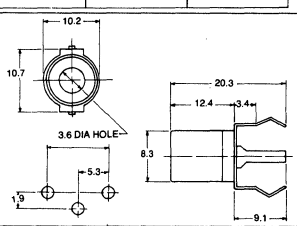


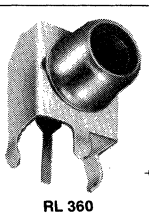


Panel Mount Jack

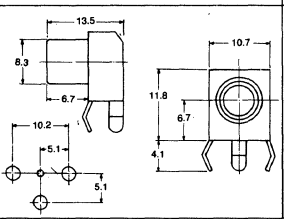


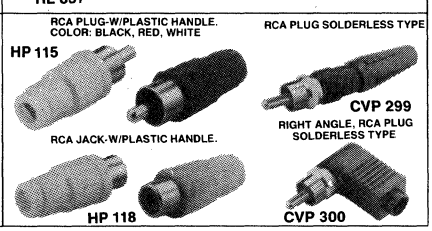
RL 359





RL 360





RCA PLUG-W/PLASTIC HANDLE. COLOR: BLACK, RED, WHITE

HP 115

RCA JACK-W/PLASTIC HANDLE.

HP 118

RCA PLUG SOLDERLESS TYPE

CVP 299

RIGHT ANGLE, RCA PLUG SOLDERLESS TYPE

CVP 300

RCA CUSTOM CABLE ASSEMBLIES

2 RCA plugs and 2 RCA plugs

Plug to Plug, Plug to Jack, any combination RCA, "D" sub, DIN
For Further Information Please Call Our Sales Office.

LZR *electronics,inc.* 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

DIN PLUGS, JACKS & SOCKETS

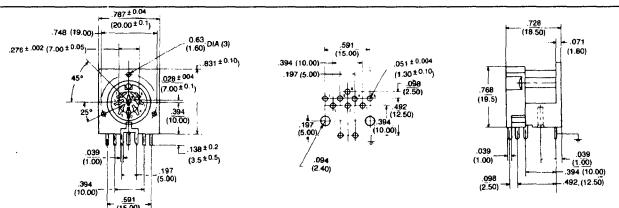
PCB MOUNT CONNECTORS, SHIELDED & UNSHIELDED.

SPECIFICATIONS

1. CONTACT RESISTANCE: 20m Ω Max.
2. INSULATION RESISTANCE: DC 500 V 10^5M Ω Min.
3. VOLTAGE WITHSTANDING: AC 500V 1 MINUTE.
4. INSERTION FORCE: 5.0 Kg. Max.
5. WITHDRAWAL FORCE: 1-3.5 Kg.
6. LIFE TEST: 5,000 CYCLES MIN. AFTER TESTING, CONTACT RESISTANCE SHALL NOT EXCEED 100m Ω
7. MATES WITH PLUG DIA.: .520 ϕ ± .008 (13.2 ± 0.2)
   .536 ϕ ± .004 (13.6 ± 0.1)

A

DJ-026-8P
(8P 270°)



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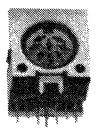
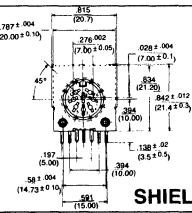
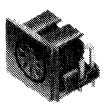


DJ-026-8PS
(8P 270°)

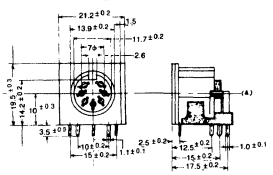


SHIELDED

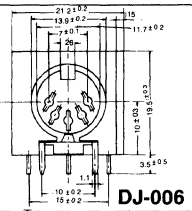
C



DJ-007

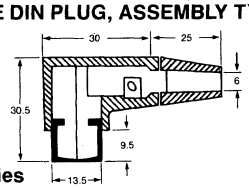


7PIN-270°



DJ-006

K - RIGHT ANGLE DIN PLUG, ASSEMBLY TYPE



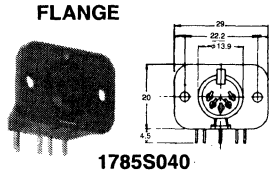
DPRA Series

D–DIN MALE SOCKET

DJ014P5
(5P 180°)

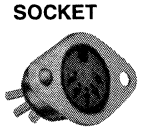
DJ014P7
(7P 270°)

E–DIN JACK WITH FLANGE

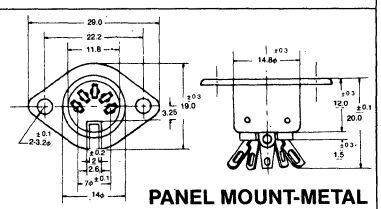


1785S040

F–DIN METAL SOCKET



SD50SN



PANEL MOUNT-METAL

G–DIN PLASTIC SOCKET-PANEL MOUNT

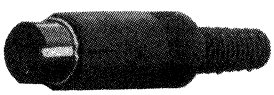
SD50S

H–DIN PLUG FOR CABLE ASSEMBLY TYPE

OPTIONAL: METAL SHIELDED SLEEVE

SD70

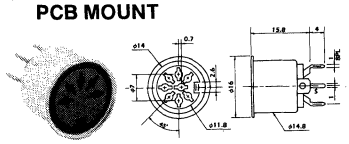
I–DIN JACK FOR CABLE ASSEMBLY TYPE



OPTIONAL: METAL SHIELDED SLEEVE

SD70J

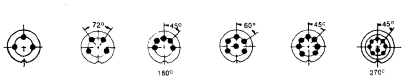
J–DIN JACK VERTICAL PCB MOUNT



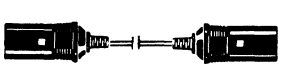
DJV5P180

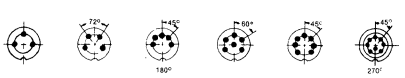
Description	Configuration	3 Pin 180°	4 Pin 210°	5 Pin 180°	5 Pin 240°	5 Pin 360°	6 Pin 240°	7 Pin 270°	8 Pin 270°	8 Pin 262°
A.	PC DIN Jack	DJ0203P	DJ0224P	DJ0215P	DJ0235P	N/A	DJ0246P	DJ0257P	DJ0268P	DJ0278P
B.	PC DIN Jack-Shielded	DJ0203PS	DJ0224PS	DJ0215PS	DJ0235PS	N/A	DJ0246PS	DJ0257PS	DJ0268PS	DJ0278PS
C.	PC DIN Jack	N/A	DJ0374P	DJ006	N/A	N/A	DJ0196P	DJ007	DJ010	DJ0088P
D.	PC Male DIN Jack	N/A	N/A	DJ014P5	N/A	N/A	N/A	DJ014P7	N/A	N/A
E.	PC DIN Jack-Wide	N/A	N/A	1785S040	N/A	N/A	1826J096	N/A	N/A	N/A
F.	DIN Socket Panel-Metal	SD30SN	SD40SN	SD50SN	SD51SN	SD52SN	SD60SN	SD70SN	SD80SN	SD81SN
G.	DIN Socket Panel Mount	SD30S	SD40S	SD50S	SD51S	SD52S	SD60S	SD70S	SD80S	SD81S
H.	DIN Plug	SD30	SD40	SD50	SD51	SD52	SD60	SD70	SD80	SD81
I.	DIN Jack	SD30J	SD40J	SD50J	SD51J	SD52J	SD60J	SD70J	SD80J	SD81J
J	DIN Jack Vertical Mount	DJV3P	N/A	DJV5P180	DJV5P240	N/A	DJV6P	DJV7P	DJV8P270	N/A
K	Right Angle DIN plug	DPRA3	DPRA4	DPRA5	N/A	N/A	DPRA6	DPRA7	DPRA8	N/A

CUSTOM MOLDED CABLE ASSEMBLIES



3 4 5 6 7 8





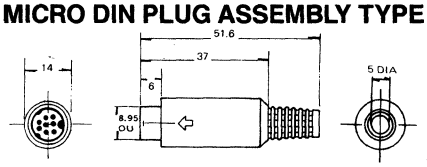
3 4 5 6 7 8

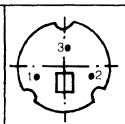
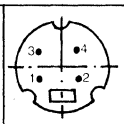
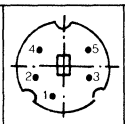
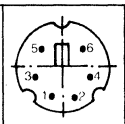
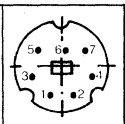
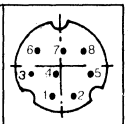
Plug to plug, plug to jack, combination "D" sub, micro DIN, etc. straight coiled or shielded type. For further info please refer to Next Page or call our sales office.

LZRelectronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 LZR

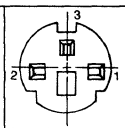
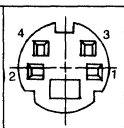
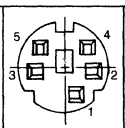
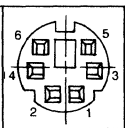
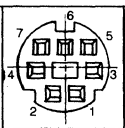
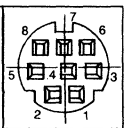
MICRO DIN PLUGS, JACKS, PC BOARD & PANEL MOUNT CONNECTORS

MICRO DIN PLUG ASSEMBLY TYPE



PIN Layout:						
No. of PINs:	3	4	5	6	7	8
Part No.:	MD30	MD40	MD50	MD60	MD70	MD80

MICRO DIN INLINE JACK ASSEMBLY TYPE

PIN Layout:						
No. of PINs:	3	4	5	6	7	8
Part No.:	MD30J	MD40J	MD50J	MD60J	MD70J	MD80J

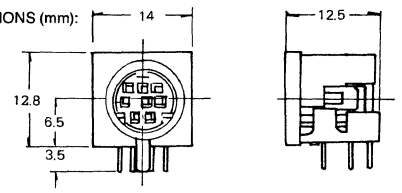
PCB MOUNT JACK

SHIELDED

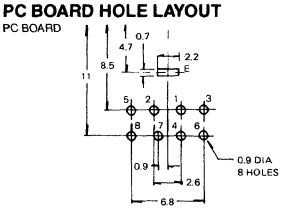
SPECIFICATIONS

Rating:	1A, 100V AC 2A, 12V DC
Insulation Resistance:	50MΩ Min
Dielectric Strength:	250V DC/1 minute
Contact Resistance:	30mΩ Max
Insertion Force:	4.5kg Max
Extraction Force:	1–3kg

DIMENSIONS (mm):



PC BOARD HOLE LAYOUT

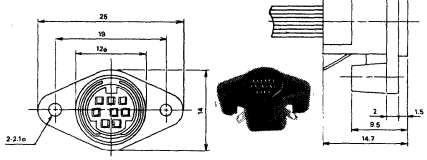


PIN layout; the same as Inline Jack above

No. of Contacts:	3	4	5	6	7	8	9
PCB Mount Din Jacks	MDJ3P	MDJ4P	MDJ5P	MDJ6P	MDJ7P	MDJ8P	MDJ9P
PCB DIN Jack Shielded	MDJ3PS	MDJ4PS	MDJ5PS	MDJ6PS	MDJ7PS	MDJ8PS	MDJ9PS

Note: Above Connectors are available with SPST switch.

PANEL MOUNT SOCKET, CRIMP TYPE

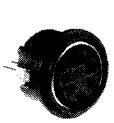


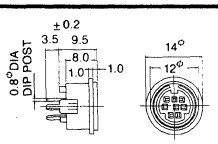
No. of Contacts:	3	4	5	6	7	8
Part No.	MDJCP3	MDJCP4	MDJCP5	MDJCP6	MDJCP7	MDJCP8

Notes: 1. Pin Layout is the same as inline jacks above.
2. Jack comes standard with 10″ 26 AWG wire leads.
3. Specifications are the same as PCB mount jack above.

Note: Also available vertical PCB mount micro DIN jacks. Please call our sales office for further information.

VERTICAL PCB MOUNT SOCKET

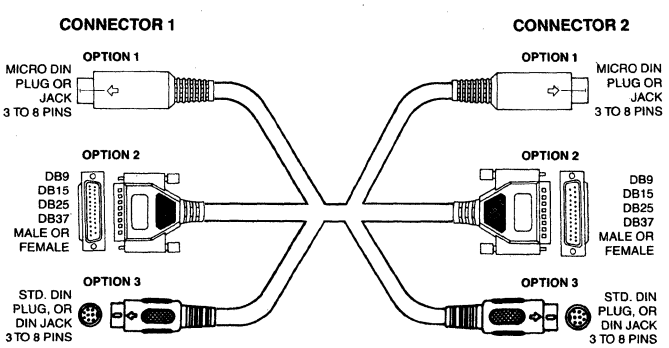




No. of Contacts:	3	4	5	6	7	8
Part No.	MDJV3P	MDJV4P	MDJV5P	MDJV6P	MDJV7P	MDJV8P

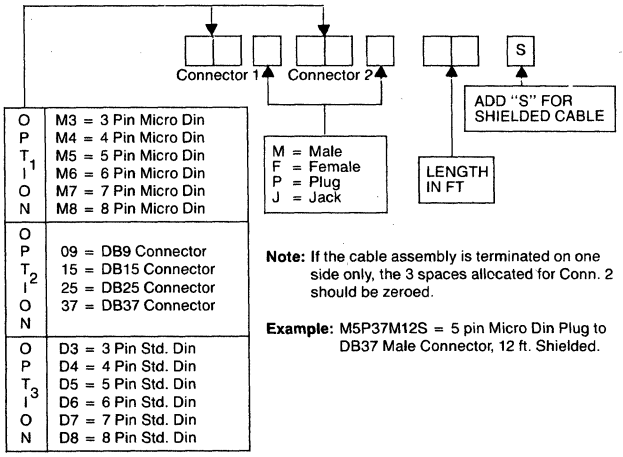
PIN layout; is the same as Inline Jack above.

CUSTOM MADE MOLDED CABLE ASSEMBLIES



OTHER COMBINATIONS ARE AVAILABLE UPON REQUEST

ORDERING SYSTEM

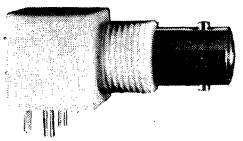


Note: If the cable assembly is terminated on one side only, the 3 spaces allocated for Conn. 2 should be zeroed.

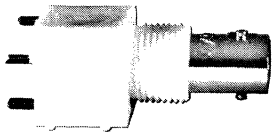
Example: M5P37M12S = 5 pin Micro Din Plug to DB37 Male Connector, 12 ft. Shielded.

LZR electronics, inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 LZR

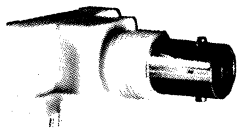
PC BOARD & PANEL MOUNT BNC CONNECTORS



MODEL: 0501600



MODEL: 0501620



MODEL: 0501640

SPECIFICATIONS:

1) Electrical

Impedance	: 50 ohm
Rated Voltage	: 500V
Frequency Range	: 0 to 4GHz
Contact Resistance	: Max. 3m ohm
Withstanding Voltage	: 1,500V

2) Circumstance Testing as per MIL-STD-1344

3) Cross Reference: MIL-C-39012/21 and JIS-C-5412.

MATERIALS & FINISH:

1) Shell: Zinc Die-Cast (Nickel-plated)

2) Center Contact: Phosphor Bronze (Tin, Silver or Gold Plated)

3) Insulator: Inner—Polypropylene Outer—White or Black Thermoplastic Polyester

OPTIONS Add Letters after the P.N.

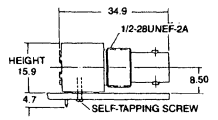
WT = Connector White Body and Center Contact Tin Plated

BT = Connector Black Body and Center Contact Tin Plated

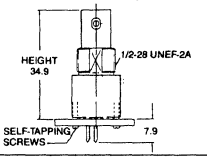
WG = Connector White Body and Center Contact Gold Plated

BG = Connector Black Body and Center Contact Gold Plated

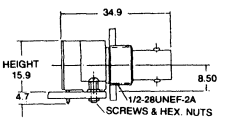
(1) 0501610
L-type without flange for both PCB/Panel mounting without mounting posts
PCB Holes Dimension (A)



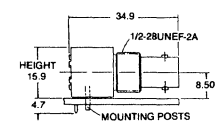
(3) 0501630
Straight without flange for PCB mounting without mounting posts
PCB Holes Dimension (C)



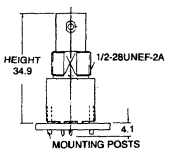
(5) 0501640
L-type with flange for PCB/Panel mounting
PCB Holes Dimension (E)



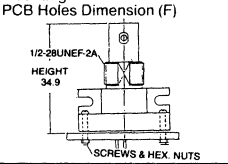
(2) 0501600—same as 0501610 except with mounting posts
PCB Holes Dimension (B)



(3) 0501620—sames as 0501630 except with mounting posts
PCB Holes Dimension (D)

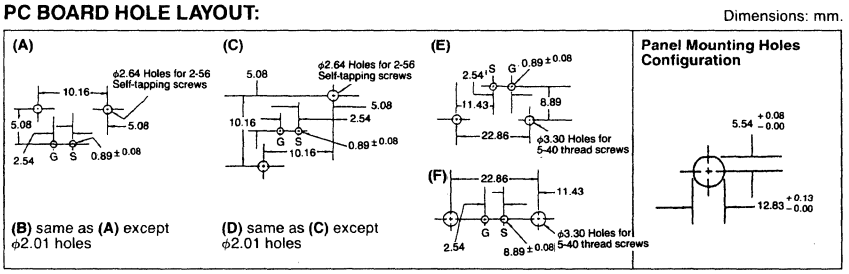


(3) 0501650
Straight with flange for PCB mounting
PCB Holes Dimension (F)



PC BOARD HOLE LAYOUT:

Dimensions: mm.



NOTE: 1. These connectors can be mounted on PC boards up to 3.18 mm thick and panels up to 6.35 mm thick
2. Connectors are supplied with mounting hardware
All the above connectors are available in TNC version for further information please contact our sales office.

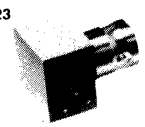
PCB MOUNT COAXIAL CONNECTORS

BNC TYPE

050-1422

Fig. 1

050-1423



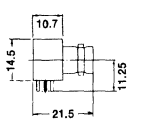
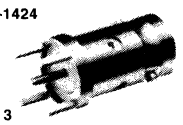


Fig. 2

050-1424



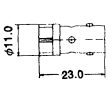
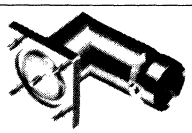


Fig. 3

050-1425



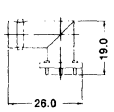
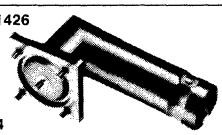


Fig. 4

050-1426



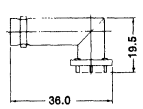
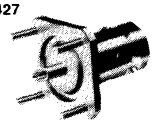


Fig. 4

050-1427



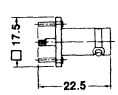
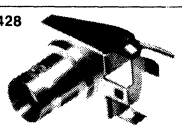


Fig. 5

050-1428



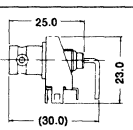
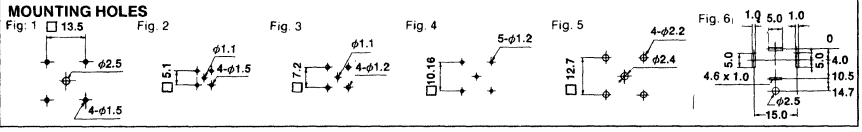


Fig. 6

MOUNTING HOLES



F TYPE

030-0935

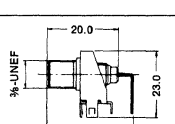
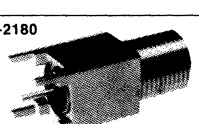
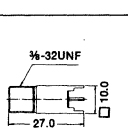


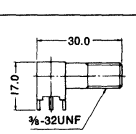
Fig. 6

031-2180



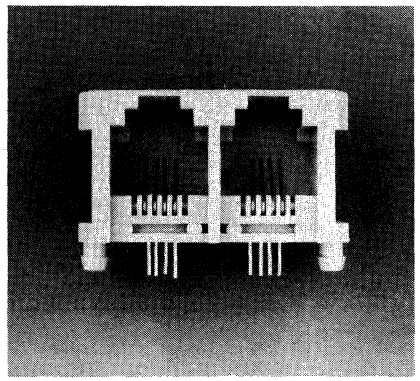


031-2181



LZRelectronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

MULTI-PORT RJ-11C



LOW PROFILE, PCB MOUNT
2-8 PORTS
6-POSITION CONNECTORS, WITH 4 OR 6 CONTACTS EACH.

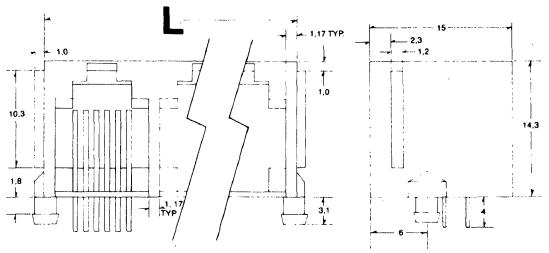
SPECIFICATIONS:

1. Housing Material
   "ZYTEL" molding compound
   FR-50 94V-O U.L. E41938.
2. Contact Wire
   Material–0.45mm (0.018")
   diameter phosphor bronze alloy
   UNS-C5 1000.
   Plating–15µ" minimum gold
   over 100µ" nickel over tin.
3. Electrical Characteristics
   Dielectric withstanding voltage
   1,000 VAC 60 Hz 1 min.
   Insulation resistance 500
   megohms minimum.
   Surge test to 1,000 volts.

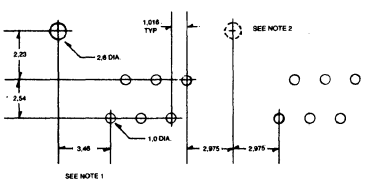
RIGHT ANGLE PC BOARD MOUNT

PORTS	2	3	4	5	6	7	8
DIM. "L"	23,23	34,26	45,29	56,32	67,35	78,38	89,41

All dimensions are in mm.

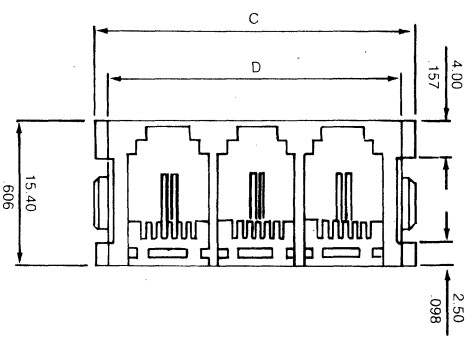


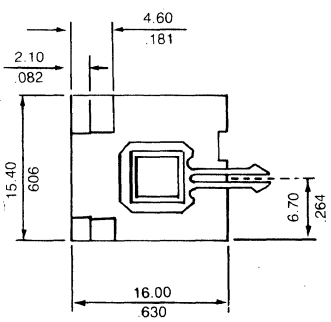
PCB LAYOUT 6-wire version shown



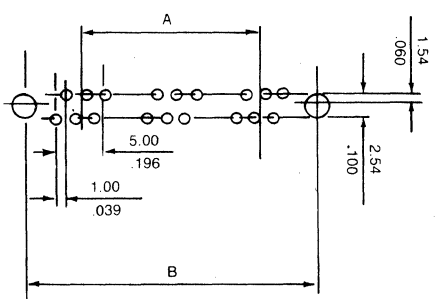
Notes:
1) All Multi-port connector blocks have locking tabs at both ends. These provide enhanced PCB mounting stability.
2) The 6- and 8-port versions have an additional locking tab, centered in the middle of the row (between the 3rd and 4th port of 6-port block and between the 4th and 5th port of an 8-port block).

VERTICAL PC BOARD MOUNT

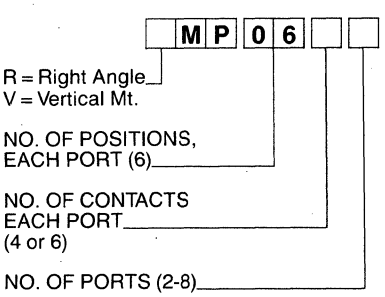




PC Board Layout:



PART NUMBER GUIDE



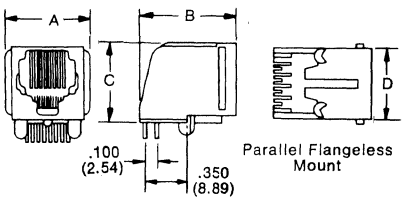
No. Of Jacks	Dimension mm (Inch)			
	A	B	C	D
2 Jacks	11.00 .433	25.20 .992	28.20 1.110	25.20 .992
3 Jacks	22.00 .866	36.20 1.425	39.20 1.543	38.80 1.429
4 Jacks	33.00 1.299	47.20 1.858	50.20 1.976	40.80 1.862
5 Jacks	44.00 1.732	58.20 2.291	61.20 2.409	58.30 2.295
6 Jacks	55.00 2.163	60.20 2.724	72.20 2.842	69.40 2.732
7 Jacks	66.00 2.598	80.20 3.157	83.20 3.275	80.40 3.165
8 Jacks	77.00 3.031	91.20 3.590	94.20 3.708	92.50 3.602

FOR FURTHER INFORMATION, DETAILED SPECIFICATIONS & SAMPLES PLEASE CONTACT OUR SALES OFFICE.

LZR electronics, inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 LZR

MODULAR TELEPHONE CONNECTORS

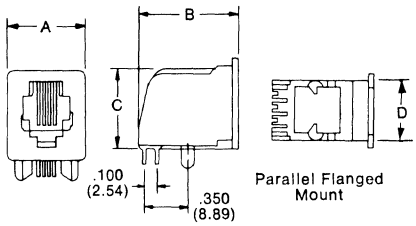
Parallel Flangeless Mount



Model	No. of Position	No. of Contacts	Dimensions inch mm A	B	C	D
LZ249-4	4	4	.540 13.72	.810 20.57	.630 16	.440 11.18
LZ250-4	6	4	.620 15.75	.810 20.57	.630 16	.520 13.51
LZ250-6	6	6	.620 15.75	.810 20.57	.630 16	.520 15.24
LZ251-6	8	6	.700 17.78	.810 20.57	.630 16	.600 15.24
LZ251-8	8	8	.700 17.78	.810 20.57	.630 16	.600 15.24
LZ252-6	8K†	6	.700 17.78	.810 20.57	.630 16	.600 15.24
LZ252-8	8K†	8	.700 17.78	.810 20.57	.630 16	.600 15.24

† Keyed

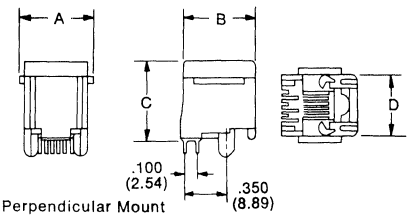
Parallel Flanged Mount



Model	No. of Position	No. of Contacts	Dimensions inch mm A	B	C	D
LZ241-4	4	4	.570 14.48	.810 20.57	.680 17.27	.440 11.18
LZ242-4	6	4	.650 16.51	.810 20.57	.680 17.27	.520 13.21
LZ242-6	6	6	.650 16.51	.810 20.57	.680 17.27	.520 13.21
LZ243-6	8	6	.730 18.54	.810 20.57	.680 17.27	.600 15.24
LZ243-8	8	8	.730 18.54	.810 20.57	.680 17.27	.600 15.24
LZ244-6	8K†	6	.730 18.54	.810 20.57	.680 17.27	.600 15.24
LZ244-8	8K†	8	.730 18.54	.810 20.57	.680 17.27	.600 15.24

† Keyed

Perpendicular Mount

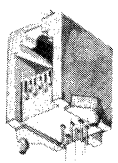


Model	No. of Position	No. of Contacts	Dimensions inch mm A	B	C	D
LZ257-4	4	4	.550 13.97	.625 15.88	.645 16.38	.450 11.43
LZ258-4	6	4	.630 16	.625 15.88	.645 16.38	.530 13.46
LZ258-6	6	6	.630 16	.625 15.88	.645 16.38	.530 13.46
LZ259-6	8	6	.710 18.03	.625 15.88	.645 16.38	.610 15.49
LZ259-8	8	8	.710 18.03	.625 15.88	.645 16.38	.610 15.49
LZ260-6	8K†	6	.710 18.03	.625 15.88	.645 16.38	.610 15.49
LZ260-8	8K†	8	.710 18.03	.625 15.88	.645 16.38	.610 15.49

† Keyed

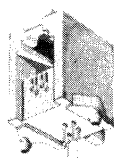
PCB Mount
6 Positions

Model	Desc.
623TYPE4C	6P4C
623TYPE6C	6P6C



PCB Mount
4 Positions

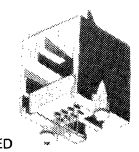
Model	Desc.
616TYPE4C	4P4C



PCB Mount
8 Positions

optional industry standard polarization

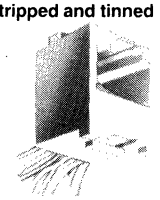
Model	Desc.
641TYPE	8P8C
641TYPEK	8P8C, KEYED



7″ Wire Leads, stripped and tinned
8 Positions

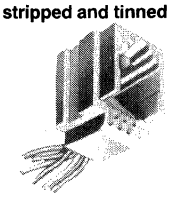
optional industry standard polarization

Model	Desc.
641D	8P8C
641DK	8P8C, KEYED



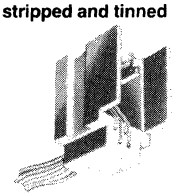
7″ Wire Leads, stripped and tinned
6 Positions

Model	Desc.
623K4C	6P4C
623K6C	6P6C



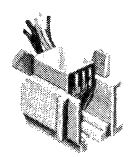
7″ Wire Leads, stripped and tinned
4 Positions

Model	Desc.
616M4C	4P4C



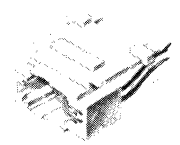
7″ Wire Leads, stripped and tinned
6 Positions

Model	Desc.
623T4C	6P4C
623T6C	6P6C



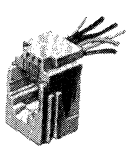
7″ Wire Leads, stripped and tinned
4 Positions

Model	Desc.
616T4C	4P4C



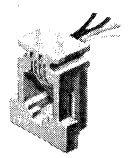
7″ Wire Leads, stripped and tinned
6 Positions

Model	Desc.
623P4C	6P4C
623P6C	6P6C



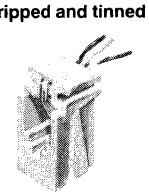
7″ Wire Leads, stripped and tinned
4 Positions

Model	Desc.
616B4C	4P4C



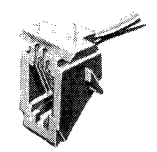
7″ Wire Leads, stripped and tinned
4 Positions

Model	Desc.
616P4C	4P4C



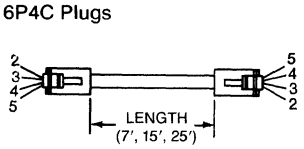
7″ Wire Leads, stripped and tinned
4 Positions

Model	Desc.
616W4C	4P4C

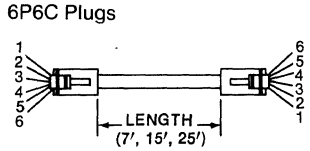


TELEPHONE LINE CORDS AND COILED CORDS

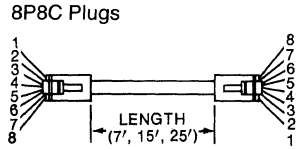
6P4C Plugs



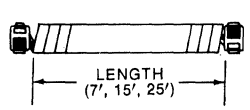
6P6C Plugs



8P8C Plugs



Coiled Cord



Custom Color, Custom Length and Cords to your own specification are welcome. Please call our sales office.

For Further Information on Telephone Line Cords refer to EEM page C•1768

LZR*electronics, inc.* 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

MODULAR TELEPHONE ACCESSORIES

SPECIFICATION:

Insulation Resistance: : ≥ 500 megohms
Dielectric Strength : 500 Vac rms, 60 Hz
Contact Resistance : ≤ 15 milliohms
Current Rating : 1½ AMP

BLISTER PACKS:

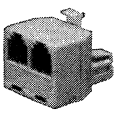
1. Blister Packs are available at slightly higher cost.
2. Minimum order is 2,000 units per each item.
3. Your own brand name is available too.

***Add S or R after the P.N.**
S = Straight thru wiring. R = Reverse sequence wiring.

4 PRONG TO MODULAR ADAPTER

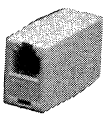
P.N.
TA 101

DUPLEX MODULAR SPLITTER



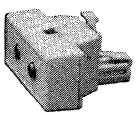
P.N.
TA10244 S/R* 4 Cond
TA10266 S/R* 6 Cond
TA10248 S/R* 8 Cond

MODULAR CORD COUPLER



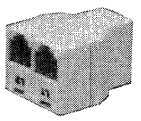
P.N. DESCR.
TA10344 S/R* 4 Cond.
TA10366 S/R* 6 Cond.
TA10388 S/R* 8 Cond.

RETRO-FIT ADAPTER



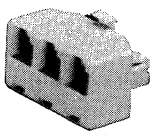
P.N. DESCR.
TA104 4 Cond.

THREE WAY COUPLER



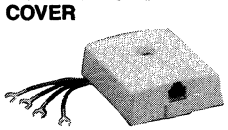
P.N. DESCR.
TA106 4 Cond.

THREE WAY SPLITTER



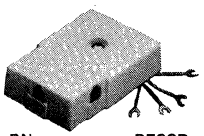
P.N. DESCR.
TA108 4 Cond.

MODULAR JACK COVER



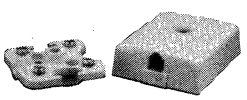
P.N. DESCR.
TS201 4 Cond.
TS222 6 Cond.

THREE MODULAR JACKS COVER



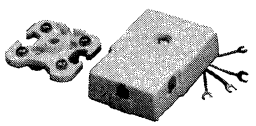
P.N. DESCR.
TS234 4 Cond.

MODULAR JACK ASSEMBLY



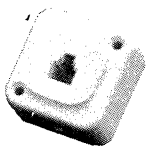
P.N. DESCR.
TS202 4 Cond.
TS225 6 Cond.

THREE MODULAR JACKS ASSEMBLY



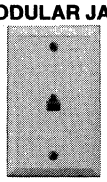
P.N. DESCR.
TS235 4 Cond.

MODULAR JACK



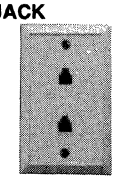
P.N. DESCR.
TS203 4 Cond.

WALL MOUNTED MODULAR JACK



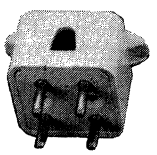
P.N. DESCR.
TS2054C 4 Cond.
TS2056C 6 Cond.
TS2058C 8 Cond.

DUPLEX WALL JACK



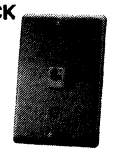
P.N. DESCR.
TS2074C 4 Cond.
TS2076C 6 Cond.
TS2078C 8 Cond.

STANDARD 4 PRONG PLUG



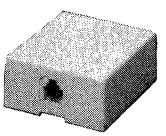
P.N. DESCR.
TS211 4 Cond.

STAINLESS STEEL WALL PHONE JACK



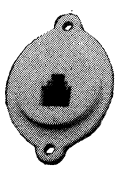
P.N. DESCR.
TS223 4 Cond.

SURFACE JACK



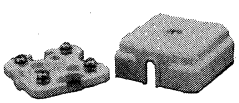
P.N. DESCR.
TS226 4 Cond.
TS227 6 Cond.
TS214 8 Cond.
TS231 8 Cond.
With Shorting Bars

MODULAR JACK



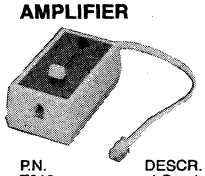
P.N. DESCR.
TS230 4 Cond.

CONNECTIVE BLOCK



P.N. DESCR.
TS212 4 Cond.

TELEPHONE HANDSET AMPLIFIER

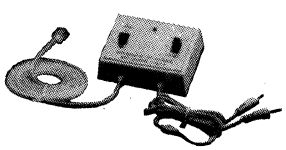


P.N. DESCR.
T012 4 Cond.

LINE TESTER

P.N. DESCR.
T013 4 Cond.

AUTO TEL. RECORDER



P.N. DESCR.
T015 4 Cond.

TWO LINE HOLDER

P.N.: T025

ADJUSTABLE RINGER

P.N.: T027

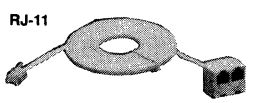
EXTENSION CORD

RJ-11

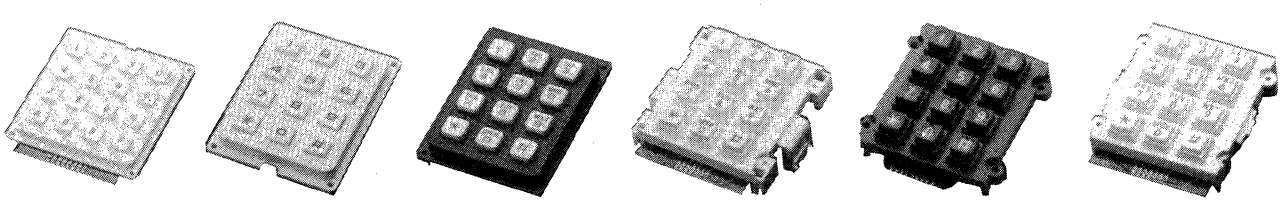
P.N. DESCR.
TC615 4 Cond. 15 ft.
TC625 4 Cond. 25 ft.

DUPLEX EXTENSION CORD

RJ-11



P.N. DESCR.
TC515 4 Cond. 15 ft.
TC525 4 Cond. 25 ft.

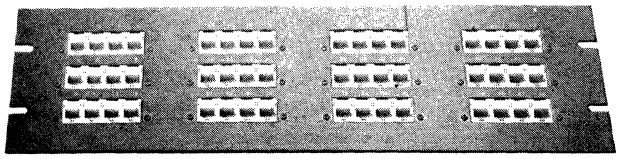


PLEASE REFER TO EEM PAGE B•1823 FOR A COMPLETE LINE OF STANDARD KEYPADS.

LZR *electronics, inc.* 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

TELCO CABLING AND ACCESSORIES

MODULAR PATCH PANELS AVAILABLE IN: 24, 32, 48, 64, 96 PORTS



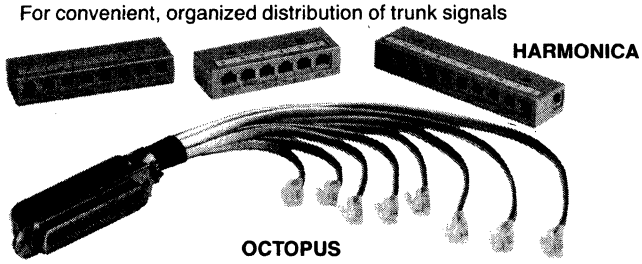
Panels are made of anodised aluminum.

Telco connectors are 50 position MALE unless specified otherwise.

MODEL NO.	DESCRIPTION	SIZE
PP244C PP246C PP248C	24 Port 6 pos. 4 cond. 24 Port 6 pos. 6 cond. 24 Port 8 pos. 8 cond.	19″ x 4″
PP324C PP326C PP328C	32 Port 6 pos. 4 cond. 32 Port 6 pos. 6 cond. 32 Port 8 pos. 8 cond.	19″ x 4″
PP484C PP486C PP488C	48 Port 6 pos. 4 cond. 48 Port 6 pos. 4 cond. 48 Port 8 pos. 8 cond.	19″ x 5.3″
PP644C PP646C PP648C	64 Port 6 pos. 4 cond. 64 Port 6 pos. 6 cond. 64 Port 8 pos. 8 cond.	19″ x 5.9″
PP964C PP966C PP968C	96 Port 6 pos. 4 cond. 96 Port 6 pos. 6 cond. 96 Port 8 pos. 8 cond.	19″ x 8.7″

TRUNK SPLITTERS

For convenient, organized distribution of trunk signals



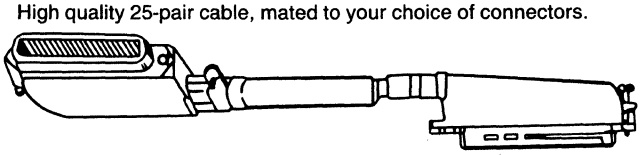
	25 CHANNEL 4P2C EACH	12 CHANNEL 6P4C EACH	8 CHANNEL 6P6C EACH	6 CHANNEL 8P8C EACH
OCTOPUS (50-PIN MALE)	TSC0225M	TSC0212M	TSC0208M	TSC0206M
HARMONICA (50-PIN MALE)	N/A	50M126P4C	50M86P6C	50M68P8C
HARMONICA (50-PIN FEMALE)	N/A	50F126P4C	50F86P6C	50F68P8C

Standard Octopus configuration includes a male 50-pin connector and 2′ of flat modular cord per channel.

Octopus cables with D-Sub termination, female 50-pin connector, and other lengths are also available.

TRUNK FEEDER CABLE

High quality 25-pair cable, mated to your choice of connectors.



Gender \ Length	1′	10′	30′	50′	100′
Male to Female	N/A	TRF010MF	TRF030MF	TRF050MF	TRF100MF
Male to Male	TRF001MM	TRF010MM	TRF030MM	TRF050MM	TRF100MM
Female to Female	TRF001FF	TRF010FF	TRF030FF	TRF050FF	TRF100FF

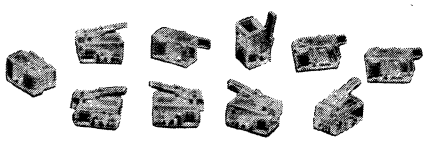
Build your own modular line cords with the parts and tools below.
Or, see EEM Page C•1768 for LZR's standard- and custom-assemblies.

Telephone Installer Kit: Model No: TCAK-01 Packed in a carrying case

PN	Qty.	Description
MT6P46C	1	Hand crimping tool for 4P4C, 6P4C, 6P6C plugs
MT8P8C	1	Hand crimping tool for 8P8C, 6P6C DEC plugs
MP4P4C	100	Modular plug 4 pos. 4 cont.
MP6P4C	100	Modular plug 6 pos. 4 cont.
MP6P6C	100	Modular plug 6 pos. 6 cont.
MP8P8C	100	Modular plug 8 pos. 8 cont.
MP6P6CD	100	Modular plug 6 pos. 6 cont. for DEC.

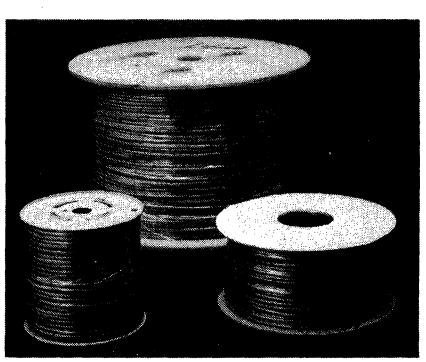
Note: Hand tools can be purchased separately.

IDC-STYLE MODULAR PLUGS



PART NO.	TYPE
MP 4P4C	4 pos. 4 cond.
MP 6P4C	6 pos. 4 cond.
MP 6P6C	6 pos. 6 cond.
MP 8P8C	8 pos. 8 cond.
MP 6P6CD	6 pos. DEC

BULK CABLE



SHIELDED

MODEL	DESCRIPTION
TS1K31	1000 Ft. Reel, Flat, 3 Cond & Drain
TS1K51	1000 Ft. Reel, Flat, 5 Cond & Drain
TS1K71	1000 Ft. Reel, Flat, 7 Cond & Drain

UNSHIELDED

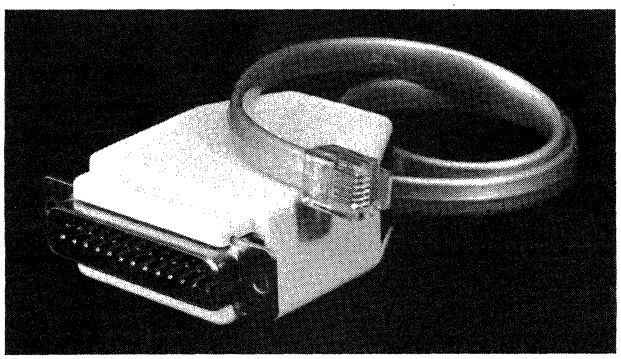
MODEL	DESCRIPTION
TC1K4C	1000 Ft. Reel, Flat Cord, 4C
TC1K6C	1000 Ft. Reel, Flat Cord, 6C
TC1K8C	1000 Ft. Reel, Flat Cord, 8C

FOR FURTHER INFORMATION, DETAILED SPECIFICATIONS & SAMPLES PLEASE CONTACT OUR SALES OFFICE.

LZR *electronics, inc.* 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

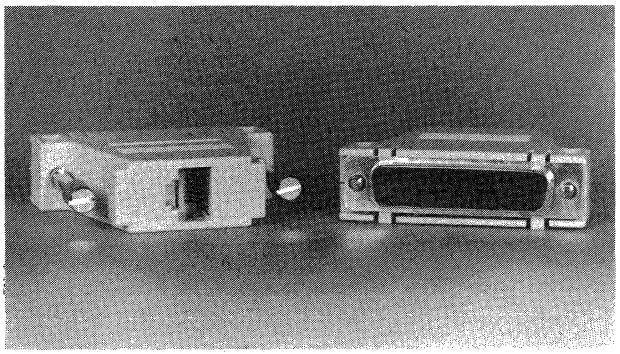
RS232 TO MODULAR TELEPHONE ADAPTERS

- Connects RS232 male or female ports to 4, 6 or 8 position modular Telephone Jacks
- Can be pre-wired to your specs or kit form for user assembly
- RS232 is selectively loaded using crimp terminals



Assembly type, off center telephone jack. Has option for two telephone jacks in back.

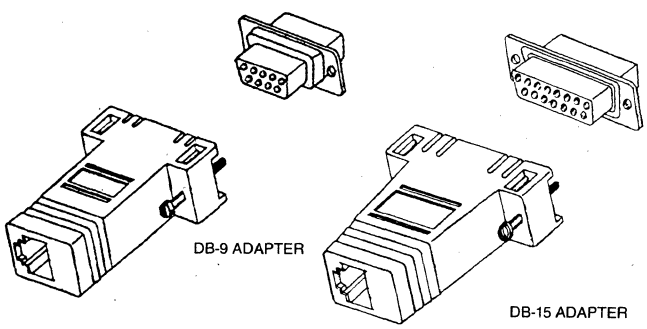
Model No	Description
4DB25M	DB25 Male to 6P4C Jack
4DB25F	DB25 Female to 6P4C Jack
6DB25M	DB25 Male to 6P6C Jack
6DB25F	DB25 Female to 6P6C Jack
8DB25M	DB25 Male to 8P8C Jack
8DB25F	DB25 Female to 8P8C Jack



Snap-in type with thumb screws. Centered jack in back. No tools required.

Model No	Description
4DB25MTS	DB25 Male to 6P4C Jack
4DB25FTS	DB25 Female to 6P4C Jack
6DB25MTS	DB25 Male to 6P6C Jack
6DB25FTS	DB25 Female to 6P6C Jack
8DB25MTS	DB25 Male to 8P8C Jack
8DB25FTS	DB25 Female to 8P8C Jack

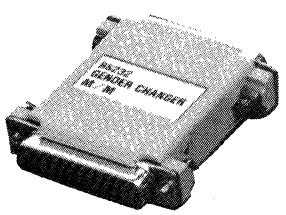
9 PIN D-SUB TO MODULAR TEL. ADAPTERS
15 PIN D-SUB TO MODULAR TEL. ADAPTERS



Part No.	Description
4DB9M	DB9 Male to 6P4C Jack
4DB9F	DB9 Female to 6P4C Jack
6DB9M	DB9 Male to 6P6C Jack
6DB9F	DB9 Female to 6P6C Jack
8DB9M	DB9 Male to 8P8C Jack
8DB9F	DB9 Female to 8P8C Jack

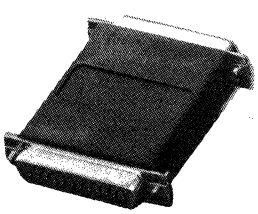
Part No.	Description
4DB15M	DB15 Male to 6P4C Jack
4DB15F	DB15 Female to 6P4C Jack
6DB15M	DB15 Male to 6P6C Jack
6DB15F	DB15 Female to 6P6C Jack
8DB15M	DB15 Male to 8P8C Jack
8DB15F	DB15 Female to 8P8C Jack

GENDER CHANGERS

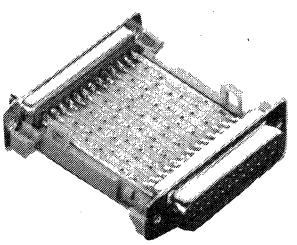


Model No	Description
LZ 3018MM	RS232 Male to Male
LZ 3018FF	RS232 Female to Female
LZ DB9MM	DB9 Male to Male
LZ DB9FF	DB9 Female to Female
LZ DB15MM	DB15 Male to Male
LZ DB15FF	DB15 Female to Female
LZ DB37MM	DB37 Male to Male
LZ DB37FF	DB37 Female to Female

Model No	Description
LZ 3027MM	Centronics®, 36 pos. Male to Male
LZ 3027FF	Centronics®, 36 pos. Female to Female
LZ 2536M	RS 232 Male to Centronics®, 36 pos. Male
LZ 25DB9	RS232 Male to DB9 Female



RS232
Surge Protector
LZ 3020-7
7 lines Protected



RS232—JUMPER BOX

Model No	Description
LZ 3016MM	Male to Male
LZ 3016MF	Male to Female
LZ 3016FF	Female to Female

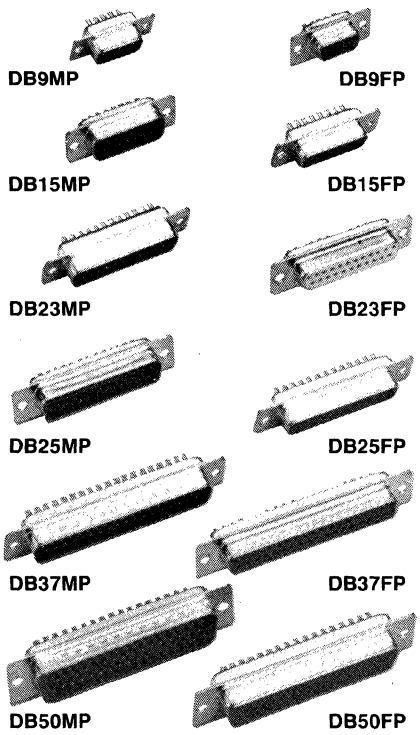
Supplied with jumper wires, cover & hardware.

LZR *electronics, inc.* 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

"D"-SUB CONNECTORS

PANEL MOUNT SOLDER CUP

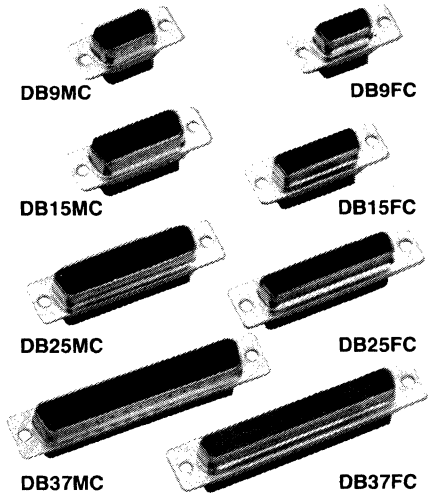
MALE FEMALE



DB9MP DB9FP
DB15MP DB15FP
DB23MP DB23FP
DB25MP DB25FP
DB37MP DB37FP
DB50MP DB50FP

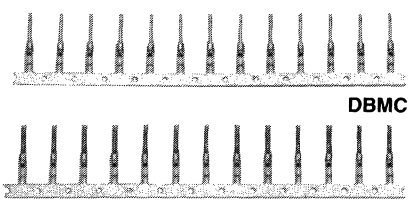
CRIMP TERMINAL HOUSING

MALE FEMALE



DB9MC DB9FC
DB15MC DB15FC
DB25MC DB25FC
DB37MC DB37FC

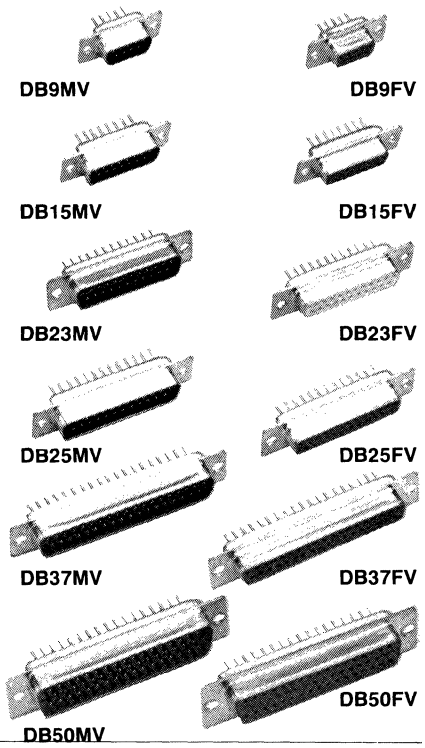
Crimp Terminal:



DBMC
DBFC

PC BOARD VERTICAL MOUNT

MALE FEMALE

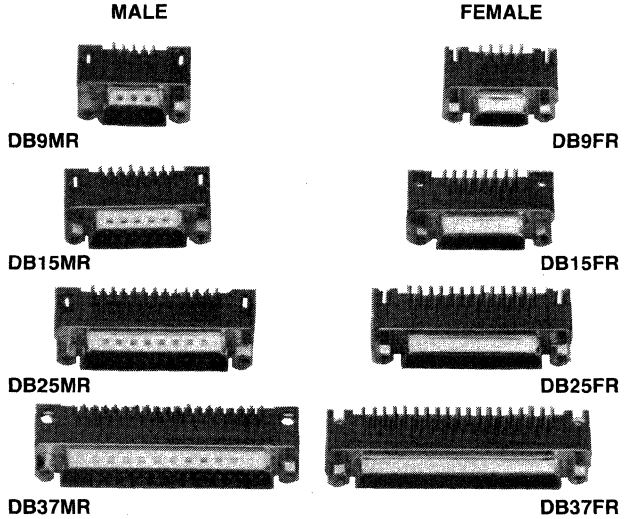


DB9MV DB9FV
DB15MV DB15FV
DB23MV DB23FV
DB25MV DB25FV
DB37MV DB37FV
DB50MV DB50FV

RIGHT ANGLE, PC BOARD MOUNT

SHORT BODY .485"

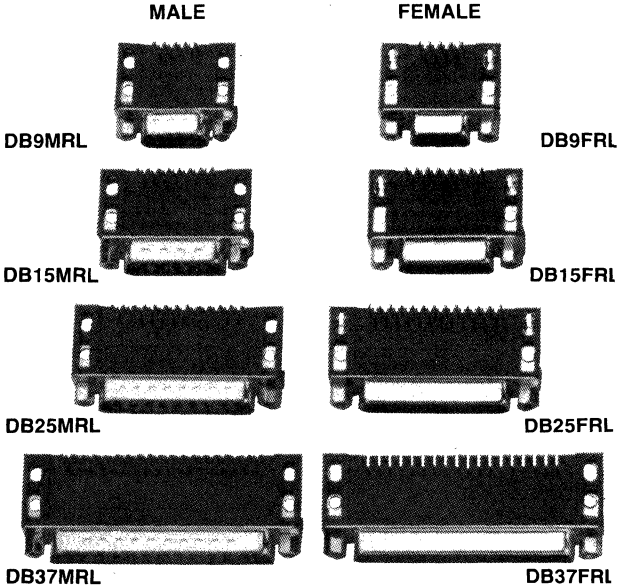
MALE FEMALE



DB9MR DB9FR
DB15MR DB15FR
DB25MR DB25FR
DB37MR DB37FR

LONG BODY 0.75"

MALE FEMALE



DB9MRL DB9FRL
DB15MRL DB15FRL
DB25MRL DB25FRL
DB37MRL DB37FRL

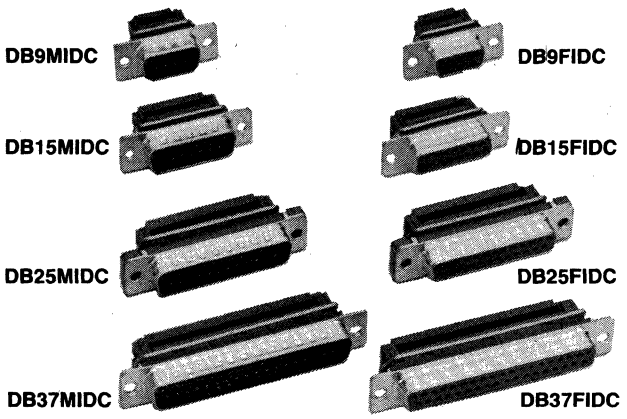
ALL MODELS ARE SUPPLIED WITH HEX JACK SCREWS.
ADD "C" TO PART NO. FOR PCB RETENTION CLIP.
ADD "D" FOR #4-40 THREADED BUSHING FOR PCB SCREW-MOUNTING.

LZR electronics, inc. 8051 Cessna Ave., Gaithersburg, MD 20879 Telephone (301) 921-4600 Fax (301) 670-0436 LZR

"D"-SUB CONNECTORS

IDC "D" SUB FOR FLAT RIBBON CABLE

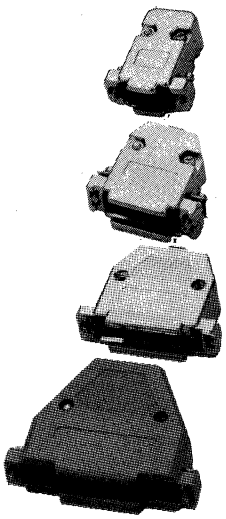
METAL SHELL



DB9MIDC DB9FIDC
DB15MIDC DB15FIDC
DB25MIDC DB25FIDC
DB37MIDC DB37FIDC

"D"-SUB CONNECTOR HOODS

(Hardware included)



SCPD9PC - 9 pos. Plastic
SCPD9MP - 9 pos. Metalized
SCPD9MC - 9 pos. Metal

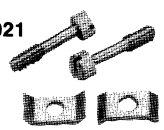
SCPD15PC - 15 pos. Plastic
SCPD15MP - 15 pos. Metalized
SCPD15MC - 15 pos. Metal

SCPD25PC - 25 pos. Plastic
SCPD25MP - 25 pos. Metalized
SCPD25MC - 25 pos. Metal

SCPD37PC - 37 pos. Plastic
SCPD37MP - 37 pos. Metalized
SCPD37MC - 37 pos. Metal

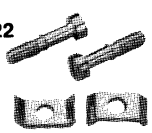
HARDWARE FOR "D"-SUB CONNECTORS

021



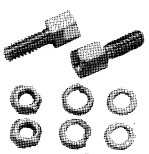
#1 Shoulder Screw & Saddle Washer

022



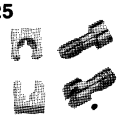
#2 Shoulder Screw & Saddle Washer

023



Hex Locking Screw, Flat Washer Split Washer & Nut

025

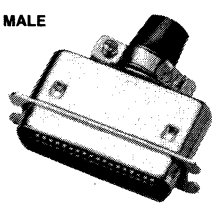


#1 Captive Screw & Retaining Clip

SERIES 57 CONNECTORS

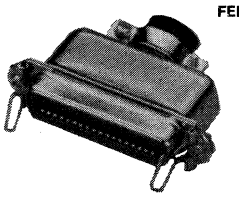
FOR ROUND CABLE WITH SOLDER TERMINALS

MALE



5730 14M-14 pos. Male
5730 24M-24 pos. Male
5730 36M-36 pos. Male
5730 50M-50 pos. Male

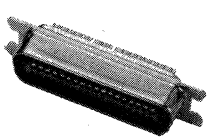
FEMALE



5760 14F-14 pos. Female
5760 24F-24 pos. Female
5760 36F-36 pos. Female
5760 50F-50 pos. Female

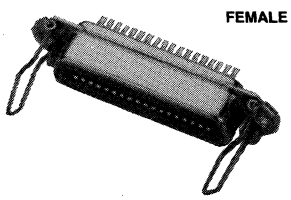
PANEL MOUNT WITH SOLDER TERMINALS

MALE



5710 14M-14 pos. Male
5710 24M-24 pos. Male
5710 36M-36 pos. Male
5710 50M-50 pos. Male

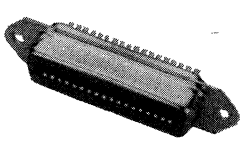
FEMALE



5740 14F-14 pos. Female
5740 24F-24 pos. Female
5740 36F-36 pos. Female
5740 50F-50 pos. Female

VERTICAL PC BOARD MOUNT

MALE



5715 14M-14 pos. Male
5715 24M-24 pos. Male
5715 36M-36 pos. Male
5715 50M-50 pos. Male

FEMALE

5725 14F-14 pos. Female
5725 24F-24 pos. Female
5725 36F-36 pos. Female
5725 50F-50 pos. Female

RIGHT ANGLE, PC BOARD MOUNT

MALE

5755 24M-24 pos. Male
5755 36M-36 pos. Male
5755 50M-50 pos. Male

FEMALE

5745 14F-14 pos. Female
5745 24F-24 pos. Female
5745 36F-36 pos. Female
5745 50F-50 pos. Female

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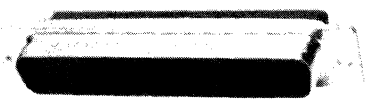
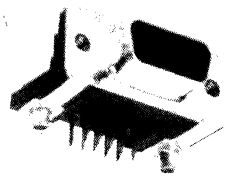
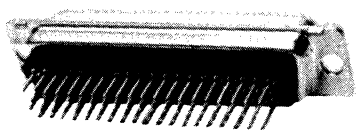
HIGH DENSITY "D" CONNECTORS

Our DH Series connectors are designed to replace D-Subminiature connectors in your designs.

Consider these advantages:

- Average 68% increase in throughput compared to D-Subs of equal sizes.
- Standard D-Sub shell dimensions eliminate costly retooling of panel openings, etc.
- Use standard D-Sub hoods and hardware.

DH Series		Replaces
CONTACTS	ROWS	
15	3	DB9
26	3	DB15
44	3	DB25
62	3	DB37
78	4	DB50
104	5	—

SPECIFICATIONS

INSULATOR	Glass-filled thermoplastic, to UL 94V-O
SHELL	Steel, Tin plated (Zinc plating is optional for DH 21,22,41)
CONTACT MATERIAL	Phosphor Bronze (DH02,31,32,52) Brass (DH01,41)
CONTACT PLATING	Gold over Nickel
CURRENT RATING	3 Amps (DH 21,22,41,52) 5 Amps (DH 31,32)
INSULATOR RESISTANCE	1000 MegOhms minimum @ 500VDC
DIELECTRIC STRENGTH	1000V for one minute
TEMPERATURE RANGE	– 55 to + 105 degrees C

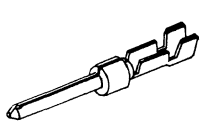
SELECTION GUIDE

Description	Crimp Housing Male	Crimp Housing Female	Solder Cup Male	Solder Cup Female
15 Positions	DH21-015	DH22-015	DH31-015	DH32-015
26 Positions	DH21-026	DH22-026	DH31-026	DH32-026
44 Positions	DH21-044	DH22-044	DH31-044	DH32-044
62 Positions	DH21-062	DH22-062	DH31-062	DH32-062
78 Positions	DH21-078	DH22-078	—	—
104 Positions	DH21-104	DH22-104	—	—

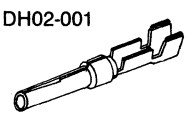
Description	PCB Straight Male	PCB Straight Female	PCB Right Angle Male	PCB Right Angle Female
15 Positions	DH41-015	DH42-015	DH51-015	DH52-015
26 Positions	DH41-026	DH42-026	DH51-026	DH52-026
44 Positions	DH41-044	DH42-044	DH51-044	DH52-044
62 Positions	DH41-062	DH42-062	DH51-062	DH52-062
78 Positions	DH41-078	DH42-078	DH51-078	DH52-078
104 Positions	DH41-104	DH42-104	DH51-104	DH52-104

CRIMP TERMINALS for DH21/DH22 housings

Male: PART No. DH01-001
.030" pin diameter
for 24-28AWG wire
with insulation support



Female: PART No. DH02-001



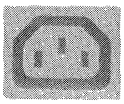
FOR FURTHER INFORMATION, DETAILED DRAWINGS & SAMPLES PLEASE CONTACT OUR SALES OFFICE.

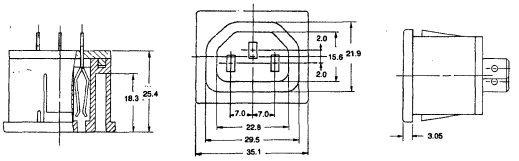
LZR *electronics, inc.* 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301)921-9440 Fax (301)670-0436 **LZR**

POWER ENTRY CONNECTORS

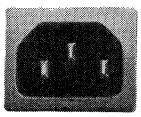
PANEL MOUNT RECEPTACLES/SNAP-IN TYPE

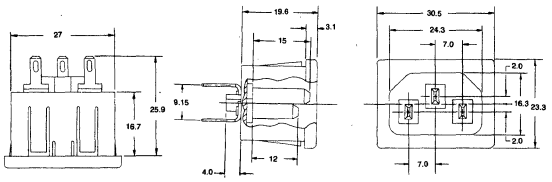
Pending





ACC014
for 25 x 32.5mm panel opening





ACC016
for 20 x 27.5mm panel opening

ORDER OPTIONS

ACC014 B A

ACC014
ACC016

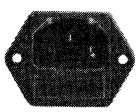
Panel Thickness
A = .062″
B = .090″
C = .125″

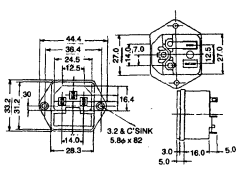
Tab Contact
A = .110″
B = .187″
C = .250″

Rating: 15A 250V.
Insulation Resistance: 100MΩ Minimum
Dielectric Strength: 2000V
UL: E81043 15A 250V

PANEL MOUNT RECEPTACLES WITH FUSE HOLDER

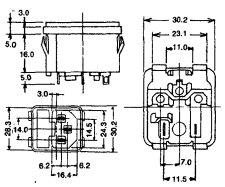
Pending



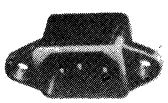


ACC012

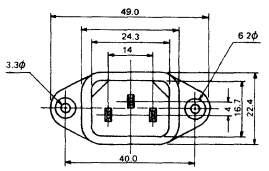
ACC013



Rating: 10A 250V.
Insulation Resistance: 100MΩ Minimum
Dielectric Strength: 2000V
UL: E110582 6A 250V
CSA: LR-45572 6A 250V



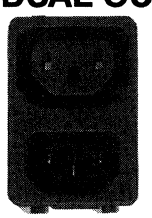
ACC008

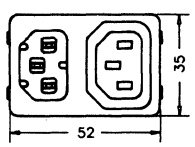


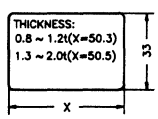
Rating: 15A 250V - 6A 250V
Insulation Resistance: 100MΩ Minimum
Dielectric Strength: 2000V
UL: E67635
CSA: LR-45572
VDE: 45151 10A 250V 6A 250V

DUAL OUTLET, SNAP-IN TYPE

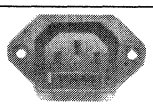
ACC020
250 VAC/10A



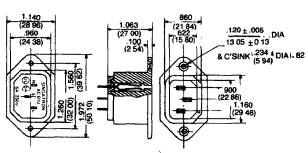




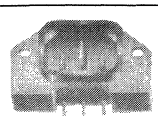
Note: Available with Fuseholder 1991



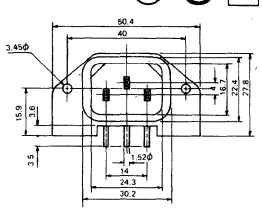
ACC010



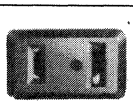
Rating: 6A 250V - 15A 250V
Insulation Resistance: 100MΩ Minimum
Dielectric Strength: 2000V
UL: E81043
CSA: LR-45572
VDE: 2161 10A 250V 6A 250V



ACC009

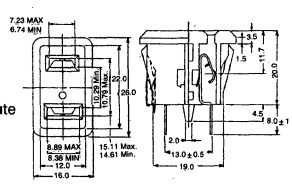


Rating: 15A 250V - 6A 250V
Insulation Resistance: 100MΩ Minimum
Dielectric Strength: 2000V
UL: E67635
CSA: LR-45572
VDE: 45151 10A 250V 6A 250V



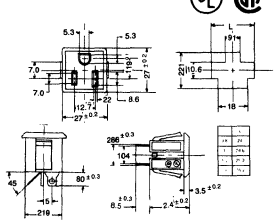
ACC004
POLARIZED

ACC005
NON-POLARIZED



Rating: AC 125V 15A
Insulation Resistance: DC500V 100MΩ Min.
Insulation Voltage Withstand: AC1500V 1 minute
UL APPROVED FILE NO E81043
CSA: LR-45572

ACC011



Rating: 15A 125V
Insulation Resistance: 100MΩ at 500V DC
Dielectric Strength: 1000V AC/1 Minute
UL: 81043
CSA: 45572

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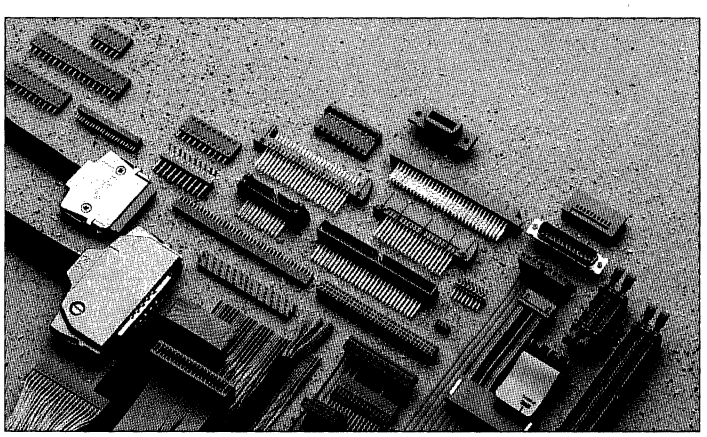

Our "U" contact gives our connectors increased reliability when terminated to flat cable. Our patented L/H contact lowers the insertion force necessary to make a connection while raising retention capability, creating a reliable connection that stands the test of time. All 3M contacts are beryllium copper, phosphor bronze or copper alloys, with gold or tin alloy plating, for maximum design flexibility. Bodies are made of rugged polyester, including high temperature variations for demanding applications.

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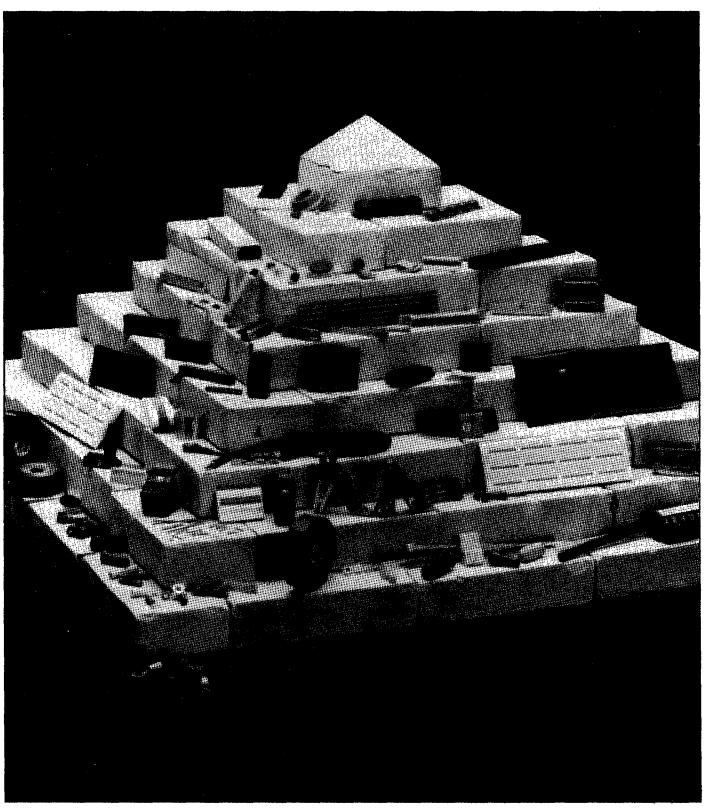

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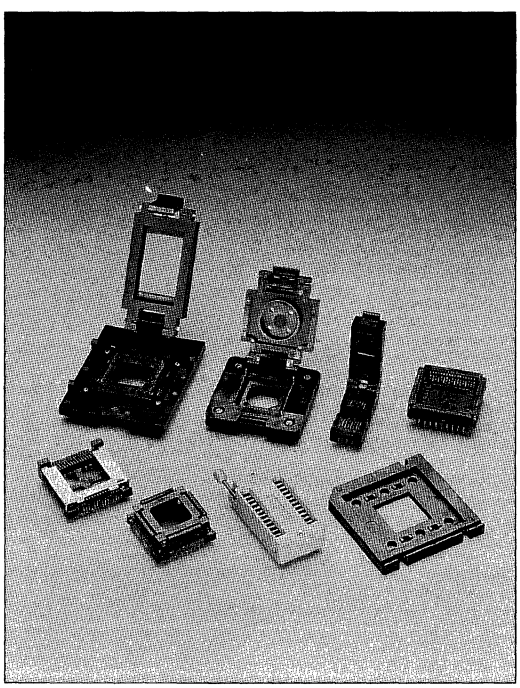
Textool Products
3M Electronic Products Division



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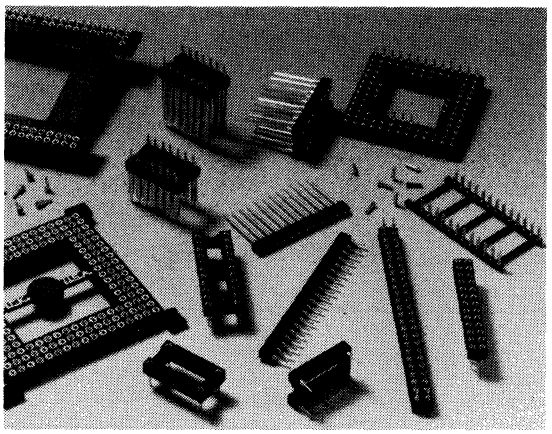
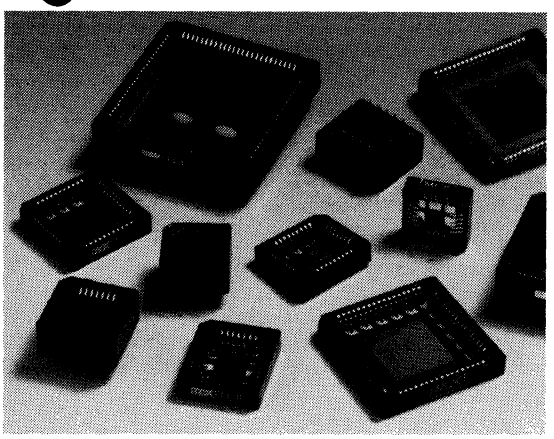
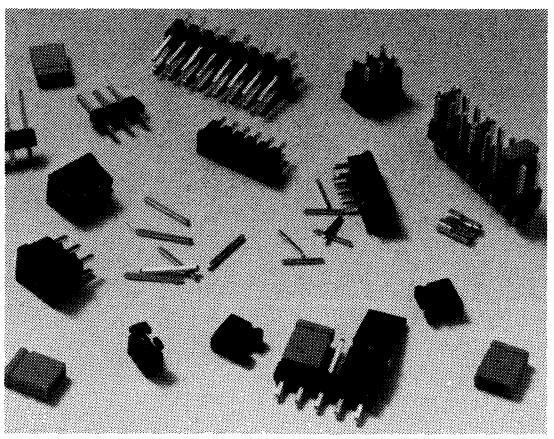


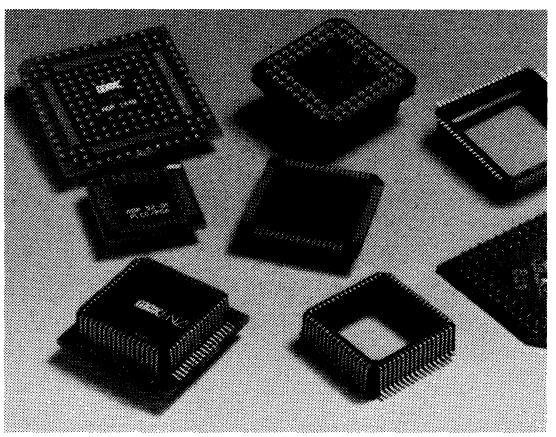
PGA, DIP & SIP Sockets



SMT & Through-hole PLCC Sockets



MicroShunts™ & Pin Header Carriers



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PLCC Adaptors*
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- Provides maximum volumetric efficiency.
- Design is based on proprietary ceramic technology of proven reliability and RF performance.
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- Provides a wide range of filter performance options.
- Adaptor styles provide for ease of retrofitting existing equipment.
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- Designed to provide compatibility with EIA RS-232 and RS-449.

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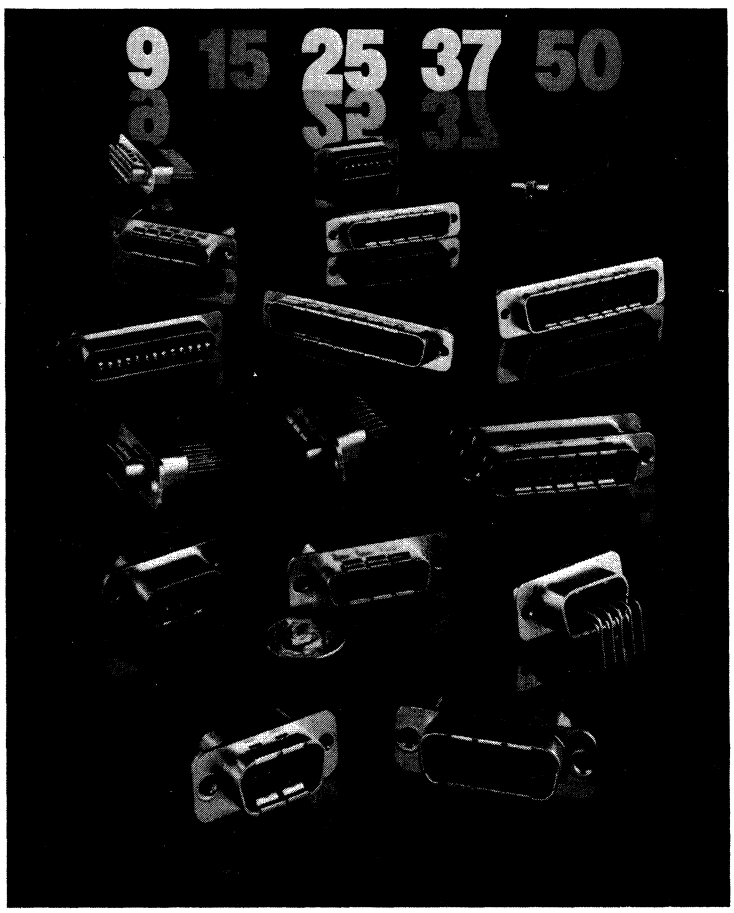
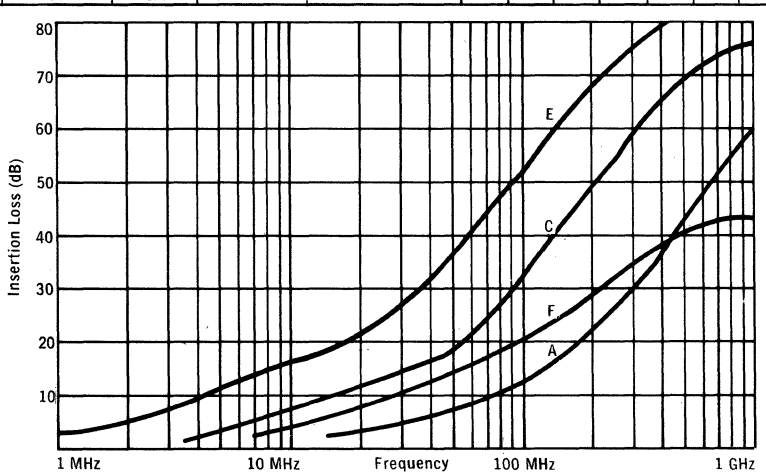


EMI FILTER PERFORMANCE

Filter Designation	*Filter Circuits	Capacitance		3 dB Max Cut-Off Frequency (MHz)	Dielectric W'Standing Voltage	Contact Rating	Contact Resist.	DC Working Voltage	Minimum Insertion Loss — Decibels (dB)							
		Value	Tolerance					−55°C to +125°C	5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
A	Pi	310 pF	±20%	17	300V	5A	.010 Ω Max.	100V	—	—	—	5	10	18	39	52
C	Pi	1000 pF	+100 −0%	3.2	300V	5A	.010 Ω Max.	100V	—	5	9	15	25	43	65	70
E	Pi	4000 pF	+100 −0%	0.8	150V	5A	.010 Ω Max.	50V	8	13	18	31	46	60	75	75
F	FT	830 pF	±20%	6.4	600V	5A	.010 Ω Max.	200V	—	3	6	12	17	23	30	35

TYPICAL PI FILTER AND FEED THROUGH CAPACITOR PERFORMANCE*



The following pages depict HM RS-232 series (shell size 25)

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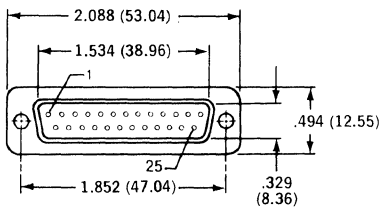
EMI Filtered D Subminiature Connectors: 25 Pin Plug

PIN CONTACT (PLUG)

FRONT VIEW
(All Configurations)

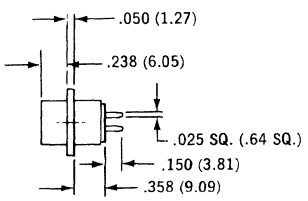


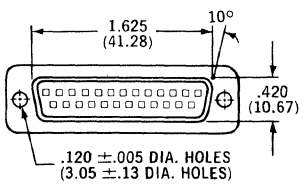
MOUNTING OPTIONS
THREADED SELF-LOCKING INSERTS

Self-locking, threaded and soldered #4-40 UNC inserts available for all connectors and adaptors. Allows ease in fastening and mounting from pin or socket side. Ordering information adding L.I. for Locking Inserts to end of Part Number (eS-56-725-005LI).

Dimensions Shown in Inches (mm)

PRINTED CIRCUIT BOARD MOUNT

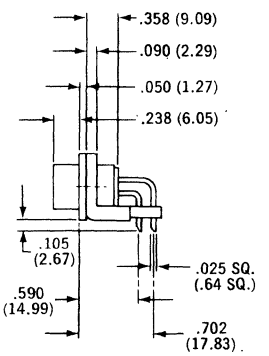


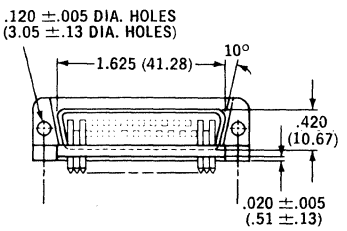


REAR VIEW

Part Number	EMI Filter			Voltage Rating
	Type*	Cap Value	Lines Filtered	
56-721-001	A	310 pF Pi	25	100 VDC
56-721-003	C	1000 pF Pi	25	100 VDC
56-721-005	E	4000 pF Pi	25	50 VDC
56-721-033	F	830 pF FT	25	200 VDC

PRINTED CIRCUIT RIGHT ANGLE MOUNT

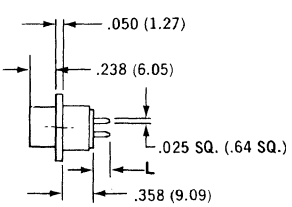


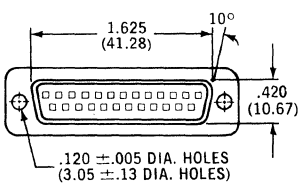


REAR VIEW

Part Number	EMI Filter			Voltage Rating
	Type*	Cap Value	Lines Filtered	
56-722-001	A	310 pF Pi	25	100 VDC
56-722-003	C	1000 pF Pi	25	100 VDC
56-722-005	E	4000 pF Pi	25	50 VDC
56-722-008	F	830 pF FT	25	200 VDC

SOLDERLESS WIRE WRAP

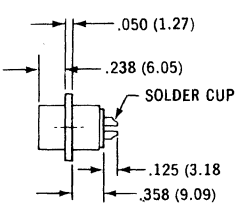


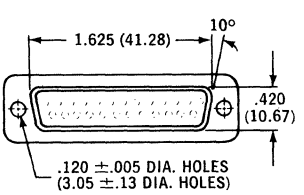


REAR VIEW

Part Number	L .500	L .375	L .225	EMI Filter			Voltage Rating
				Type*	Cap Value	Lines Filtered	
56-721-	006	028	024	A	310 pF Pi	25	100 VDC
56-721-	008	030	026	C	1000 pF Pi	25	100 VDC
56-721-	010	032	027	E	4000 pF Pi	25	50 VDC
56-721-	042	039	036	F	830 pF FT	25	200 VDC

SOLDER CUP TERMINATION





REAR VIEW

Part Number	EMI Filter			Voltage Rating
	Type*	Cap Value	Lines Filtered	
56-721-011	A	310 pF Pi	25	100 VDC
56-721-013	C	1000 pF Pi	25	100 VDC
56-721-015	E	4000 pF Pi	25	50 VDC
56-721-045	F	830 pF FT	25	200 VDC

All EMI Filtered D Subminiature Connectors stocked by MCI are manufactured in the U.S.A. by **Spectrum Control, Inc...**
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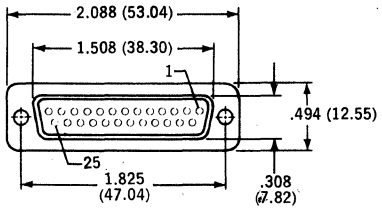
EMI Filtered D Subminiature Connectors: 25 Socket Receptacle

SOCKET CONTACT (RECEPTACLE)

FRONT VIEW (All Configurations)

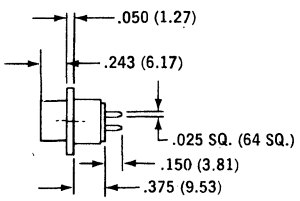


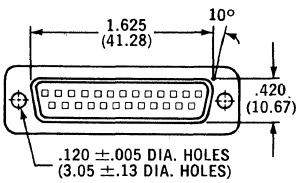
MOUNTING OPTIONS
THREADED SELF-LOCKING INSERTS

Self-locking, threaded and soldered #4-40 UNC inserts available for all connectors and adaptors. Allows ease in fastening and mounting from pin or socket side. Ordering information adding L.I. for Locking Inserts to end of Part Number (eS-56-725-005LI).

Dimensions Shown in Inches (mm)

PRINTED CIRCUIT BOARD MOUNT

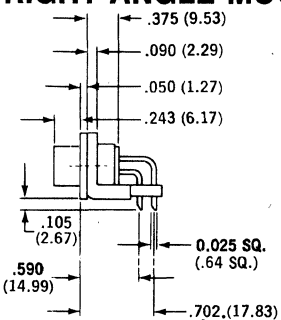


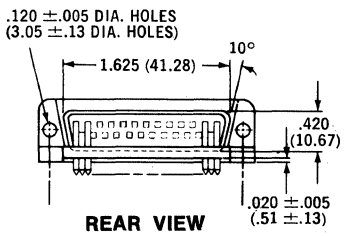


REAR VIEW

Part Number	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-723-001	A	310 pF Pi	25	100 VDC
56-723-003	C	1000 pF Pi	25	100 VDC
56-723-005	E	4000 pF Pi	25	50 VDC
56-723-023	F	830 pF FT	25	200 VDC

PRINTED CIRCUIT RIGHT ANGLE MOUNT

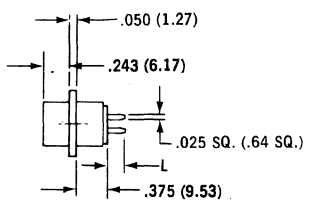


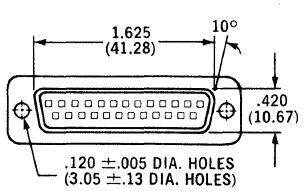


REAR VIEW

Part Number	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-724-001	A	310 pF Pi	25	100 VDC
56-724-003	C	1000 pF Pi	25	100 VDC
56-724-005	E	4000 pF Pi	25	50 VDC
56-724-008	F	830 pF FT	25	200 VDC

SOLDERLESS WIRE WRAP

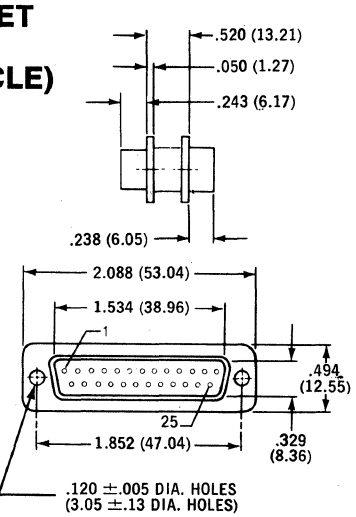




REAR VIEW

Part Number	L .500	L .375	L .250	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-723-	006	017	012	A	310 pF Pi	25	100 VDC
56-723-	008	019	014	C	1000 pF Pi	25	100 VDC
56-723-	010	021	016	E	4000 pF Pi	25	50 VDC
56-723-	032	029	026	F	830 pF FT	25	200 VDC

EMI FILTERED CONNECTOR ADAPTOR: PIN/SOCKET (PLUG/ RECEPTACLE)



Part Number	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-725-001	A	310 pF Pi	25	100 VDC
56-725-003	C	1000 pF Pi	25	100 VDC
56-725-005	E	4000 pF Pi	25	50 VDC
56-725-019	F	830 pF FT	25	200 VDC

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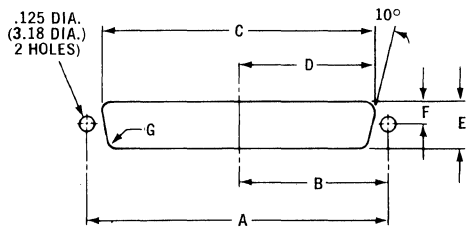
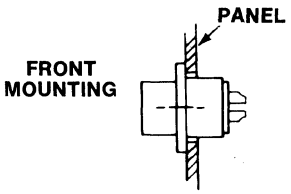
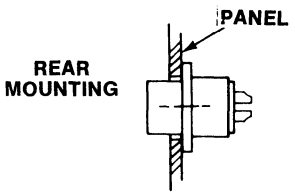
Application Notes

25 D SUBMINIATURE PANEL CUTOUTS





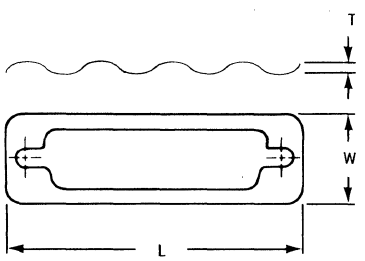


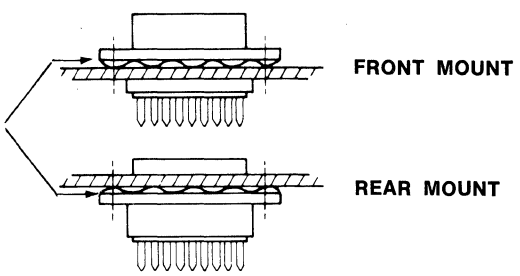
Mounting Method*	A ±.005 (0,13)	B ±.005 (0,13)	C ±.005 (0,13)	D ±.005 (0,13)	E ±.005 (0,13)	F ±.005 (0,13)	G ±.002 (0,05)
Front Mounting	1.852 (47,04)	.926 (23,52)	1.645 (41,78)	.822 (20,89)	.440 (11,18)	.220 (5,59)	.150 (3,81)
Rear Mounting	1.852 (47,04)	.926 (23,52)	1.528 (38,81)	.764 (19,41)	.360 (9,14)	.180 (4,57)	.110 (2,79)

* When Rear Mounting Pin (Plug) Connector use Front Mounting Panel Cutout.

Waved Metal Gaskets Complete EMI Protection For Filtered or Non-Filtered D Subminiature

Proper mounting of any EMI filter — including the EMI filtered D Subminiature — is critical to the achievement of electromagnetic compatibility. The mounting surface for grounding the connector must be free from paint or any other insulating material. The sketches below indicate the use of one of Spectrum's EMI gaskets to fill any tolerance gaps and adjust for irregularities in the flatness of the mounting surface.



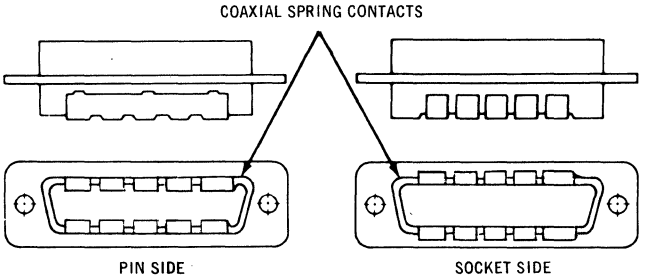


Shell Size	Mounting Configuration	L	W	T Free State	T Compressed	Part No.
25	Front Pin - Socket	2.088 (53,04)	.600 (15,24)	.030 (0,76)	.005 (0,13)	572019-00102-70
	Rear - Pin					
	Rear - Socket	2.088 (53,04)	.600 (15,24)	.030 (0,76)	.005 (0,13)	572019-00107-70

Spectrum EMI Filtered D Subminiature...Unique

Spectrum D subminiature connectors feature a unique ground plane to effectively block bulkhead leakage of EMI. The design also provides line to line isolation separation to limit cross talk (line to line mutual coupling) to an absolute minimum. Another, and a most important feature, is the coaxial spring contact that provides proper electrical grounding when mating one connector to another connector.

R. F. GROUNDING SPRING CONTACT*



* Provided on all shell sizes — all termination styles Patent Pending.

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SYMBOLS USED BY INTERNATIONAL REGULATORY AGENCIES

These symbols appear on many electrical/electronic components distributed in the world market. They indicate that a country's standard-setting agency has approved the design of the component and/or a testing agency has approved the performance of the component in meeting the standard. This page lists only those countries that have a *symbol* to represent their authority.

Argentina (IRAM) Instituto Argentino de Racionalization de Materiales

Australia (SAA) Standards Association of Australia

Austria (ÖVE) Öesterreichischer Verband für Elektrotechnik

Belgium (CEB) Comité Electrotechnique Belge

Brazil (ABNT) Associação Brasileira de Normas Teonicas

Canada (CSA) Canadian Standards Association

Czechoslovakia Urad pro Normalizaci a Mereni (Office for Standards and Measurements)

Denmark (DEK) Dansk Elektroteknisk Komite (Danish Electrotechnical Committee)

Egypt (EOS) Egyptian Organization for Standardization and Quality Control

Finland (SETI) Electrical Inspectorate

France (UTE) Union Technique de l'Électricité

Germany, Democratic Republic of (East) (ASMW) Amt für Standardi-sierung Messwesen und Warenprufung (Office for Standardization, Metrology and Quality Control)

Germany, Federal Republic of (West) (DKE) Deutsche Electrotechnische Kommission im DIN und VDE (German Electrotechnical Commission of DIN and VDE)

Greece (ELOT) The Hellenic Organization of Standardization

Hong Kong Hong Kong Standards & Testing Centre

Hungary (MSZH) Magyar Szabvanyugi Hivatal (Hungarian Office for Standardization)

India (ISI) Indian Standards Institute "Manak Bhavan"

Indonesia Badan Kerjasama Standardisasi LIPI-YDNI (LIPI-YDNI Joint Standardization Committee)

Iran Institute of Standards and Industrial Research of Iran

Ireland (IIRS) Institute for Industrial Research and Standards

Israel (SII) Standards Institution of Israel

Italy (CEI) Comitato Elettrotecnico Italiano (Italian Electrotechnical Committee)

Japan (JISC) Japanese Industrial Standards Committee Agency of Industrial Science and Technology

Korea, Republic of (South) Industrial Advance Administration

Mexico (DGN) Dirección General de Normas Secretaria de Patrimonio y Fomento Industrial Puente de Tecamachalco

Netherlands (NEC) Nederlands Elektrotechnisch Comite

New Zealand (SANZ) Standards Association of New Zealand

Norway (NEK) Norsk Elektroteknisk Komite (Norwegian Electrotechnical Committee)

Pakistan Pakistan Standards Institution

Poland Polski Komitet Normalizacji Miar i Jakosci (Polish Committee for Standardization, Measures and Quality Control)

Portugal (CEP) Comissão Electrotécnica Portuguesa

Romania Institutul Roman de Standardizare (Romanian Standards Institute)

Singapore Singapore Institute of Standards and Industrial Research

South Africa (SABS) South African Bureau of Standards

Spain (IRANOR) Instituto Nacional de Racionalización y Normalización

Sweden (SEK) Svenska Elektriska Kommissionen (Swedish Electrotechnical Commission)

Switzerland (SEV) Schweizerischer Elektrotechnischer Verein Postfach

Turkey (TSE) Turk Standardlari Enstitusu (Turkish Standards Institution)

United Kingdom (BSI) British Standards Institution

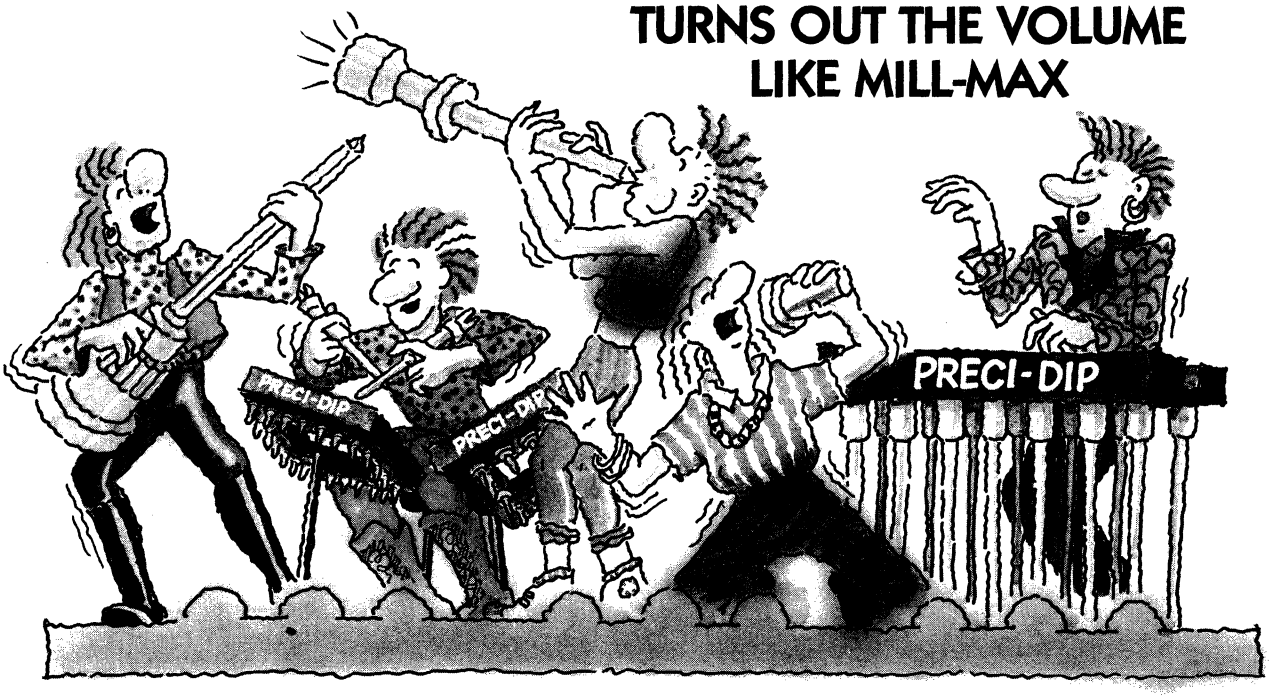
United States Underwriters Laboratories Inc. Recognized Component Mark

United States Underwriters Laboratories Inc.

Venezuela CODELECTRA en Conjunto con COVENIN Avda. Ppal.

Yugoslavia Federal Institute of Standardization

NOBODY TURNS OUT THE VOLUME LIKE MILL-MAX



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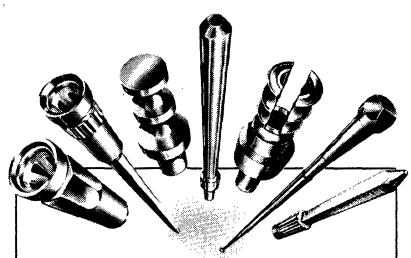

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- I.C. socket pins
- Solder terminals
- Wrapost receptacles and terminals
- Custom products

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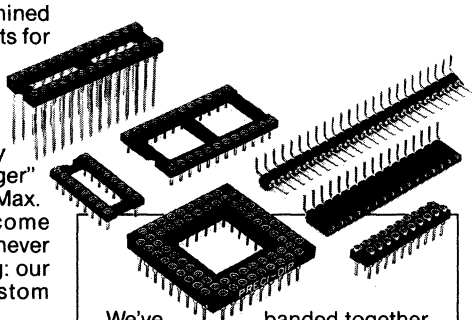

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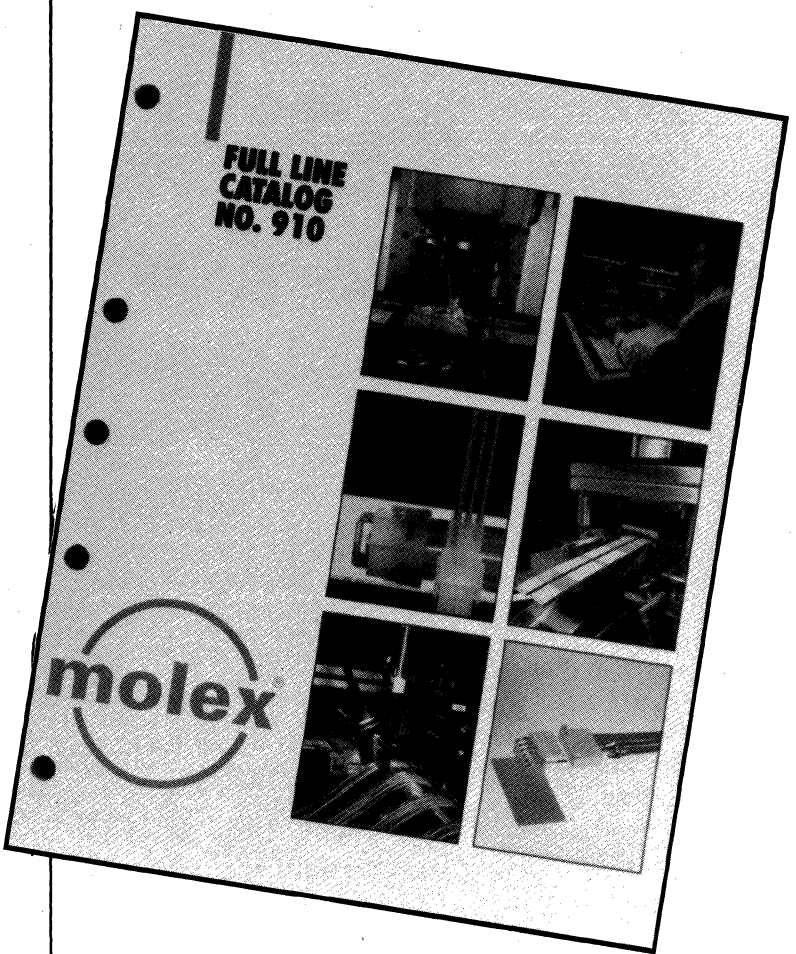
- Flat Flexible Circuitry Connectors
- Fiber Optics
- Telephone Connector Products
- Pin and Socket Connectors and Terminals
- Mechanical and Membrane Switches
- Application Tooling
- Solderless Terminals
- I/O Connector Systems
- SMT Components
- C-Grid™ Systems (.100″ Centerline)
- Robotics
- D-Subminiature Connectors
- RF Coaxial Connectors
- Micro and Nanominiature Connectors



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Outstanding Design. Experienced Manufacturing. Guaranteed Safety. Excellent Quality. Superior Service.

From design to manufacturing, Multi-Contact connectors are produced to satisfy the highest industry standards of performance and reliability.

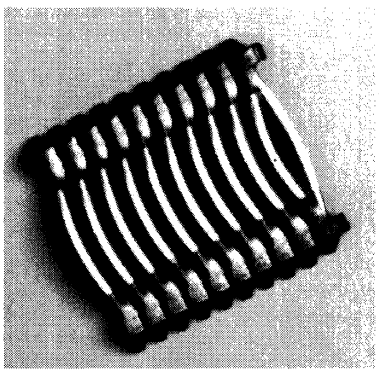
Sophisticated R&D efforts, in-house testing, and stringent quality controls have one simple, critical result: state-of-the-industry connector technology.

Multi-Contact connectors are made from solid brass (CuZn40Pb2), first nickel plated, then sealed with either a hard gold or hard silver plating.

MC-MULTILAM™ connectors exemplify Multi-Contact's innovative technology and commitment to quality. The precision, multiple louvered contact interface assures optimum contact performance. The MC-MULTILAM™ contact band is made from beryllium-copper, then precision-stamped and tempered, and finally hard gold- or hard silver-plated.

MC-MULTILAM™ connectors can be used for unlimited applications due to their design flexibility and advanced features:

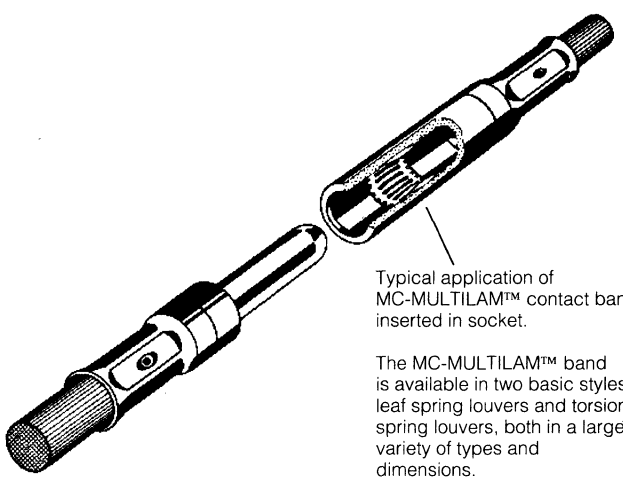
- High contact pressure—yet low insertion force
- High specific current capacity
- Lowest contact resistance
- Low voltage drop—minimal heat rise
- Mechanical strength—tens of thousands of mating operations
- Precious metal plating—excellent corrosion protection, even in aggressive and hostile environments



The MC-MULTILAM™ System...

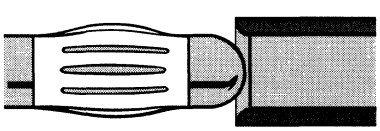
...efficient solutions for all applications.

MC-MULTILAM™ contact band with overlapping, silver-inlaid torsion spring louvers for high current connectors.

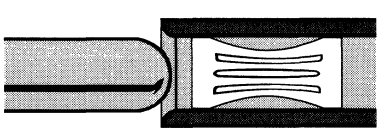


Typical application of MC-MULTILAM™ contact band inserted in socket.

The MC-MULTILAM™ band is available in two basic styles: leaf spring louvers and torsion spring louvers, both in a large variety of types and dimensions.



MC-MULTILAM™ contact band convex-fitted to plug



MC-MULTILAM™ contact band concave-inserted into socket

MC USA®

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THE CONNECTOR TECHNOLOGY EXPERTS

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SANTA ROSA, CA 95401
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New designs often demand novel components for optimum performance. Over many years, Multi-Contact has established an enviable record of successful custom-engineered and produced connectors that have satisfied numerous electronic and electrical applications. First-hand experience in conjunction with knowledge of the industry makes Multi-Contact an ideal source for customers needing specific or unique solutions. Very low minimum quantities are required: An average of only 200 units for custom-assembled products, only 3,000 units for custom-produced units.

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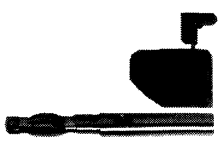
Connectors for PCBs in 0.5,0.8,1.0 and 2.0 mm Dia.

Connecting plugs in 1.0 , 2.0 and 4.0 mm Dia.

MC-MULTILAM plugs

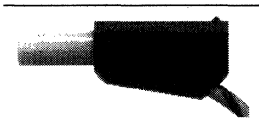


Test plugs with separate insulations

Test leads in 7 lengths and 10 colors

Sockets for power supplies

Touchproof connecting plugs



Touchproof test leads

Adaptors to safety systems

Test leads with retractable safety-sleeve

Safety-engineered probes and tips

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Safety Connectors and Accessories UL Listed

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From High Current to Low Current: Always the Right Connector.*

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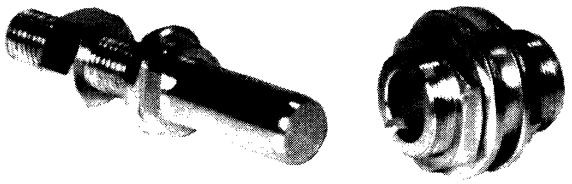
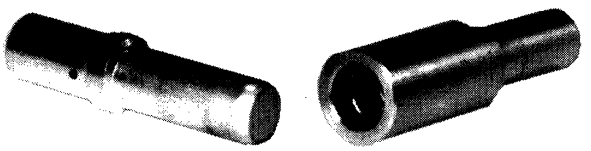
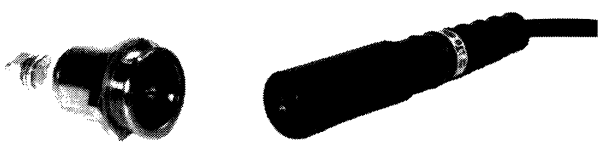


Plugs and sockets with external threads
for connection to bus bars
from 10 to 5000 Amps

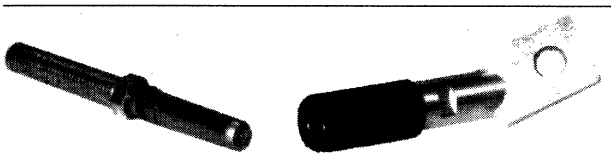
High Current Contact Devices



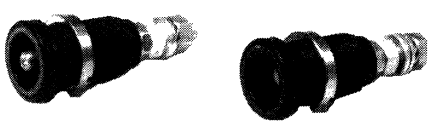
Plugs and sockets with rear copper sleeves
for crimp connections
from 10 to 2500 Amps



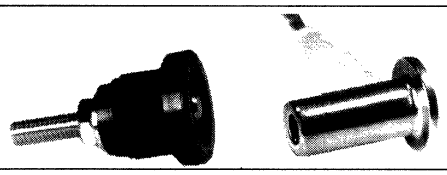
Panel-mount and cable in-line connectors
for 180 and 280 Amps
with quick-lock device



Plugs with threaded studs and sockets
with spade-lug rear connections
from 90 to 280 Amps
with quick-lock device

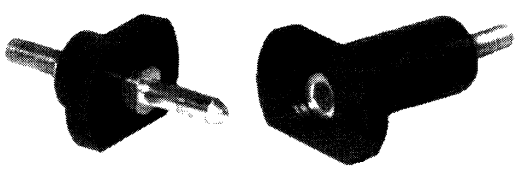


Insulated, color-coded panel-mount
plugs and sockets
for 90 Amps
with quick-lock device



Rotating grounding connectors
for medical environments

Equipotential Grounding Connectors



Custom connectors made from
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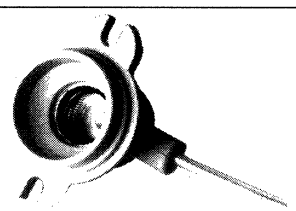
Custom Designs



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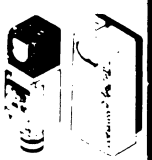
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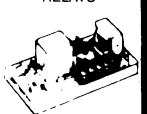
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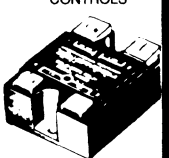
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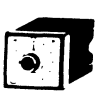
TERMINAL BLOCKS

TEMPERATURE CONTROLS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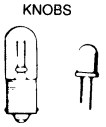
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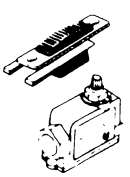
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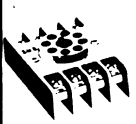
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TEST IT!
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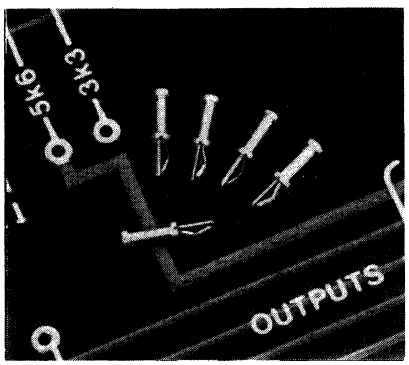
Reliably. Efficiently. Economically.

Designed for plated thru hole applications, Oxley's compliant Kinky Pin retention mechanism allows wide hole tolerance. The precision turned pin head prevents a test probe from being dislodged and is available in two lengths for low profile or high density applications. Easily wave or hand soldered into place.

The **OXLEY KINKY PIN test** point connector is a new compliant pin for use in plated through hole (PTH) printed circuit boards.

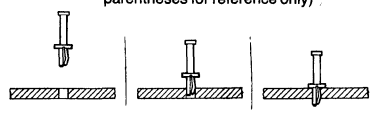
Intended to be used as a test equipment connection point, the precision turned pin head prevents a test probe being dislodged.

An ingenious kinked pin is utilized as a compliant retention mechanism, designed to prevent damage to through-plated holes during insertion while providing sufficient retention for wave or hand soldering.



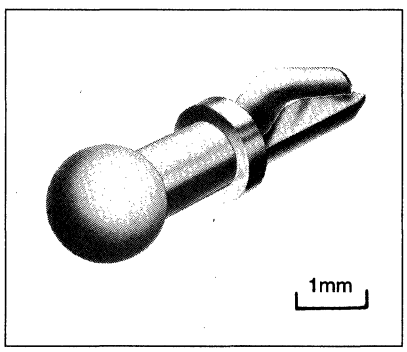
KINKY PIN SELF-LOCKING ASSEMBLY MOUNTING DETAILS
Minimum Board Thickness 1.4mm (.055)

Dimensions in mm (inch equivalent in parentheses for reference only)

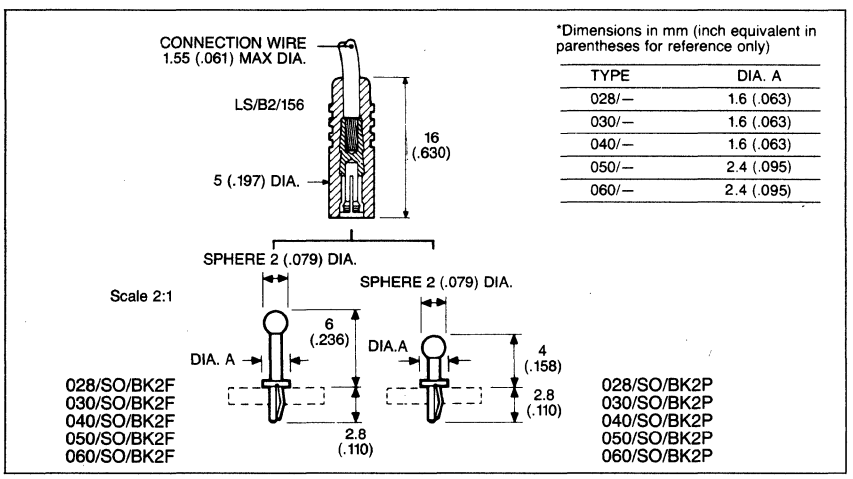


TYPE	Mounting hole diameter after through plating
028/—	0.68 to 0.84mm (.030 ± .003)
030/—	0.81 to 0.96mm (.035 ± .003)
040/—	0.96 to 1.12mm (.041 ± .003)
050/—	1.21 to 1.37mm (.051 ± .003)
060/—	1.50 to 1.65mm (.062 ± .003)

OXLEY SNAPLOX® KINKY PIN CONNECTORS



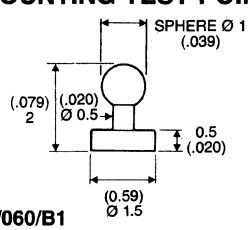
Test Point Connectors with Oxley® Kinky Pin Compliant Retention Mechanism for PTH



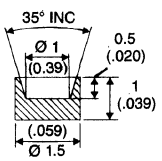
*Dimensions in mm (inch equivalent in parentheses for reference only)

TYPE	DIA. A
028/—	1.6 (.063)
030/—	1.6 (.063)
040/—	1.6 (.063)
050/—	2.4 (.095)
060/—	2.4 (.095)

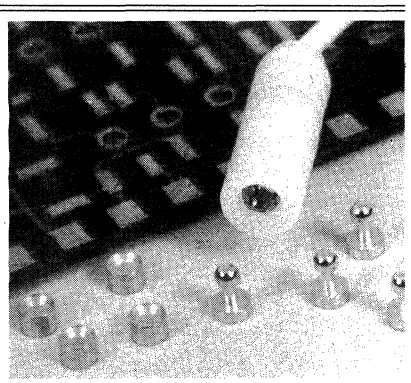
SURFACE MOUNTING TEST POINTS & PADS



Type No: **SMOX/060/B1**
Surface Mounting
Snaplox Test Point
Mating Connector
Type No: **LS/B1/093**
1mm Snaplox Socket



SMOX/060/TP
Surface Mounting Test Pad
Dimensions in mm.
Inch equivalent in parentheses for reference only
SCALE 6:1



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Guaranteed Gold Thickness For Maximum Reliability

New technology and applications have required a continuing evolution of original DIN 41612 product selections. A recent addition of DIN 41612 is the introduction of "Performance Class I, II and III." The chart below shows the PANDUIT guaranteed gold plating that, combined with the performance class, lets you choose the most economical plating and class that's right for your application.

Performance Class	Min. Plating Thickness	Mating Cycles	Harsh Environment Testing
III	8 Microinch	50*	None
II	15 Microinch	400	4 Days
I	Consult Factory	500	21 Days

*Panduit testing >200 cycles exceeds DIN requirement

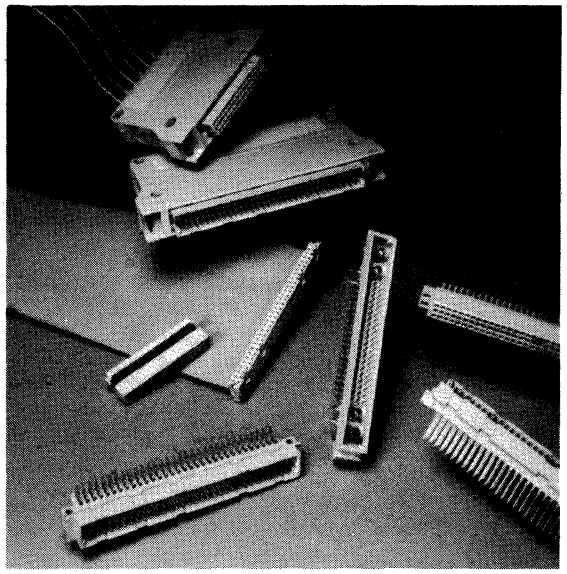
Complete Line of Connectors

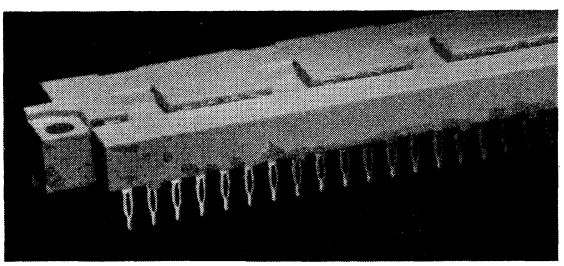
Over 15 years manufacturing experience and state-of-the-art equipment combine quality with on- time delivery.

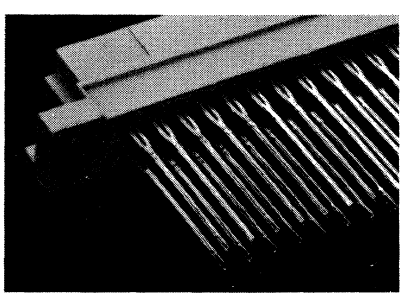
- Series 100/101—Standard DIN 41612—Types B, half B, C, half C, D, E, F; up to 96 pins: two- and three-row versions
- Series 100S—Special Wrap Pins—Type C; up to 96 pins; for backplane interface systems
- Series 105—Mixed Contact—Type M; 16 to 78 pins plus 2 to 8 inserts, including coax, high voltage and high power contacts
- Series 106—Standard DIN Format—4 row, 128-pin male and female for high density applications
- Series 120—Flat Cable—Types B, C, half C; up to 64 pins; for IDC termination with .050" flat cable
- Series 130—Inverse Types Q and R full and half size; "eye-of-the-needle" compliant design; surface mount; up to 96 pins
- Series 135—Females—Types B, half B, C, half C; up to 96 pins; for building economical backplanes with traditional female units
- Series 136—Stretched Inverse—Type R; up to 195 pins; semi-custom three-row series

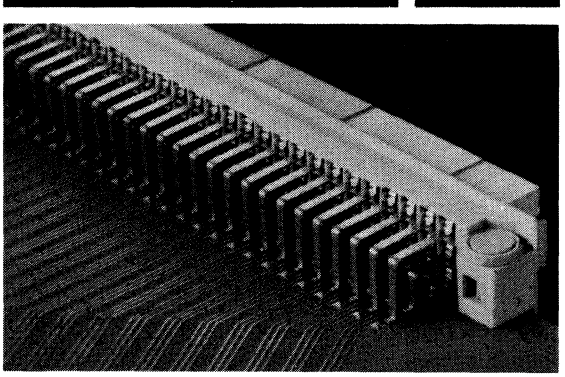
Complete Line of Accessories

A variety of accessories and tooling designed to lower your installed cost: press fit connector insertion dies; pin alignment tools; front and backplane adapters; coding combs; unique wedge system.









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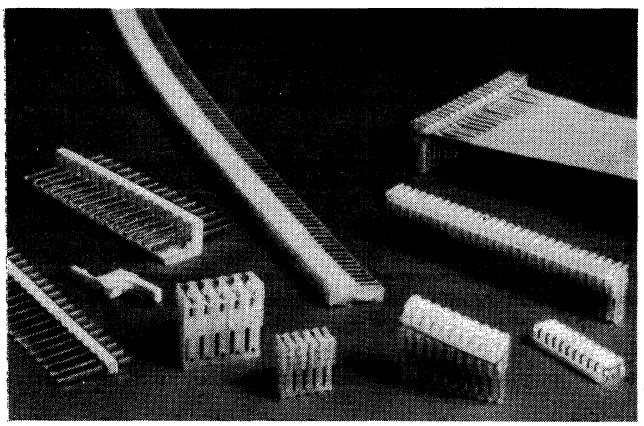
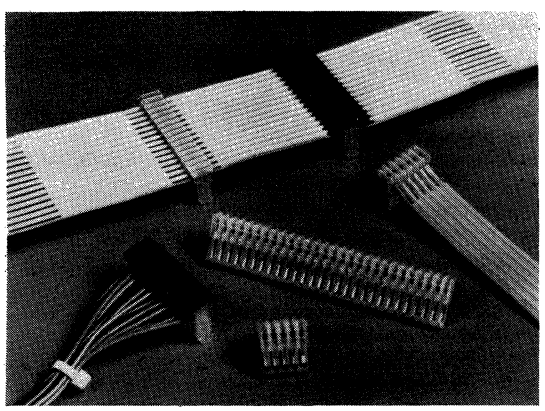


.100″ Centerline Connectors
Rated up to 4 amps with 22 AWG

- 2 through 28 circuit positions
- For 22, 24, 26 and 28 AWG wire

.156″ Centerline Connectors
Rated up to 8 amps with 18 AWG

- 2 through 24 circuit positions
- For 18, 20, 22, 24 and 26 AWG wire

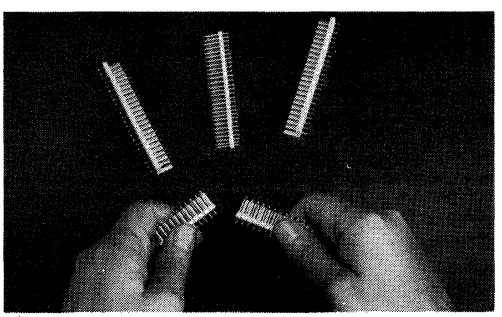


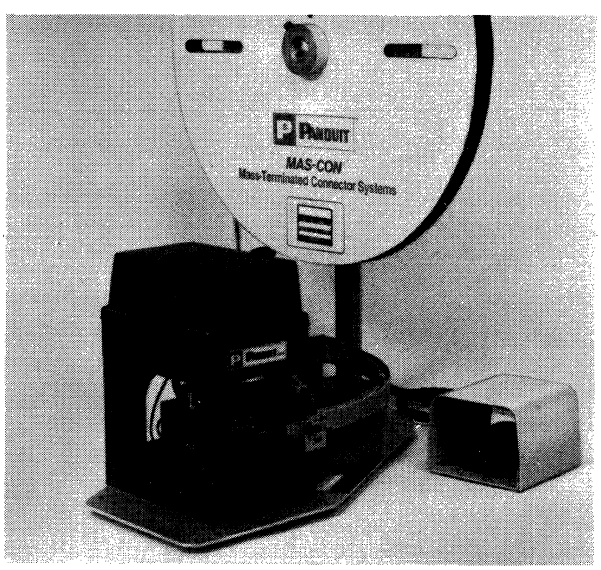
PCB Header Assemblies

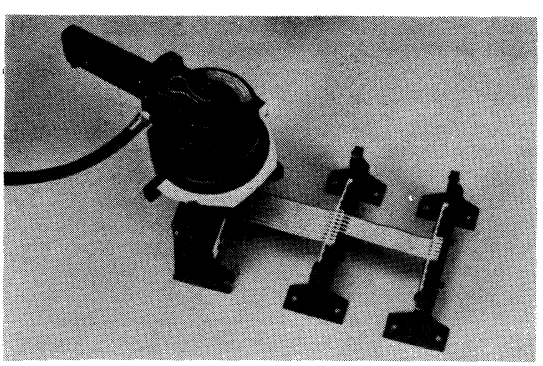
- Straight or angled posts in flat, locking or polarizing types
- .100″ centerline headers have .025″ square posts, offer 2 through 36 circuit positions
- .156″ centerline headers have .045″ square posts, offer 2 through 24 circuit positions

High Efficiency Production Tooling and Accessories Designed to Lower Your Installed Cost

Manual and pneumatic hand tools with interchangeable nose sections for .100″ and .156″ connectors; bench mounts for manual tools; header cutting tools; manual and pneumatic presses; mass termination and flat cable notching die sets; electric single wire termination tools; pneumatic automatic track-fed presses; high volume automatic reel-fed presses; automatic harness assembly machines for up to 33,600 circuit terminations per hour; harness board tooling and accessories.







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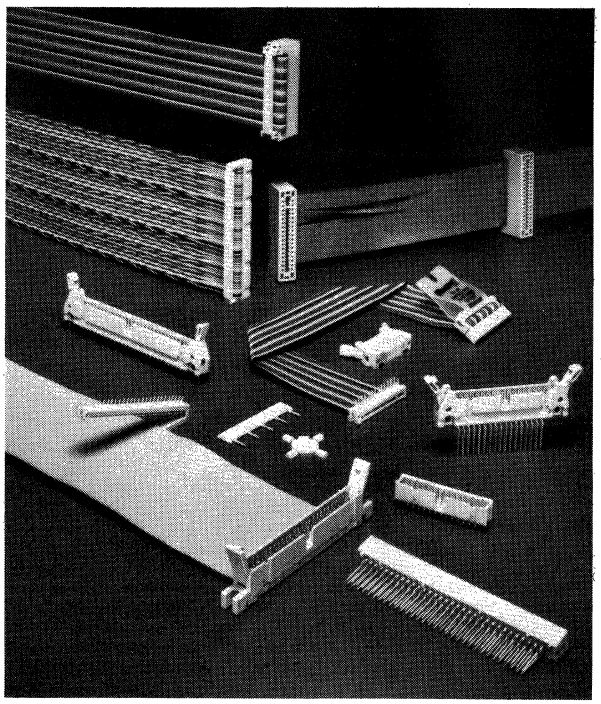
PANDUIT® LAT-CON™ | .050" FLAT CABLE CONNECTORS

- Open-sided connector permits lateral cable insertion
- Cuts installation time up to 75%
- Reduces rework up to 90%
- For end or daisychain terminations—male and female
- Unique polarization methods available on sockets and card edge connectors—without loss of contact



Preassembled Sockets/Headers

- 10 to 64 circuits
- MIL-C-83503 intermateable

Low Profile Shrouded Headers

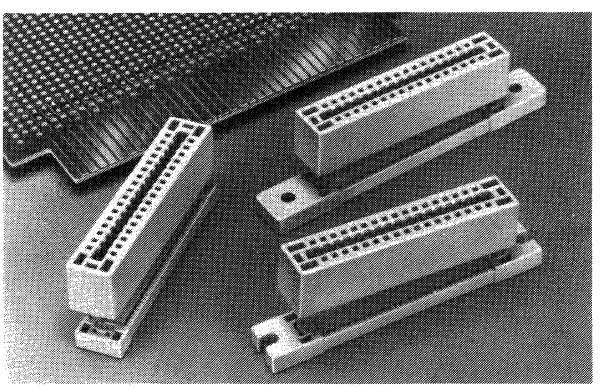
- 10 to 64 circuits for limited PCB real estate applications
- Designed for military keying and center polarization

Card Edge Connectors

- 20 to 64 circuits
- Three housing styles

Two-Row Transition Connectors

- 10 to 64 circuits
- Eliminates headers—installs directly to the PCB.



IDC Connectors

- 10 to 64 circuits with and without latches and flanges
- For in-line splices and t-tap design.

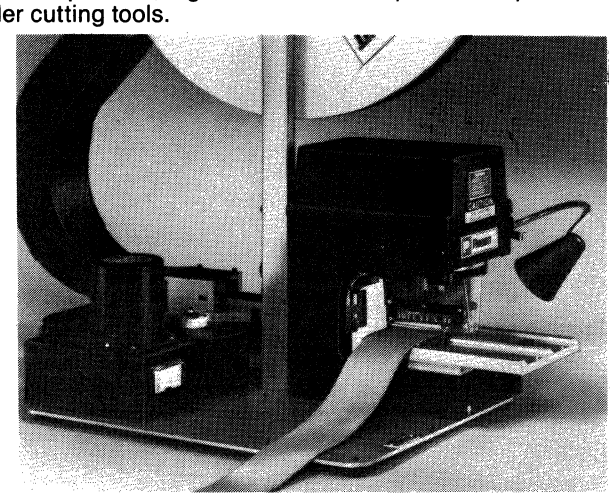
Four-wall and unshrouded headers available for 10 to 64 circuits; .025" square contacts; straight, angled tail or "eye-of-the-needle" compliant design; four-wall headers come with or without ejector latches.

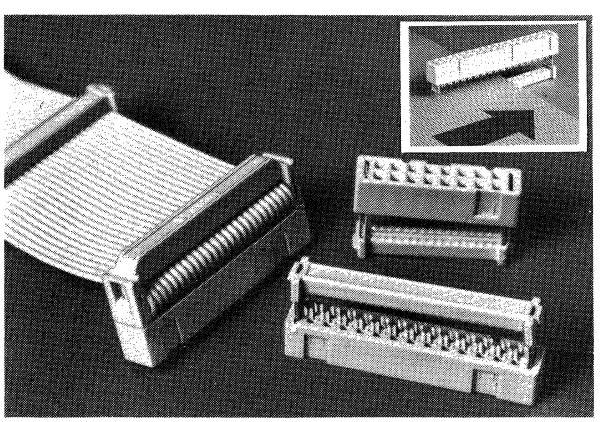
Shunts for .100" system; for adjacent .025" square or round posts; tin or 15 µinch gold plated.

DIP plugs mate with standard IC sockets or solder to the PCB; 14-40 positions.

Lower your installed cost with PANDUIT® tools

Full line of termination tooling; manual tools; manual and pneumatic presses; high volume reel-fed pneumatic presses; header cutting tools.





PANDUIT QUALITY ELECTRONICS GROUP

DEPT. EM, 17301 Ridgeland Avenue,
Tinley Park, IL 60477-0981
FAX: (708) 532-1811

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Call 800-777-3300

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

Abbreviations/Acronyms **A**•1114, **B**•1037, **C**•1116, **D**•1068
AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
Fiber Optics, Miniglossary **B**•1224
Fiber Optics, Product Selection Guide **B**•1214
Filters, Power, Product Selection Guide **A**•1609
Filters, Signal, Product Selection Guide **A**•1651
Instruments, Test & Measuring, Product Selection Guide **D**•1207
Interconnection Systems, Product Selection Guide **C**•1678
Keyboards & Keypads, Product Selection Guide **B**•1794
Lamps, Lights, & Indicators, Product Selection Guide **B**•1135
Logofinder & Trademark Directories **C**•901
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Military Qualified Products List **B**•1002
Motors, Drives, & Rotating Components, Product Selection Guide **B**•1233
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Panel Meters, Analog & Digital, Product Selection Guide **D**•1340
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide **A**•2013
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Power Supplies, DC, Product Selection Guide **D**•1501
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Relay Contact Forms **B**•1550
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SI Units, Basic Guide To, **A**•2080, **B**•1666, **C**•1362, **D**•2246
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Switches, Product Selection Guide **B**•1639
Symbols—International Authorities **A**•1139, **B**•1024, **C**•1156, **D**•1090
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Thermal Conductivity of Dielectrics at Room Temperature **C**•1709
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Timers, Miniglossary **B**•1409, **D**•1149
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Transducers & Encoders, Product Selection Guide **B**•1872
Transformers, Product Selection Guide **A**•2131
Wire & Cable, Product Selection Guide **C**•1705
Wire Gauges—Diameter, Area, Copper Weight **C**•1864

PANEL COMPONENTS CORPORATION

Designing for Export? We make it easy!

- Export Designer's Reference/Catalog gives detailed information about world electrical requirements; each product section is preceded with a review of international requlations. Call toll free for your free copy of our current edition.
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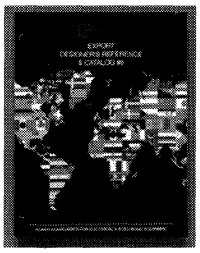
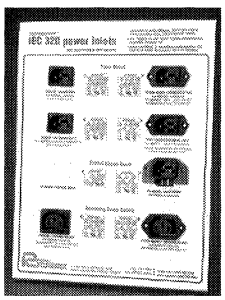
- Most items are available for fast shipment from our large inventory.
- We have no minimum order and can ship prototype orders quickly.
- Designer's Kits, shown below, aid design of international products



Call for a free copy of our Export Designer's Reference & Catalog

Interpower™ International Designer's Kits & Panels

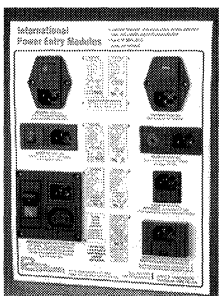
IEC 320 Inlets & Accessory Outlets



For convenience in designing the power entry portion of your product, this panel contains six IEC 320 power inlets and two accessory power outlets—now rated at 10A/250VAC in international markets, 15A in North America. Push-in, panel- and pc-mounting types are included in the panel.

#83010010: Designer's Panel of IEC 320 Inlets & Outlets
Size: 9 x 12 x 2"; approx. 2#

International Power Entry Modules



Designer's panel contains eight International multifunction power entry modules, generally rated 6-10A/250VAC. Depending on model, these modules combine: IEC 320 power inlet, voltage selector, fuse or circuit breaker, power switch, accessory outlet

#83111010: Designer's Panel of Power Entry Modules
Size: 9 x 12 x 2"; approx. 3#

Designer's Kit of International Plugs

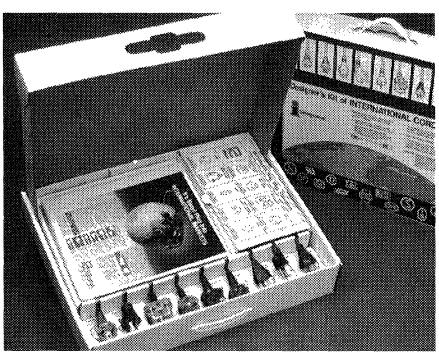
For use in designing electrical and electronic equipment that will be exported with foreign power cords/cordsets, this kit contains nine of the most common international plugs.

#88090020: Designer's Kit of International Plugs
Size: 12 x 13 x 4"; approx. 2#

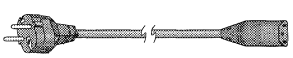
Designer's Kit of International Sockets

For use in design and burn in of electrical and electronic equipment that will be exported with foreign power cords/cordsets. Kit contains nine of the most common international sockets.

#88090030: Designer's Kit of International Sockets
Size: 12 x 13 x 4"; approx. 2#



Designer's Kit of International Cordsets



The nine cordsets in this kit represent the major plug standards used in the world today. For use in designing the power entry portion of export products, the kit can also be used by international travelers who carry and use equipment which must be properly plugged in and grounded (be sure to set equipment at the proper voltage and frequency before operation).

Each cordset is terminated with the IEC 320 connector, a common standard in the industrialized world. Complete specs on each cordset are included for use in developing your purchasing specifications. The kit also contains Information on world plug and socket standards, world electrical voltages and frequencies, and design information as detailed in Panel Components Corporation's publications.

Cordsets are illustrated and described in EEM section 6000.

#86599010: Designer's Kit of International Cordsets
Size: 19 x 15-1/2 x 4"; approx. 9#

Interpower™ is Panel Components' trademark

PANEL COMPONENTS CORPORATION

Call for complete catalog: U.S. Toll Free (800) 662-2290 • Canadian Toll Free (800) 346-4526
P. O. Box 6626 • Santa Rosa, CA 95406 • Telephone (707) 523-0600 • FAX (707) 578-5478

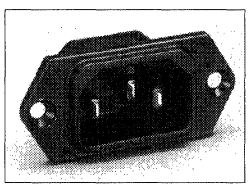
IEC 320 Power Inlets & Connectors

The IEC 320 power inlet is the most commonly used means of connecting a detachable cordset to electrical or electronic equipment that consumes up to 16A at 220-240V (20A/120V) or less. (European voltages and frequencies are typically 220-240VAC, 50Hz). IEC 320 inlets are used in Europe, North America, and throughout the industrialized world. By designing an IEC 320 power inlet into a product, the manufacturer can attach the correct international cordset (e.g., a cordset with a British, Australian, Continental European or North American NEMA plug—see our pages in EEM section 6000) just prior to shipment. See pages that follow for modules that combine an IEC 320 power inlet and other functions. (Accessory power connections based on IEC 320 are also shown on the following pages.)

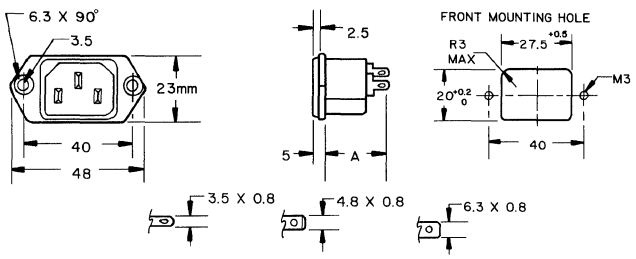
IEC 320 inlet & connector rated at 10A international (15A No. Amer.)

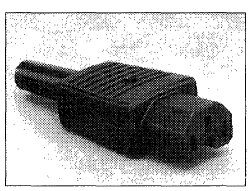
65°C IEC 320 C13-14 120°C IEC 320 C15-16

IEC 320 provides for a detachable connector system rated at 10 amps international; 15A North America.

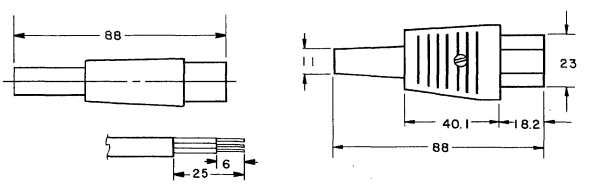


#8301211: with solder tabs
#8301212: with 4.8 mm (.187") solder/QDs
#8301213: with 6.3 mm (1/4") solder/QDs
Standard IEC 320 inlet. Nickel-plated brass contacts; UL 94-V2 polyamide-type thermoplastic insulator. Push-in mounting models also available.
Approvals: VDE, DEMKO, KEMA, NEMKO, OVE, SEMKO, SETI, SEV (10A/250VAC); UL recog., CSA cert. (15A/250VAC).





#8943.W.60: Rewirable IEC 320 power cord plug for use at 120°C. Mates with both 10A/65°C (above) and 10A/120°C standard receptacles (not shown). Integral cable-clamp strain relief; screw-type connections. Polyamide-type thermoplastic insulator. UL flam. rating: UL-94V2. Accepts cordage to 9.6mm O.D. max.
Approvals: OVE, SECV, SEMKO, SEV, VDE (10A/250VAC), CSA cert. & UL recog. (15A/250VAC)

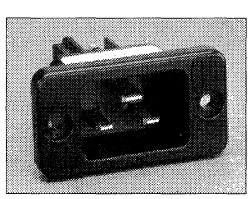


Max. cable size:3x1.50mm² or 3x14AWG

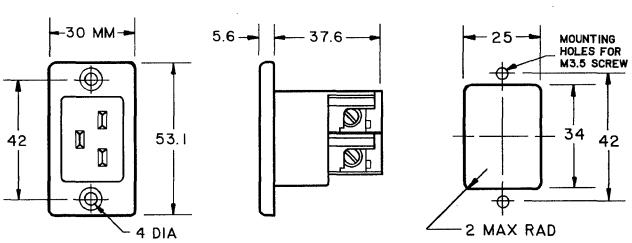
IEC 320 inlet & connector rated at 16A international (20A No. Amer.)

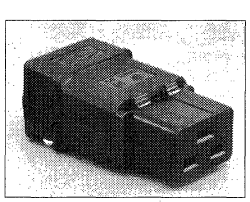
65°C IEC 320 C19-20

IEC 320 provides for a detachable connector system rated at more than 10 amps. Accessory outlet and receptacle also available.

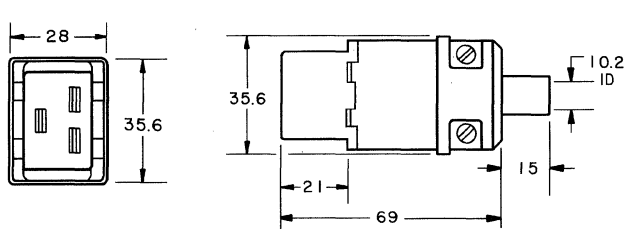


#888H320B: IEC 320 (C-20) power inlet for use at 65°C rated 20A/250VAC by UL & CSA. Mates with 888H320C below. UL 94-V0 nylon insulator. Nickel-plated brass contacts. Screw-type connections.
Approvals: UL recog., CSA cert. (20A/250VAC); VDE, TUV (16A/250VAC)





#888H320C: Rewirable IEC 320 (C-19) power outlet for use at 65°C rated 20A/250VAC by UL & CSA. Mates with 888H320B above. Nylon insulator. Nickel-plated brass contacts. Screw-type connections. Made to order cable assembly services available.
Approvals: UL recog.; CSA cert. (20A/250VAC); TUV (16A/250VAC)

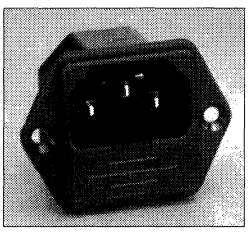


Dimensions are in mm

International Power Entry Modules Combine Functions

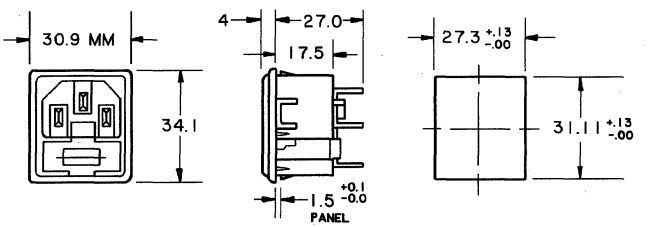
65°C
IEC 320
C13-14

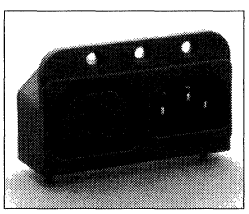
Power modules aid in configuring a product with the correct cordset, voltage, and fusing for international or North American markets, and can also save on space, assembly costs, and components management because several functions are combined in one unit. A power module can also make a product safer; because it is possible to interlock the power entry connector with access to a fuseholder or voltage selector, the equipment user ***must*** remove the power cord before changing a fuse or adjusting a voltage selector.



2 Function Module

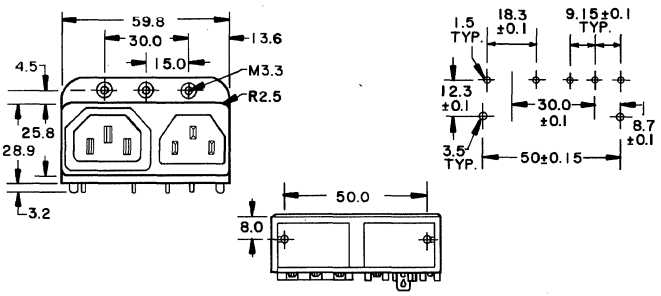
#83110110: solder contacts
#83110130: 6.3mm solder/QDs
Combines 1) IEC 320 inlet and 2) carrier for 5x20 mm fuse. Space for spare fuse; order fuses separately (see Sec. 4300). Push-in mount also available.
Approvals: VDE, SEMKO, SEV, UL recog., CSA cert. at 6A/250VAC

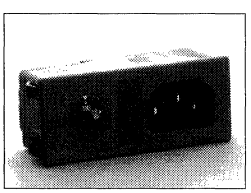




2 Function Module

#83511400: Printed circuit mounting power entry module combines: 1) IEC 320 inlet; 2) accessory outlet. Connections made by solder pins.
Approvals: UL recog., CSA cert., VDE at 10-15A/250VAC



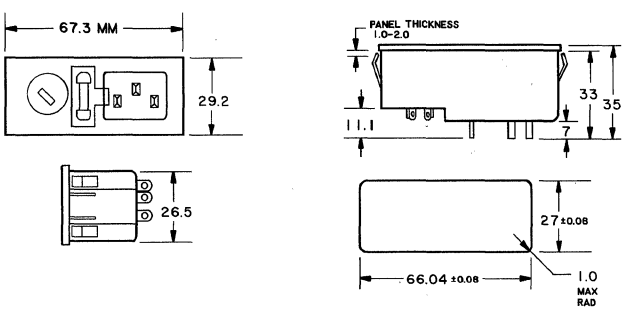


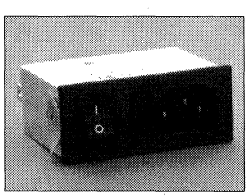
Filtered model also available.

Note: Voltage selector is not designed to be switched while power is applied; selection must be made before connecting the unit to the power mains.

3 Function Module

#83510170: Power entry module combines: 1) IEC 320 inlet; 2) integral carrier for 5x20mm fuse; 3) and 2-position voltage selector for No. Amer. 110VAC & Cont. European 220VAC. Snap-in mounting for panel thickness of 1.0-2.0mm (0.04-0.08"). Connections are made via soldering tabs. Order fuses separately (see Section 4300).
Approvals: VDE, UL recog., CSA cert. at 6A/250VAC

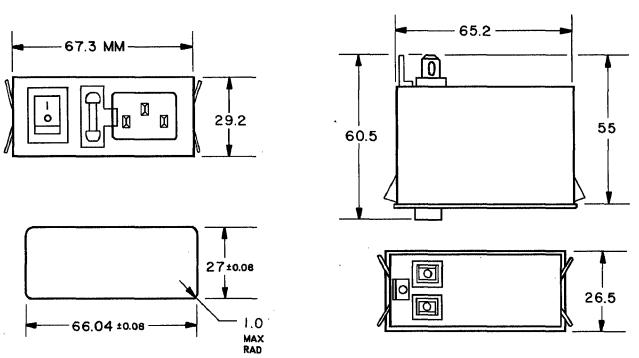




Unfiltered model also available

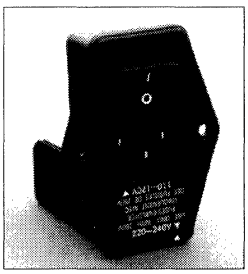
4 Function Module

#83510030: Power entry module combines: 1) IEC 320 inlet; 2) integral carrier for 5 x 20 mm fuse; 3) double-pole off/on rocker switch; 4) 6A RFI filter (4A when used at 220-240VAC). Snap-in mounting for panel thickness of 1.0-2.0mm (0.04-0.08").Connections made via soldering tabs. Max. leakage current at 115VAC/60Hz is 0.25mA; 0.45mA at 250VAC/50Hz.
Approvals: UL and CSA—6A/125VAC (4A/250VAC); VDE—4A/250VAC



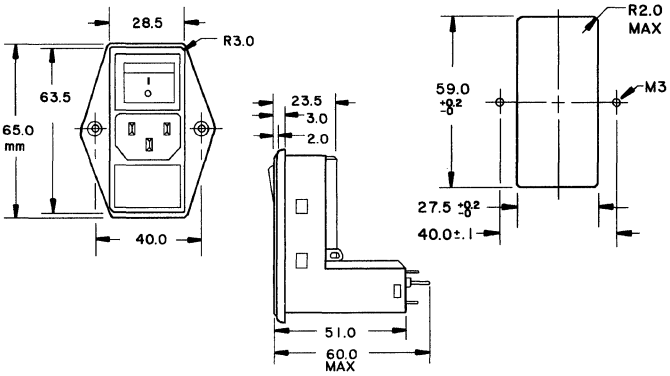
Dimensions are in mm

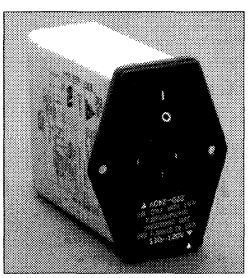
NEW! Preconfigurable for export applications. The modules below provide an added convenience for single fuse configurations: the fuse drawer—which doubles as a voltage selector by rotating the drawer—can be preconfigured with a North American 3AG fuse in the "110-120VAC" side of the fuse drawer and an international 5x20mm fuse in the "220-240VAC" side. Position the drawer for voltage selection and the proper fuse will also be switched into the circuit.



4 Function Module

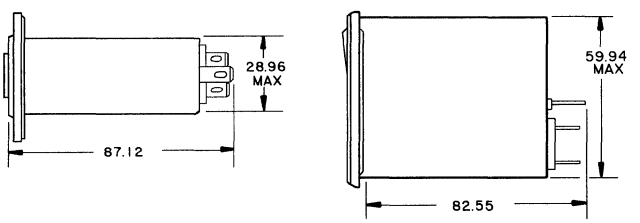
#83511410: Power entry module combines: 1) IEC 320 inlet; 2) integral carrier for 5x20mm or North American 3AG fuse; 3) double-pole off/on rocker switch; 4) 2-pos. voltage selector (110-120VAC North America or 220-240 international). Screw mount. Connections made via 4.8mm/ solder tabs. UL 94-V0 polyamide-type thermoplastic insulator.
Approvals: UL recog. and CSA cert., 10A/ 250VAC; VDE, 6A/250VAC





5 Function Modules

Power entry modules combine: 1) IEC 320 inlet; 2) carrier for 5x20mm or No. Amer. 3AG fuse; 3) double-pole off/on rocker switch; 4) 2-position voltage selector (110-120VAC No. Amer. or 220-240 int'l); 5) RFI power line filter. Screw mount. Voltage selector, filter, and connections are internally wired; connections are made via 6.3mm/solder tabs. UL 94-V0 polyamide-type thermoplastic insulator.



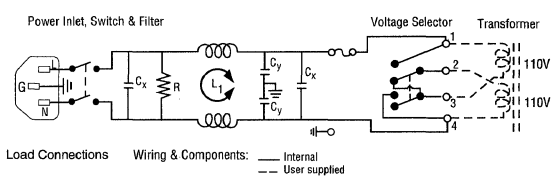
See #83511410 above for face and mounting hole drawings

Standard Model

This power entry module combines five functions, including an RFI filter rated at 10A, UL and VDE; 6A at CSA. Max. leakage current: Line to ground @ 115VAC, 60Hz: 0.25mA, Line to ground @ 250VAC, 50Hz: 0.45mA.

#83511420—Minimum insertion loss in dB (50 ohm system)	.05	.10	.15	.50	1.0	5.0	10	30
Common mode, L-G	10	15	15	25	30	40	40	30
Differential mode, L-G	2	5	3	35	45	40	40	30

#83511420: Power entry module combines: 1) IEC 320 inlet; 2) integral carrier for 5x20mm or North American 3AG fuse; 3) double-pole off/on rocker switch; 4) 2-position voltage selector (110-120VAC North America or 220-240 international); 5) 10A RFI power line filter.
Approvals: UL recog., VDE, 10A/250VAC; CSA cert., 6A/250VAC

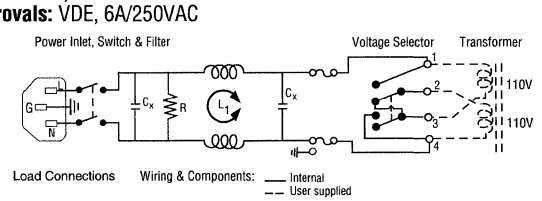


Medical Models—with low leakage RFI filter

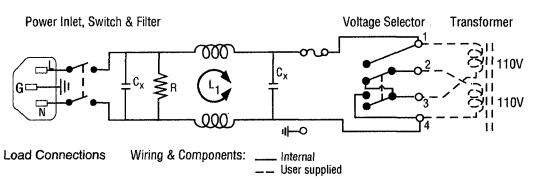
The power entry modules below combine the functions listed above, but the RFI filter is low-leakage, rated 6A. Note special fusing requirements for international medical applications. Max. leakage current: Line to ground @ 115VAC, 60Hz: 2.0 µA, Line to ground @ 250VAC, 50Hz: 5.0 µA.

#83511430 & 83511440—Minimum insertion loss in dB (50 ohm system)	.05	.10	.15	.50	1.0	5.0	10	30
Common mode, L-G	10	15	20	30	35	25	20	10
Differential mode, L-G	2	5	3	40	50	40	40	35

#83511430: for international medical applications which require two 5x20 mm fuses (fusing both line and neutral where the connections are unpolarized.)
Approvals: VDE, 6A/250VAC



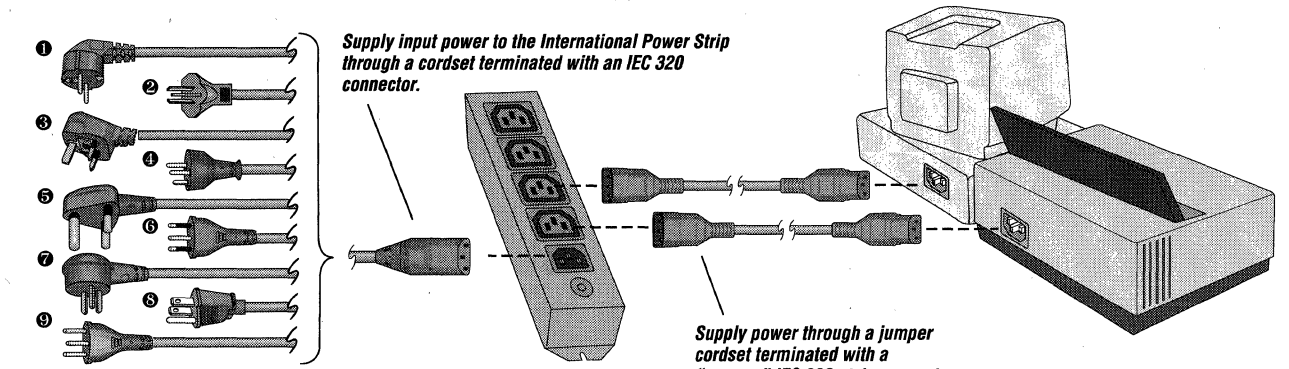
#83511440: for North American medical applications which requires the use of only one 3AG fuse.
Approvals: UL recog., CSA cert., 6A/250VAC



A "Universal" Power Distribution System—based on IEC 320

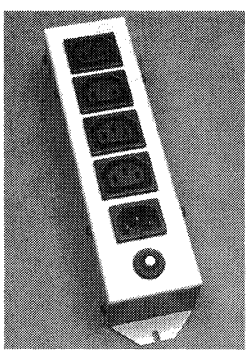
IEC 320 outline

This power distribution system is based on the standard IEC 320 connector outline and works in both North American and international markets. International Power Strip currently rated at 6A/250; check with us regarding availability of 10A rated model.

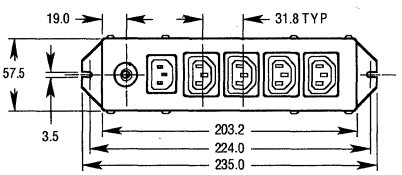


❶ Cont. Europe ❹ Denmark ❼ Israel
❷ Australia ❺ India (BS 546) ❽ North America
❸ United Kingdom ❻ Italy ❾ Switzerland

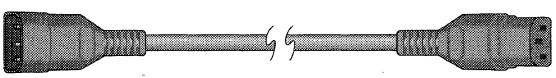
International Power Strip



#85010040: International power strip contains one IEC 320 power inlet; 4 "reverse" IEC 320 power outlets. Gray metal casing; 6 amp circuit breaker. *Note: check with us regarding availability of a 10A model!*
Approvals: UL recognized, CSA certified, VDE Gutachten (6A/250VAC)



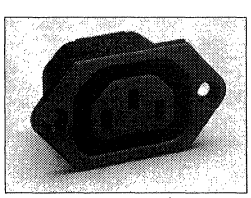
"Universal" Jumper Cordset (UL, CSA, VDE)



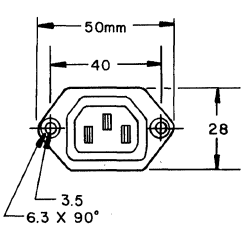
#86548003: Jumper cordset for use with International Power Strip; meets requirements of North American *and* international safety agencies.
Current rating: 10A/250VAC
Terminations: IEC 320 & "Reverse" IEC 320
Color: Black
Length: 1 meter (±0.1m)
Cordage: 3 x 18 AWG/SJT PVC Harmonized cordage
Maximum Temperature: 60° UL, CSA; 65° max. VDE
Approvals: VDE, SEV, UL recog., CSA cert. (10A/250VAC)

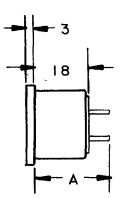
Accessory Power Inlets & Outlets

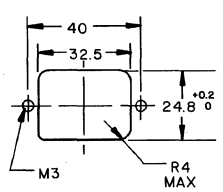
For accessory power connections. We offer in-house made-to-order cord assembly services; contact us for a quotation.



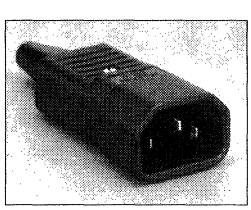
#8301511: with solder tabs
#8301512: with 6.3 (.25") solder/QDs
Accessory power outlet in two contact styles. Insulators molded from UL 94-V2 polyamide-type thermoplastic. 65°C. Nickel-plated brass contacts.
Approvals: VDE, IMQ, SEV, FI, OVE, SEMKO, KEMA at 10A/250VAC; UL recognized, CSA certified at 15A/250VAC.



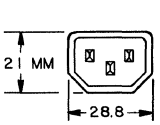


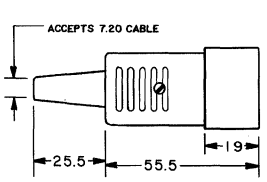


"A" Dimension:
solder tabs: 24.1
QDs: 27.9



#83011080: Cable-mount accessory power connector. Insulator molded from polyamide-type thermoplastic. 65°C. Nickel-plated brass contacts. Screw-type connections.
Approvals: BEAB, VDE, SEV, UL recog., CSA cert. (10A/250VAC)



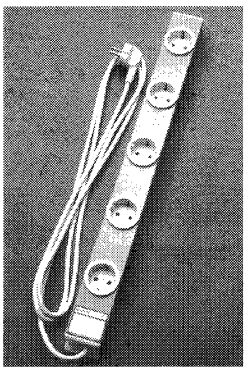


International Socket Strips

For power distribution systems based on specific socket patterns. See "Universal" Power Distribution System shown on previous page if you are designing a product for both International and North American markets.

CONT. EUROPE

Continental European CEE 7 sockets are used in Germany, Austria, Finland, the Netherlands, Norway, Sweden. Check with us regarding availability of French and Belgian socket strip (with male grounding pin).

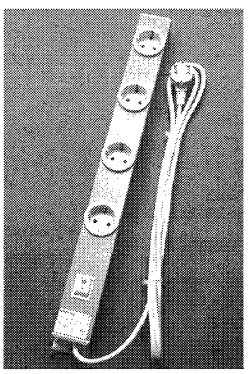


Continental European socket strip with 5, 9 or 13 CEE 7 sockets (see below). Cable is 2.5M long, terminated with CEE 7/4 plug. Metal casing. Color: Orange. Current Rating: 16A/250VAC. Approval: VDE.

Part No.	# of skts.	Dimensions (mm)
85023050	5	50W x 38H x 546L*
85023090	9	50W x 38H x 946L*
85023130	13	50W x 38H x 1346L*

*On length, add 20mm for mounting flanges

with lighted rocker switch

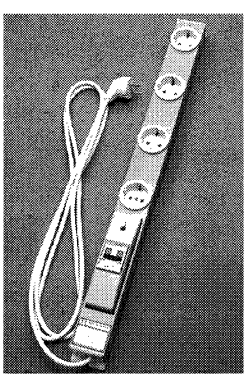


Continental European socket strip with rocker switch and 4, 8 or 12 CEE 7 sockets (see below). Cable is 2.5M long, terminated with CEE 7/4 plug. Metal casing. Color: Orange. Current Rating: 16A/250VAC. Approval: VDE.

Part No.	# of skts.	Dimensions (mm)
85003040	4	50W x 38H x 526L*
85003080	8	50W x 38H x 926L*
85003120	12	50W x 38H x 1326L*

*On length, add 20mm for mounting flanges

with circuit breaker



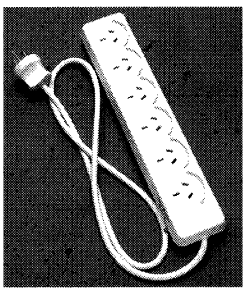
Continental European socket strip with circuit breaker and 4 CEE 7 sockets. Cable is 2.5M long, terminated with CEE 7/4 plug. Metal casing. Color: Orange. Current Rating: 16A/250VAC. Approval: VDE.

Part No.	# of skts.	Dimensions (mm)
85013040	4	50W x 38H x 590.5L*

*On length, add 20mm for mounting flanges

AUSTRALIA

Socket strip includes 6 Australia AS 3112 sockets, which are used in Australia, New Zealand, Fiji, Papua New Guinea. Also used in People's Republic of China.

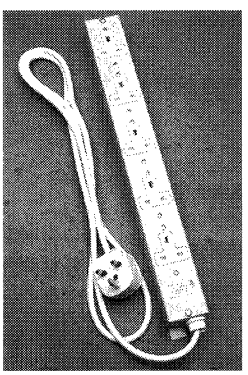


Australian socket strip with six sockets and circuit breaker. Cable is 1.75M long, terminated with an Australian plug. Current rating: 10A/250VAC. Plastic casing. Color: White. Approval: EANSW.

Part No.	# of skts.	Dimensions (mm)
85010050	6	64W x 32.5H x 310L

UNITED KINGDOM

Socket strip includes 6 BS-1362 sockets, which are used in the U.K., Ireland, and other areas electrified by the British.



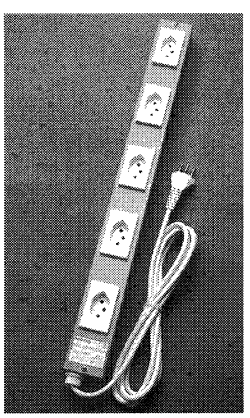
British socket strip with five BS 1363 sockets and fuse. Cable is 2.4M long, terminated with a BS 1363 plug. Current rating: 13A/250VAC. Metal casing. Color: Gray.

Part No.	# of skts.	Dimensions (mm)
85031052	6	51W x 38.3H x 447.3L*

* on length, add 27mm for mounting flanges

SWITZERLAND

Socket strip includes 5 SEV 1011 sockets, used in Switzerland.



Swiss socket strip with five SEV 1011 sockets. Cable is 2.5M long, terminated with a SEV 1011 plug. Current rating: 10A/250VAC. Metal casing. Color: Orange.

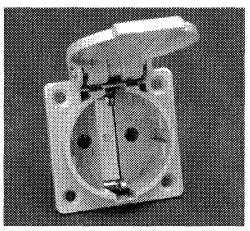
Part No.	# of skts.	Dimensions (mm)
85030050	5	51W x 39.5H x 538L*

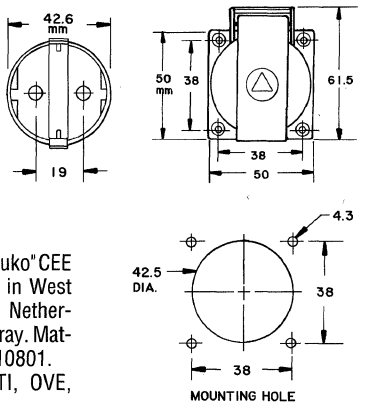
* on length, add 27mm for mounting flanges

International Sockets & Plugs

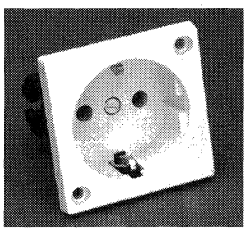
These international sockets are used for power distribution and in test and burn-in racks for equipment that is being exported. (Note our International Socket Strip on page ❾, and our International Power Source in EEM Section 4050.) Mating plugs are available for each of the sockets listed. International cords and cordsets are available—see EEM Section 6000. Designer's Kits also available (see page ❶):

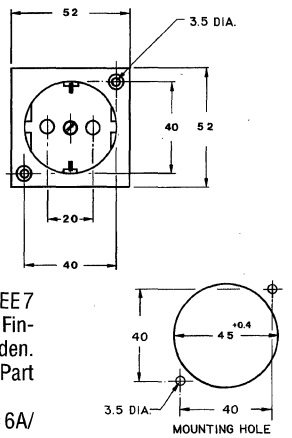
"CONTINENTAL EUROPE" (German standard)





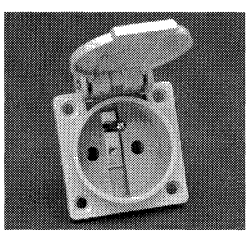
#88010300: Cont. European "Schuko" CEE 7 socket with snap cover. Used in West Germany, Austria, Finland, the Netherlands, Norway, Sweden. Color: Gray. Mating plug, not shown: Part #88010801.
Approvals: VDE, NEMKO, SETI, OVE, KEMA, 16A/250VAC

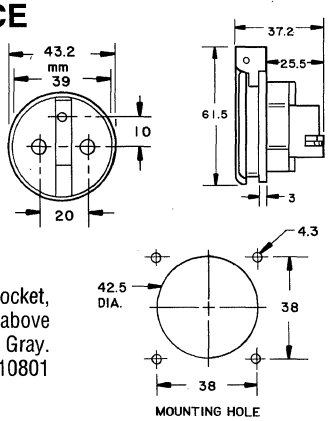




#88010610: Cont. European "Schuko" CEE 7 socket used in West Germany, Austria, Finland, the Netherlands, Norway, Sweden. Color: Ivory. Mating plug, not shown: Part #88010801.
Approvals: VDE, KEMA, SEMKO, 16A/250VAC

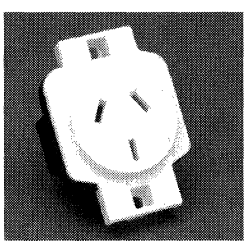
BELGIUM & FRANCE

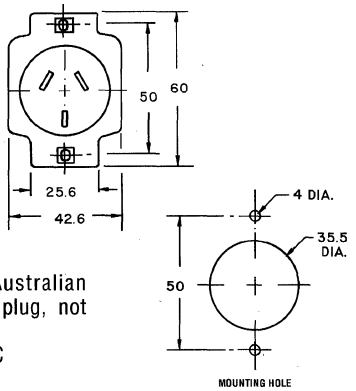




#88010320: Belgian and French socket, similar to Cont. European socket above but with male grounding pin. Color: Gray. Mating plug, not shown, Part #88010801 (Continental European CEE 7/7).
Approval: CEBEC, 10A/250VAC

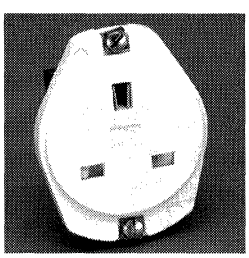
AUSTRALIA/NEW ZEALAND

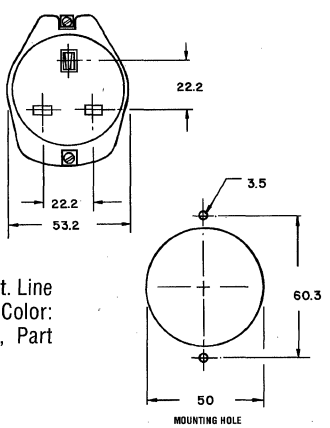




#88010512: Panel-mount Australian socket. Color: white. Mating plug, not shown: Part #88010713.
Approval: EANSW, 10A/250VAC

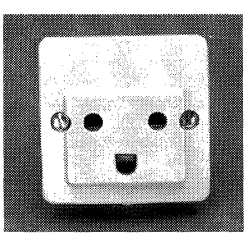
UNITED KINGDOM & IRELAND

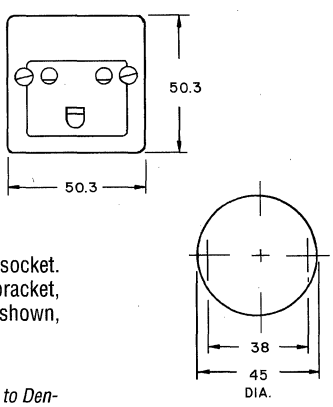




#88010621: British BS 1363 socket. Line and neutral contacts shuttered. Color: white. Mating plug, not shown, Part #88010720.
Approvals: BSI, 13A/250VAC

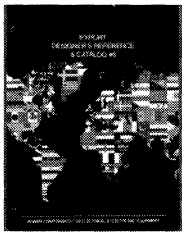
DENMARK





#88010540: Danish Afsnit 107-2-D1 socket. Color: gray. Requires mounting bracket, sold separately. Mating plug, not shown, #88010740.
Approval: DEMKO, 10A/250VAC

Note: Use a Danish plug when exporting to Denmark to ensure that the plug will be grounded.

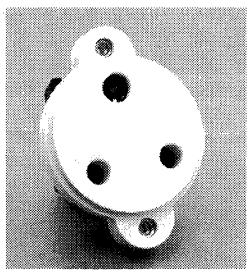


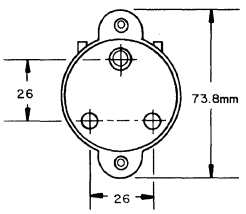
Q: What plug/socket standard is used in the People's Republic of China?

*You can find the answer to this and other similar questions in our **Export Designer's Reference & Catalog** which cross references international plug and socket patterns by country. Single phase voltage and frequency are also listed. Call toll free for your free copy.*

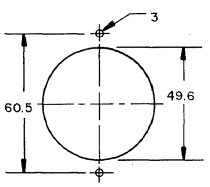
A: The official standard of the PRC is the same style used in Australia/New Zealand, although other configurations are also found.

INDIA (old British Standard BS-546)

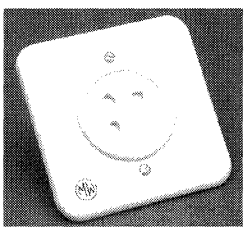


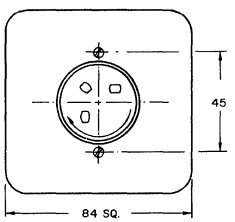


#88010561: British standard BS 546 socket used in India & Hong Kong. Color: white. Line and neutral contacts are shuttered. Mating plug, not shown, Part #88010763.
Current rating: 15A/250VAC

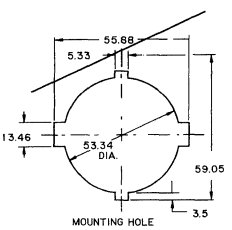


ISRAEL (SI 32)

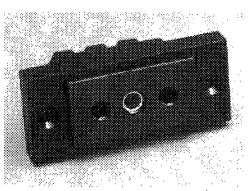


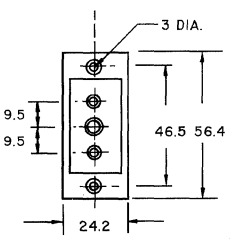


#88010580: Israeli SI 32 socket. Safety shuttering system reduces possibility of accidental shock. Color: white. Mating plug, not shown: #88010780.
Approval: SII, 16A/250VAC

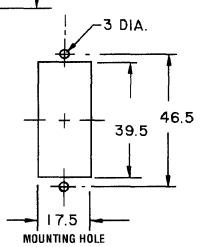


ITALY (10A)

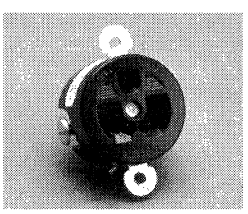


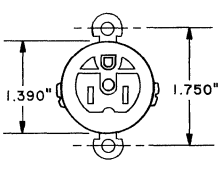


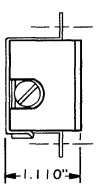
#88010570: Italian 10 amp socket. Color: brown. Mating plug, not shown: #88010771.
Approval: IMQ, 10A/250VAC



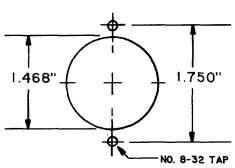
NORTH AMERICA (NEMA 5-15R)



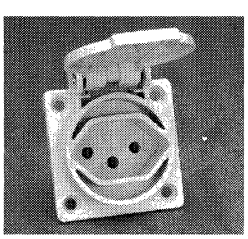


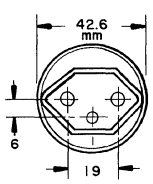


#8885258: NEMA 5-15R receptacle. Screw-type wire connections. Color: brown. Mating plug, not shown: #8885965BLK.
Approvals: UL recognized; CSA certified, 15A/125V AC/DC.

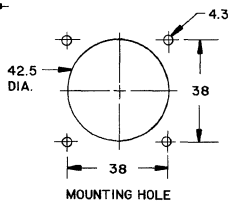


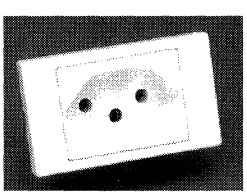
SWITZERLAND (SEV 1011)

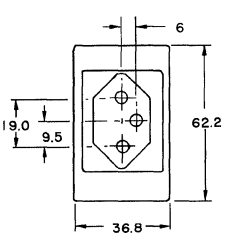




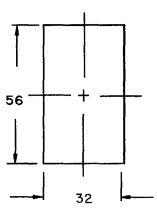
#88010530: Swiss SEV 1011 socket. Color: ivory. Mating plug, now shown: #88010732.
Approval: SEV, 10A/250VAC.







#88010530: Swiss SEV 1011 socket. Color: ivory. Mating plug, now shown: #88010732.
Approval: SEV, 10A/250VAC.



International Socket Strips—test products before export

The International Socket Strip incorporates seven of the main overseas socket standards in one device. Connect it to your own power source in burn-in racks or test labs where products with international cords or cordsets are being prepared for export; or, use it for receiving inspection on international cords and cordsets.

Installation to your power source: The International Socket Strip is equipped with two unterminated power cords—one for connection to your 220VAC/ 50Hz power source, the other to a 240VAC/50Hz power source. Conductor size is 1.5mm²—slightly larger than 16 AWG which is 1.23mm². Each circuit is rated at 16 amps max. for all of the sockets combined. Each cord is 2.5 meters long and clearly marked as to voltage. The jacket and primary insulation are stripped and ready for installation to the appropriate power source. The primary insulation is color-coded in accordance with international standards: green/yellow=ground • brown=line • blue=neutral. Table or rack mount models are usually available from stock.

Note: Our "International Power Source" converts standard North American input voltage of 120V/60Hz to output voltages of 0-260VAC at 47-150Hz or 150-500Hz; see EEM section 4050.

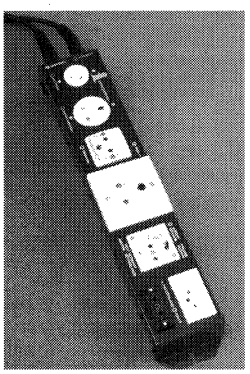
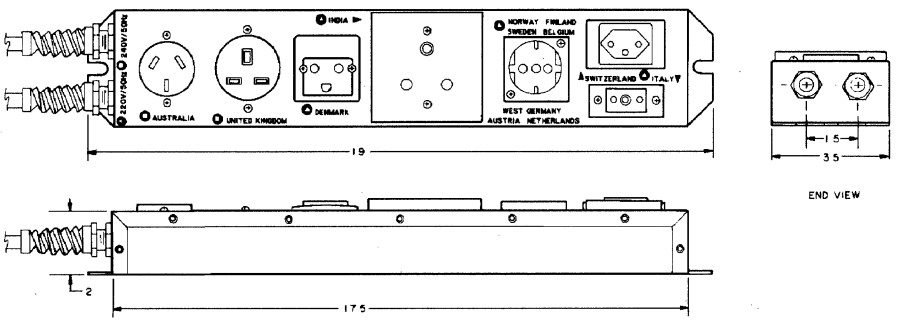
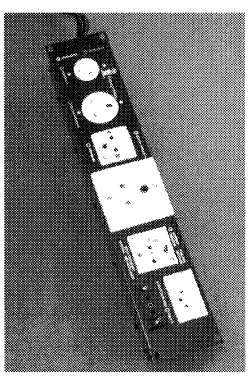
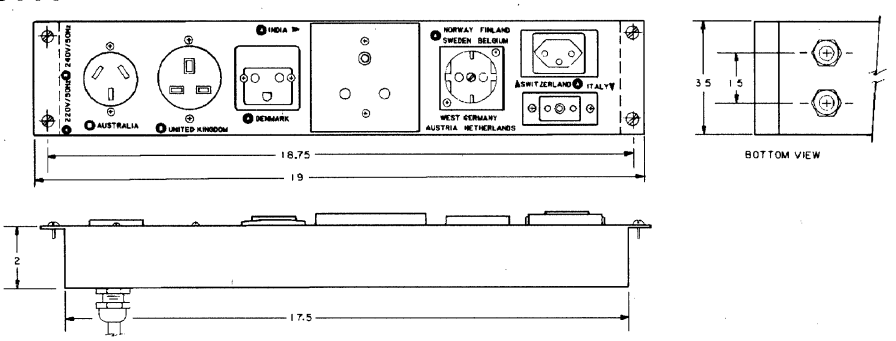


TABLE MOUNT MODEL #85010101





RACK MOUNT MODEL #85010111



INTERNATIONAL SOCKETS INCLUDED AND THEIR RATINGS:

220VAC/50Hz circuit:

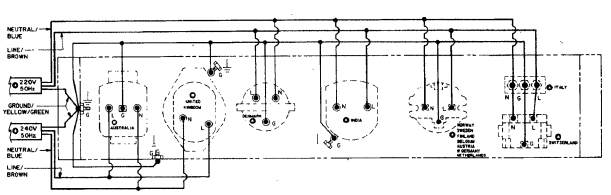
Cont. Eur. (CEE 7/7)*	16A
Danish	10A
Italian	10A
Indian (BS 546)	16A
Swiss	10A

240VAC/50Hz circuit:

Australia/New Zealand	10A
United Kingdom	13A

* CEE 7/7 is used in Austria, Finland, Netherlands, Norway, Sweden, West Germany; variation is used in France and Belgium.

INTERNAL WIRING: Each circuit is rated at 16 amps maximum for all of the sockets combined.



Dimensions are in inches

Pomona Electronic Test Accessories

Making Testing Easier, More Dependable and Accurate.

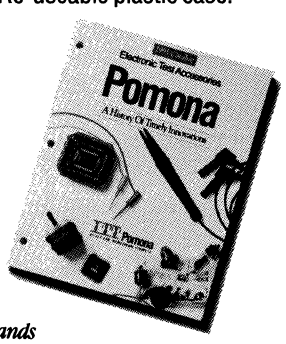
As geometries become smaller and pin counts increase, Pomona continues to develop and provide state-of-the-art test accessories, from single conductor jumpers to IC adapters that can access up to 160 pins simultaneously.

To assure dependability, Pomona uses only the highest quality materials. Beryllium copper banana springs for the best spring retention and contact resistance. Coax adapters and connectors use gold plated center pins with tarnish resistant plated brass, or stainless steel bodies. Pomona grabber and pincer test clips use beryllium copper or stainless steel contacts with gold plating.

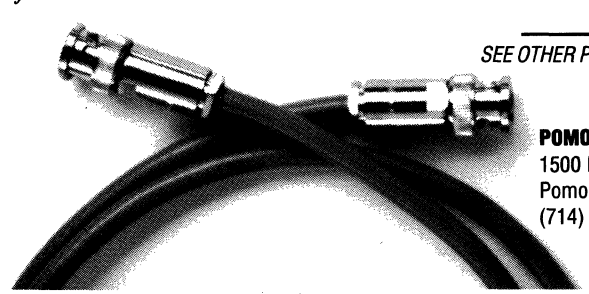
Readily available from local distributors, and backed by factory stock, Pomona test accessories can solve testing problems in the shortest possible time.

Universal Adapter Kit

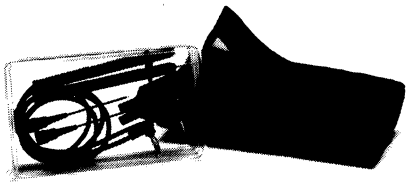
Make the coax adaper you need via an intermediate adapter. Male or female, Banana, BNC, SMA, SMC or N. Re-useable plastic case.



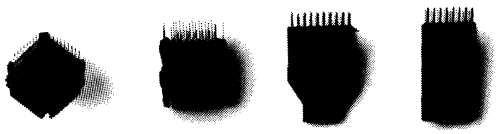
FREE 1991 POMONA CATALOG!
140-pages of newest products and thousands of test solutions



New digital multimeter test lead kits, complete with every accessory needed for electronic and electrical applications.

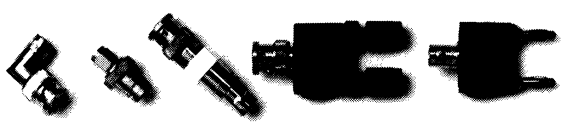


IC Test Clips & Adapters
DIP, SOIC, PLCC, PGA, LCC, PQFP, Clips & Adapters



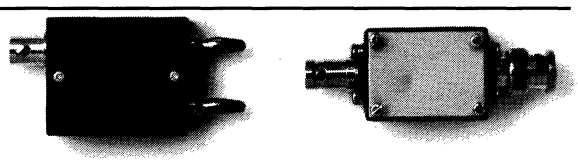
Plugs & Jacks
Standard Miniature Banana, Pin Tip, Plugs, Jacks & Binding Posts

Adapters
Banana, BNC, TNC, UHF, Type N, SMA, Phone, Phono Alligator Adapters, Terminators, Panel/ Bulkhead Receptacles Tube Test Sockets

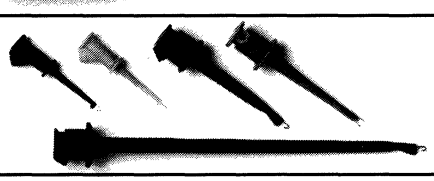


Connectors
BNC, TNC, F, N, SMA, SMB, SMC, Triaxial, Twinaxial Audio (EP, XLR) Cabling Instructions

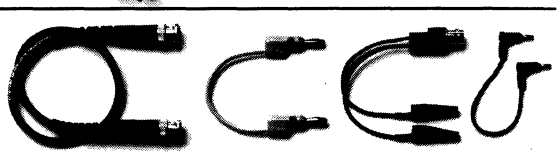
Boxes
Thermoplastic, Phenolic, Die Cast Aluminum, Extruded Aluminum, Connectorized



Single-Point Test Clips
Cable & Cord Selector, Micrograbber®, Minigrabber®, Maxigrabber®, SMD Grabber, Minipincer™, Test Clips & Cords



Jumpers & Cables
Miniature & Standard, Banana, Spade Lug, BNC, TNC, Pin Tips, Alligator, UHF, N, Triax, Phono, F, Phone Cables & Cords



Test Leads & Kits
Standard, Replaceable, Repairable, Tweezer, Test Leads & Accessories for Multimeters & Oscilloscopes

SEE OTHER POMONA PRODUCTS IN SECTIONS 3130 AND 4200 OF THIS YEARS EEM DIRECTORY.

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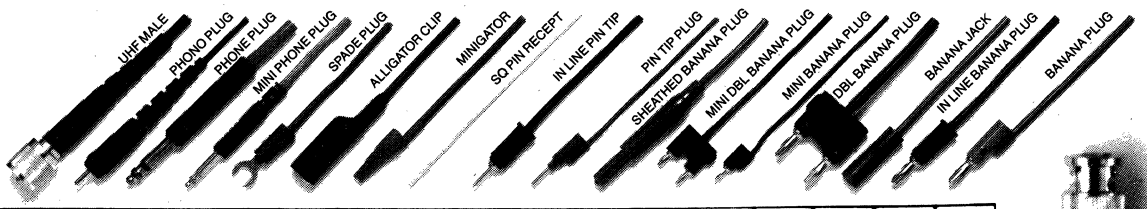
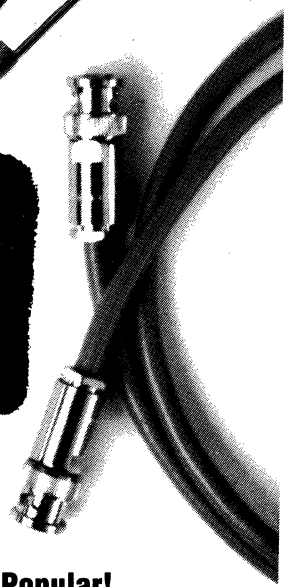
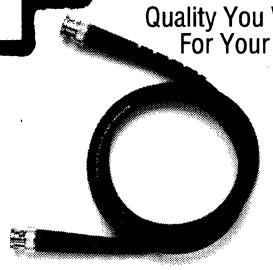


							5412			5362			5411			5302
			4778				4919	4716		5339	4776		4768			5053
		4812	5019			4652	3783		3785	5270		3784	3786	4649	4650	3782 4538
													5422			5421
																4996
				1370	1166	3220			1126			3014	1368			
				1987	1959		4771							4702		
										5259						
		2977	4281		2B0-AL	2B0-MG		2184	2B0-PP		2443					
						3222										
						3027										
				5295												
							4772									
						4974										
AL-C-UHF		3352 4990 5151	5026	1960												
		4280														



Pomona's Most Popular!

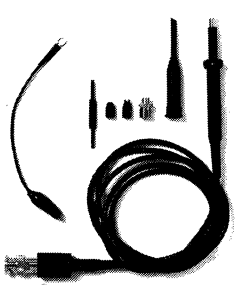
Quality You Want to Keep For Your Own Use.



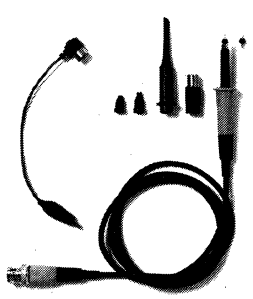
2249-C Male BNC/Coax, an RG58C/U coax with integrally molded relief boot and male BNC connectors at each end. Connectors feature gold plated center pins and tarnish resistant plating. An extra long stress relief is molded onto the connector and cable for long life and protection against cable/connector junction contaminants. Available in lengths from 12" to 180".

"B" Cord, 18AWG, PVC insulated wire with multiple stacking banana plugs. Nickel plated beryllium copper springs are swaged in a brass body for best spring retention, low contact resistance and long life. Available in 10 colors, in lengths from 4" to 72".

Oscilloscope Probe Kits



Kit No. 4550: X1, X10 switchable, 100 MHz bandwidth (@3dB)



Kit No. 5588: Modular, X1, X10 switchable, 250 MHz bandwidth (@3dB)

SEE OTHER POMONA PRODUCTS IN SECTIONS 2500, 3130 AND 4200 OF THIS YEARS EEM DIRECTORY.

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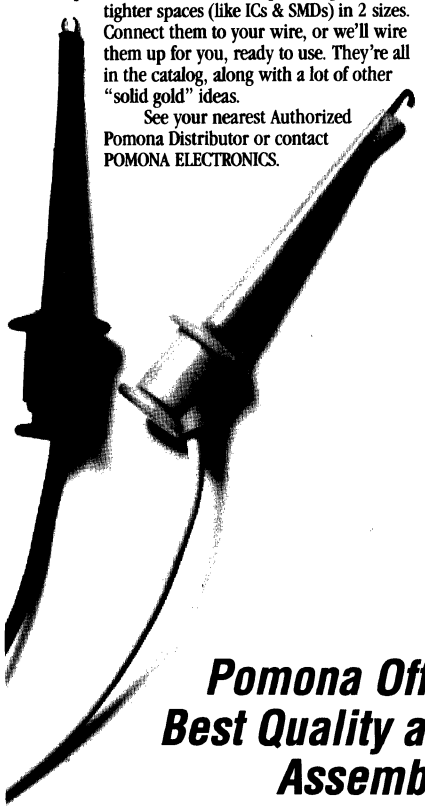
Pomona Makes Testing Easier, Dependable and Accurate

Single Point Test Clips

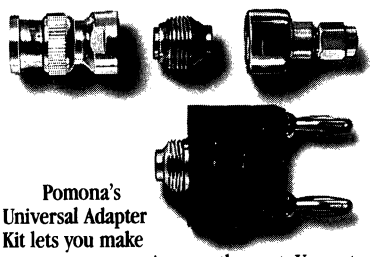
All of Pomona's Single Point Test Clips are gold plated for the best electrical contact. And, the contact point stays where you put it because the material it's made of is the best: stainless steel for the smallest clips, beryllium copper for all the others.

Wide Selection. "Hooked" Grabber® tips are available in 3 sizes, pincer tips for even tighter spaces (like ICs & SMDs) in 2 sizes. Connect them to your wire, or we'll wire them up for you, ready to use. They're all in the catalog, along with a lot of other "solid gold" ideas.

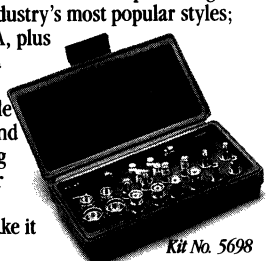
See your nearest Authorized Pomona Distributor or contact POMONA ELECTRONICS.



Universal Adapter Kit Lets You Coax It Your Way

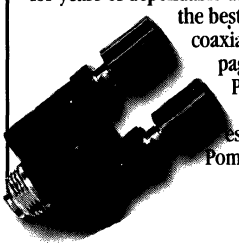


Pomona's Universal Adapter Kit lets you make your own connections on the spot. You get two each of industry's most popular styles; BNC, TNC, SMA, plus "N" males and females. Plus, a special Double Banana Plug and Double Binding Post. And, four intermediate couplers to make it your way.



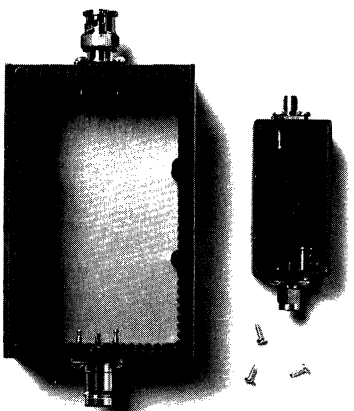
Kit No. 5698

A Case For Reliable Connections. There's quality in every piece, with gold plated center pins and silver plated bodies. And everything's in a hinged, plastic case for years of dependable use. You'll find the best selection of coaxial adapters in the pages of the new Pomona Catalog.



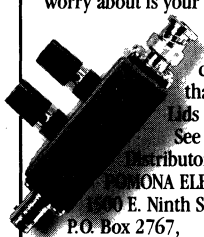
See your nearest Authorized Pomona Distributor.

Boxes That Are All But Wired

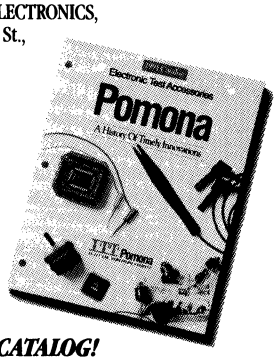


When you're looking for just the right box for your connections, we've probably got it. Good chance it's even in stock. Thermoplastic, Phenolic, Extruded Aluminum or Die-Cast Aluminum. Plain or with connectors; BNC, UHF, Type N, Binding Posts, Banana Plugs, or any combination of the same.

Dependable Choices. All you need to worry about is your circuit. There are dozens of standard choices including rugged connectorized boxes that won't let you down. Lids and screws are included.



See your nearest Authorized Distributor or contact POMONA ELECTRONICS, 1500 E. Ninth St., P.O. Box 2767, Pomona, CA 91769 (714) 623-3463 FAX (714) 629-3317



Pomona Offers Industry's Best Quality and Selection in Cable Assemblies & Adapters.

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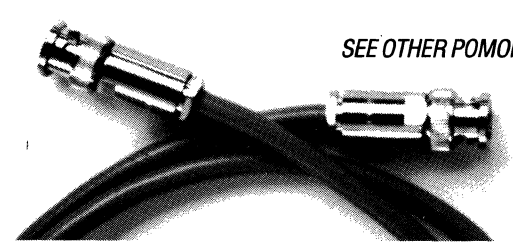
140-pages of newest products and thousands of test solutions.



SEE OTHER POMONA PRODUCTS IN SECTIONS 2500, 2900 AND 3130 OF THIS YEARS EEM DIRECTORY.

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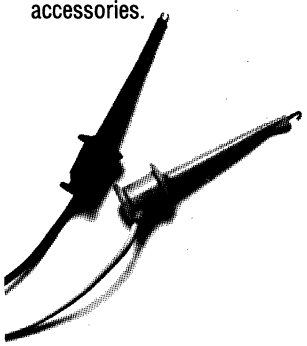
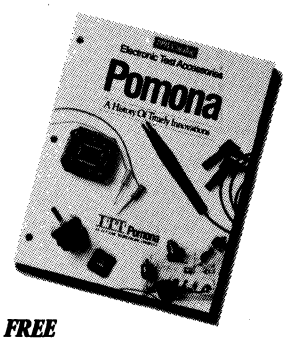
Pomona Cable & Cord Selection Guide

How To Select The Cable or Cord Assembly You Need

1. Simply select your cable assembly by locating the intersection of the row and column of the cable ends desired.
2. For adapter/cable assemblies showing more than one part number, refer to Pomona catalog for complete descriptions and optional styles.
3. Call your local authorized Pomona Distributor for availability of colors and lengths. Or, request your FREE catalog for complete specifications, prices and other Pomona test accessories.





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140-pages of newest products and thousands of test solutions

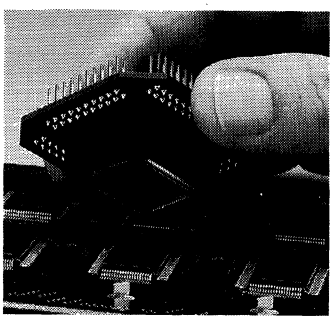
	SAME ON BOTH ENDS	SINGLE-ENDED OR NO WIRE	SMA FEMALE	SMA MALE	TYPE N FEMALE	TYPE N MALE	BNC FEMALE	BNC MALE	BNC MALE W/BOOT	TYPE F
SMD GRABBER®	5301 5521	5243 5303					5305	5410	5304	
MICROGRABBER®	4613 5200 5525	4233 4521 5043					5188	5189	4777	
MINIGRABBER®	3781 4537 5201 5523	3780 3925 4536					3788	3787 3789	5187	
MINIPINCER	5419	5418 5430					5424		5423	
MAXIGRABBER®		4225 4724 4827							4648	
BANANA PLUG	2239 B HB 2948						3073	2241 3957	5268	
IN LINE BANANA PLUG	1440 1985 4585	1325 1825								
BANANA JACK		4934								
DBL BANANA PLUG	2B0 3864	MDP 1326						2B0-BNC 1555	4530	
MINI BANANA PLUG	1081 2842	3690					3966	4815		
MINI DBL BANANA PLUG	2247	2244							2248	
RETRACTABLE SHEATHED BANANA PLUG	4911 5291 5403								5343	
PIN TIP PLUG	P 4740						3221	2882 3901		
IN LINE PIN TIP	PM080 PT080 1990									
SQ PIN RECEPT	4741						5069		4945	
MINIGATOR	MG-B 1236	3448					2631	MG-0-BNC 2886	4532	
ALLIGATOR	AL-B	2440					2630	AL-0-BNC 2885	4531	
SPADE LUG	1693 1743 1756						5009 5051			
MINI PHONE PLUG	4279									
PHONE PLUG	2524 4053									
PHONO PLUG	5092								4963	5025
UHF MALE	UHF-C 3137								1367	
TYPE F	4920							4939		
BNC MALE W/BOOT	2249 4276 4964 5696	5260 5266					4524			
BNC MALE	BNC-0 1383 3199 5697	1661		4935		1366	2223			
BNC FEMALE	1808 4277									
TYPE N MALE	1658 2256			5058	4496					
TYPE N FEMALE										
SMA MALE	4813 4814 4846		4528							

Pomona IC Test Clips and Adapters

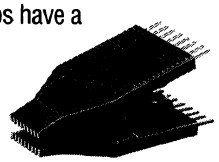
How To Select The Right IC Clip Or Adapter

Simply match the device style and pin configuration to be tested, then select the Pomona part number suited to your testing and material specifications (see table footnotes for keyed materials).

Pomona's 5640 Series PQFP (Plastic Quad Flat Pack) IC Test Clip is available in three EIAJ models for 0.025" - 0.0315" pin spacing. Also available in 8 JEDEC Breakout and Socket Interface styles.



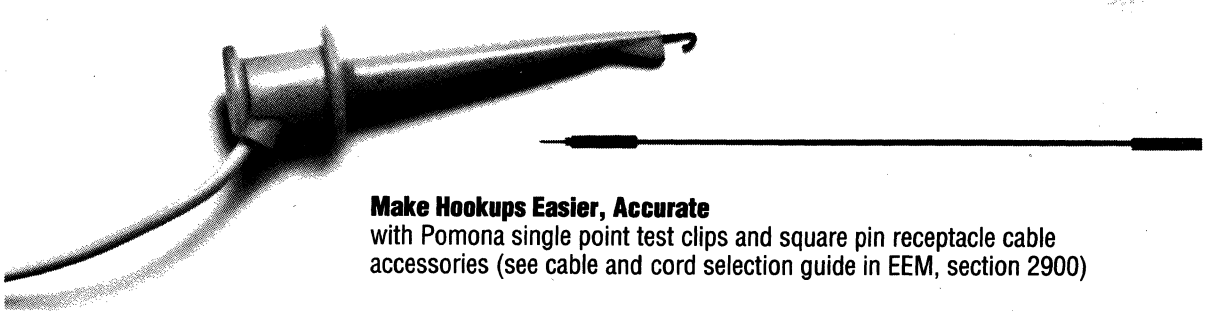
SOIC Clip™ Test Adapter



These test clips have a spring design similar to our Dip Clip™ test adapters. The clip design allows testing of wide or narrow body chips and smaller sizes of PLCC.

UPPER: 0.64mm (.025) x 0.71mm (.028) Square Pins. Gold plated phosphor bronze.
INSULATION: Glass filled nylon, blue.
LOWER: Contacts. Gold plated beryllium copper.
RATING: 500 VRMS; 1 Amp; + 102oC. (+216oF.) Max.

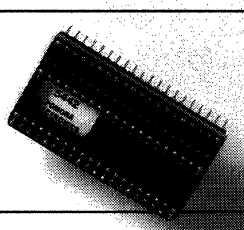
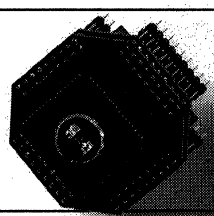
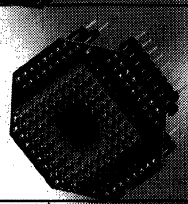
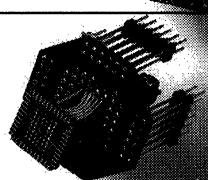
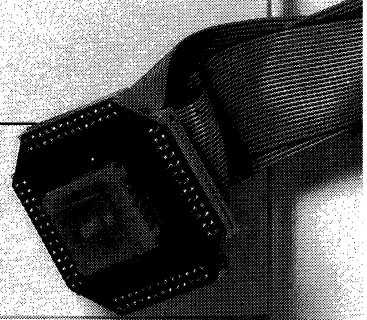
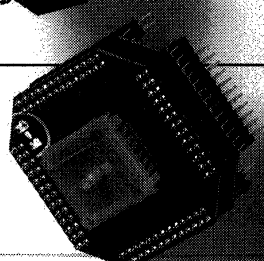
	Clips for Board Mounted IC's		
Package	**No. of Pins**	**Model No.**	
DIP Dual In-Line Package (.100 Pin Spacing, Thru Hole)	8 14 16 20 24 40	5108[1], 5208[2], 5649[5] 5014[3], 5114[4], 5214[1], 5314[2], 5650[5] 3916A[3], 4236A[4], 5116[1], 5216[2], 5692[5] 5120[1], 5220[2], 5693[5] 4124A[3], 4324A[4], 5124[1], 5224[2], 5694[5] 4140A[3], 4340A[4], 5140[1], 5240[2], 5695[5]	
SOIC Small Outline IC (.050 Pin Spacing, Surface Mnt)	8 14 16 20 24 28	5250 5251, 5413[6] 5252 5253 5254 5437	
PLCC Plastic Leaded Chip Carrier (.050 Pin Spacing, Surface Mnt)	20 28 44 52 68 84	5279 5280 5281 5312 5401 5402	
PGA Pin Grid Array (.100 Pin Spacing, Grid Thru Hole)			
LCC Leadless Chip Carrier (.050 Pin Spacing)			
PQFP Plastic Quad Flat Pack (.025 to .0315 Pin Spacing)	EIAJ 100 (20X30) 120 (30X30) 160 (40X40)	 5643 5644 5645	



Make Hookups Easier, Accurate
with Pomona single point test clips and square pin receptacle cable accessories (see cable and cord selection guide in EEM, section 2900)

Selector Guide

ADAPTERS FOR SOCKET MOUNTED IC'S

Pin Breakout			Socket Interface		
No. of Pins	Model No.		No. of Pins	Model No.	
40 48 64	5442 5443 5444				
20 28 44 52 68 84	5450 5451 5452 5453 5454 5455		20 28 44 52 68 84	5660 5661 5662 5663 5664 5665	
68 (10X10) 68 (11X11) 120 (13X13) 128 (13X13) 132 (14X14)	5461 5458 5468 5508 5486				
44 68 84	5445 5447 5448				
JEDEC 100[7] 100[8] 132[7] 132[8]	5656 5657 5658 5659		JEDEC 100[7] 100[8] 132[7] 132[8]	5668 5666 5669 5667	

[1] Gold Plated Beryllium Copper [2] High Density, Gold Plated Beryllium Copper [3] Spring Tempered Nickel Silver
[4] High Density, Spring Tempered Nickel Silver [5] Oxide Penetrating [6] Snap Ring Design [7] Amp Socket [8] 3M Socket

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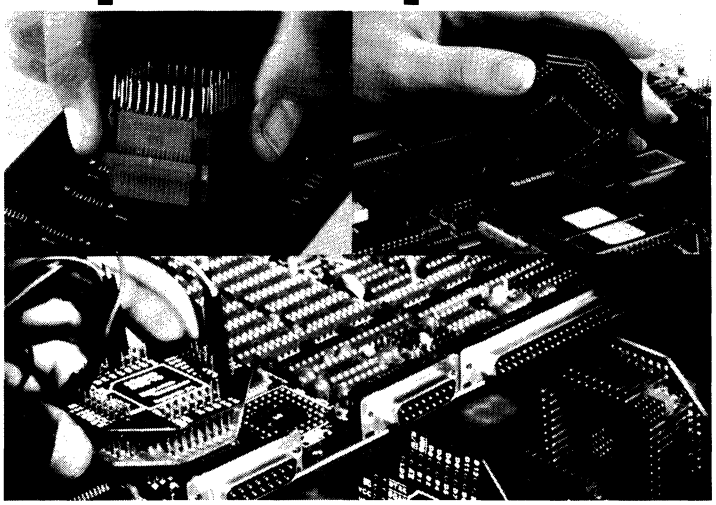
Pomona Surface Mount Device Test Accessories, IC Clips & Adapters

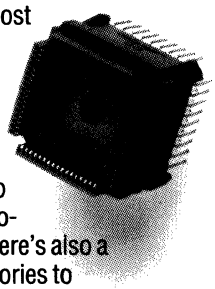
Make Testing Easier For Tomorrow's Hottest Industry.

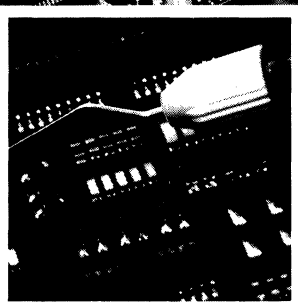


Whether you're troubleshooting today's most common IC packages, or seeking to test the newest Plastic Quad Flat Pack (PQFP) devices, Pomona provides the answers to accessing otherwise impossible-to-test, high-density IC leads. 73 IC clips and adapters are offered in styles to meet your needs.

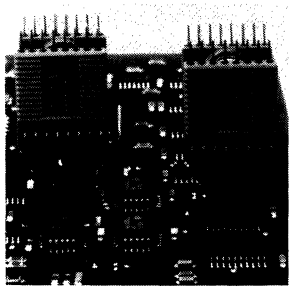
Because all DIP and other IC clip and adapter requirements are not the same, Pomona provides a carefully chosen selection of devices to fit your specific application. Nickel silver contacts for low cost, or gold plating for low contact resistance. Pomona IC Clips fit over board mounted ICs. "Pin Breakouts" fit between the IC and the socket. "Socket Interfaces" fit in place of the IC, directly in the socket.

For ICs too small for alligators or most single point clips, Pomona offers solutions for testing today's most common 0.050" pin spacing packages; SOIC, PLCC and LCC. For even higher densities of 0.025" (nominal) spacing, where no single point clip can fit, Pomon introduces clips for PQFP packages. There's also a host of helpful Pomona test accessories to compliment the increasing demands for dependable IC testing.



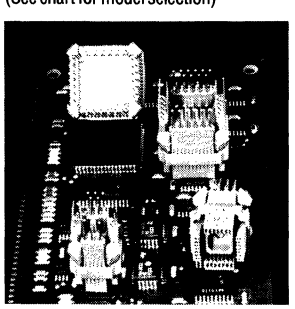


SMD Dog-Leg Microtip Test Probe included in Kit No. 5676 provides a needle point tip for contat with circuit pads. The sharp but flexible tip stays in place for reliable contact during test.

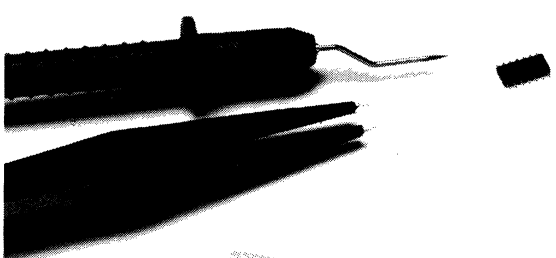


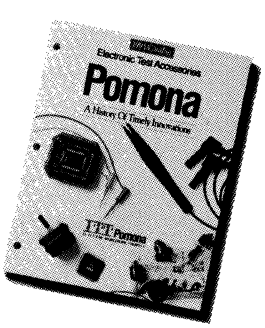
SOIC Clip™ adapters feature insulating barrier between each gold palated beryllium copper contact to prevent shorting. Upper contacts are 0.025" square gold plated phosphor bronze pins on 0.100" centers. (See chart for model selection)

SMD Test Tweezers (Models 5142, 5143 & 5678) provide simple yet accurate method to test devices. Each tweezer tip contains a gold plated beryllium copper contact.
Model 5142-with BNC male connector
Model 5143-with 2 standard stacking banana plugs
Model 5678-with 2 sleeved banana plugs



PLCC Quad Clip® adapter uses a "snap ring" to securely lock onto Plastic Leaded Chip Carrier (PLCC) body. Six models available form 20 to 84 pin styles. Gold plated beryllium copper contacts. Upper dual row of pins at 0.100" centers for each testing access. (See chart for model selection)





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IEC CONNECTORS

P.O. Box 539•59 Lakeside Avenue, West Orange, NJ 07052 (201) 736-5722•Fax (201) 736-8930

Power Dynamics IEC Connectors have been submitted, tested and approved by most recognized National Testing Agencies. These prior approvals eliminate the necessity of a retesting program when submitted in equipment being evaluated by these same testing agencies.

Our IEC Connectors which conform to CEE-22 are accepted throughout the world for use in electrical equipment. Designers and manufacturers are offered maximum flexibility as PDI Connectors mate with all universally accepted CEE-22 Power Cords. PDI offers a complete selection of Power Cords. Equipment which incorporates PDI Connectors also offers the further advantage of shipping finished units with correct cord set, permitting immediate use without time consuming modifications on the part of the end customer.

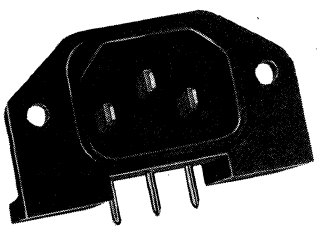
Testing Agencies Located As Follows:

UL	–	United States
CSA	–	Canada
DEMKO	–	Denmark
NEMKO	–	Norway
SEMKO	–	Sweden
SEV	–	Switzerland
VDE	–	Germany

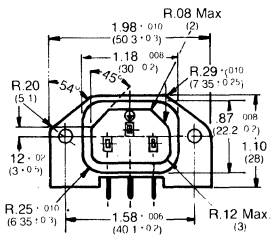
Materials

Housing Material:	Polycarbonate Makrolon Type 60301
Contact Pins:	Nickel Plated Brass
Terminals:	Electro Tin Plate over Copper Plate

42R65



FACE DIMENSIONS



(Metric dimensions are shown in parentheses)

Combination Power Cord Connector with PRINTED CIRCUIT TERMINALS. Conforms with all international safety requirements. Rated 10 amp., 250V, 65°C to 120°C operating temperature. For automated assembly operations.

ORDERING CODE

42R65- [1] [1] [1] [1]

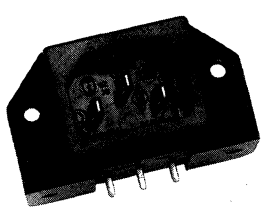
MECHANICAL MOUNTING CONFIGURATION
PRINTED CIRCUIT = 1 (40)

COLOR	BLACK	= 1
Other colors	GRAY	= 2
available on	WHITE	= 3
special order.	BROWN	= 4

PRINTED CIRCUIT TERMINALS
PRINTED CIRCUIT = 1

ELECTRICAL CIRCUIT CONFIGURATION
10A 250V 65°C 2+Ground = 1

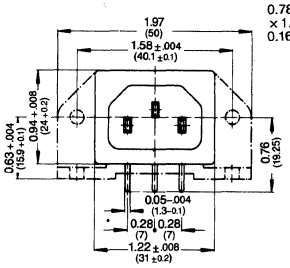
42R05-8



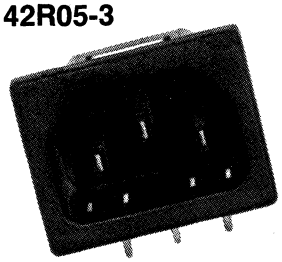
FACE DIMENSIONS

PANEL CUT-OUT DIMENSIONS

0.78+.008 (20+0.2 mm) x 1.08+.008 (27.5+0.2 mm) 0.16 (4 mm)R



42R05-3



General purpose power cord connector with printed circuit terminals and detachable mounting frame. Conforms with all international safety requirements. Rated 10 amp., 250 VAC, 65°C to 175°C operating temperature.

ORDERING CODE

42R05- [8] [1] [1] [03]

MECHANICAL MOUNTING CONFIGURATION
Snap-in without mounting flange = 3
Snap-in with mounting flange = 8

COLOR	BLACK	= 1
Other colors	GRAY	= 2
available on	WHITE	= 3
special order.	BROWN	= 4

TERMINALS
Right Angle PC terminals, line neutral and ground. Additional solder terminal provided on ground for hard wiring. = 1

ELECTRICAL CIRCUIT CONFIGURATION

10A 250V 65°C 2+Ground	= 03
10A 250A 120°C 2+Ground	= 07
10A 250A 155°C 2+Ground	= 11

Units rated at 155°C available only in black and brown.

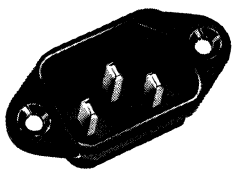
Specifications subject to change without notice.
(Metric dimensions are shown in parentheses).

CALL OR WRITE POWER DYNAMICS, INC. FOR MORE INFORMATION • FSC60046

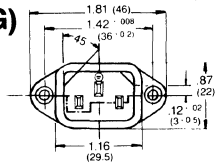
PDI®
Power Dynamics, Inc.
P.O. Box 539•59 Lakeside Avenue, West Orange, NJ 07052 (201) 736-5722•Fax (201) 736-8930

IEC CONNECTORS

SIDE FLANGE (36mm HOLE SPACING)

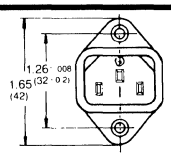


FACE DIMENSIONS



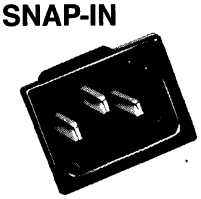
PANEL CUT-OUT DIMENSIONS
0.79 + .008 (20 + 0.2 mm) x 1.08 + .008 (27.5 + 0.2 mm) 0.16 (4 mm)R 1.42 (36 mm) center-to-center holes. Hole 0.14ϕ (3.6 mm)

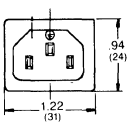
CROSS FLANGE



PANEL CUT-OUT DIMENSIONS
0.79 + .008 (20 + 0.2 mm) x 1.08 + .008 (27.5 + 0.2 mm) 0.16 (4 mm)R 1.26 (32 mm) center-to-center holes. Hole 0.14ϕ (3.6 mm)

SNAP-IN

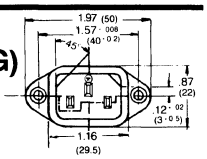




PANEL CUT-OUT DIMENSIONS
0.79 + .008 (20 + 0.2 mm) x 1.08 + .008 (27.5 + 0.2 mm) 0.16 (4 mm)R

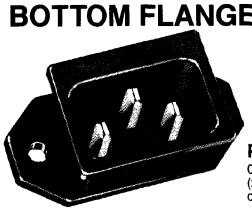
SIDE FLANGE (40mm HOLE SPACING)

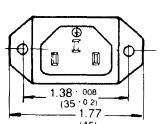
42R01-8
W/O COUNTERSUNK # MOUNTING HOLES



PANEL CUT-OUT DIMENSIONS
0.79 + .008 (20 + 0.2 mm) x 1.08 + .008 (27.5 + 0.2 mm) 0.16 (4 mm)R 1.57 (40 mm) center-to-center holes. Hole 0.14ϕ (3.6 mm)

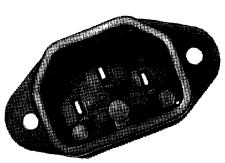
BOTTOM FLANGE

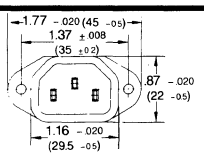




PANEL CUT-OUT DIMENSIONS
0.79 + .008 (20 + 0.2 mm) x 1.08 + .008 (27.5 + 0.2 mm) 0.16 (4 mm)R 1.48 (35 mm) center-to-center holes.

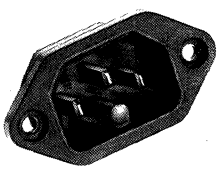
BOTTOM FLANGE

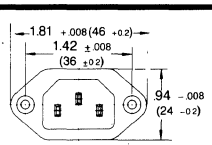




PANEL CUT-OUT DIMENSIONS
0.89 + .008 (22.5 + 0.2 mm) x 1.18 + .008 (30 + 0.2 mm) 0.16 (4 mm)R 1.38 (35 mm) center-to-center holes.

SIDE FLANGE



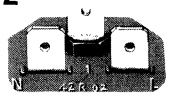


PANEL CUT-OUT DIMENSIONS
0.79 + .008 (20 + 0.2 mm) x 1.08 + .008 (27.5 + 0.2 mm) 0.16 (4 mm)R 1.42 (36 mm) center-to-center holes. Hole 0.14ϕ (3.6 mm)

42R01
1

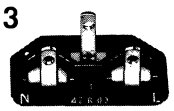
SCREW TERMINAL

42R02
2



QUICK CONNECT TERMINAL

42R03
3



SOLDER TERMINAL

Specifications subject to change without notice. (Metric dimensions are shown in parentheses).

ORDERING CODE

42R01-
42R02-
42R03-

3	1	2	1	-	200

MECHANICAL MOUNTING CONFIGURATION

SIDE FLANGE (36mm)	= 1
CROSS FLANGE	= 2
SNAP-IN	= 3
SIDE FLANGE	= 4
BOTTOM FLANGE	= 5
BOTTOM FLANGE	= 6
SIDE FLANGE	= 7
SIDE FLANGE	= 8

COLOR	
Other colors available on special order.	BLACK = 1 GRAY = 2 WHITE = 3 BROWN = 4

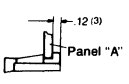
TERMINAL DIMENSIONS
SCREW TERMINAL = 1
QUICK CONNECT TERMINAL = 2
SOLDER TERMINAL .370(9.3) = 3

B	H	D
.25 (6.3)	.16 (4.)	.06 (1.65)

ELECTRICAL CIRCUIT CONFIGURATION

10A 250V 120°C 2 + Ground E DIN 49 458	= 1
10A 250V 65°C 2 + Ground B DIN 49 457	= 2
10A 250V 65°C 2 Pole	= 4

PANEL THICKNESS (SNAP-INS ONLY)



Maximum size of panel for Snap-In "A"

PANEL THICKNESS	
.06 (1.5mm)	= 150
.08 (2.0mm)	= 200
.10 (2.5mm)	= 250

Additional panel thickness available on request.

15A 250V 65°C 2 + Ground = D3

Add suffix D3 to Part Number for 15A, 250V

General purpose power cord connector. Screw, Quick Connect, or Solder Lug terminal configuration. Rated @ 10 amp., from 65°C to 155°C operating temperature. Designed for versatile mounting. Available in screw or snap-in panel mount and five mounting configurations.

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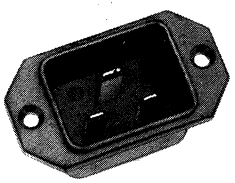
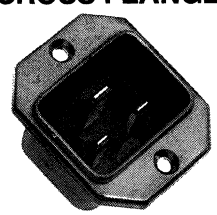
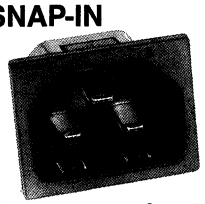
SIDE FLANGE



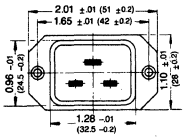
CROSS FLANGE



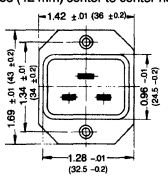
SNAP-IN



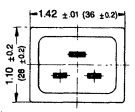
FACE DIMENSIONS



PANEL CUT-OUT DIMENSIONS
0.98 + 0.1 (25 + 0.2 mm)
×1.30 + 0.1 (33 + 0.2 mm)
0.18 + 0.1 (4.5 + 0.2 mm)R
1.65 (42 mm) center-to-center holes



PANEL CUT-OUT DIMENSIONS
0.98 + 0.1 (25 + 0.2 mm)
×1.30 + 0.1 (33 + 0.2 mm)
0.18 + 0.1 (4.5 + 0.2 mm)R
1.34 (34 mm) center-to-center holes

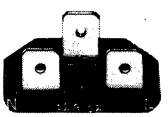


PANEL CUT-OUT DIMENSIONS
0.98 + 0.1 (25 + 0.2 mm)
×1.30 + 0.1 (33 + 0.2 mm)
0.18 + 0.1 (4.5 + 0.2 mm)R

1

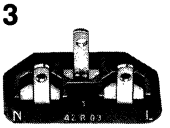
SCREW TERMINAL

2



QUICK CONNECT TERMINAL

3



SOLDER TERMINAL

ORDERING CODE

42R06-
42R07-
42R08-

3 **1** **1** **1** - **150**

MECHANICAL MOUNTING CONFIGURATION
SIDE FLANGE = 1
CROSS FLANGE = 2
SNAP-IN = 3

COLOR		
Other colors	BLACK	= 1
available on	GRAY	= 2
special order.	WHITE	= 3
	BROWN	= 4

TERMINAL DIMENSIONS
SCREW TERMINAL = 1
QUICK CONNECT TERMINAL = 2
SOLDER TERMINAL .370(9.3) = 3
.250(6.3)

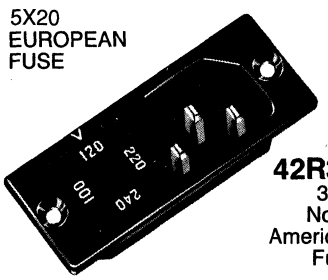
ELECTRICAL CIRCUIT CONFIGURATION
16A 250V 65°C 2 + Ground = 1
16A 250V 155°C 2 + Ground = 2
16A 250V 65°C 2 Poles = 3

PANEL THICKNESS (SNAP-INS ONLY)
.12 (3) Panel "A"
Maximum size of panel for Snap-In "A"
.06 (1.5mm) = 150
.08 (2.0mm) = 200
.10 (2.5mm) = 250
Additional panel thickness available on request

Power connectors rated at 16 amp, 250 VAC, 65°C to 155°C operating temperature. Units are available with screw, quick connect or solder lug terminal configurations. Designed for versatile mounting, 42R06, 42R07 and 42R08 are available in screw or snap-in panel mount and five mechanical mounting configurations.

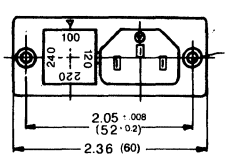
SCREW MOUNT
42R34

5X20 EUROPEAN FUSE



42R38
3AG North American Fuse

FACE DIMENSIONS SCREW MOUNT



(Metric dimensions are shown in parenthesis)

PANEL CUT-OUT DIMENSIONS
0.79 + .008 (20 + 0.2 mm)
×1.79 + .008 (45.5 + 0.2 mm)
0.10 (2.5 mm) R
2.05 (52 mm) center-to-center holes
Hole 0.14ϕ (3.6 mm)

ORDERING CODE

42R34-
42R38-

3 **1** **1** **1** - **150**

MECHANICAL MOUNTING CONFIGURATION
SCREW MOUNT = 1
SNAP-IN = 3

COLOR		
Other colors	BLACK	= 1
available on	GRAY	= 2
special order.	WHITE	= 3
	BROWN	= 4

TERMINAL DIMENSIONS
QUICK CONNECT TERMINAL = 1
.187(4.8)
SOLDER TERMINAL .370(9.3) @ = 2

ELECTRICAL CIRCUIT CONFIGURATION
10A 250V 65°C 2 + Ground B DIN 49 457 = 1
10A 250V 120°C 2 + Ground E DIN 49 458 = 2
10A 250V 65°C 2 Pole = 4

PANEL THICKNESS (SNAP-INS ONLY)
.12 (3) Panel "A"
Maximum size of panel for Snap-In "A"
.06 (1.5mm) = 150
.08 (2.0mm) = 200
.10 (2.5mm) = 250
Additional panel thickness available on request.

Integral combination IEC power cord connector/Fuse Holder/Voltage Selector. Meets all international safety requirements; may be used without modification at time of installation. Designed to switch voltages 100, 120, 220, 240 by removing fuse cartridge & rotating to desired voltage, then snapping the cartridge back into connector housing. Fuse holder is touch proof in accordance with international product safety requirements. Series 42R34, page 20 accepts one international 5 x 20mm fuse. Series 42R38, accepts one standard 3 AG American type fuse. Rated @ 10 amp. from 65°C to 120°C operating temperature. Screw or Snap-in mount configurations.

Specifications subject to change withiut notice.
(Metric dimensions are shown in parentheses).

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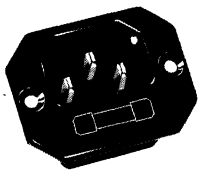
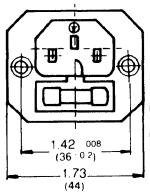
SIDE FLANGE

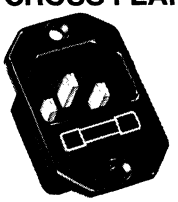


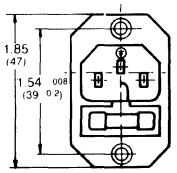
FACE DIMENSIONS



PANEL CUT-OUT DIMENSIONS
1.24 + .008 (31.5 + 0.2mm)
x 1.08 + .008 (27.5 + 02mm)
0.10 (2.5mm)R
1.42 + .004 (36 + 0.1mm)
center-to-center holes

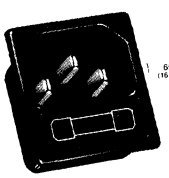
CROSS FLANGE

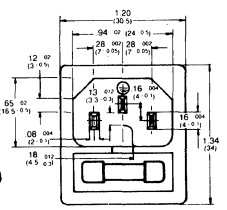




PANEL CUT-OUT DIMENSIONS
1.24 + .008 (31.5 + 0.2mm)
x 1.08 + .008 (27.5 + 02mm)
0.10 (2.5mm)R
1.64 (39mm)
center-to-center holes

SNAP-IN





PANEL CUT-OUT DIMENSIONS
1.24 + .008 (31.5 + 0.2mm)
x 1.08 + .008 (27.5 + 02mm)
0.10 (2.5mm)R

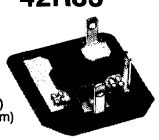
42R31

SCREW TERMINAL

42R32

QUICK CONNECT TERMINAL

42R33



SOLDER TERMINAL

Combination single fuse holder/power cord connector. For domestic & international markets. Fuse holder is touch proof in accordance with international product safety requirements. Accommodates one international 5 x 20mm fuse with space for a spare fuse. Terminal connections: Screw, Quick Connect or Solder Lug. Rated @ 10 amp., 65°C to 120°C operating temperature. Fuse connections are externally accessible and isolated from power connections. Screw or snap-in mount and five mounting configurations.

ORDERING CODE

42R31-
42R32-
42R33- | 1 | 1 | 1 | 1 | - | 200 |

MECHANICAL MOUNTING CONFIGURATION
SIDE FLANGE = 1
CROSS FLANGE = 2
SNAP-IN = 3

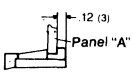
COLOR		
Other colors available on special order.	BLACK	= 1
	GRAY	= 2
	WHITE	= 3
	BROWN	= 4

TERMINAL DIMENSIONS
SCREW TERMINALS = 1
SOLDER TERMINAL .370 (9.3) = 3
QUICK CONNECT TERMINAL = 2

	B	H	D
.250 (6.3)	.25 (6.3)	.16 (4.)	.06 (1.65)

ELECTRICAL CIRCUIT CONFIGURATION
10A 250V 65°C 2 + Ground B DIN 49 457 = 1
10A 250V 120°C 2 + Ground E DIN 49 458 = 2
10A 250V 65°C 2 Pole = 4

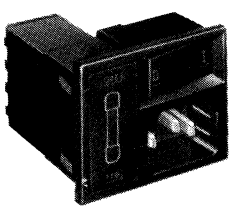
PANEL THICKNESS (SNAP-INS ONLY)



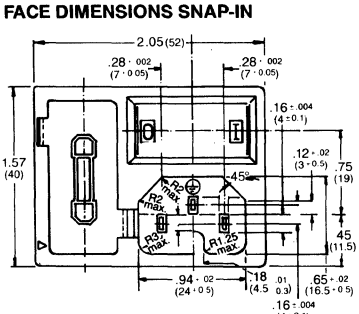
Maximum size of panel for Snap-In "A"

	PANEL THICKNESS
.06 (1.5mm)	= 150
.08 (2.0mm)	= 200
.10 (2.5mm)	= 250

SNAP-IN 42R39



FACE DIMENSIONS SNAP-IN



PANEL CUT-OUT DIMENSIONS
1.44 + .008 (36.5 + 0.2 mm)
x 1.93 + .008 (49 + 0.2 mm)
0.15 (.04 mm) R

COMBINATION FUSE HOLDER, SWITCH, VOLTAGE SELECTOR AND IEC CONNECTOR

1. Fuse holder snaps out.
2. Lift locking tab on fuse cartridge and pull out fuse holder.
3. Insert fuse (fuses) 5 x 20mm or 3AG into fuse holder.

3A. 110 Volt and 220 Volt easily changed by rotating cartridge so that desired voltage corresponds with indicator arrow.

4. To insert fuse holder, snap back into fuse cartridge.
5. Insert cartridge back into connector housing.

ORDERING CODE

42R39- | 3 | 1 | 5 | 4 | - | 150 |

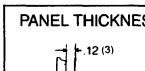
MECHANICAL MOUNTING CONFIGURATION
SNAP-IN = 3

COLOR		
Other colors available on special order.	BLACK	= 1
	GRAY	= 2
	WHITE	= 3
	BROWN	= 4

TERMINAL DIMENSIONS
SOLDER TERMINALS .37 (9.3) B .11 (2.8) = 2
QUICK CONNECT TERMINAL .39 (10.0) .25 (6.3) = 5

ELECTRICAL CIRCUIT CONFIGURATION
10A 250V 65°C 2 Pole Switch 1 Fuse = 3
10A 250V 65°C 2 Pole Switch 2 Fuses = 4
10A 250V 120°C 2 Pole Switch 1 Fuse = 7
10A 250V 120°C 2 Pole Switch 2 Fuses = 8
10A 250V 65°C 2 Pole Switch 1 Fuse = 11
10A 250V 65°C 2 Pole Switch 2 Fuses = 12

PANEL THICKNESS (SNAP-INS ONLY)



Maximum size of panel for Snap-In "A"

	PANEL THICKNESS
.06 (1.5mm)	= 150
.08 (2.0mm)	= 200

Additional panel thickness available on request.

Specifications subject to change withiut notice.
(Metric dimensions are shown in parentheses).

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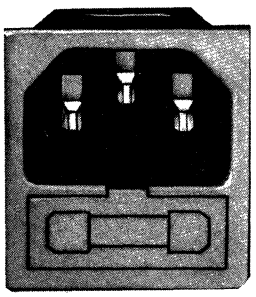
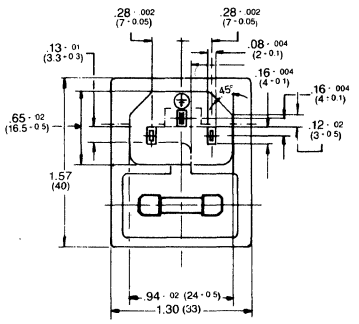
SNAP-IN 42R35

42R35 accepts both European 5 x 20mm or 3AG American Fuse



FACE DIMENSIONS



PANEL CUT-OUT DIMENSIONS

1.48 + .008 (37.5 + 0.2mm)
x 1.20 + .008 (30.5 + 0.2mm)
0.06 (1.5mm)R

Combination single or double fuse holder power cord connector. For domestic and international markets. Fuse holder is touch proof in accordance with international product safety requirements. Accepts either American or European fuse for maximum versatility in product applictions. Fuse connections are externally accessible & isolated from power connections. Solder Lug & Quick Connect (terminal configurations) available in five sizes. Rated 10 amp. with single or double fuse versions in each current rating.

ORDERING CODE

42R35- 3 1 2 1 - 150

MECHANICAL MOUNTING CONFIGURATION
SNAP-IN = 3

COLOR		
Other colors available on special order.	BLACK	= 1
	GRAY	= 2
	WHITE	= 3
	BROWN	= 4

TERMINAL DIMENSIONS

	Z	B	
SOLDER TERMINAL	.37 (9.3)	.11 (2.8)	= 2
QUICK CONNECT TERMINAL	.39 (10.0)	.25 (6.3)	= 5

ELECTRICAL CIRCUIT CONFIGURATION

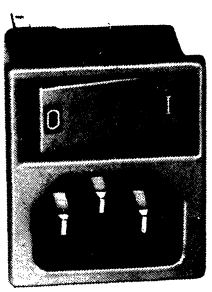
10A 250V 65°C 1 Fuse	= 1
10A 250V 65°C 2 Fuses	= 2
10A 250V 120°C 2 Fuses	= 4
10A 250V 65°C 2 Pole 1 Fuse	= 5
10A 250V 65°C 2 Pole 2 Fuses	= 6

PANEL THICKNESS (SNAP-INS ONLY)

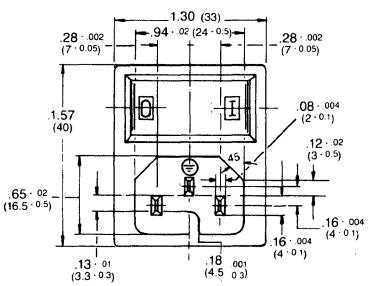
Maximum size of panel for Snap-In "A": .06 (1.5mm) = 150; .08 (2.0mm) = 200

Additional panel thickness available on request.

SNAP-IN 42R36



FACE DIMENSIONS



PANEL CUT-OUT DIMENSIONS

1.44 + .008 (36.5 + 0.2mm)
x 1.20 + .008 (30.0 + 0.2mm)
0.06 (1.5mm)R

Combination power cord connector with single or double pole on/off snap action power switch. Conforms with all international product safety requirements. Designed to eliminate discrete purchase, inventory & assembly of connector & switch. Terminal connections are Solder or Quick Connect. Five terminal sizes. Rated 10 amp. single pole or double pole switch.

Specifications subject to change withiut notice.
(Metric dimensions are shown in parentheses).

ORDERING CODE

42R36- 3 1 2 2 - 150

MECHANICAL MOUNTING CONFIGURATION
SNAP-IN = 3

COLOR		
Other colors available on special order.	BLACK	= 1
	GRAY	= 2
	WHITE	= 3
	BROWN	= 4

TERMINAL DIMENSIONS

	Z	B	
SOLDER TERMINAL	.37 (9.3)	.11 (2.8)	= 2
QUICK CONNECT TERMINAL	.39 (10.0)	.25 (6.3)	= 5

ELECTRICAL CIRCUIT CONFIGURATION

10A 250V 65°C 2 Pole Switch	= 2
10A 250V 120°C 2 Pole Switch	= 4
10A 250V 65°C 2 Pole Switch	= 6

PANEL THICKNESS (SNAP-INS ONLY)

Maximum size of panel for Snap-In "A": .06 (1.5mm) = 150; .08 (2.0mm) = 200

Additional panel thickness available on request.

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PDI®
Power Dynamics, Inc.

IEC CONNECTORS

P.O. Box 539•59 Lakeside Avenue, West Orange, NJ 07052 (201) 736-5722•Fax (201) 736-8930

SNAP-IN 44R01
MALE INLET CONNECTOR 5 x 20 EUROPEAN FUSE HOLDER

SNAP-IN 44R02
FEMALE OUTLET CONNECTOR

ORDERING CODE: 44R01- / 44R02- 2 | 1 | 3 | 1 | - | 250

DD	44R01-1		
DDD	44R01-2	DD	44R02-2
DDDD	44R01-3	DDD	44R02-3
DDDDD	44R01-4	DDDD	44R02-4
DDDDDD	44R01-5	DDDDD	44R02-5
DDDDDDD	44R01-6	DDDDDD	44R02-6

COLOR BLACK = 1

TERMINAL DIMENSIONS
44R02 SOLDER TERMINAL = 1
44R01 SOLDER TERMINAL = 5

ELECTRICAL CIRCUIT CONFIGURATION
44R01 10A 250V 65°C 2 + Ground = 1
44R02 10A 250V 65°C 2 + Ground = 1

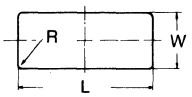
PANEL THICKNESS (SNAP-INS ONLY)

Maximum size of panel for Snap-In "A"

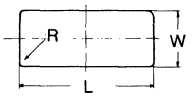
	PANEL THICKNESS
.06 (1.5mm)	= 150
.10 (2.5mm)	= 250
.11 (2.7mm)	= 270

Additional panel thickness available on request.

PANEL CUT-OUT DIMENSIONS



44R01-1 1.28 x 2.19 x R .10 (32.5 x 55.5 x R 2.5)
44R01-2 1.28 x 3.11 x R .10 (32.5 x 55.5 x R 2.5)
44R01-3 1.28 x 4.04 x R .10 (32.5 x 102.5 x R 2.5)
44R01-4 1.28 x 4.96 x R .10 (32.5 x 126 x R 2.5)
44R01-5 1.28 x 5.89 x R .10 (32.5 x 149 x R 2.5)
44R01-6 1.28 x 6.81 x R .10 (32.5 x 173 x R 2.5)

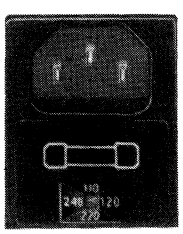


44R02-2 1.28 x 1.91 x R .10 (32.5 x 48.5 x R 2.5)
44R02-3 1.28 x 1.91 x R .10 (32.5 x 48.5 x R 2.5)
44R02-4 1.28 x 3.76 x R .10 (32.5 x 72 x R 2.5)
44R02-5 1.28 x 4.69 x R .10 (32.5 x 95.5 x R 2.5)
44R02-6 1.28 x 5.61 x R .10 (32.5 x 142.5 x R 2.5)

Exceptionally versatile combination Fuse Connector. Combining our single male fuse connector (GSI) with our female connector (GSD4), allowing for a selection of 1 male outlet with 1 to 6 female outlets. Rated 10 amp. Single snap-in mounting.

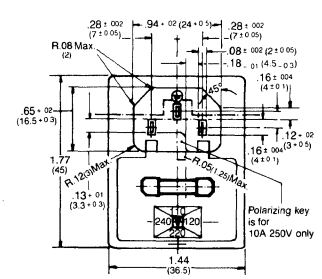
All female connector (2 to 6 units). Accepts European style fuse only. 5 x 20mm. Rated 10 amp. @ 65°C. Quick Connect or Solder terminals.

42R40



COMBINATION FUSE HOLDER & IEC CONNECTOR WITH VOLTAGE SELECTOR WHICH IS DESIGNED TO SWITCH TRANSFORMER PRIMARY CONNECTIONS ACCEPTS BOTH EUROPEAN 5 x 20mm OR 3AG AMERICAN FUSE.

FACE DIMENSIONS



PANEL CUT-OUT DIMENSIONS
1.67 x 1.36 (42.5 x 34.5mm)
Center-to-center screw positions: 1.97 x 1.65 (50 x 42mm)
ϕ.14 (3.5)

1. Snap out fuse and voltage "select" cartridge.
2. Lift locking tab on fuse cartridge and pull out fuse holder.
3. Lift locking tab on voltage "select" section of cartridge and pull out voltage selector.
4. Rotate voltage selector to desired voltage and insert into cartridge until voltage shows through window. (A) Re-insert fuse holder into cartridge. Insert cartridge back into connector housing.

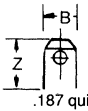
ORDERING CODE

42R40- 3 | 1 | 2 | 1 | - | 150

MECHANICAL MOUNTING CONFIGURATION SNAP-IN = 3

COLOR	BLACK	= 1
Other colors	GRAY	= 2
available on	WHITE	= 3
special order.	BROWN	= 4

TERMINAL DIMENSIONS



	Z	B	
SOLDER TERMINALS	.37 (9.3)	.11 (2.8)	= 2
QUICK CONNECT TERMINAL	.39 (10.0)	.25 (6.3)	= 5

.187 quick connect terminals available upon request

ELECTRICAL CIRCUIT CONFIGURATION

10A 250V 65°C IEC 1 Fuse		= 1
10A 250V 65°C IEC 2 Fuses		= 2
10A 250V 120°C E 2 Fuses		= 4
10A 250V 65°C E 1 Fuse		= 5
10A 250V 65°C E 2 Fuses		= 6

PANEL THICKNESS (SNAP-INS ONLY)

Maximum size of panel for Snap-In "A"

	PANEL THICKNESS
.06 (1.5mm)	= 150
.08 (2.0mm)	= 200
.10 (2.5mm)	= 250

Additional panel thickness available on request.

Specifications subject to change withiut notice.
(Metric dimensions are shown in parentheses).

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IEC CONNECTORS

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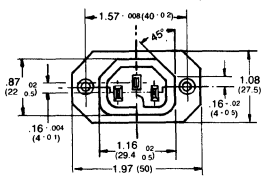
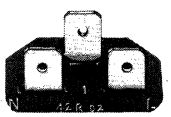
SIDE FLANGE

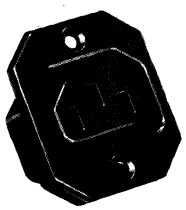
FACE DIMENSIONS



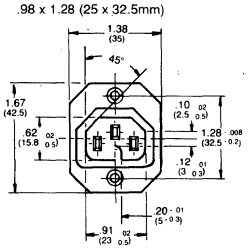


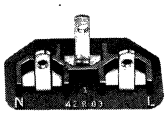
43R03-2
QUICK CONNECT TERMINAL

CROSS FLANGE



PANEL CUT-OUT DIMENSIONS
.98 x 1.28 (25 x 32.5mm)

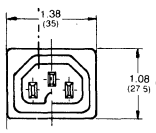




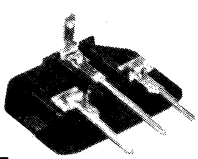
43R04-1
SOLDER TERMINAL

SNAP-IN

PANEL CUT-OUT DIMENSIONS
.98 x 1.28 x R.16
(24 x 32.5 x R4.0mm)
Center-to-center screw positions: 1.57 (40mm)



PANEL CUT-OUT DIMENSIONS
.98 x 1.28 x R16
(25 x 32.5 x R4.0mm)
Center-to-center screw positions: 1.28 (32.5mm)



43R09-3
PC TERMINAL

General purpose female power cord connector. Four terminal configurations: Screw, Quick Connect, Solder Lug and PC Terminal. Rated 10 amp. 250V@65°C & 10 amp. 250V@120°C. Designed for versatile mounting. Screw or snap-in panel mount. Three mounting configurations.

ORDERING CODE:

43R03-
43R04-
43R09- | 3 | 1 | 1 | 1 | - | 150 |

MECHANICAL MOUNTING CONFIGURATION
SIDE FLANGE (40) = 1
CROSS FLANGE (32.5) = 2
SNAP-IN = 3

COLOR
Other colors available on special order.
BLACK = 1
GRAY = 2
WHITE = 3
BROWN = 4

SOLDER TERMINAL (.370 (9.3)) = 1
PC TERMINAL = 3
.250 QUICK CONNECT TERMINAL = 2
Solder Terminal on ground in addition to ground PC Terminal.

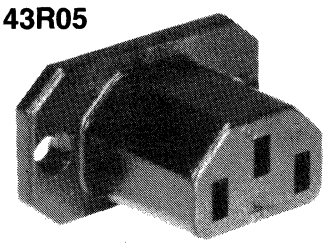
ELECTRICAL CIRCUIT CONFIGURATION
10A 250V 65°C = 1
10A 250V 120°C = 2

PANEL THICKNESS (SNAP-INS ONLY)
Maximum size of panel for Snap-In "A"
.06 (1.5mm) = 150
.08 (2.0mm) = 200
.10 (2.5mm) = 250
PANEL THICKNESS
Additional panel thickness available on request.

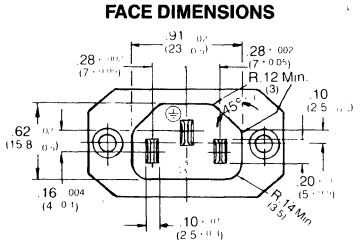
15A 250V 65°C = D3

FEMALE POWER CORD CONNECTOR

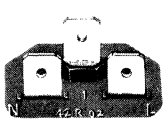
43R05



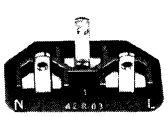
FACE DIMENSIONS



PANEL CUT-OUT DIMENSIONS
.79 x 1.25 x R16 (20 x 32 x R4mm)
Center-to-center screw positions: 1.25 (32mm)



QUICK CONNECT TERMINAL



SOLDER TERMINAL

General purpose female power cord connector designed for recessed and rack or panel mounting. Available for quick connect and solder terminals.

Specifications subject to change withiut notice.
(Metric dimensions are shown in parentheses).

ORDERING CODE

43R05- | 1 | 1 | 3 | 1 |

MECHANICAL MOUNTING CONFIGURATION
SIDE FLANGE (32mm) HOLD SPACING (1.3" (32")) = 1

COLOR
Other colors available on special order.
BLACK = 1
GRAY = 2
WHITE = 3
BROWN = 4

TERMINAL DIMENSIONS
QUICK CONNECT TERMINAL (B .25 (6.3), H .16 (4), D .06 (1.65)) = 3
SOLDER TERMINAL = 4

ELECTRICAL CIRCUIT CONFIGURATION
10A 250V 65°C = 1
10A 250V 120°C = 2
10A 250V 155°C = 3

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MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

Abbreviations/Acronyms **A**•1114, **B**•1037, **C**•1116, **D**•1068
AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
Fiber Optics, Miniglossary **B**•1224
Fiber Optics, Product Selection Guide **B**•1214
Filters, Power, Product Selection Guide **A**•1609
Filters, Signal, Product Selection Guide **A**•1651
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Keyboards & Keypads, Product Selection Guide **B**•1794
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Panel Hardware, Product Selection Guide **C**•1582
Panel Meters, Analog & Digital, Product Selection Guide **D**•1340
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide **A**•2013
Power Supplies, Miniglossary **D**•1522, **D**•2184
Power Supplies, AC, Product Selection Guide **D**•2146
Power Supplies, DC, Product Selection Guide **D**•1501
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide **B**•1347
Relay Contact Forms **B**•1550
Relays, Electromechanical, Miniglossary **B**•1449
Relays, Product Selection Guide **B**•1397
Resistor Color Codes **A**•1924
Resistors, Product Selection Guide **A**•1835
Servo Components, Miniglossary **B**•1270, **D**•2244
SI Units, Basic Guide To, **A**•2080, **B**•1666, **C**•1362, **D**•2246
Solenoids, Product Selection Guide **B**•1614
Switches, Product Selection Guide **B**•1639
Symbols—International Authorities **A**•1139, **B**•1024, **C**•1156, **D**•1090
Thermal Components, Product Selection Guide **B**•1831
Thermal Conductivity of Dielectrics at Room Temperature **C**•1709
Thyristors/High Power Diodes, Miniglossary **A**•1728, **A**•2084
Timers, Miniglossary **B**•1409, **D**•1149
Trademark & Logofinder Directories **C**•901
Transducers & Encoders, Product Selection Guide **B**•1872
Transformers, Product Selection Guide **A**•2131
Wire & Cable, Product Selection Guide **C**•1705
Wire Gauges—Diameter, Area, Copper Weight **C**•1864

Preh Electronic Industries, Inc.
470 East Main Street, Lake Zurich, IL 60047-2578 U.S.A.
Phone (708) 438-4000 • FAX 708-438-5522

MINI-DIN CONNECTORS

PIN ARRANGEMENT	PC Board Mount Receptacle	Moldable Female Cord Plug	Moldable Male Cord Plug	Assembly-type Male Cord Plug
3 Pins @ 180°	MRP3FS	MMP3F	MMP3M	MCP3M
4 Pins @ 210°	MRP4FS	MMP4F	MMP4M	MCP4M
5 Pins @ 180°	MRP5FS	MMP5F	MMP5M	MCP5M
6 Pins @ 240°	MRP6FS	MMP6F	MMP6M	MCP6M
7 Pins @ 270°	MRP7FS	MMP7F	MMP7M	MCP7M
8 Pins @ 270°	MRP8FS	MMP8F	MMP8M	MCP8M

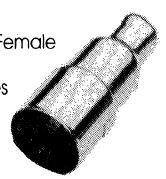
For optional gold contacts, add '-G' to part number

A series of Mini-DIN Connectors featuring nickel plated brass shells with PBT3210 (Celanex) wafers. Electrical Rating: 100 VAC-1A or 12 VDC-2A Max. Dielectric Strength: 500V-1 Minute. Operating Range: -13°F to +150°F

MOLDABLE DIN CONNECTORS

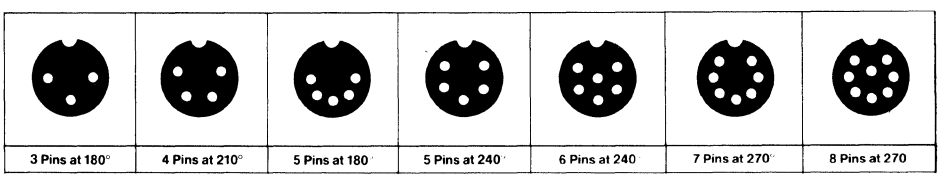
Moldable Male Cord Plug 10372 Series

Moldable Female Cord Plug 10372 Series



Moldable Male Locking Cord Plug 10472 Series

Locking ring p/n: 10468-001



3 Pins at 180°	4 Pins at 210°	5 Pins at 180°	5 Pins at 240°	6 Pins at 240	7 Pins at 270°	8 Pins at 270

A series of circular DIN plugs designed specifically for molding. Features include a one-piece, nickel-plated shell and snap-in seating of the pin and wafer assembly.

Design benefits include excellent EMI/RFI shielding, lower labor costs and a low profile finished product.

Power Rating: 3A/34V. Dielectric Strength: 500V RMS. Operating Range: -13°F to +150°F.

Pin and Contact Configuration

PLUGS

PIN ARRANGEMENT	Male Cord Plug *10372-027	Male Cord Plug *10472-011	Male Cord Plug 76597	Male Cord Plug 71408	Male Cord Plug 71432	Male Cord Plug 71430	Male Cord Plug 71434	Male Panel Mt. 71216	Male PC Mt. 71249
(A) 3 Pins @ 180°	10455-035	10455-035	-630	-030	-030	-030	-030	-030	-032
(B) 4 Pins @ 210°	10455-036	10455-036	-640	-040	-040	-040	-040	-040	—
(C) 5 Pins @ 240°	10455-038	10455-038	-652	-250	-250	-250	-250	-051	—
(D) 5 Pins @ 180°	10455-037	10455-037	-650	-053	-050	-050	-050	-050	-052
(E) 6 Pins @ 240°	10455-039	10455-039	-660	-060	-060	-060	—	—	—
(F) 7 Pins @ 270°	10455-040	10455-040	-670	-070	-070	-070	—	—	-072
(G) 8 Pins @ 270°	10455-041	10455-041	-680	-080	-080	-080	—	—	—

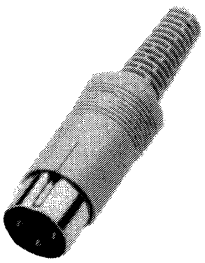
RECEPTACLES

PIN ARRANGEMENT	Female Cord Plug *10372-028	Female Cord Plug 76597	Female Cord Plug 71502	Female Cord Plug 71506	Female Cord Plug 71204	Female Panel Mt. 71200	Female Panel Mt. 71206	Female Board Mt. 71251	Female Board Mt. 71222	Female Board Mt. EMI/RFI 71222
(A) 3 Pins @ 180°	10425-081	—	-030	-030	-030	-030	-030	-030	-030	-034
(B) 4 Pins @ 210°	10425-082	—	-040	-040	-040	-040	-040	-040	-040	-041
(C) 5 Pins @ 240°	10425-084	—	-250	-250	-051	-150	-050	-250	-059	-153
(D) 5 Pins @ 180°	10425-083	-692	-050	-050	-050	-050	-051	-050	-054	-152
(E) 6 Pins @ 240°	10425-085	-693	-060	-060	-060	-060	—	-060	-061	-064
(F) 7 Pins @ 270°	10425-086	—	-070	-070	-070	-070	-070	-070	-070	-071
(G) 8 Pins @ 270°	10425-087	—	-080	-080	-080	-080	-080	-080	-081	-084

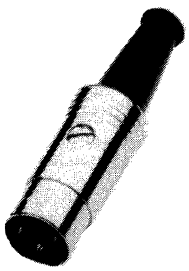
*Shell and pin & wafer assembly must be ordered separately

Preh Electronic Industries, Inc.
470 East Main Street, Lake Zurich, IL 60047-2578 U.S.A.
Phone (708) 438-4000 • FAX 708-438-5522

CIRCULAR DIN CONNECTORS



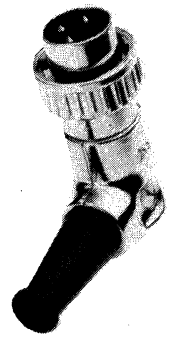
MALE CORD PLUG Series 76597. For applications not requiring metal bodies. Available in black or grey.



CORD PLUG Extended Barrel Series 71408. For cable-to-cable or cable-to-panel applications not requiring locking connection .

RIGHT ANGLE 8 Position Barrel Series 71432. Right angle configuration for limited space applications. Barrel can be set for 8 cable approach angles.

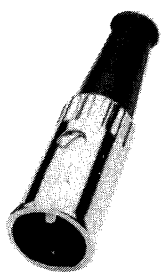
CORD PLUG locking Series 71430. For cable-to-cable or cable-to-panel applications with 30° locking ring.Heavy duty clamp with flexible black cable sleeve.



RIGHT ANGLE 8 Position Barrel Locking Series 71434. Right angle 8 position barrel with 30° locking ring. Flexible black cable sleeve.

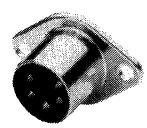
Preh circular DIN connectors are rugged connectors designed to provide reliable interconnections to peripheral equipment and control devices. They provide from 3 to 8 contacts per connector at operating power up to 3A /34V.

FEMALE CORD PLUG Series 76597. For applications not requiring metal bodies. Available in black or grey.

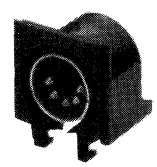


FEMALE CORD PLUG Locking Series 71506. Mates with male plugs equipped with 30° locking rings. Metal body with flexible black cable sleeve.

FEMALE CORD PLUG Series 71502 For normal cable-to-cable and cable-to-panel applications. Metal body with flexible black cable sleeve .



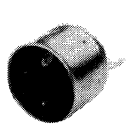
PANEL MOUNT Series 71216. Male panel mount connector. Steel body, through-shell grounding.



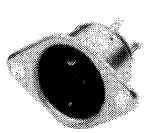
BOARD MOUNT Series 71249. Male PC board mount. Black plastic body with grounding contact.

Connectors are available with nickel-plated zinc die cast bodies for rugged applications and with plastic bodies. Insert material is molded phenolic. Female "tuning fork" type contacts are silver plated, male pins are tinned.

Connectors and contacts can be custom plated .



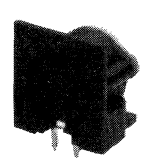
BOARD MOUNT Series 71204. Receptacle for direct mounting to PC boards. Features a drawn metal shell.



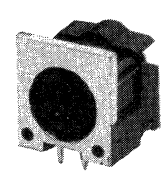
PANEL MOUNT Series 71200. Receptacle designed to mate with extended body cord plugs. Drawn metal shell, through-shell grounding.

PANEL MOUNT Locking Series 71206. Receptacle designed to mate with males equipped with 30° locking rings. Die cast metal body.

BOARD MOUNT Series 71251. Receptacle with flange for 30° locking ring, for PC board mount. Die cast metal body.



BOARD MOUNT Series 71222. Receptacle for direct mounting to PC boards. Black plastic body with through-shell grounding.



BOARD MOUNT EMI/RFI Shielded Series 71222. Receptacle with metal face to provide common ground between connectors, board and chassis. 360° shielding. Black plastic body.

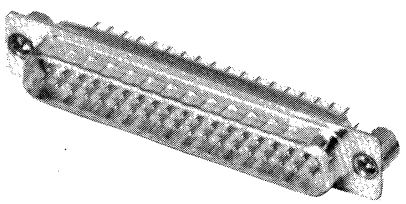
RDI ELECTRONICS INCORPORATED

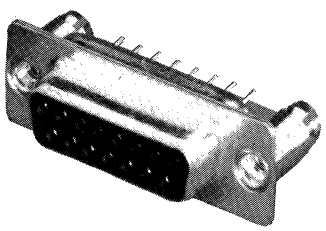
The following information is excerpted from our catalog. Please contact us for your complete guide to the components available from RDI Electronics.

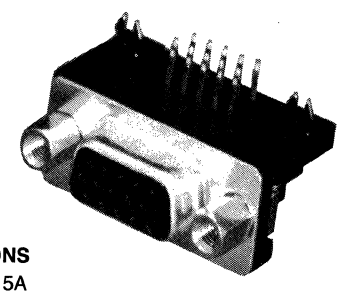
CONNECTORS

D-SUB TYPE

- Right angle, vertical and high density PC Mount.
- Panel & Chassis Mount.
- UL/CSA Approved.







MATERIAL AND FINISH

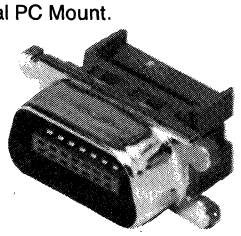
Shell Steel zinc plated or tin plated
Bracket Brass Strip-H, Tin plated
Pin contact Phosphor bronze gold plated over nickel
Rivet Brass, nickel plated
Insulator PBT with glass-fiber reinforced UL-94-V0, color black

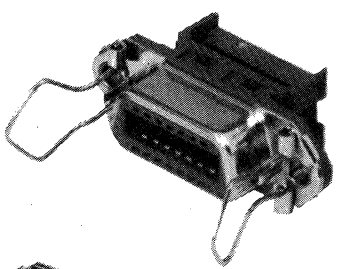
SPECIFICATIONS

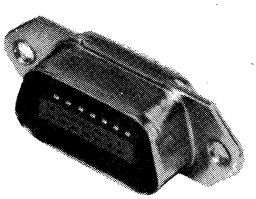
Rated Current 5A
Rated Voltage 300V DC
Withstand Voltage 500V (r.m.s.) AC for 1 min
Insulation Resistance More than 1000MΩ at 500DC
Contact Resistance 13mΩ Max
Dielectric Strength 1000V for one min
Temperature – 55°C ~ + 105°C

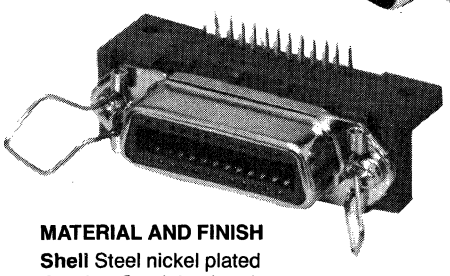
CENTRONIC TYPE

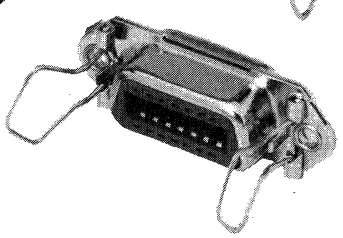
- Right angle and vertical PC Mount.
- I.D.C. in-line type.
- UL/CSA Approved.

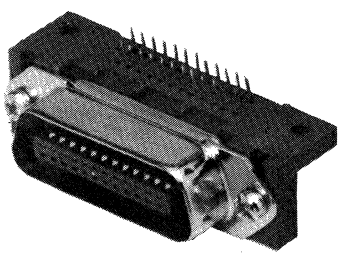












MATERIAL AND FINISH

Shell Steel nickel plated
Bracket Steel tin plated
Screw Brass nickel plated
Pin Contact Phosphor bronze gold plated over nickel
Insulator PBT with glass fiber reinforced UL-94-V0, Color: Blue

SPECIFICATIONS

Rated Current 5A
Rated Voltage 500V (r.m.s.) AC for 1 min
Insulation Resistance More than 1000MΩ at 500DC
Contact Resistance 25 mΩ max
Dielectric Strength 1000V for one min
Temperature – 55°C ~ + 105°C

FROM PROTOTYPE TO PRODUCTION, SPECIFY RDI ELECTRONICS FOR QUALITY, SERVICE AND COMPETITIVE PRICING.

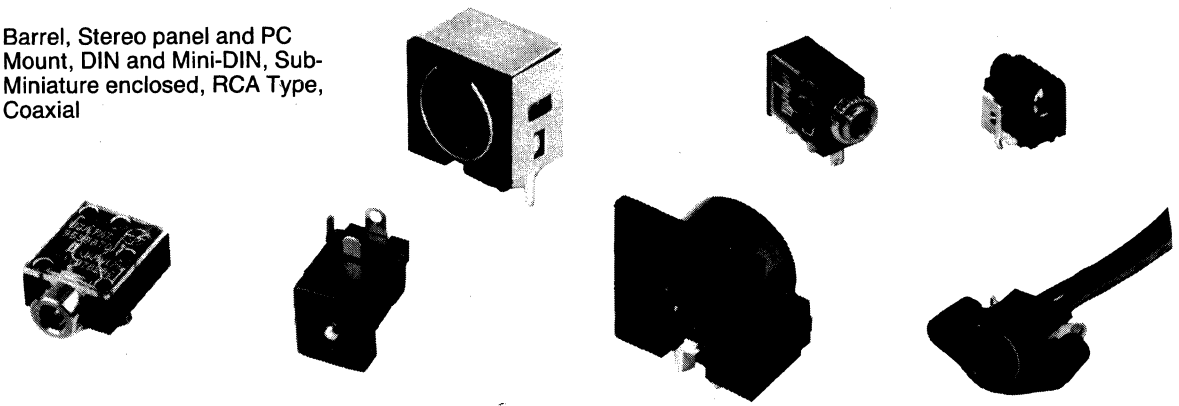
RDI Electronics, Inc.,/ Dept. E, 56 Harrison St., New Rochelle, NY 10801 Tel: 914-632-7274/ Fax: 914-632-7464

RDI ELECTRONICS INCORPORATED

The following information is excerpted from our catalog. Please contact us for your complete guide to the components available from RDI Electronics.

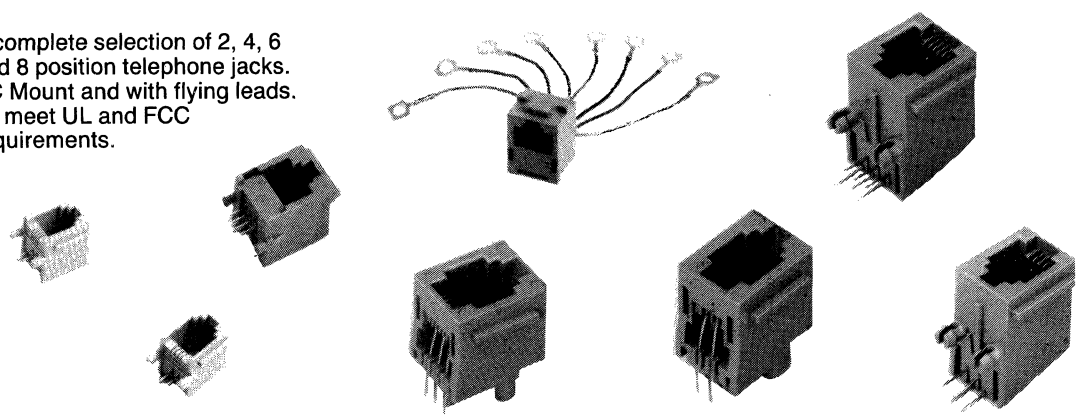
JACKS

Barrel, Stereo panel and PC Mount, DIN and Mini-DIN, Sub-Miniature enclosed, RCA Type, Coaxial



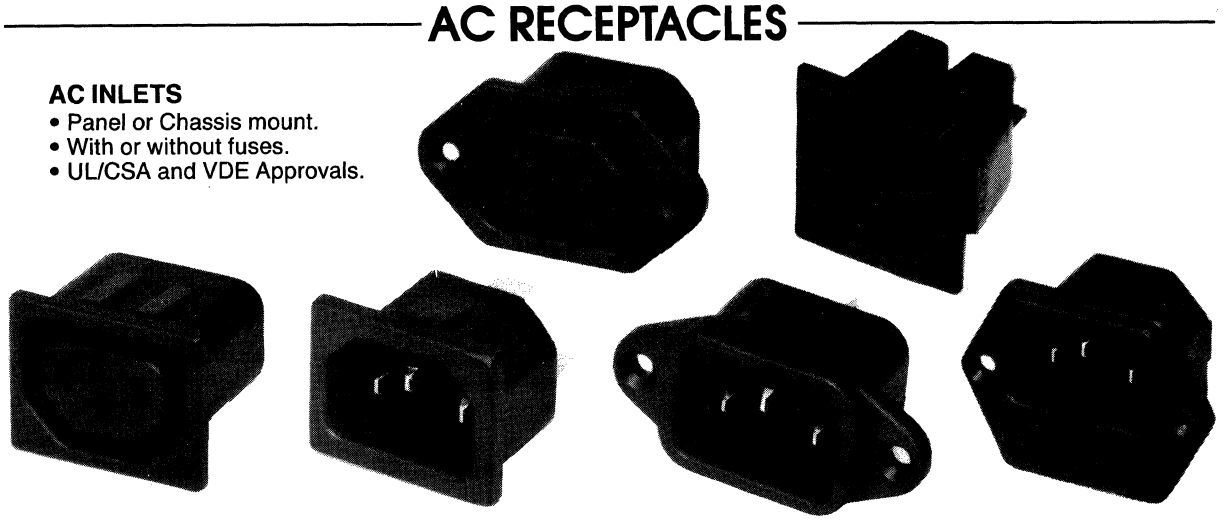
TELEPHONE JACKS

- A complete selection of 2, 4, 6 and 8 position telephone jacks.
- PC Mount and with flying leads.
- All meet UL and FCC requirements.



AC RECEPTACLES

AC INLETS
- Panel or Chassis mount.
- With or without fuses.
- UL/CSA and VDE Approvals.



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RDI Electronics, Inc.,/ Dept. E, 56 Harrison St., New Rochelle, NY 10801 Tel: 914-632-7274/ Fax: 914-632-7464

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
A/D acrylonitrile butadiene-styrene
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AFC audio frequency control
AFT automatic filter test
ALGOL algorithmic language
AM a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
ASIC application specific IC
ATE automatic test equipment
ATG automatic test generation
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility syste

C
CAD computer-aided design
CAE computer-aided engineering
CAM computer-aided manufacture
CAMAC computer-automated measurement and control
CAPP computer-aided process planning
CAT computer-aided test
CATV cable television or community antenna television
CCC (leaded) ceramic chip carriers
CCD computer-controlled display
CERMET ceramic metal element
CIE computer-integrated engineering
CIM computer-integrated manufacturing
CLCC ceramic leadless chip carriers
CMOS complementary metal-oxide semiconductor
Comm. communications
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DBMS data base management system
DC direct current
DFT design for testability
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DRAM dynamic RAM
DTL diode transistor logic

E
EDA electronic design automation
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EIA Electronic Industries Association
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM erasable programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide FET
CMIP commn management information protocol
GPIB general purpose interface bus
GPS global positioning system

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement, and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IAB Internet Activities Board
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared
ISDN integrated services digital network
ISO International Standards Organization

J
JEDEC Joint Electronic Device Engineering Council
JFET junction FET
JMOS junction MOS

K
kHz kilohertz (10^3 hertz)
KSR keyboard send /receive

L
LAN local area network
LC (filters) inductance/capacitance
LCC leaded chip carrier
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
µF microfarad
MHz megahertz
MIC microwave IC
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor FET
MOSIGT metal oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM national instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator
OSI open systems interconnection

P
PAL programmable array logic
PC printed circuit
PCB printed circuit board
PCM pulse code modulation
PCS plastic clad silica
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLCC plastic leaded chip carrier
PLL phased lock loop
PPI plan position indicator
PROM programmable ROM
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon-controlled switch
SDA source & detector assemblies
SGMP simple gateway monitoring protocol
SIDAC bidirectional voltage-triggered switch
SIMM single in-line memory module
SIP single in-line package
SMD surface mount device
SMT surface mount technology
SNMP simpole network management protocol
SO small outline
SOIC small outline IC
SOT small outline transistor
SSI small scale integration
SSR solid-state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCE thermal coefficient of expansion
TXCO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

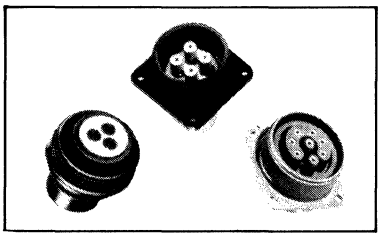
V
VAC volts (of) alternating current
VAN value-added network
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency (30 kHz to 300 MHz)
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W
WPS word processing software

Y
YIG yttrium iron garnet

Z
ZIF zero insertion force

RMC CONNECTOR SERIES *MULTI-CONTACT HIGH VOLTAGE CONNECTORS*



APPLICATIONS:

Designed for use wherever high reliability, low cost, multi-contact connectors are required:

- **ECM Gear**
- **Power Supplies**
- **Laser**
- **Radar**
- **X-Ray**
- **Displays**
- **Many Others**

OPERATION:

Rowe RMC Series, through the use of our exclusive tapered silicone rubber mating interfaces, offers corona-free, weathertight operation at high altitude and in a temperature range of -55°C to 200°C.

FEATURES

- **–55° to 200°C Temperature**
- **Field Assemblies**
- **Material Conform to Mil-Specs**
- **Highly Reliable**
- **Sea Level to 70,000 ft. Operation**
- **Environmentally Sealed Interface**

SPECIFICATIONS:

Shell body and related hardware is aluminum per Federal Specification QQ-A-591. Inserts are silicone rubber per ZZ-R-765 and in all styles except where noted, socket contacts are used in male insert and pin contact in female insert. Pin contacts are half hard brass and sockets are beryllium copper.

*NOTE: All connectors supplied unassembled as Kit with assembly instructions**

HOW TO ORDER:

ROWE RMC Connector Series are normally supplied unassembled with simple instructions which cover soldering or crimping contacts, assembly, potting, etc. If the customer wishes, Rowe will supply connectors terminated and tested to your specifications: please specify cable type and length, connector type and testing parameters.

CATALOG PART NUMBER EXPLANATION:

3 RMC 2406P 1/10/ - / -

SHELL STYLE
(See section on shell styles)
1 = Cable mounting connector (Female threaded coupling)
2 = Panel mounting connector (male threaded coupling)
3 = Cable mounting connector (male threaded coupling)
4 = Panel mounting connector with potting boot (male threaded coupling)

INSERT STYLE
(See section on insert styles). Insert Style determines shell size, number of contacts and contact type (pin or socket) and gage pin.

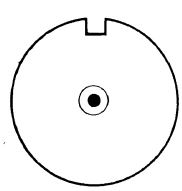
OPTIONS (Omit for standard)
SHELL PLATING:
Cadium per QQ-P-416, Type II, is standard
1 = Olive drab chromate per QQ-P-416, Type II, ClassC
2 = Black cadmium plate per QQ-P-416,Type II, Class C
4 = Electroless nickel per MIL-C-26074,Grade A, Class 4
CONTACT PLATING:
Gold plated per MIL-G-45204, class 1 is standard
STRAIN RELIEF:
20 = Cable clamp
20A = Cable Clamp W/Rubber Bushing
SPECIAL
CS = See customer drawing or specifications for special termination, etc.

**Insert styles 1211, 1221 & 1615 can be supplied assembled. If so desired, specify COA in lieu of Kit*

RMC CONNECTOR SERIES *INSERT STYLES*

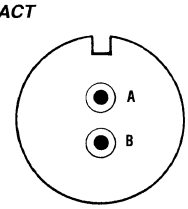
NOTE: Inserts shown are not actual size. See shell style for size. Insert contact layouts shown are of pin contact configuration.

SINGLE CONTACT



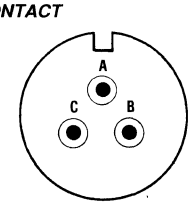
1001P insert style	16 KVDC	#20P	#10 shell size MOD
1001S insert style	16 KVDC	#20S	#10 shell size MOD
1802P insert style	30 KVDC	#20P	#18 shell size
1802S insert style	30 KVDC	#20S	#18 shell size
1803P insert style	30 KVDC	#14P	#18 shell size
1803S insert style	30 KVDC	#14S	#18 shell size
2204P insert style	50 KVDC	#16P	#22 shell size
2204S insert style	50 KVDC	#16S	#22 shell size
2405P insert style	30 KVDC	#12P	#24 shell size
2405S insert style	30 KVDC	#12S	#24 shell size

TWO CONTACT



2406P insert style	25 KVDC (pin to pin and pin to shell)	#12 P	#24 shell size
2406S insert style	25 KVDC (socket to socket and socket to shell)	#12 SZZ	#24 shell size

THREE CONTACT



1607P insert style	16 KVDC (pin to pin and pin to shell)	#20 P	#16 shell size MOD
1607S insert style	16 KVDC (socket to socket and socket to shell)	#20 S	#16 shell size MOD
2408P insert style	25 KVDC (pin to pin and pin to shell)	#12 P	#24 shell size MOD
2408S insert style	25 KVDC (socket to socket and socket to shell)	#12 S	#24 shell size MOD

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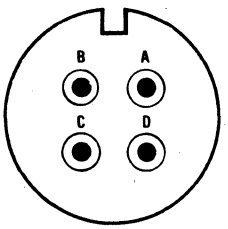
ROWE INDUSTRIES, INC. Talley Industries

For information on Rowe wire and cable assemblies see the Wire & Cable Section.

RMC Connector Series *INSERT STYLES*

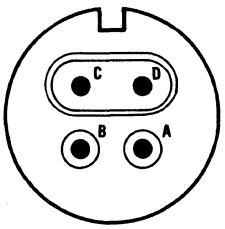
NOTE: Inserts shown are not actual size. See shell style for size. Insert contact layouts shown are of pin contact configuration.

FOUR CONTACT



1809P insert style	15 KVDC (pin to pin and pin to shell)	#16 P	#18 shell size MOD
1809S insert style	15 KVDC (socket to socket and socket to shell)	#16 S	#18 shell size MOD

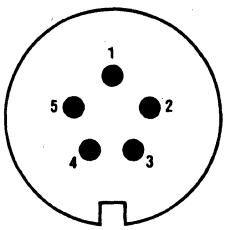
FOUR CONTACT



2810P insert style	20 KVDC (pin C and D) to pin A and B and Shell) 500 VDC (pin C to pin D) 500 VDC (pin A to pin B; pin A, B to shell)	#8 P (C,D) #16 P (A, B)	#28 shell size

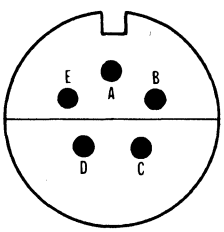
2810S insert style—above ratings apply

FIVE CONTACT



1211P insert style	10KVDC (pin to pin and pin to shell)	#20 P	#12 shell size MOD
1211S insert style	10 KVDC (socket to socket and socket to shell)	#20 S	#12 shell size MOD

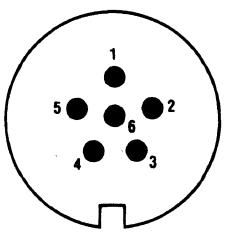
FIVE CONTACT



2812P insert style	25 KVDC (pin C to pin D; pin C, D to A, B, E and to shell) 5 KVDC (pin A, B, E to pin A, B, E and to shell)	#12 P	#28 shell size

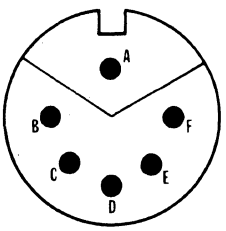
2812S insert style—above ratings apply

SIX CONTACT



1221P insert style	10 KVDC (pin to pin and pin to shell)	#20 P	#12 shell size MOD
1221S insert style	10 KVDC (socket to socket and socket to shell)	#20 P	#12 shell size MOD

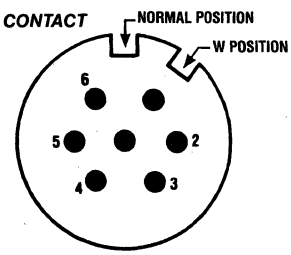
SIX CONTACT



2814P insert style	25 KVDC (pin A to other pins and to shell) 5 KVDC (pin B, C, E, F to other pins and to shell) 115 VDC (pin D to shell)	#12 P	#28 shell size

2814S insert style—above ratings apply

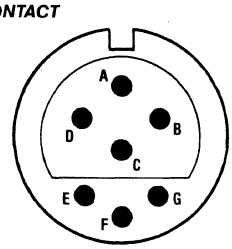
SEVEN CONTACT



1615P insert style	15 KVDC (pin to pin and pin to shell)	#20 P	#16 shell size
1615S insert style	15 KVDC (socket to socket and socket to shell)	#20 S	#16 shell size

NOTE: WHEN ORDERING THIS CONNECTOR INSERT, SPECIFY NORMAL POSITION AS 1615P OR W POSITION AS 1615PW.

SEVEN CONTACT

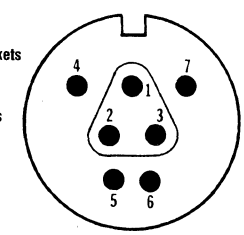


4016P insert style	15 KVDC (pin A, B, C, D to pin A, B, C, D, to pin E, F, G and to shell) 600 VDC (pin E, F, G to pin E, F, G and to shell)	#6 P (A,B,C,D) #14 P (E,F,G)	#40 shell size

4016S insert style—above ratings apply

SEVEN CONTACT

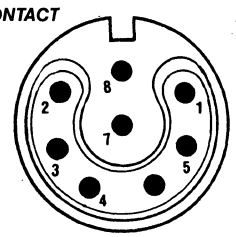
(Contacts 1, 2, 3 are sockets and 4, 5, 6, 7 are pins in plug ("S") type insert; contacts 1, 2, 3 are pins and 4, 5, 6, 7 are sockets in receptacle ("P") type insert)



★ 2417P insert style	600 VDC (pin 1, 2, 3 to pin 1, 2, 3) 15 KVDC (pin 1, 2, 3 to pin 4, 5, 6, 7 and to shell) 750 VDC (pin 4, 5, 6, 7 to pin 4, 5, 6, 7 and to shell)	#14 P	#24 shell size MOD

★ 2417S insert style—above ratings apply

EIGHT CONTACT

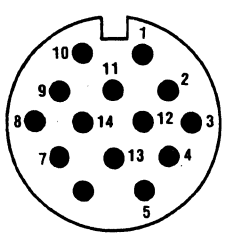


3218P insert style	30 KVDC (pin 7, 8 to other pins and to shell) 10 KVDC (pin 1, 2, 3, 4, 5, 6 to pin 1, 2, 3, 4, 5, 6 and to shell)	#16 P	#32 shell size

3218S insert style—above ratings apply

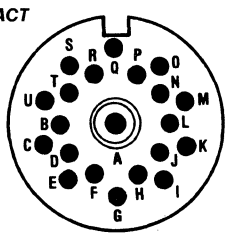
★ Denotes not tooled

FOURTEEN CONTACT



★ 3219P insert style	15 KVDC (pin to pin and pin to shell)	#20 P	#32 shell size
★ 3219S insert style	15 KVDC (socket to socket and socket to shell)	#20 S	#32 shell size

TWENTY-ONE CONTACT



4020P insert style	25 KVDC (pin A to other pins and to shell) 10 KVDC (all other pins to pins) 5 KVDC (all other pins to shell)	AWG P #12 AWG P (all others)	#40 shell size

4020S insert style—above ratings apply

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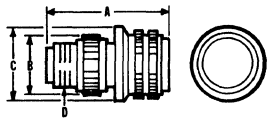
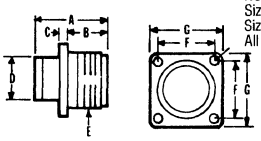
RMC Connector Series *CONNECTOR SHELL STYLES*

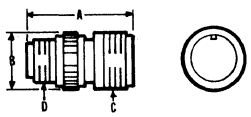


SHELL STYLE 1—Cable Mounting Connector (Male Threaded Coupling)

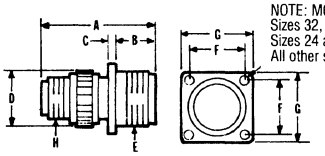


NOTE: MOUNTING HOLES
Sizes 32, 36, 40: .173 dia.
Sizes 24 and 28: .147 dia.
All other sizes: .120 dia.

SHELL STYLE 2—Panel Mounting Connector (Male Threaded Coupling)



SHELL STYLE 3—Cable Mounting Connector (Male Threaded Coupling)



NOTE: MOUNTING HOLES
Sizes 32, 36, 40: .173 dia.
Sizes 24 and 28: .147 dia.
All other sizes: .120 dia.

SHELL STYLE 4—Panel Mounting Connector with Potting Boot (Male Threaded Coupling)

SHELL STYLE 1

Shell Size	A	B	C	D Fitting Threads
10	15/16	5/8	7/8	1/2-28
10MOD	15/16	5/8	7/8	1/2-28
12	17/8	25/32	1	5/8-24
12MOD	1 13/32	25/32	7/8	5/8-24
14	17/8	7/8	1 1/8	3/4-24
16	1 57/64	1	1 1/4	7/8-20
16MOD	1 11/16	1	1 1/8	7/8-20
18	2	1 1/8	1 11/32	1-20
18MOD	1 27/32	1 1/8	1 11/32	1-20
20	2 1/8	1 1/4	1 15/32	1 3/16-18
22	2 1/8	1 3/8	1 19/32	1 3/16-18
24	2 1/4	1 1/2	1 23/32	1 7/16-18
28	2 1/4	1 3/4	1 31/32	1 7/16-18
32	2 3/8	2 1/32	2 7/32	1 3/4-18
36	2 3/8	2 1/4	2 15/32	2-18
40	2 3/8	2 1/2	2 23/32	2 1/4-16

SHELL STYLE 2

Shell Size	E Coupling Threads	C	A	B	D	F	G
10	5/8-24	5/64	27/32	9/16	1/2	23/32	1
10MOD	5/8-24	1/8	15/16	17/32	1/2	23/32	1
12	3/4-20	5/64	15/16	3/4	11/16	13/16	13/32
12MOD	3/4-20	5/64	7/8	7/16	11/16	13/16	13/32
14	7/8-20	5/64	15/16	3/4	3/4	29/32	13/16
16	1-20	1/8	1 11/32	3/4	7/8	31/32	1 9/32
16MOD	1-20	1/8	15/32	35/64	7/8	31/32	19/16
18	1 1/8-18	1/8	1 11/32	3/4	1	1 1/16	1 3/8
18MOD	1 1/8-18	1/8	15/32	9/16	1	1 1/16	1 3/8
20	1 1/4-18	1/8	1 11/32	3/4	1 1/8	1 5/32	1 1/2
22	1 3/8-18	1/8	1 11/32	3/4	1 1/4	1 1/4	1 5/8
24	1 1/2-18	1/8	1 11/32	13/16	1 3/8	1 3/8	1 3/4
28	1 3/4-18	1/8	1 11/32	13/16	1 5/8	1 9/16	2
32	2-18	1/8	1 7/16	7/8	1 29/32	1 3/4	2 1/4
36	2 1/4-16	1/8	1 7/16	7/8	2 1/8	1 15/16	2 1/2
40	2 1/2-16	1/8	1 7/16	7/8	2 3/8	2 3/16	2 3/4

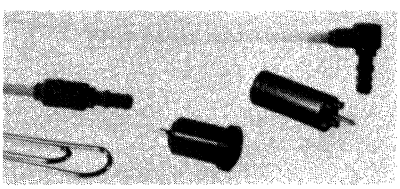
SHELL STYLE 3

Shell Size	C Coupling Threads	A	B	D Fitting Threads
10	5/8-24	1 5/16	5/8	1/2-28
10MOD	5/8-24	1 9/32	5/8	1/2-28
12	3/4-20	1 27/32	25/32	5/8-24
12MOD	3/4-20	1 3/8	25/32	5/8-24
14	7/8-20	1 27/32	7/8	3/4-20
16	1-20	1 57/64	1	7/8-20
16MOD	1-20	1 23/32	1	7/8-20
18	1 1/8-18	2	1 1/8	1-20
18MOD	1 1/8-20	1 53/64	1 1/8	1-20
20	1 1/4-18	2 1/8	1 1/4	1 3/16-18
22	1 3/8-18	2 1/8	1 3/8	1 3/16-18
24	1 1/2-18	2 1/4	1 1/2	1 7/16-18
28	1 3/4-18	2 1/4	1 3/4	1 7/16-18
32	2-18	2 3/8	2 1/32	1 3/4-18
36	2 1/4-16	2 3/8	2 1/4	2-18
40	2 1/2-16	2 3/8	2 1/2	2 1/4-16

SHELL STYLE 4

Shell Size	E Coupling Threads	C	A	B	D	F	G	
10	5/8-24	5/64	1 5/16	9/16	5/8	23/32	1	1/2-28
10MOD	5/8-24	1/8	1 9/32	17/32	5/8	23/32	1	1/2-28
12	3/4-20	5/64	1 27/32	3/4	25/32	13/16	13/32	5/8-24
12MOD	3/4-20	5/64	1 3/8	7/16	25/32	13/16	13/32	5/8-24
14	7/8-20	5/64	1 27/32	3/4	7/8	29/32	13/16	3/4-20
16	1-20	1/8	1 57/64	3/4	1	31/32	1 9/32	7/8-20
16MOD	1-20	1/8	1 23/32	35/64	1	31/32	1 9/32	7/8-20
18	1 1/8-18	1/8	2	3/4	1 1/8	1 1/16	1 3/8	1-20
18MOD	1 1/8-18	1/8	1 53/64	9/16	1	1 1/16	1 3/8	1-20
20	1 1/4-18	1/8	2 1/8	3/4	1 1/4	1 5/32	1 1/2	1 3/16-18
22	1 3/8-18	1/8	2 1/8	3/4	1 3/8	1 1/4	1 5/8	1 3/16-18
24	1 1/2-18	1/8	2 1/4	13/16	1 1/2	1 3/8	1 3/4	1 7/16-18
28	1 3/4-18	1/8	2 1/4	13/16	1 3/4	1 9/16	2	1 7/16-18
32	2-18	1/8	2 3/8	7/8	2 1/32	1 3/4	2 1/4	1 3/4-18
36	2 1/4-16	1/8	2 3/8	7/8	2 1/4	1 15/16	2 1/2	2-18

Tiny Might Series *ULTRA-MINIATURE HIGH VOLTAGE CONNECTORS*



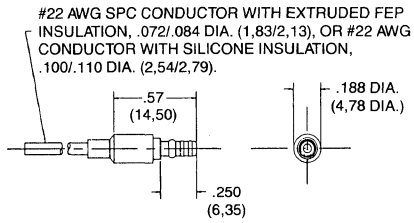
FEATURES

- **12 KV DC Operation**
- **Quick Disconnect/Push-Pull Mating**
- **Temperature Range −55°C to +125°C**
- **Ultra-Miniature Size**
- **Corona Resistant thru 70,000 ft.**
- **Mating/Unmating Force 1-3 lbs.**
- **Shock & Vibration Resistant**
- **Positive, Detented Mating and Locking Retention**

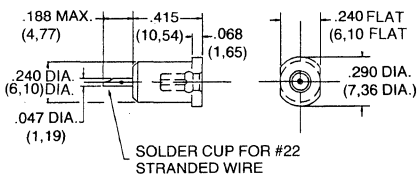
TECHNICAL DATA

Tiny Might Series, ultra-miniature, high voltage connectors are designed for applications demanding maximum operating capability with minimal size and weight. These rugged interconnects utilize Rowe's exclusive interfacial seal for dependable corona-resistant operation even at altitude and temperature extremes. Our locking retention mechanism insures positive mating when subjected to severe shock and vibration.

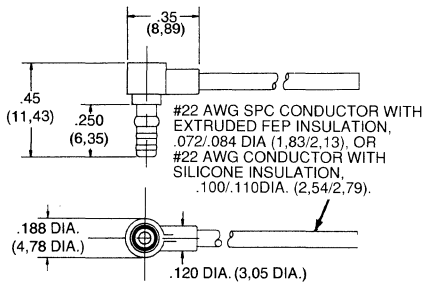
STRAIGHT TINY MIGHT PLUG P/N RC10048



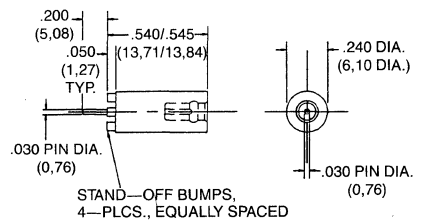
TINY MIGHT RECEPTACLE P/N RC10049



RIGHT ANGLE TINY MIGHT PLUG P/N RC10050



P.C. BOARD MOUNT TINY MIGHT RECEPTACLE P/N 3RC10049



UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE AS FOLLOWS: 2-PLC. ±.01 (0.25), 3-PLC. ±.005 (0.13)
(DIMENSIONS IN PARENTHESIS ARE IN MM)

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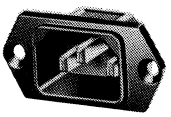
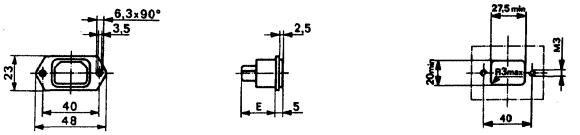
AC POWER CONNECTORS • 15 A/250 V 10 A/250V

International Standards: CEE, IEC, DIN, SEV, SNV

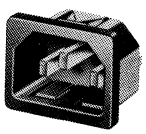


Flange mount type - Class I
6100.3100 solder tabs (3.5 x 0.8mm)
6100.3200 quick connect (4.8 x 0.8mm)
6100.3300 quick connect (6.3 x 0.8mm)

Flange mount type - Class II
6102.3100 solder tabs (3.5 0.8mm)
6102.3200 quick connect (4.8 x 0.8mm)
6102.3300 quick connect (6.3 x 0.8mm)



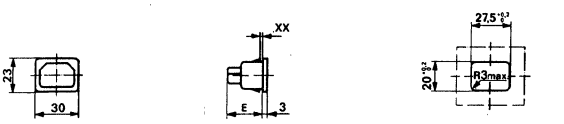
E = solder 20.5 mm or quick connect 23.5mm



Snap-in mount type - Class I
6100.41XX solder tabs (3.5 x 0.8mm)
6100.42XX quick connect (4.8 x 0.8mm)
6100.43XX quick connect (6.3 x 0.8mm)

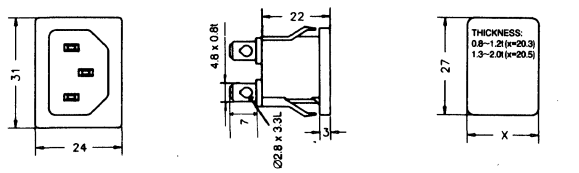
Snap-in mount type - Class II
6102.51XX solder tabs (3.5 x 0.8mm)
6102.52XX quick connect (4.8 x 0.8mm)
6102.53XX quick connect (6.3 x 0.8mm)

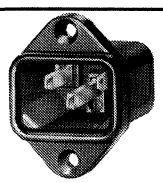
XX= panel thickness: 1.0, 1.2, 1.5, 2.0, 2.5, 3.0mm (e.g. 6100.5110=1.0mm)



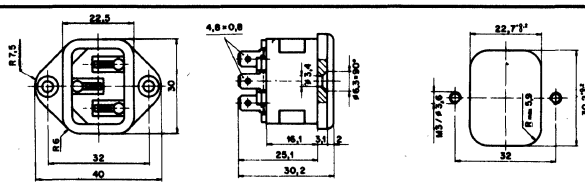
E = solder 22.5 mm or quick connect 25.5mm

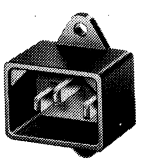
Snap-in mount type - Class I
4300.0704



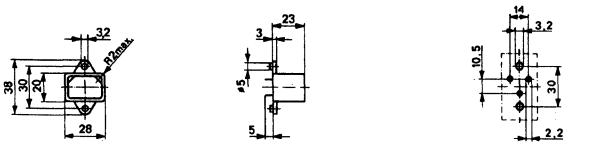


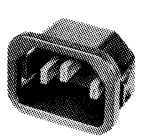
Flange mount type - Class I
4300.0052 quick connect (4.8 x 0.8mm)





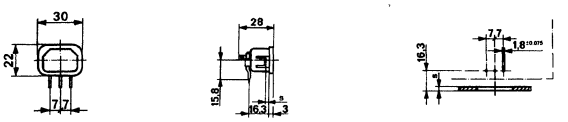
PC board
Flange mount type - Class I
4300.0076

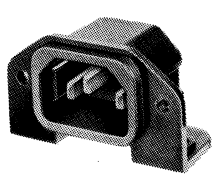




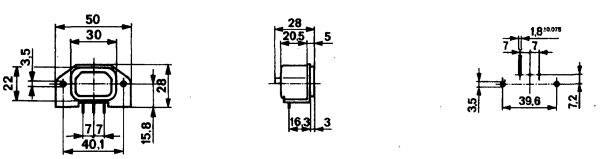
PC board
Snap-in mount type - Class I
6130.56XX

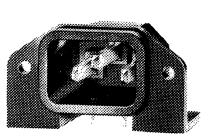
XX= panel thickness: 1.0, 1.2, 1.5, 2.0, 2.5, 3.0mm (e.g. 6130.5610=1.0mm)



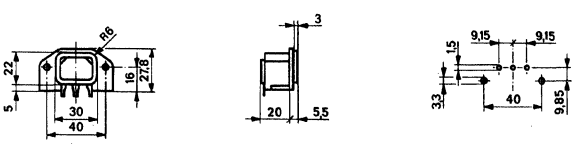


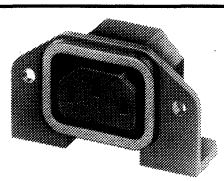
PC board
Flange mount type - Class I
Two piece unit with 6130.56XX
6130.6600



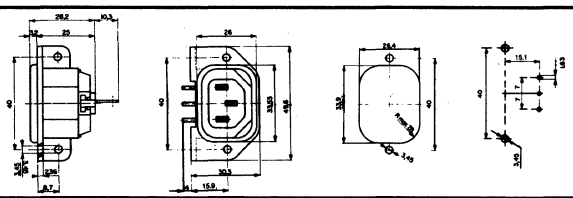


PC board
Flange mount type - Class I
4300.0071





PC board
Flange mount type - Class I
4300.0251



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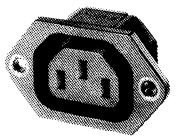
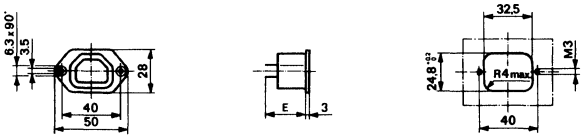
AC POWER CONNECTOR AND PLUGS •

International Standards: CEE, IEC, DIN, SEV, SNV

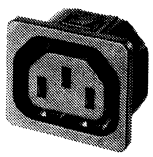


Flange mount type - Class I

6600.3100 solder tabs (3.5 x 0.8mm)
6600.3200 quick connect (4.8 x 0.8mm)
6600.3300 quick connect (6.3 x 0.8mm)

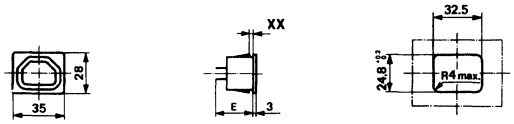


E = solder 24.1mm or quick connect 27.5mm



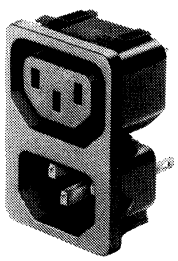
Snap-in mount type - Class I

6600.41XX solder tabs (3.5 x 0.8mm)
6600.42XX quick connect (4.8 x 0.8mm)
6600.43XX quick connect (6.3 x 0.8mm)

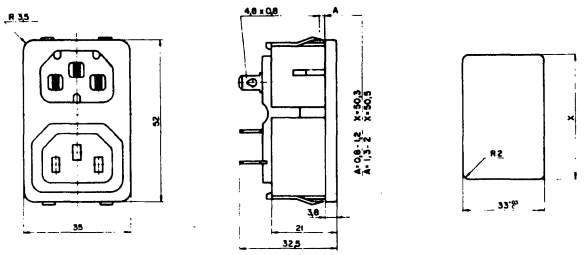


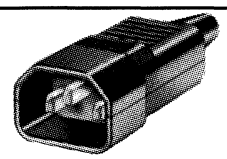
XX = panel thickness: 1.0, 1.5, 2.0, 2.5, 3.0mm (e.g. 6600.4110 = 1.0mm)

E = solder 24.1mm or quick connect 27.5mm

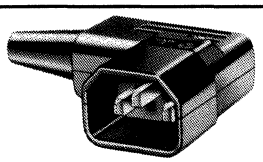


Snap-in mount type - Class I
UL, CSA, VDE, SEMKO, SEV 10A/250V
4300.0301

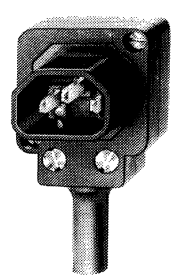




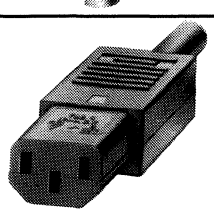
Plug with straight cable entry - Class I
UL, CSA 15A/250V; VDE, SEV 10A/250V
4300.0407



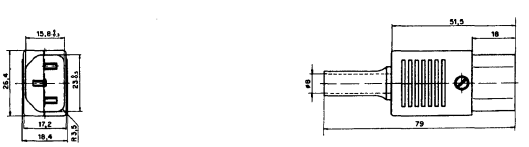
Plug with angled cable entry - Class I
UL, CSA 15A/250V; VDE, SEV 10A/250V
4300.0411

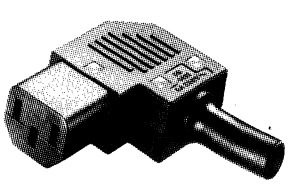


Plug with angled cable entry - Class I
UL, CSA 10A/250V; SEV 6A/250V
4300.0401

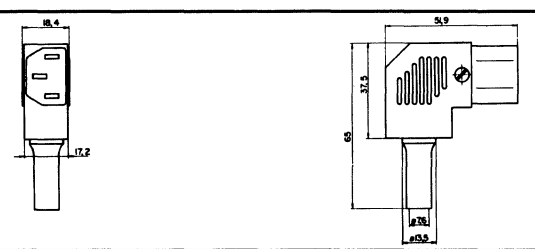


Plug with straight cable entry - Class I
UL, CSA, VDE, SEMKO, SEV 10A/250V
4300.0602





Plug with angled cable entry - Class I
UL, CSA 15A/250V pending;
SEMKO, SEV 10A/250V; VDE pending
4300.0606



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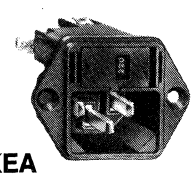
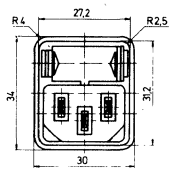
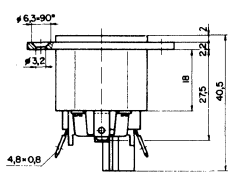
POWER ENTRY MODULES • CS Australia

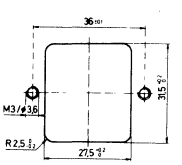
KEA ≙ AC Power Connector with 1 or 2 pole fuseholder and optional 2-4 position voltage selector KEC, KD ≙ AC Power Connector with 1 or 2 pole fuseholder for 5×20mm or ¼×1¼" fuses and optional 2-4 position voltage selector. KD includes integral or remote on/off switch.

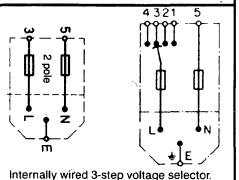
KEA





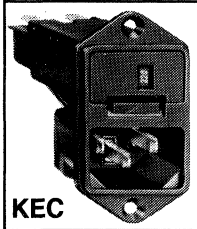


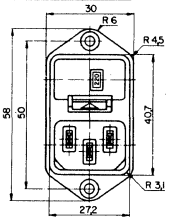


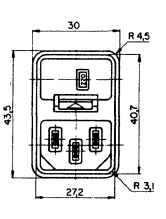


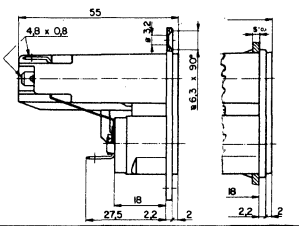
Internally wired 3-step voltage selector. Unwired types with 4-steps available.

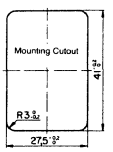
KEC



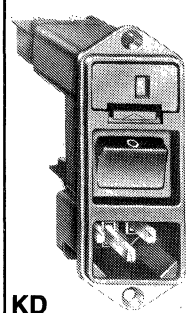


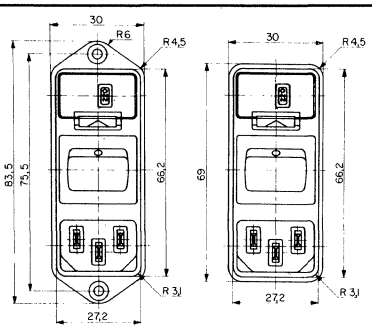


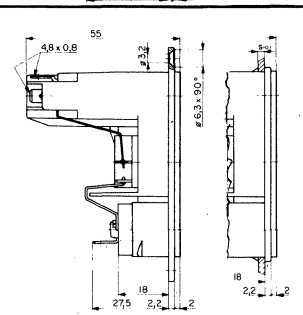


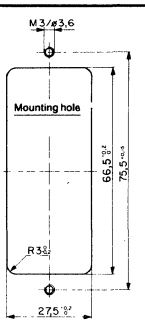


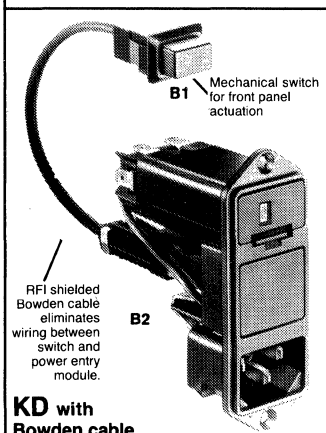
KD



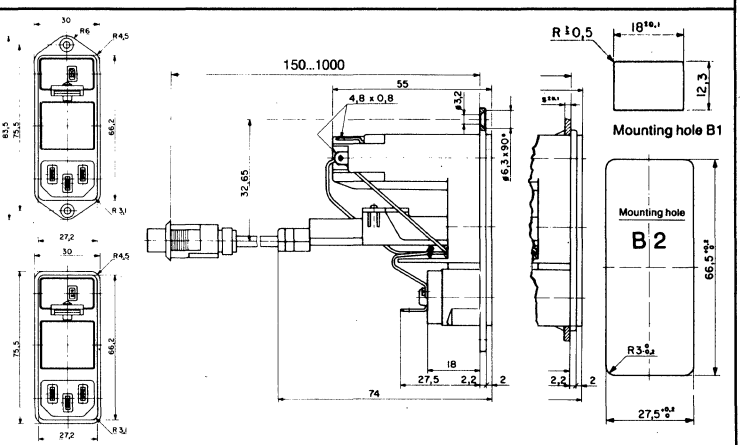








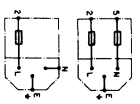
KD with Bowden cable



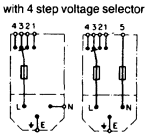
Schematics KEC

1 pole 2 pole

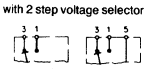
without voltage selector



with 4 step voltage selector

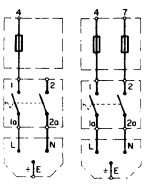


with 2 step voltage selector

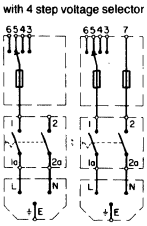


Schematics KD

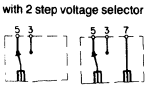
without voltage selector



with 4 step voltage selector



with 2 step voltage selector



KEA, KEC, KD Order Numbers (Casing, fusedrawer, and Bowden cable ordered separately)

Casings, 2-pole	Screw on	Snap-in 1.5mm	2.0mm	2.5mm
KEA 4301.0001	•			
KEA 4301.0002		•		
KEA 4301.0003			•	
KEA 4301.0004				•
KEC 4303.0181	•			
KEC 4303.0182		•		
KEC 4303.0183			•	
KEC 4303.0184				•
KD14.4101.151	•			
KD14.4101.105		•		
KD14.4101.107			•	
KD14.4101.109				•
KD with Bowden cable				
KD14.4199.151	•			
KD14.4199.105		•		
KD14.4199.107			•	
KD14.4199.109				•

Fusedrawers				
KEA, with voltage selector for 5×20mm fuses, markings 110, 150, 220		KEA, without voltage selector for 5×20mm fuses		Standard / Medical (IEC 601-1 VDE 0750-1)
2-pole	2-pole w/shorting bar	2-pole	2-pole w/shorting bar	
4301.1014.01	4301.3536.01	4301.1401	4301.1413	•
4301.1024.01	4301.3537.01	4301.1403	4301.1415	•
KEC, KD w/ voltage selector markings 100, 120, 220, 240 for 5×20mm fuses		KEC, KD w/ voltage selector markings 100, 120, 220, 240 for ¼×1¼" fuses		
2-pole	2-pole w/shorting bar	2-pole	2-pole w/ shorting bar	
4303.2014.01	4303.2036.01	4303.2714.01	4303.2736.01	•
4303.2024.01	4303.2037.01	4303.2724.01	4303.2737.01	•
KEC, KD without voltage selector for 5×20mm fuses		KEC, KD without voltage selector for ¼×1¼" fuses		
2-pole	2-pole w/shorting bar	2-pole	2-pole w/shorting bar	
4303.2401	4303.2411	4303.2902	4303.2912	•
4303.2403	4303.2413	4303.2904	4303.2914	•
BOWDEN CABLE				
886.0101	Standard cable < 500mm	886.xxxx Custom cable (Note: For optimum actuation, specify according to guidelines in full-line catalog)		
886.0501	Standard cable > 500mm			

SCHURTER

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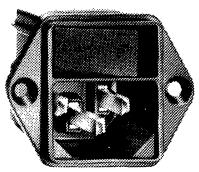
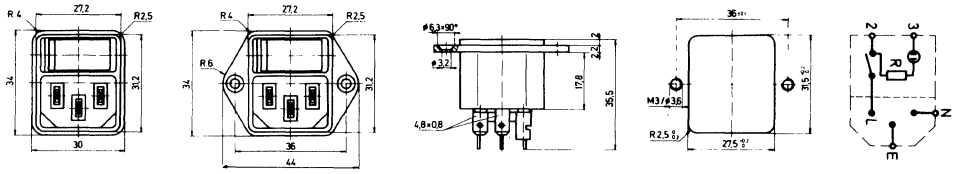
POWER ENTRY MODULES • CS Australia

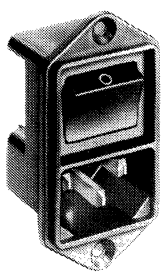
KEB ≙ AC Power Connector with 1 or 2 pole on/off switch. Optional 125V red or green lighted switch. KE, KG ≙ AC Power Connector with 1 or 2 pole fuseholder for 5×20mm or ¼×1¼" fuses and optional 2-4 position series-parallel voltage selector. KG includes integral on/off switch.

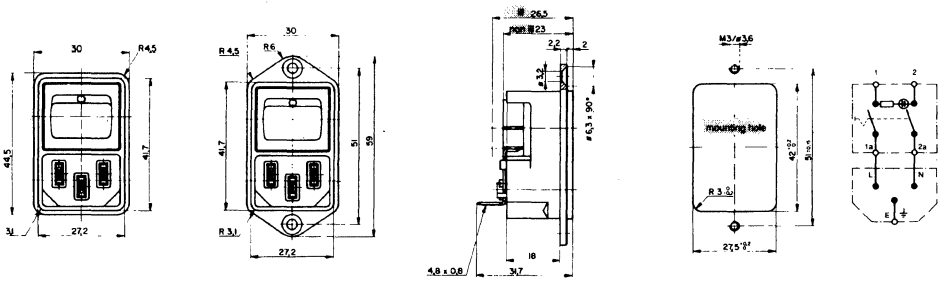
KEB 1-pole



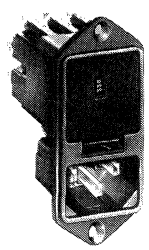


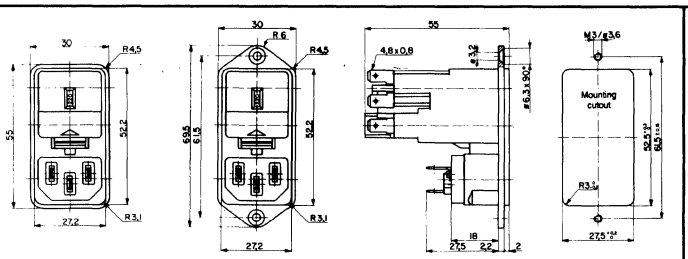
KEB 2-pole



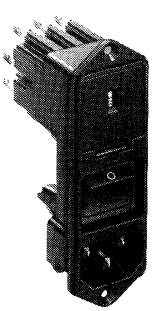


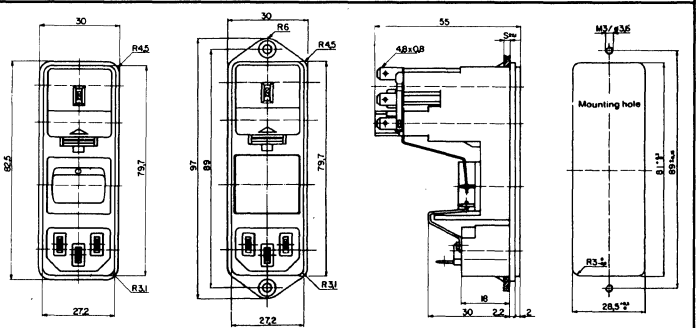
KE



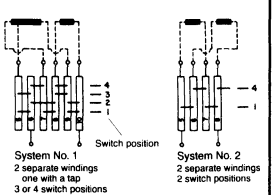


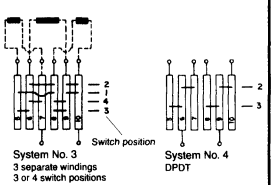
KG





VOLTAGE SELECTOR SYSTEMS





KEB Order Numbers

KEB 1-Pole unlighted	red 250V	red 125V	Screw on	Snap-in 1.5mm	2.0mm	2.5mm
KEB4302.0001	KEB4302.0101	KEB4302.0121	•			
KEB4302.0002	KEB4302.0102	KEB4302.0122		•		
KEB4302.0003	KEB4302.0103	KEB4302.0123			•	
KEB4302.0004	KEB4302.0104	KEB4302.0124				•

KEB 2-pole unlighted	red 125-250V	green 125-250V	Screw on	Snap-in 1.5mm	2.0mm	2.5mm
KEB4302.2001	KEB4302.2101	KEB4302.2121	•			
KEB4302.2002	KEB4302.2102	KEB4302.2122		•		
KEB4302.2003	KEB4302.2103	KEB4302.2123			•	
KEB4302.2004	KEB4302.2104	KEB4302.2124				•

KE, KG Order Numbers (Casing, Fusedrawer, and voltage selector insert ordered separately)

Casing KE 1-pole	2-pole	Screw on	Snap-in 1.5mm	2.0mm	2.5mm
KE16.5100.151	KE10.6100.151	•			
KE16.5100.105	KE10.6100.105		•		
KE16.5100.107	KE10.6100.107			•	
KE16.5100.109	KE10.6100.109				•

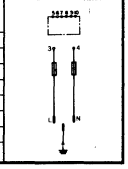
Casing KG 1-pole	2-pole	Screw on	Snap-in 1.5mm	2.0mm	2.5mm
KG16.5101.151	KG10.6101.151	•			
KG16.5101.105	KG10.6101.105		•		
KG16.5101.107	KG10.6101.107			•	
KG16.5101.109	KG10.6101.109				•

Fusedrawers

For 5×20mm fuses		2-pole black with shorting bar in the neutral side
1-pole black	2-pole black	
4305.0006	4305.0001	4305.0021
For ¼×1¼" fuses		**2-pole grey with shorting bar in the neutral side**
1-pole grey	2-pole grey	
4305.0017	4305.0012	4305.0027

Voltage Selector Inserts

Order No.	System No.	Voltage Markings/Switch position 1	2	3	4
4305.0048.00	1,2	Without Markings			
4305.0048.01	1	100	120	220	240
4305.0048.03	2	110			220
4305.0048.05	2	115			230
4305.0050.00	3	Without Markings			
4305.0050.02	3	130	110	240	220
4305.0050.06	3	150	110		220
4305.0049.00	4	Without Markings			



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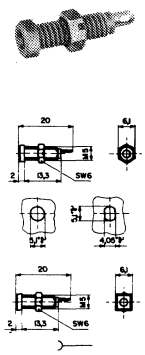
TEST JACKS AND PROBES

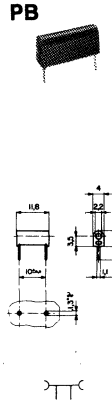
.080" For Panel and PCB Mounting

PBF



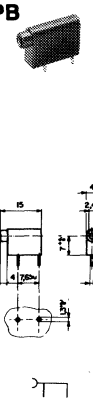
040.1031 black
040.1032 red
040.1033 green
040.1034 blue
040.1035 yellow

PB



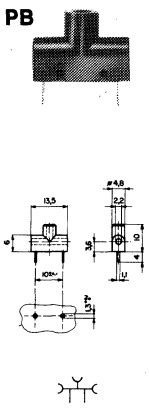
040.1071 black
040.1072 red
040.1073 green
040.1074 blue
040.1075 yellow

PB



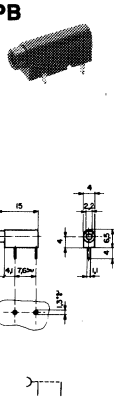
040.1011 black
040.1012 red
040.1013 green
040.1014 blue
040.1015 yellow

PB



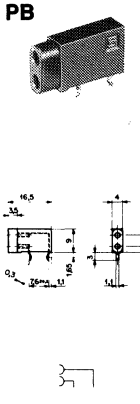
040.1021 black
040.1022 red
040.1023 green
040.1024 blue
040.1025 yellow

PB



040.1101 black
040.1102 red
040.1103 green
040.1104 blue
040.1105 yellow

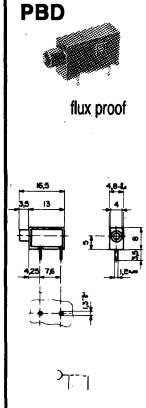
PB



040.1151 black
040.1152 red
040.1153 green
040.1154 blue
040.1155 yellow

PBD

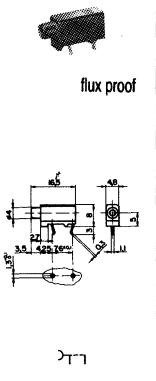
flux proof



040.1211 black
040.1212 red
040.1213 green
040.1214 blue
040.1215 yellow

PBD

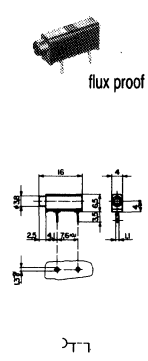
flux proof



040.1281 black
040.1282 red
040.1283 green
040.1284 blue
040.1285 yellow

PBK

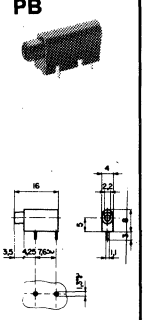
flux proof



040.1311 black

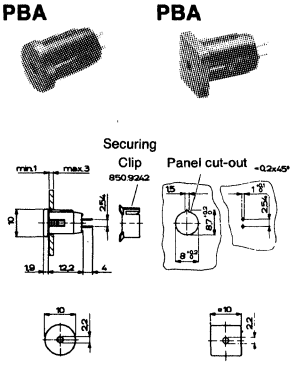
other colors on special order

PB



040.1111 black
040.1112 red
040.1113 green
040.1114 blue
040.1115 yellow

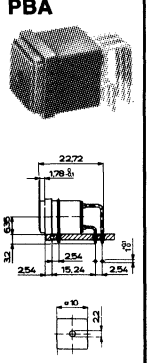
PBA



040.9202 red
040.9206 black

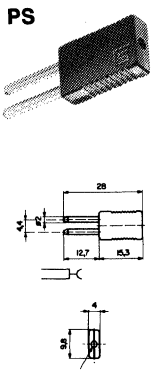
040.9212 red
040.9216 black

PBA



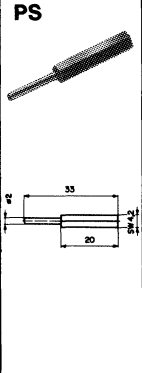
040.9222 red
040.9226 black

PS



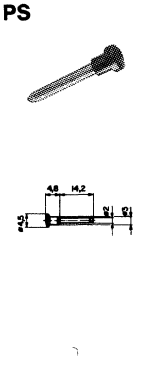
040.1161 black
040.1162 red
040.1163 green
040.1164 blue
040.1165 yellow

PS



040.1141 black
040.1142 red
040.1143 green
040.1144 blue
040.1145 yellow

PS



040.1061 black
040.1062 red
040.1063 green
040.1064 blue
040.1065 yellow

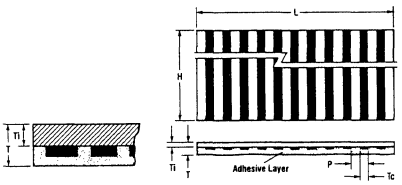
	PB 040.1011 -.1015	PB 040.1021 -.1025	PBF 040.1031 -.1035	PS 040.1061 -.1065	PB 040.1071 -.1075	PB 040.1101 -.1105	PB 040.1111 -.1115	PS 040.1141 -.1145	PB 040.1151 -.1155	PS 040.1161 -.1165	PBD 040.1211 -.1215	PBD 040.1281 -.1285	PBK 040.1311 -	PBA 040.9202 -.9226
Rated current	10 A	6.3 A	6.3 A	6.3 A	6.3 A	10 A	10 A	10 A	6.3 A	6.3 A	6.3 A	6.3 A	10 A	2 A
Insulation resistance Contact/Contact	-	-	-	-	-	$>10^4$mΩ	$>10^4$mΩ	-	$>10^4$mΩ	-	$>10^4$mΩ	$>10^4$mΩ	$>10^4$mΩ	-
dry. 500 V = Contact/Mounting plate	$>10^4$mΩ	$>10^4$mΩ	$>10^4$mΩ			$>10^4$mΩ	$>10^4$mΩ		$>10^4$mΩ	$>10^4$mΩ	$>10^4$mΩ	$>10^4$mΩ	$>10^4$mΩ	$>10^4$mΩ
Contact resistance at 20 m V	<7mΩ	<7mΩ	<5mΩ	-	<10mΩ	<7mΩ	<7mΩ	-	<7mΩ	<7mΩ	<10mΩ	<10mΩ	<5mΩ	<5mΩ
Test voltage, dry Contact/Contact	-	-	-	-	-	>3 kV	>2 kV	-	>2 kV	-	>2 kV	>2 kV	>2 kV	-
50 Hz, 1 min. Contact/Mounting plate	>2 kV	>1 kV	>1.5 kV		>0.5 kV	>3 kV	>3 kV		>2 kV	>1.8 kV	>2 kV	>1.2 kV	>3 kV	>1.5 kV
Temperature rating at no current	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C	-25°C- +100°C
Temperature rating at rated current	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C	-25°C- +70°C
Solderability 2 sec. 235°C IEC 68-2-20 Test Ta method 1	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Soldering Heat resistance 3 sec. 350°C			•											
5 sec. 260°C IEC 68-2-20 Test Tb method 1A	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Contact material	0.5µm Au	0.5µm Au	0.5µm Au	1µm Au	0.5µm Au	0.5µm Au	1µm Au	1.5µm Au	2µm Au	2µm Au	2.5µm Au	1µm Au	1µm Au	0.5µm Au on 2µNi
Insulator material	Polycarbonate											Polybutylen-therephtalate		Polycar-bonate
UL Flamability rating	UL 94 V-2											UL 94 V-0		UL 94 V-2

Shin-Etsu

OUR TECHNOLOGY IS CUSTOM SILICONE MOLDING AND UNIQUE, RELIABLE DESIGNS

SHIN-FLEX JC

The Shin-Flex™ JC connector consists of conductive carbon traces printed on a polyester sheet. A thermosetting, heat-seal adhesive, in which conductive particles are dispersed, is then applied. This allows highly-reliable bonding to PCB's, LCD's and other components.



DIMENSIONS		All dimensions are in millimeters
Size[a]	L x H	300 x 400 maximum
Size tolerance	L	±0.25 maximum
	H	±0.25 maximum
Pitch	P	0.5 minimum
Width of conductor	Tc	0.25 minimum
Pitch tolerance		±0.05 for 1.2 pitch or less
		±0.10 for 1.2 pitch or greater
Cumulative pitch tolerance		L=1-100: ±0.1; L > 100±0.1%
Thickness[b]	T	0.06 (maximum)
	Ti	0.025 (typical)

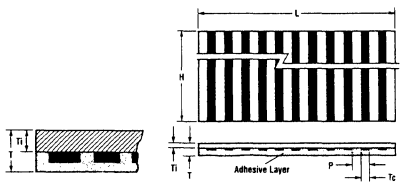
[a] Any size is available within the maximum size. Special sizes and shapes are available on special order.
[b] Insulative masking layer is available on special order.

SPECIFICATIONS
Operating temperature range -20° to 70°C
Storage temperature range -20° to 70°C
Insulation resistance[a] **(100 VDC)** 1 x 10^9 ohms or more
Dielectric strength Must withstand 250 VAC for 1 minute or more (with 0.6 mm pitch electrode)
Surface resistance 100Ω / □ or less
Peel strength (90°) 600 grams/cm or more
Bonding conditions (typical) 20±10kg/cm²; 7±2 seconds 110°-130°C (adhesive layer); 180°-220°C (heat sealer rubber surface interface)
Recommended storage temperature[b] 25°C or less

[a] Insulation resistance between the conducting segments.
[b] Typical shelf life is 3 months.

SHIN-FLEX JS

The Shin-Flex™ JS connector is similar to the JC connector except that the conductive traces are silver/carbon. The JS connector is used in applications which require low-resistance connectors.



DIMENSIONS		All dimensions are in millimeters
Size[a]	L x H	300 x 400 maximum
Size tolerance	L	±0.25 maximum
	H	±0.25 minimum
Pitch	P	0.3 minimum
Width of conductor	Tc	0.15 minimum
Pitch tolerance		±0.05 for 0.8 pitch or less
		±0.10 for 0.8 pitch or greater
Cumulative pitch tolerance		L=1-100 ±0.1; L > 100±0.1%
Thickness[b]	T	0.06 (maximum)
	Ti	0.025 (typical)

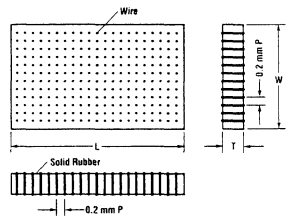
[a] Any size is available within the maximum size. Special sizes and shapes are available on special order.Maximum size for printing depends on the pitch.
[b] Insulative masking layer is available on special order.

SPECIFICATIONS
Operating temperature range -20° to 70°C
Storage temperature range -20° to 70°C
Insulation resistance[a] **(100 VDC)** 1 x 10^8 ohms or more
Dielectric strength Must withstand 250 VAC for 1 minute or more (with 0.2 mm pitch electrode)
Surface resistance .5 Ω / □ or less
Peel strength (90°) 600 grams/cm or more
Bonding conditions (typical) 30±10kg/cm²; 12±2 seconds 120°-140°C (adhesive layer); 180°-220°C (heat sealer rubber surface interface)
Recommended storage temperature[b] 25°C or less

[a] Insulation resistance between the conducting segments.
[b] Typical shelf life is 3 months.

SHIN-FLEX GD

The Shin-Flex™ GD connector consists of gold over nickel-plated brass fibers embedded evenly throughout a silicone insulating sheet. The fibers protrude several microns above the top and bottom surfaces, making easy connections with electrodes.



DIMENSIONS		All dimensions are in millimeters
Pitch	P	0.2 x 0.2±0.1
Width	W	1-20±0.1; 21-50±0.3
Length	L	1-20±0.1; 21-50±0.3; 51-100±1.0; >100±1.5%
Sheet thickness range	T	0.2 to 1.5 (.5 Std.) Tol ± 0.05
Fiber diameter		0.04
Max. sheet size		250 x 50

Test methods conform to JIS C 2123. Specifications marked with * are measured according to Shin-Etsu Polymer procedures.

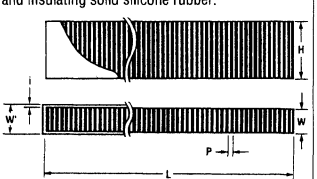
SPECIFICATIONS
***Contact resistance**[a] 0.5 ohms or less
***Insulation resistance (500 VDC)** 1x10^8 ohms
***Current carrying capacity**[c] 5 A/mm²
Operating temperature range -20° to 70°C
Storage temperature range -20° to 80°C

[a] Contact area 0.6mm²
[b] Insulation resistance between the conducting fibers (0.15mm)
[c] Compressed at 30%

Specifications are subject to change without notice. All technical information described herein is meant as a test result and is not warranted.

SHIN-FLEX S

The Shin-Flex™ S-Connector is the basis for a series of soft, low current interconnectors. They consist of alternating segments of conducting and insulating solid silicone rubber.

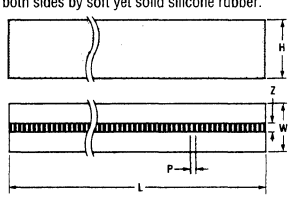


Pitch (P): S-05 0.05±0.03 **S-10** 0.10±0.04 **S-18** 0.18±0.05 **S-25** 0.25±0.05 **Length**[a] **(L):** 1.0-5.0 ±0.1; 5.1-30.0±0.2; 30.1-70.0±0.3; 70.1-120.0±0.4; 120.1-200.0±0.6; 200.1-300.0 (max)±0.8
Height (H): 0.8-5.0±0.1; 5.1-25.0 +0.15/-0.10
Width without edge insulator (W): 0.2-3.0±0.08
Width with edge insulator (W'): 0.3-3.0±0.1
Edge thickness (i): All models 0.05±0.03

[a] Lengths up to 370mm are available on special order.

SHIN-FLEX SS

The Shin-Flex™ SS connector consists of a norrow strip of S connector material, supported on both sides by soft yet solid silicone rubber.



Pitch (P): SS-05 0.05±0.03 **SS-10** 0.10±0.04 **SS-18** 0.18±0.05 **SS-25** 0.25±0.05 **Length (L):** 1.0-90.0 ±65%; 90.1-150.0±0.6; 150.1-200.0±0.8; 200.1-300.0 (max) ±1.0 **Height (H):** 0.8-5.0±0.1; 5.1or more +0.15/-0.10 **Width (W):** 1.2, 1.5, 1.8, 2.0, 2.3±0.1;2.6, 3.0, 3.5, 4.0, 4.5, 5.0±0.15
Width of core (Z): 0.3±0.05

[a] Lengths up to 370mm are available on special order.

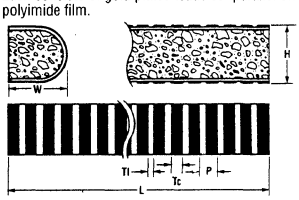
Test methods conform to JIS K 6301 and JIS C 2123. Specifications marked with * are measured according to Shin-Etsu Polymer procedures.

SPECIFICATIONS	Insulator	Conductor	Edge Insulator[a]	
Model	S / SS	S / SS	S	SS
Specific gravity	1.15	1.25	1.15	1.10
Tensile strength	70-85 kg/cm²	50-60 kg/cm²	70-85 kg/cm²	20-30 kg/cm²
Elongation	180-250%	150-200%[b]	180-250%	300-400%
Shore hardness	65-73	63-67[c]	65-73	20-25
***Compression set (3,000 hrs. at room temp.)**			15-20%	12-18%
Volume resistivity	1 x 10^{14} ohms-cm	3-6[d] ohm-cm	1x10^{14} ohm-cm	1x10^{13} ohm-cm
Breakdown voltage	23-27KV/mm	—	20-23 KV/mm	23-27 KV/mm
***Insulation resistance**[e] **(500 VDC)**			1x10^9 ohms or more	
Rated current density[f]			1 mA/mm²	
Operating temperature			-20° to 100°C	

[a] The specific gravity of model S-05 is 1.15.
[b] The elongation of model S-05 is 250%-330%.
[c] The shore hardness A of model S-05 is 60-65.
[d] The volume resistivity of model S-05 is 0.7-1.0 ohm-cm
[e] The insulation resistance between layers.
[f] The area of the conductor segment in contact with the electrode.

SHIN-FLEX NE

The Shin-Flex™ NE-Connector series is a line of high-current, low-resistance interconnectors. Each consists of gold plated leads set parallel on polyimide film.



Pitch (P): NE-2 0.2±0.05 **NE-4** 0.4±0.1 **Length (L):** 2-60±0.4; 60.1-100±0.6; 100.1-180±0.8 **Height by Width**[a] **(HxW):** 2.0x2.4; 2.3x2.9; 2.5x3.0; 3.0x3.6; 3.5x3.0; 3.5x4.2; 3.8x3.5; 4.0x4.8;±0.2 **Width of conductor (Tc): NE-2** 0.1±0.05 **NE-4** 0.2±0.1
Width of insulator (Ti): NE-2 0.1±0.05
NE-4 0.2±0.1

[a] Custom sizes and shapes are available on special order with tooling.

Test methods conform to JIS K 6301 and JIS C 2123. Specifications marked with * are measured according to Shin-Etsu Polymer procedures.

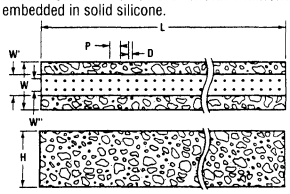
SPECIFICATIONS
SILICONE CORE
Specific gravity 0.6 **Foam factor** 250-300%
Tensile strength 3-6kg/cm² **Shore hardness A** 17-23
***Compression set (3,000 hrs. @ room temp.)** 15-20%
Volume resistivity 1x10^{13}ohm-cm
Breakdown voltage 2.0-2.5 KV/mm

INSULATOR FILM
Specific gravity 1.05 **Foam factor** 400-500%
Tensile strength 80-90 kg/cm²

CONDUCTOR
Contact Resistance 50m Ω
***Insulation resistance (500 VDC)** 1x10^9 ohms or more
Rated current density 100mA/mm²
Operating temperature range -20° to 100°C

SHIN-FLEX GN

The Shin-Flex™ GN-Connector is one of Shin-Etsu's series of low-resistance interconnectors. It consists of two rows of metal filaments embedded in solid silicone.



Pitch (P): GN-10 0.1+0.01/-0.03 **GN-20** 0.2±0.1
Length (L): 1.0-25.0±0.2; 25.1-50±0.3; 50.1-80.0±0.4; 80.1-120±0.5; 120.1-150.±0.6; 150.1-200.0±0.8; 200.1-260-0±1.0
Height[a] **(H):** 2.2-5.0±0.1; 5.1- +0.15/-0.10
Width (W): 2.0-2.3±0.1; 2.4-4.0±0.15 **Width of insulating core (W'):** 1.0 Ref **Conductor row spacing (W''):** 0.3 Ref
Filament diameter[b] **(d)** 0.03 Ref

[a] When the height is greater than the width, the use of a retainer is recommended.
[b] The filaments are gold-plated.

Test methods conform to JIS C 2123. Specifications marked with * are measured according to Shin-Etsu Polymer procedures.

SPECIFICATIONS
***Contact Resistance** 0.5 ohms or less
***Current carrying capacity**[b] 200mA w/0.6 wide electrode
***Insulation resistance (500 VDC)** 1x10^9 ohms or more
Operating temperature range -20°C to 70°C
Storage temperature range -40°C to 80°C
Optimum compression range H≤4.0 10% H>4.1 0.4mm (0.5mm is maximum)

[a] With 0.25mm gold-plated electrode width on PCB. The contact resistance of GN-20 is 1.0 ohms or less with 0.4mm gold-plated electrode width on PCB
[b] Compressed at 10%. The current carrying capacity of GN-20 is 100mA w/0.6mm wide electrode.

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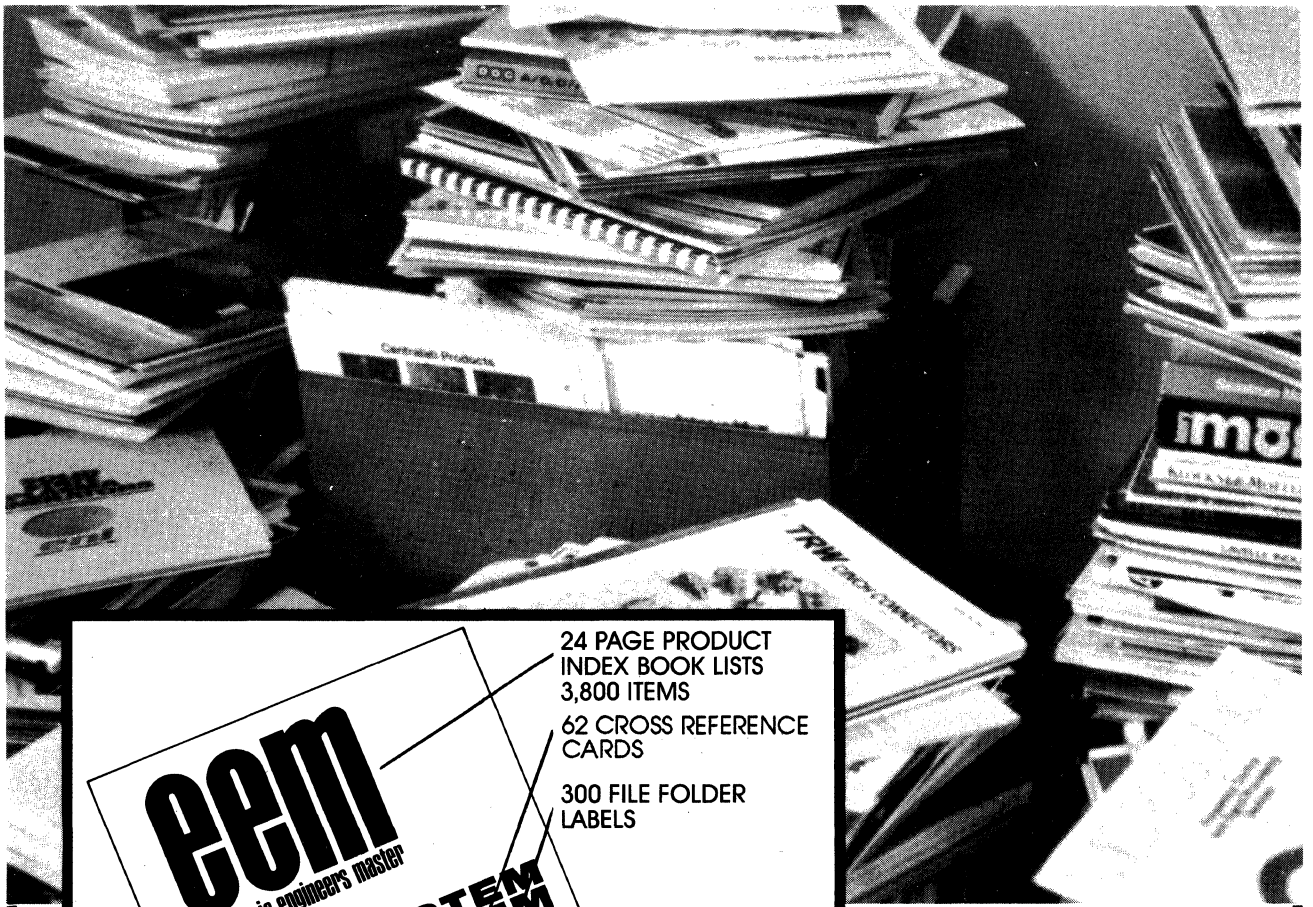

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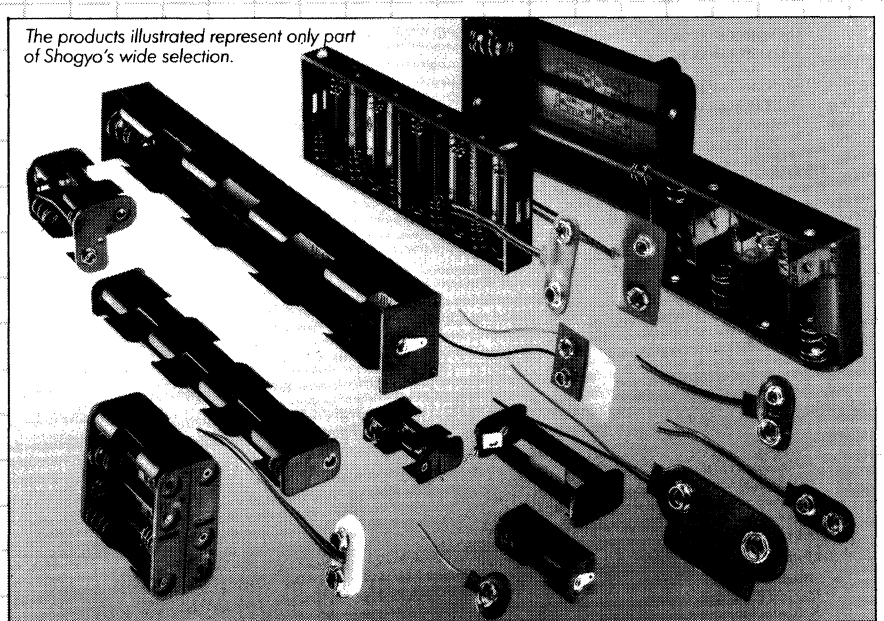

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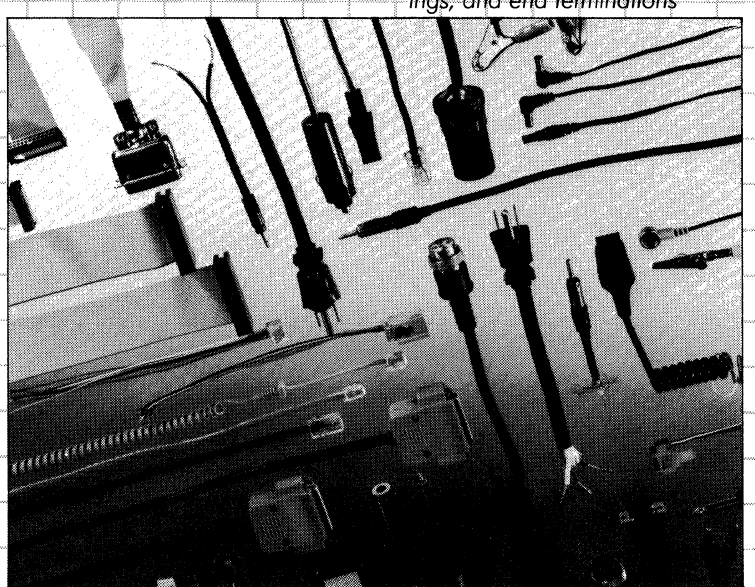

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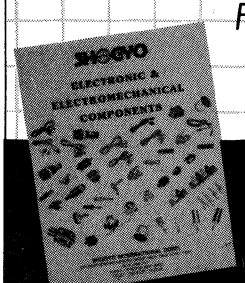

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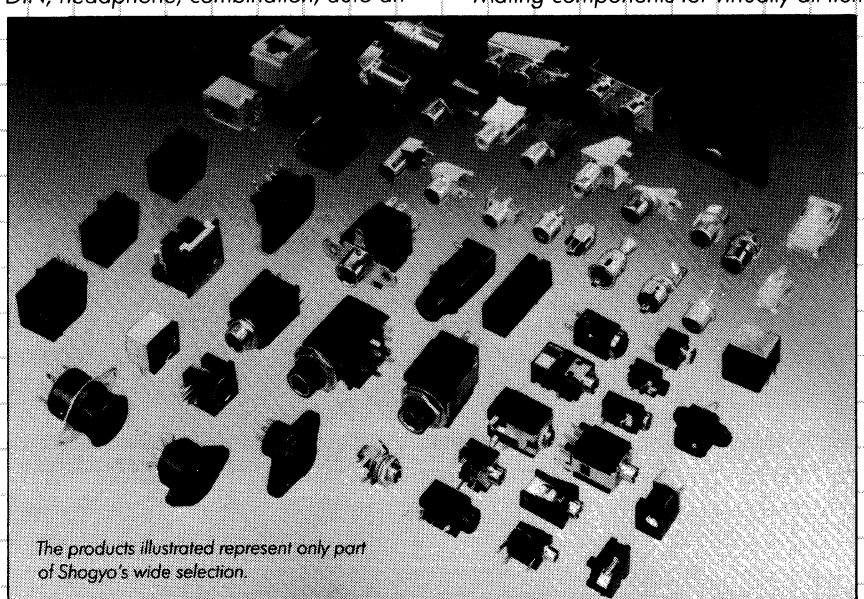

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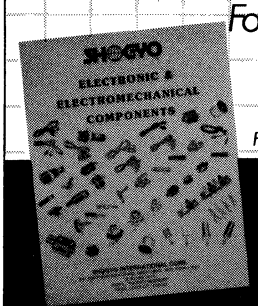

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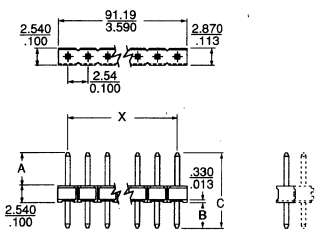
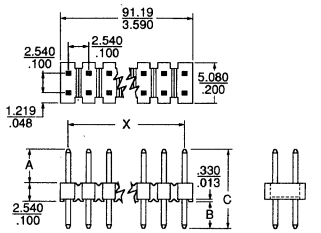
Single Row
2H, 3H SERIES



Dual Row
2H, 3H SERIES



Part Number Description

2H S XX S XX - XX

Series
2H "A" dim. = (5.84)/.230"
3H "A" dim. = (8.08)/.318"

No. of Rows
S = Single Row
D = Dual Row

Size
No. of pins/row 01 thru 36

Post
S = Straight

Plating
02-tin
05-5µ" selective gold
15-15µ" selective gold
30-30µ" selective gold

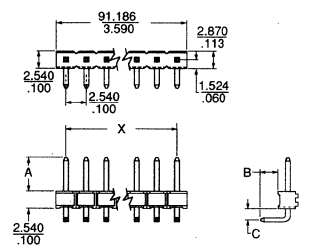
Tail Length
01 = B = 3.75/.125

EXAMPLE: 2HD30S02-01

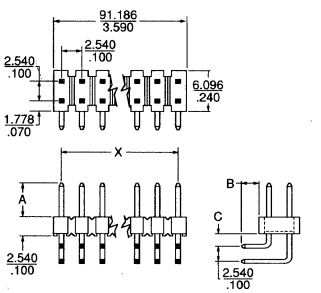
DESCRIPTION: A 2H series dual row pin header with 30 pins in each row, straight pins tin plated overall with .125" tail length.

NOTES:
1. Consult factory for plating and product specifications.
2. Available with PCB retention tails; for ordering information consult factory.
3. For high temperature applications add the prefix "H" to the part number. Example: H2HSXXSXX-XX. Material: PET - Polyethylene Terathalate. Color, tan.
4. Consult factory for other tail lengths.

Single Row - Right Angle
2H, 3H SERIES



Dual Row - Right Angle
2H, 3H SERIES



Part Number Description

2H S XX R XX - XX

Series
2H "A" dim. = (5.84)/.230"
3H "A" dim. = (8.08)/.318"

No. of Rows
S = Single Row
D = Dual Row

Size
No. of pins/row 01 thru 36

Post
R = Right Angle

Plating
02-tin
05-5µ" selective gold
15-15µ" selective gold
30-30µ" selective gold

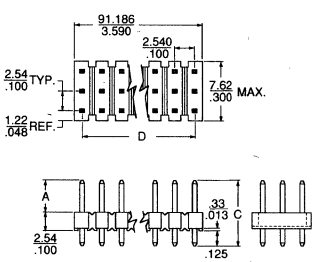
Tail Length
01 = B = 3.75/.125
C = 1.52/.060

EXAMPLE: 3HD22R02-01

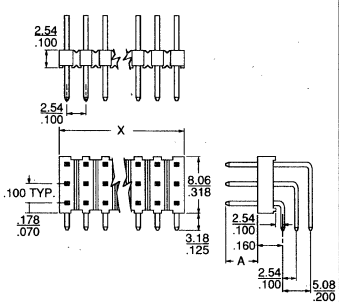
DESCRIPTION: A 3H series dual row pin header with 22 pins in each row, right angle pins tin plated overall.

NOTES:
1. Consult factory for plating and product specifications.
2. Available with PCB retention tails; for ordering information consult factory.
3. For high temperature applications add the prefix "H" to the part number. Example: H2HSXXSXX-XX. Material: PET - Polyethylene Terathalate. Color, tan.

Three Row - Straight
2H, 3H SERIES



Three Row - Right Angle
2H, 3H SERIES



Part Number Description

2H T XX R XX - XX

Series
2H "A" dim. = (5.84)/.230"
3H "A" dim. = (8.08)/.318"

Size
No. of pins/row 03 thru 36

Post
S = Straight
R = Right Angle

Plating
02-tin
05-5µ" selective gold*
15-15µ" selective gold
30-30µ" selective gold*

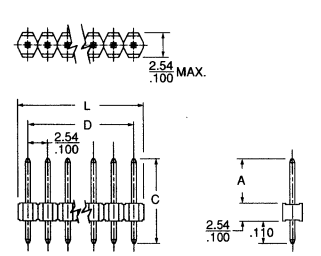
Tail Length
01 = .125

EXAMPLE: 2HT16R15-01

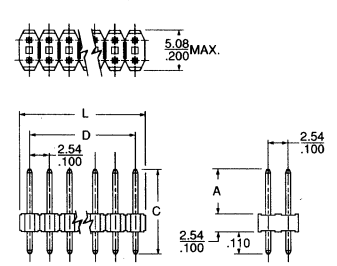
DESCRIPTION: A 2H series three row pin header with 16 pins in each row, right angle pins with 15µ" selective gold plating and tin plated tails.

NOTES:
1. *Straight only.
2. Consult factory for plating and product specifications.
3. Available with PCB retention tails; for ordering information consult factory.
4. For high temperature applications add the prefix "H" to the part number. Example: H5HSXXSXX-XX. Material: PET - Polyethylene Terathalate. Color, tan.
5. Consult factory for other tail lengths.

Economy - Single Row
2L, 3L SERIES



Economy - Dual Row
2L, 3L SERIES



Part Number Description

2L S XX S XX - XX

Series
2L "A" dim. = (5.84)/.230"
3L "A" dim. = (8.08)/.318"

No. of Rows
S = Single Row
D = Dual Row

Size
No. of pins/row 01 thru 40

Post
S = Straight

Plating
03-pre-plated tin
05-5µ" selective gold
10-10µ" selective gold
06-5µ" gold all over
11-10µ" gold all over

Tail Length
.110" Standard

EXAMPLE: 2LD12S10-01

DESCRIPTION: A 2L series dual row straight pin header with 12 pins in each row, 10µ" selectively gold plated with tin plated tails.

SPECIFICATIONS:
- Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black.
- Contact Material: Phosphor bronze

NOTES:
1. L = (No. of Positions - 1) X (.100) + .090
2. D ± .005 = (No. of spaces) X .100
3. Consult factory for plating and product specifications.

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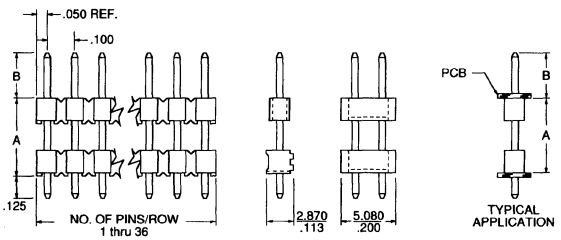
Printed Circuit Board Interconnections

.025" Square, Pin Headers .100" centers

Single & Dual Row
SC SERIES



Part Number Description

SC S XX XXX XXX - XX

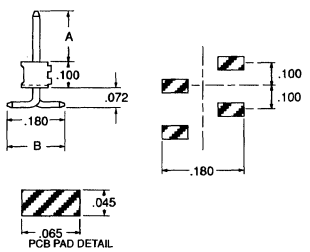
Series
No. of Rows
S = Single Row
D = Dual Row
Size
No. of pins/row 01 thru 36
Plating
02-tin
15-15µ" selective gold
30-30µ" selective gold
Post Height
(3 digits)
Dimension
between P.C. board (3 digits)

EXAMPLE: SCD-25-1.45-.318-15

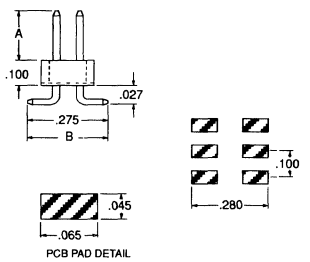
DESCRIPTION: Stacking connector dual 25 (50 pins) with the "A" dimension of 1.45, post height of .318". Selective plating 15 micro-inches of gold with tin plated tails.

NOTES: 1. Consult factory for plating and product specifications.
2. Available with PCB retention tails; for ordering information consult factory.
3. For high temperature applications add the prefix "H" to the part number. Example: HSCSXXSXX-XX. Material: PET - Polyethylene Terathalate. Color, tan.
4. Consult factory for other tail lengths.

SMT Single Row
2H, 3H SERIES



SMT Dual Row
2H, 3H SERIES



Part Number Description

SM 3H S XX S XX - XX

Series
2H "A" dim. = (5.84)/.230"
3H "A" dim. = (8.08)/.318"
No. of Rows
S = Single Row
D = Dual Row
Size
No. of pins/row 01 thru 36
Tail Length
see dimensions above
Plating
02-tin
15-15µ" selective gold
30-30µ" selective gold
Post
S = Straight

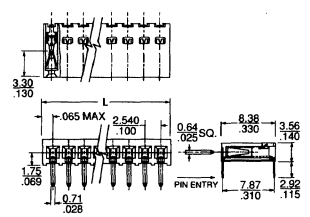
EXAMPLE: 2M3HD25S30-01

DESCRIPTION: A 3H series surface mounted dual row pin header with 25 pins in each row, 30µ" selective gold plating and tin plated tails.

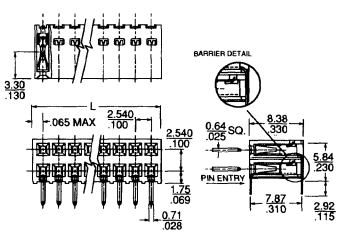
NOTES: 1. Consult factory for plating and product specifications see page 14.
2. Material: PET - Polyethylene Terathalate. UL flammability rating 94 V O. Color, tan.
3. Available in other "A" and "B" dimensions. Consult factory.

.025" Square, Receptacles Dual Beam Box

Horizontal - Single Row
101 SERIES



Horizontal - Dual Row
102 SERIES



Part Number Description

101 XX XX - XXX

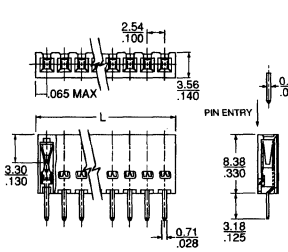
Series
101
102
Size
No. of contacts/row 01 thru 64
Tail Length
as shown
Plating
02-tin
30-30µ" selective gold

Material Selection
Standard glass filled thermoplastic
Insert "1" for polyphenylene sulfide; color, brown
Insert "2" for polyetherimide; color, blue
Insert "3" for PET - polyethylene terathalate; color, tan

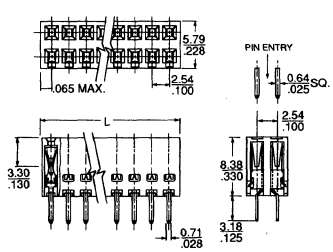
SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. Consult factory for plating and product specifications.

Top Entry, Vertical - Single Row
103 SERIES



Top Entry, Vertical - Dual Row
104 SERIES



Part Number Description

103 XX XX - XXX

Series
103
104
Size
No. of contacts/row 01 thru 64
Tail Length
000 Standard Product
010 Retention Tail
Plating
02-tin
30-30µ" selective gold

Material Selection
Standard glass filled thermoplastic
Insert "1" for polyphenylene sulfide; color, brown
Insert "2" for polyetherimide; color, blue
Insert "3" for PET - polyethylene terathalate; color, tan

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. Consult factory for plating and product specifications.

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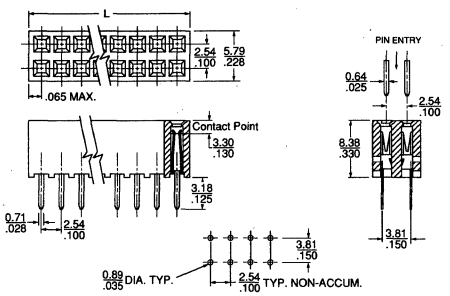
Printed Circuit Board Interconnections

Top Entry, Vertical - Dual Row - .100" x .150" PCB spacing

105 SERIES



Part Number Description

105 XX XX - XXX

- **Series / Size:** No. of contacts/row 02 thru 50
- **Material Selection:** Standard glass filled thermoplastic
  - Insert "1" for polyphenylene sulfide; color, brown
  - Insert "2" for polyetherimide; color, blue
  - Insert "3" for PET - polyethylene terathalate; color, tan
- **Plating:** 02-tin; 15-15µ" selective gold; 30-30µ" selective gold
- **Tail Length:** 000 Standard Product; 010 Retention Tail

EXAMPLE: 1052002-010

DESCRIPTION: A 105 series receptacle with 20 contacts in each row, tin plating with retention tails.

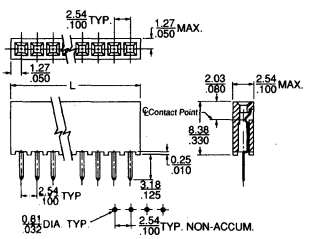
SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions -1) X (.100) + .130
2. Consult factory for plating and product specifications.

.025" Square, Receptacles .100" center - Economy

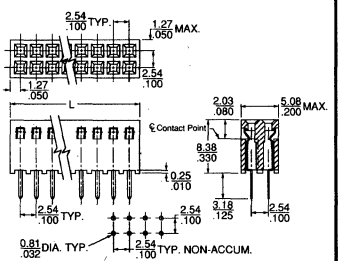
Top Entry, Vertical - Single Row

301 SERIES



Top Entry, Vertical - Dual Row

302 SERIES



Part Number Description

302 XX XX - 01

- **Series / Size:** 301, 302; No. of contacts/row 02 thru 52
- **Plating:** 02-tin; 05-5µ" gold flash; 15-15µ" selective gold; 30-30µ" selective gold
- **Tail Length:** 01 Standard Tail

EXAMPLE: 3022015-01

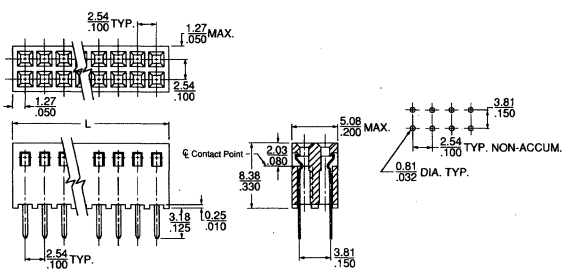
DESCRIPTION: A 302 series receptacle with 20 contacts/row, 15µ" selectively gold plated with tin plated tails.

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions - 1) X (.100) + .100
2. Consult factory for plating and product specifications.

Top Entry, Vertical - Dual Row

303 SERIES



Part Number Description

303 XX XX - 01

- **Series / Size:** No. of contacts/row 02 thru 50
- **Plating:** 02-tin; 05-5µ" gold flash; 15-15µ" selective gold; 30-30µ" selective gold
- **Tail Length:** 01 Standard Tail

EXAMPLE: 3030815-01

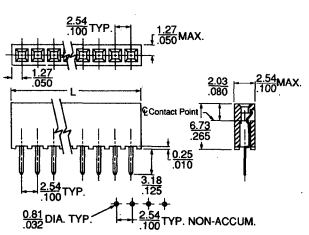
DESCRIPTION: A 303 series receptacle with 8 contacts/row, 15µ" selectively gold plated with tin plated tails.

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions - 1) X (.100) + .100
2. Consult factory for plating and product specifications.

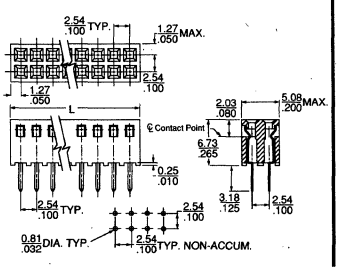
Top Entry, Vertical Low Profile - Single Row

304 SERIES



Top Entry, Vertical Low Profile - Dual Row

305 SERIES



Part Number Description

305 XX XX - 01

- **Series / Size:** 304, 305; No. of contacts/row 02 thru 52
- **Plating:** 02-tin; 05-5µ" gold flash; 15-15µ" selective gold; 30-30µ" selective gold
- **Tail Length:** 01 Standard Tail

EXAMPLE: 3051815-01

DESCRIPTION: A 305 series receptacle with 18 contacts/row, 15µ" selectively gold plated with tin plated tails.

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions - 1) X (.100) + .100
2. Consult factory for plating and product specifications.

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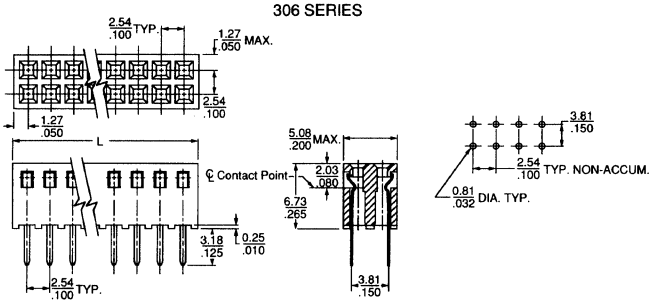
Printed Circuit Board Interconnections

.025" Square, Receptacles .100" center • Economy

Top Entry, Vertical - Low Profile - Dual Row .100" x .150" PCB spacing

306 SERIES



Part Number Description

306 XX XX 01

- Series / Size: No. of contacts/row 02 thru 50
- Plating: 02-tin; 05-5µ" gold flash; 15-15µ" selective gold; 30-30µ" selective gold
- Tail Length: 01 Standard tail

EXAMPLE: 3061515-01

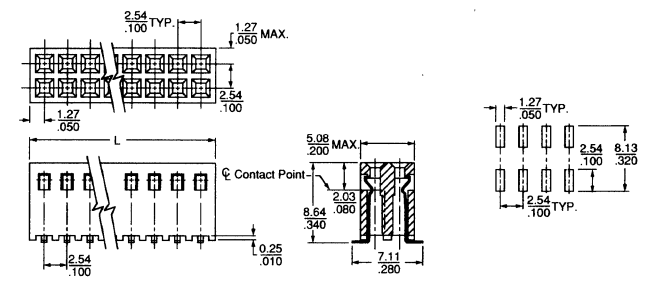
DESCRIPTION: A 306 series receptacle with 15 contacts/row, 15µ" selectively gold plated with tin plated tails.

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions -1) X (.100) + .130
2. Consult factory for plating and product specifications.

Top Entry, SMT - Dual Row

307 SERIES



Part Number Description

307 XX XX - 01

- Series / Size: No. of contacts/row 02 thru 50
- Plating: 02-tin; 05-5µ" gold flash; 15-15µ" selective gold; 30-30µ" selective gold
- Tail Length: 01 Standard Tail

EXAMPLE: 3072015-01

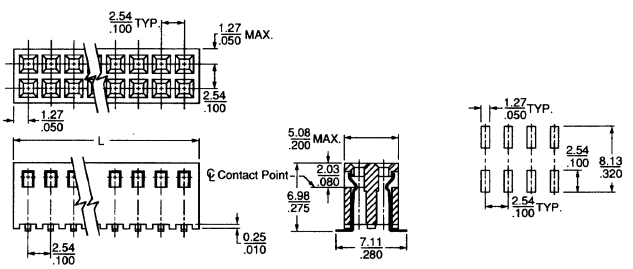
DESCRIPTION: A 307 series receptacle with 20 contacts/row, 15µ" selectively gold plated with tin plated tails.

SPECIFICATIONS: • Housing Material: High temperature thermoplastic, PET or LCP, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions - 1) X (.100) + .100
2. Consult factory for plating and product specifications.

Top Entry, SMT - Low Profile - Dual Row

308 SERIES



Part Number Description

308 XX XX - 01

- Series / Size: No. of contacts/row 02 thru 50
- Plating: 02-tin; 05-5µ" gold flash; 15-15µ" selective gold; 30-30µ" selective gold
- Tail Length: 01 Standard Tail

EXAMPLE: 3082015-01

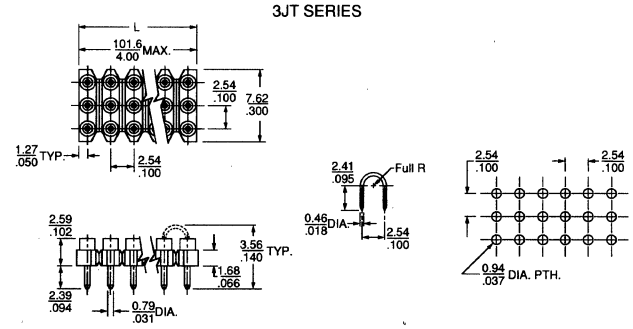
DESCRIPTION: A 308 series receptacle with 20 contacts/row, 15µ" selectively gold plated with tin plated tails.

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions - 1) X (.100) + .100
2. Consult factory for plating and product specifications.

Male Shunt, Low Profile - Three Row

3JT SERIES



Part Number Description

3JT XX S XX - 04

- Series / Size: No. of pins/row 01 thru 40
- Plating: 02-tin (body and contact); 30-30µ" selective gold (contact only, screw machine body tin plated)

MALE SHUNT

1009 XX

- Series
- Plating: 02-tin; 30-30µ" selective gold

EXAMPLE: 3JT20S30-04

DESCRIPTION: A 3JT series with 20 contacts/row, 30µ" selectively gold plated (contact only) with tin plated body.

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Socket, screw machine, brass body, BeCu spring contact
• Male Shunt, full hard drawn Phosphor bronze wire.

NOTES: 1. L = (No. of Positions - 1) X (.100) + .100
2. Consult factory for plating and product specifications.

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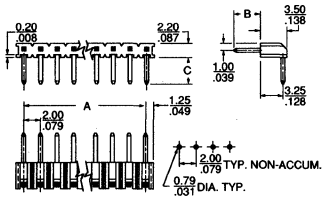
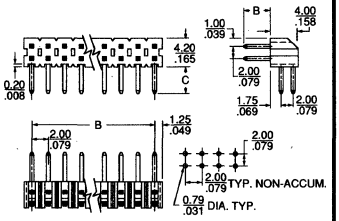
Printed Circuit Board Interconnections

0.5mm Square, Pin Headers 2mm centers

Single Row - Right Angle
2mm SERIES



Dual Row - Right Angle
2mm SERIES



Part Number Description

2M S XX R XX - B - C

- **Series** — 2mm
- **No. of Rows** — S = Single Row; D = Dual Row
- **Size** — No. of pins/row
- **Post** — R = Right Angle
- **Plating** — see below
- **Tail Length (DIM C)** — Specify in tenths of mm; 3.0 Std. (30)
- **Post (DIM C)** — Specify in tenths of mm; 3.7 & 4.0 mm Std. (37 & 40)

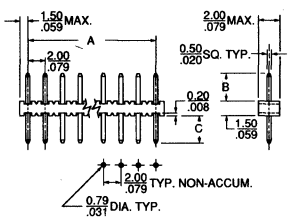
EXAMPLE: 2MD15R30-37-30

DESCRIPTION: This is a 2 mm series dual row pin header with 15 pins in each row, right angle, 30µ" selectively gold plated, with a 3.7 mm post and a 3.0 mm tail.

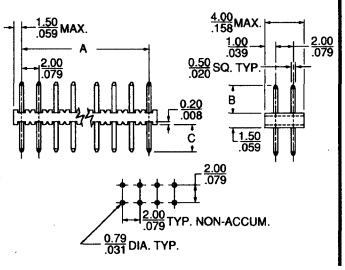
SPECIFICATIONS:

Housing Material: Glass filled thermoplastic. Flame retardant per UL 94 V-O. Color, black.
Contact Material: Drawn phosphor bronze wire 3/4 hard.
Contact Plating: All post-plated. All 1.27µm (50µ") minimum nickel underplate.
02: 3.81µm (150µ") 90/10 tin/lead all-over.
15: 0.38µm (15µ") gold contact area; 3.81µm (150µ") 90/10 tin/lead all-over.
30: 0.76 (30µ") gold contact area; 3.81µm (150µ") 90/10 tin/lead all-over.

Single Row - Straight
2M SERIES



Dual Row - Straight
2M SERIES



Part Number Description

2M S XX S XX - B - C

- **Series** — 2mm
- **No. of Rows** — S = Single Row; D = Dual Row
- **Size** — No. of pins/row
- **Post** — S = Straight
- **Plating** — see below
- **Tail Length (DIM C)** — Specify in tenths of mm; 3.0 Std. (30)
- **Post (DIM C)** — Specify in tenths of mm; 3.7 & 4.0 mm Std. (37 & 40)

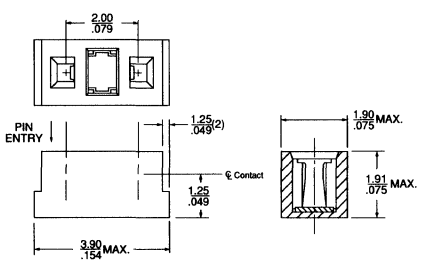
EXAMPLE: 2MD15S30-37-30

DESCRIPTION: This is a 2 mm series dual row pin header with 15 pins in each row, straight, 30µ" selectively gold plated, with a 3.7 mm post and a 3.0 mm tail.

SPECIFICATIONS:

Housing Material: Glass filled thermoplastic. Flame retardant per UL 94 V-O. Color, black.
Contact Material: Drawn phosphor bronze wire 3/4 hard.
Contact Plating: All post-plated. All 1.27µm (50µ") minimum nickel underplate.
02: 3.81µm (150µ") 90/10 tin/lead all-over.
15: 0.38µm (15µ") gold contact area; 3.81µm (150µ") 90/10 tin/lead all-over.
30: 0.76 (30µ") gold contact area; 3.81µm (150µ") 90/10 tin/lead all-over.

2mm Shunt - Ultra-low Profile
2MS SERIES



Part Number Description

2MS - ULP - XX

- **Series** — 2MS
- **Size**
- **Plating** — 02-tin; 30-30µ" selective gold

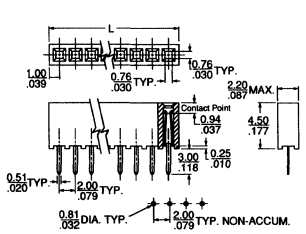
EXAMPLE: 2MS-ULP-30

DESCRIPTION: This is a 2 mm ultra low profile shunt, 30µ" gold plated.

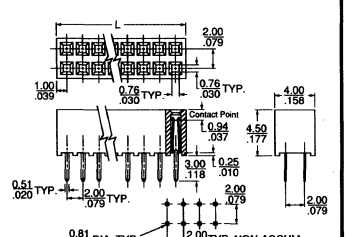
SPECIFICATIONS:
- Housing Material: High temperature thermoplastic, LCP, UL flammability rating 94 V-O. Color, black
- Contact Material: BeCu 0.10/.004 thk., fully hardened.
- Finish: 02: 3.81µm (150µ") 90/10 tin/lead over 1.27µm (50µ") nickel all-over.
  30: .76µm (30µ") gold over 1.27µm (50µ") nickel all-over.

0.5mm Square, Receptacles 2mm centers

Top Entry, Vertical - Single Row
201 SERIES



Top Entry, Vertical - Dual Row
202 SERIES



Part Number Description

201 XX XX - 01

- **Series** — 201; 202
- **Size** — No. of contacts/row 02 thru 50
- **Plating** — 02-tin; 15-15µ" selective gold; 30-30µ" selective gold
- **Tail Length** — 01 Solder Tail

EXAMPLE: 2012515-01

DESCRIPTION: A 201 series 2 mm single row straight receptacle with 25 contacts, 15µ" selectively gold plated with solder tails.

SPECIFICATIONS:
- Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
- Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions - 1) X (.079) + .079
2. Consult factory for plating and product specifications.

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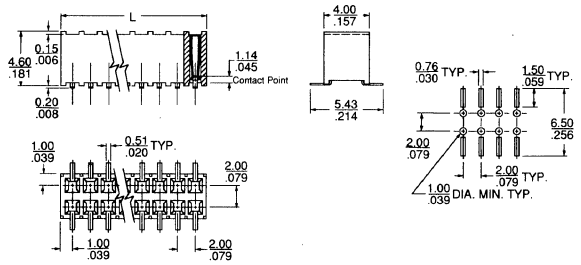
Printed Circuit Board Interconnections

0.5mm Square, Receptacles 2mm centers

Bottom Entry, SMT - Dual Row

203 SERIES



Part Number Description

203 XX XX - 01

- **Series** — 203
- **Size** — XX: No. of contacts/row 02 thru 50
- **Tail Length** — 01-SMT
- **Plating** — 02-tin; 15-15µ" selective gold; 30-30µ" selective gold

EXAMPLE: 2031515-01

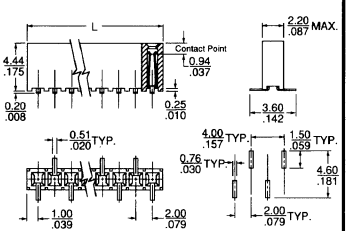
DESCRIPTION: A 203 series 2 mm dual row straight receptacle with 15 contacts/row, 15µ" selectively gold plated and tin plated SMT tails.

SPECIFICATIONS: • Housing Material: Polyethelene Terathalate (PET), UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions -1) X (.079) + .079
2. Contact factory for plating and product specification.

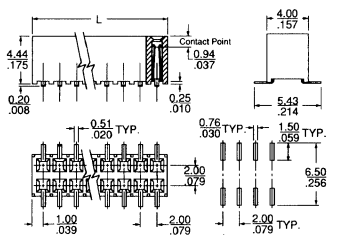
Top Entry, SMT - Single Row

204 SERIES



Top Entry, SMT - Dual Row

205 SERIES



Part Number Description

204 XX XX - 01

- **Series** — 204 (Top Entry, SMT - Single Row); 205 (Top Entry, SMT - Dual Row)
- **Size** — XX: No. of contacts/row 02 thru 50
- **Tail Length** — 01-SMT
- **Plating** — 02-tin; 15-15µ" selective gold; 30-30µ" selective gold

EXAMPLE: 2042002-01

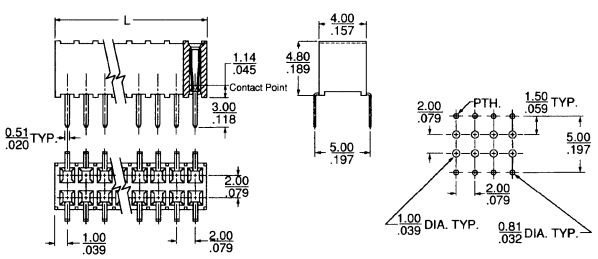
DESCRIPTION: A 204 series 2 mm single row straight receptacle with 20 contacts, tin plated SMT tails.

SPECIFICATIONS: • Housing Material: Polyethelene Terathalate (PET), UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions -1) X (.079) + .079
2. Contact factory for plating and product specification.

Bottom Entry, Vertical - Dual Row

206 SERIES



Part Number Description

206 XX XX - 01

- **Series** — 206
- **Size** — XX: No. of contacts/row 02 thru 50
- **Tail Length** — 01 solder tail
- **Plating** — 02-tin; 15-15µ" selective gold; 30-30µ" selective gold

EXAMPLE: 2062530-01

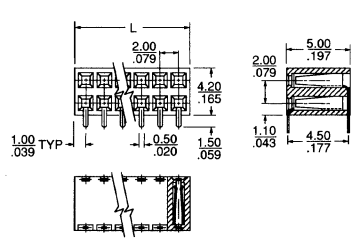
DESCRIPTION: A 206 series 2 mm dual row straight receptacle with 25 contacts/row, 30µ" selectively gold plated with solder tails.

SPECIFICATIONS: • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-O. Color, black
• Contact Material: Phosphor bronze

NOTES: 1. L = (No. of Positions - 1) X (.079) + .079
2. Contact factory for plating and product specification.

Horizontal Receptacle

207 SERIES



NOTE: 2mm ultra low profile pin headers & receptacles available - contact factory TEL: (803) 457-3824

Part Number Description

207 25 30 - MDI

- **Series** — 207
- **Size** — 25: No. of contacts/row 02 thru 50
- **Tail Configuration** — 30
- **Plating** — MDI: 02-tin; 15-15µ" selective gold; 30-30µ" selective gold

EXAMPLE: 2072530-MDI

DESCRIPTION: A 207 series 2 mm dual row horizontal receptacle with 25 contacts/row, 30µ" selectively gold plated with solder tails for flexible circuit applications.

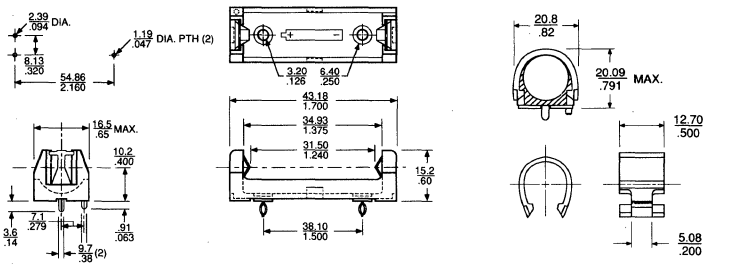
SPECIFICATIONS: • Housing Material: Glass filled polyester, UL flammability rating 94 V-O. Color, black.
• Contact Material: 0.20 thick PH BR 521 X-hard.
• Finish: Electroplate 1.27µm min. nickel all-over, 0.76µm min. gold selective in contact area, 3.8µm min. 60/40 tin/lead selective on tails.

SPECIALTY ELECTRONICS INCORPORATED
19200 Asheville Highway, Landrum, SC. 29356, TEL(803) 457-3824, FAX(803) 457-2535

Printed Circuit Board Interconnections

Battery Holders

2/3 A Battery Holder



Description

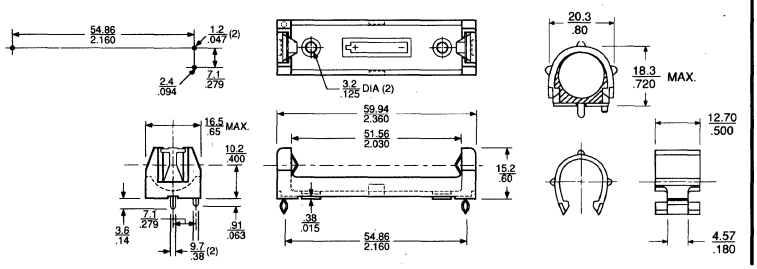
BATTERY HOLDER

PART NUMBER: 6S-2/3A
SPECIFICATIONS: * Housing Material: 30% glass filled PBT, UL flammability rating 94 V-O. Color, black.
• Contact Mateal: Spring hard stainless steel.
• Contact Finish: 1.27µm(50µ") min. nickel all-over, 3.81µm (150µ") min. tin/lead selective tails.

BATTERY HOLDER COVER

PART NUMBER: C-2018
SPECIFICATIONS: * Cover Material: Polystyrene, black UL 94 V-1.
* Application: Recommended for use with battery holder P/N 6S-2/3A.

AA Battery Holder



Description

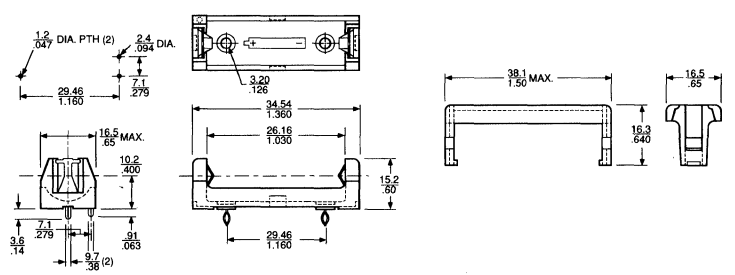
BATTERY HOLDER

PART NUMBER: 6S-AA
SPECIFICATIONS: * Housing Material: 30% glass filled PBT, UL flammability rating 94 V-O. Color, black.
• Contact Mateal: Spring hard stainless steel.
• Contact Finish: 1.27µm(50µ") min. nickel all-over, 3.81µm (150µ") min. tin/lead selective tails.

BATTERY HOLDER COVER

PART NUMBER: C 6S-AA
SPECIFICATIONS: * Cover Material: Polystyrene, black UL 94 V-1.
* Application: Recommended for use with battery holder P/N 6S-AA.

1/2AA Battery Holder



Description

BATTERY HOLDER

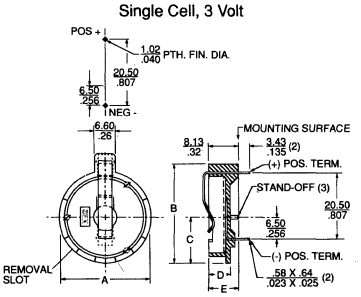
PART NUMBER: 6S1/2AA
SPECIFICATIONS: * Housing Material: 30% glass filled PBT, UL flammability rating 94 V-O. Color, black.
• Contact Mateal: Spring hard stainless steel.
• Contact Finish: 1.27µm(50µ") min. nickel all-over, 3.81µm (150µ") min. tin/lead selective tails.

BATTERY HOLDER COVER

PART NUMBER: C-6S1/2AA
SPECIFICATIONS: * Cover Material: Thermoplastic, UL flammability rating 94 V-O. Color, black.
* Application: Recommended for use with battery holder P/N 6S1/2AA.

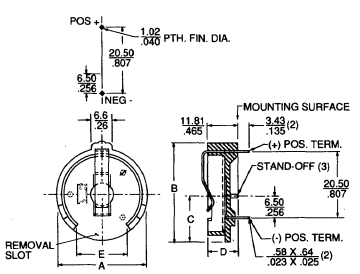
Lithium Coin Cell Battery Holder

Single Cell, 3 Volt



Lithium Coin Cell Battery Holder

Dual Cell, 6 Volt



Description

DESCRIPTION: Single Cell, 3 Volt

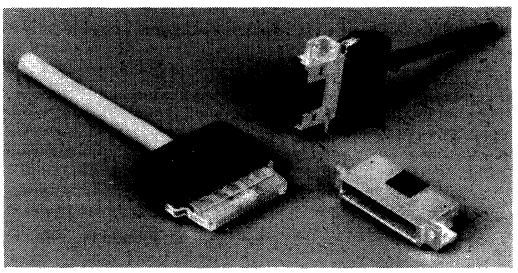
Part No.	Dimensions (mm/inches)				
	A	B	C	D	E
2S2032-0, -1, -2	22.86/.900	27.43/1.08	11.43/4.50	4.95/.195	6.86/2.70
2S2325-0, -1	25.40/1.00	28.78/1.13	12.70/.500	4.32/.170	6.99/.275
2S2425-0, -1	26.67/1.050	29.46/1.16	13.34/.525	4.32/.170	6.99/.275

DESCRIPTION: Dual Cell, 6 Volt

Part No.	Battery	Dimensions (mm/inches)				
		A	B	C	D	E
4S2032-0	CR 2032 BR	22.53/.900	27.4/1.08	11.43/4.50	9.27/.365	12.7/.50
4S2325-0	BR 2325	25.65/1.010	28.83/1.135	12.83/.505	10.16/.400	15.2/.60
4S2425-0	LM 2425 CR/DL 2430	27.69/1.090	29.85/1.175	13.84/.545	10.16/.400	17.8/.70

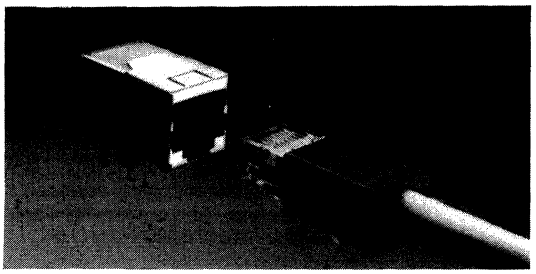
SPECIALTY ELECTRONICS INCORPORATED
19200 Asheville Highway, Landrum, SC. 29356, TEL(803) 457-3824, FAX(803) 457-2535

MODULAR INTERCONNECT SYSTEMS



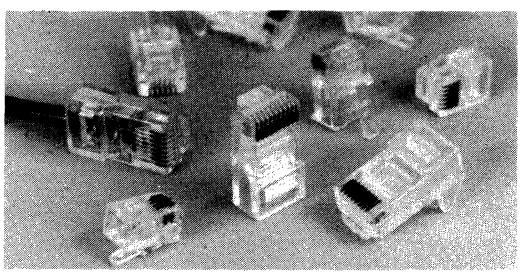
COMPU-SHIELD PLUGS & JACKS

- Totally field installable.
- Shielded for EMI/RFI/ESD.
- Shielding enclosed by plastic.
- Contact selectively plated.
- Keying available.
- Completely modular.



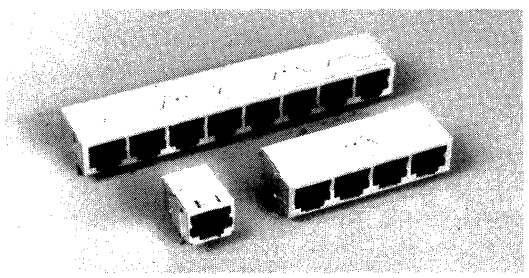
MODULAR - 2,4,6,8 PLUGS & JACKS

- Meets FCC rules and regulations.
- Shielded for EMI/RFI/EST.
- Completely modular.
- Low profile design.
- Keying available.
- Field installable.



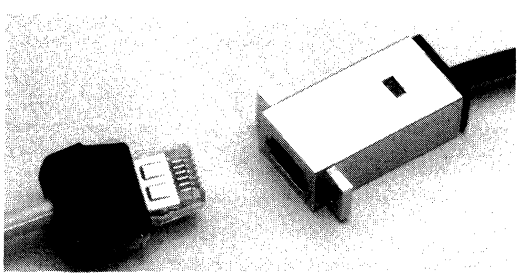
MODULAR PLUG

- One-piece construction with preloaded contacts.
- FCC and telephone industry standard size and performance.
- Selectively gold plated contacts.
- Various positions and styles available.
- Semi-automatic and automatic termination capabilities.
- RJ-11 can be shielded for EMI, RFI.



HARMONICAS

- Available in 2-13 ports.
- All contact leads are fully enclosed.
- Selective gold and tin/lead plating.
- Locating tabs allow for snapping into PCB.
- Housing can be shielded for EMI and RFI.
- Available in RJ-11 configurations.



BULKHEAD CONNECTORS

- All contact leads are fully enclosed.
- High strength contact material assures adequate contact pressure.
- Spring contacts totally guided to prevent crossover, shorts, and contact deformation.
- Capable of field termination.
- Shielded for EMI/RFI/ESD applications.

CABLE ASSEMBLIES

- Custom cable assemblies any length.
- Connectors on one or both ends.
- Stranded, solid or shielded cable.
- Manufactured to your specifications.
- All cable individually tested.
- Small and large volume assemblies.

STEWART CONNECTOR SYSTEMS
R.D. 2 BOX 2020, OLD TRAIL, GLEN ROCK, PA 17327
TEL. (717) 235-7512 • FAX (717) 235-7954

Sullins ELECTRONICS CORPORATION
801 E. MISSION RD. • POST OFFICE BOX 189 • SAN MARCOS, CALIFORNIA 92069 U.S.A. • (619) 744-0125 • TWX 910-322-1472 • FAX 619-744-6081

Low and High Profile EDGECARD CONNECTORS

TERMINATION TYPE

APPLICATION	BEND	PROFILE/ BELLOWS
EYELET	STRAIGHT	FULL BELLOWS
WIRE WRAP	STAGGERED	LOW PROFILE
DIP SOLDER	GULL WING	HAIRPIN BELLOWS
SURFACE MOUNT	CENTERED	LOOP BELLOWS
CARD EXTENDER	CARD EXTENDER	
CARD EXTENDER	RIGHT ANGLE	HIGH PROFILE

FEATURES

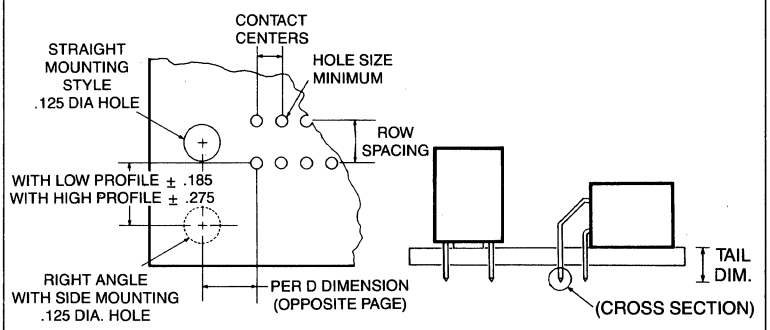
- .050, .100, .125, .150 & .156 Contact centers
- High and Low Profile Insulators
- Wire Wrap, Solder Tail, SMT and Solder
- Eyelet Terminations
- Test and Burn-in contacts and materials
- Many mounting styles
- Over 600, 000 styles of connectors
- available
- Hundreds of modifications available

MATERIALS

Insulator Material:
- VALOX – 65°C to + 135°C *(Glass-filled thermoplastic polyester)*
- RYTON – 65°C to + 220°C *(Glass-filled polyphenylene sulfide)*
- XYDAR – 65°C to + 310°C *(Liquid crystal polymer)*

Contact Material:
- Phosphor bronze – 65°C to + 125°C
- Beryllium copper – 65°C to + 150°C
- Spinodal (Pfinodal) – 65°C to + 200°C
- Beryllium nickel – 65°C to + 300°C

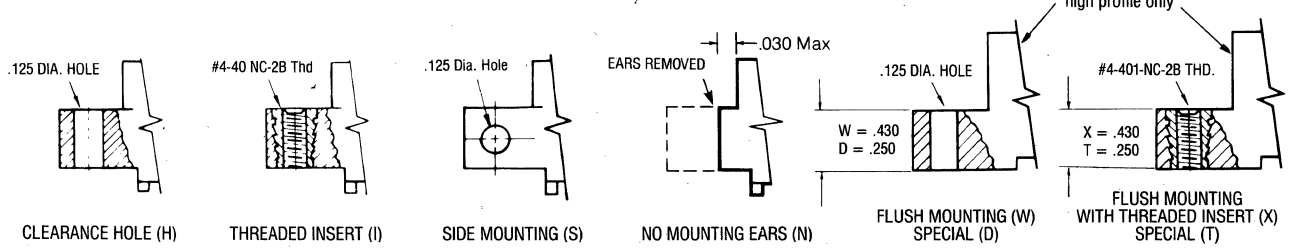
PC BOARD LAYOUT



					.050 CONTACT CENTERS				.100 CONTACT CENTERS				.125 CONTACT CENTERS				.156 CONTACT CENTERS			
TERM. TYPE	APPLICATION	BEND	PROFILE	BELLOWS	ROW SPACING	TAIL DIM.	CROSS SECTION	HOLE SIZE	ROW SPACING	TAIL DIM.	CROSS SECTION	HOLE SIZE	ROW SPACING	TAIL DIM.	CROSS SECTION	HOLE SIZE	ROW SPACING	TAIL DIM.	CROSS SECTION	HOLE SIZE
RE	Eyelet	Straight	Low	Full	N/A	N/A	N/A	N/A	.140	.225	.007×.060	N/A	.140	.225	.007×.060	N/A	.140	.225	.016×.080	N/A
TE	Eyelet	Straight	Low	Full	N/A	N/A	N/A	N/A	.140	.275	.016×.060	N/A	.140	.275	.016×.060	N/A	N/A	N/A	N/A	N/A
SE	Eyelet	Straight	Low	Full	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.140	.225	.007×.080	N/A
RM	Wire Wrap	Straight	High	Loop	N/A	N/A	N/A	N/A	.200	.560	.025 Sq.	.040	.250	.560	.025 Sq.	.040	.200	.560	.025 Sq.	.040
CM	Wire Wrap	Straight	High	Hairpin	N/A	N/A	N/A	N/A	.200	.560	.025 Sq.	.040	.250	.560	.025 Sq.	.040	.200	.560	.025 Sq.	.040
RT	Dip Solder	Straight	Low	Full	N/A	N/A	N/A	N/A	.140	.200	"V"	.043	.140	.200	"V"	.043	.140	.137	"V"	.051
RK	Dip Solder	Straight	Low	Full	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.140	.225	"V"	.051
RY	Dip Solder	Straight	Low	Full	N/A	N/A	N/A	N/A	.140	.440	"V"	.043	.140	.440	"V"	.043	.140	.425	"V"	.051
RX	Dip Solder	Straight	Low	Full	N/A	N/A	N/A	N/A	.200	.185	.007×.031	.043	.200	.185	.007×.031	.043	.200	.137	.007×.041	.051
RU	Dip Solder	Straight	Low	Full	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.200	.225	.007×.041	.051
RP	Dip Solder	Straight	Low	Full	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.200	.408	.007×.041	.051
RJ	Dip Solder	Straight	Low	Full	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.250	.165	.007×.031	.043	N/A	N/A	N/A	N/A
RS	Dip Solder	Straight	High	Loop	N/A	N/A	N/A	N/A	.200	.190	.025 Sq.	.040	.250	.190	.025 Sq.	.040	.200	.190	.025 Sq.	.040
TK	Dip Solder	Straight	High	Loop	N/A	N/A	N/A	N/A	.200	.190	.026 Sq.	.030	.250	.190	.026 Sq.	.030	.200	.190	.026 Sq.	.030
CS	Dip Solder	Straight	High	Hairpin	N/A	N/A	N/A	N/A	.200	.170	.025 Sq.	.040	.250	.170	.025 Sq.	.040	.260	.170	.025 Sq.	.040
CK	Dip Solder	Straight	High	Hairpin	N/A	N/A	N/A	N/A	.200	.190	.026 Sq.	.030	.250	.190	.026 Sq.	.030	.260	.190	.026 Sq.	.030
CT	Dip Solder	Straight	High	Hairpin	N/A	N/A	N/A	N/A	.200	.170	.025×.015	.030	.250	.170	.025×.015	.030	.200	.170	.025×.015	.030
CW	Dip Solder	Straight	High	Hairpin	N/A	N/A	N/A	N/A	.200	.125	.025×.015	.030	.250	.125	.025×.015	.030	.200	.175	.025×.015	.030
CH	Dip Solder	Staggered	High	Hairpin	.100	.125	.018×.012	.040	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SX	Dip Solder	Centered	Low	Full	Single	N/A	N/A	N/A	N/A	.165	.016×.031	.043	Single	.165	.016×.031	.043	Single	.110	.016×.041	.051
SU	Dip Solder	Centered	Low	Full	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Single	.210	.016×.041	.051
RA	Dip Solder	Right Angle	Low	Full	N/A	N/A	N/A	N/A	.156	.125	"V"	.043	.156	.125	"V"	.043	.156	.125	"V"	.051
SA	Dip Solder	Right Angle	Low	Full	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.156	*	"V"	.051
TA	Dip Solder	Right Angle	High	Loop	N/A	N/A	N/A	N/A	.150	.100	.025 Sq.	.043	.150	.100	.025 Sq.	.043	.150	.100	.025 Sq.	.043
TB	Dip Solder	Right Angle	High	Loop	N/A	N/A	N/A	N/A	.150	.180	.025 Sq.	.043	.150	.180	.025 Sq.	.043	.150	.180	.025 Sq.	.043
TM	Dip Solder	Right Angle	High	Loop	N/A	N/A	N/A	N/A	.150	.250	.025 Sq.	.043	.150	.250	.025 Sq.	.043	.150	.250	.025 Sq.	.043
CA	Dip Solder	Right Angle	High	Hairpin	N/A	N/A	N/A	N/A	.150	.100	.025 Sq.	.043	.150	.100	.025 Sq.	.043	.150	.100	.025 Sq.	.043
CB	Dip Solder	Right Angle	High	Hairpin	N/A	N/A	N/A	N/A	.150	.180	.025 Sq.	.043	.150	.180	.025 Sq.	.043	.150	.180	.025 Sq.	.043
CC	Dip Solder	Right Angle	High	Hairpin	N/A	N/A	N/A	N/A	.150	.250	.025 Sq.	.043	.150	.250	.025 Sq.	.043	.150	.250	.025 Sq.	.043
CR	Card Extender	Card Extender	High	Hairpin	.062	.100	.018×.012	N/A	.062	.225	.025 Sq.	N/A	.062	.205	.025 Sq.	N/A	.062	.225	.025 Sq.	N/A
CF	Surface Mount	Gull Wing	High	Hairpin	N/A	.100	.018×.012	N/A	N/A	.070	.025×.015	N/A	N/A	.100	.025×.015	N/A	N/A	.070	.025×.015	N/A

*02 Thru 25 Positions = .270; 28 Thru 36 Positions = .230; 43 Positions = .190

MOUNTING STYLE (High Profile Shown)



Sullins ELECTRONICS CORPORATION
801 E. Mission Rd. • Post Office Box 189 • San Marcos, California 92069 U.S.A. • (619) 744-0125 • TWX 910-322-1472 • FAX 619-744-6081

PART NUMBER CODING

F X M 22 D RK S-513

MATERIALS (Insulator/Contact)
E = Valox/Phosphor Bronze
H = Valox/Beryllium Copper
R = Ryton/Phosphor Bronze
A = Ryton/Beryllium Copper
F = Ryton/Pfinodal**
C = Ryton/Beryllium Nickel
Y = Xydar/Beryllium Copper
Z = Xydar/Pfinodal**
X = Xydar/Beryllium Nickel

CONTACT FINISH

Contact Surface	Termination
Z = .000010 Gold	.000100 Tin
X = .000030 Gold	.000100 Tin
G = .000010 Gold	.000005 Gold
Y = .000030 Gold	.000005 Gold

Contact Surface	Overall Plating
S = .000010 Gold	.000010 Gold
M = .000030 Gold	.000010 Gold

CONTACT CENTERS
B = .050
C = .100
A = .125
J = .150
M = .156

MODIFICATIONS (Consult Factory)
Omit For Standard
513 = Card Extender Formed to Fit .062 PCB

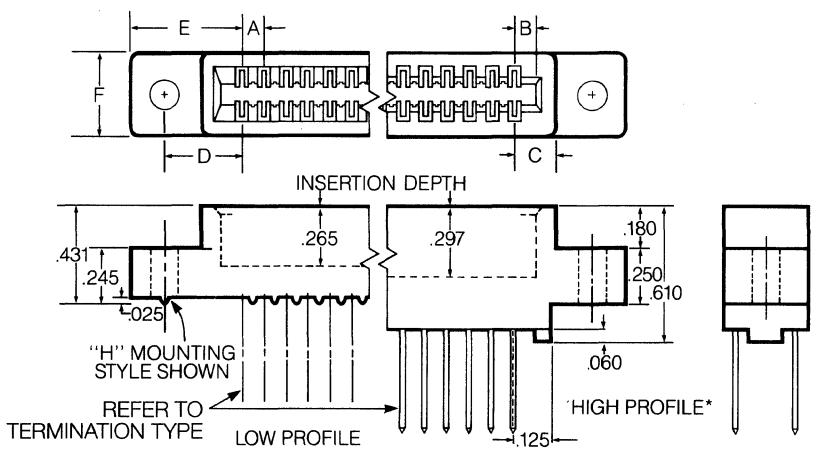
MOUNTING STYLE (See Opposite Page)
H = Clearance Hole
N = No Mounting Ears
S = Side Mounting
I = Threaded Insert
W = Flush Mounting
D = Flush Mounting
X = Flush Mounting with Threaded Insert
T = Flush Mounting with Threaded Insert

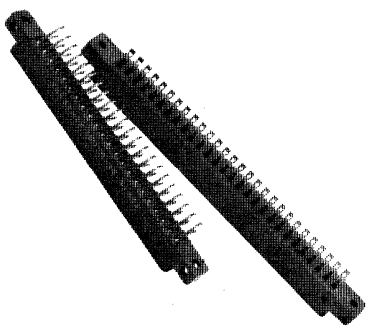
TERMINATION TYPE (See Table opposite)
RE, TE, SE = Eyelet
CM, RM = Wire Wrap
SX, SU, RT, RK, RY, RX, RU, RP,
CH, CS, CK, CT, CW, RJ, RS, TK = Dip Solder
CA, CB, CC, RA, SA, TA, TB, TM = Right Angle
CF = Surface Mount
CR = Card Extender

READOUT
D = Dual

NUMBER OF POSITIONS (See Table Below)
02 thru 110 Contact Pairs
(02 = 4 Contacts, 110 = 220 Contacts)

**High tin solder cannot be used with Pfinodal contacts in applications greater than 150°C. Contact factory for recommendations.



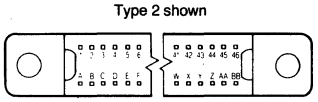


CONTACT CENTERS	PROFILE	NUMBER OF POSITIONS (PAIRS) AVAILABLE	DIMENSIONS A	B	C	D	E	F	CONTACT ID TYPE
.050	High	05 06 09 10 14 15 20 22 25 30 34 35 40 45	.050	.050	.145	.288	.445	.370	N/A
		50 55 60 64 65 66 70 75 80 85 90 95 100 105 110	.050	.050	.145	.688	.445	.370	N/A
.100	Low	05 06 08 10 12 13 15 18 19 20 22 25 26 28 30 31	.100	.100	.188	.338	.488	.330	1
		35 36 40 43 44 50 52 60	.100	.100	.188	.338	.488	.400	1
	High	06 08 10 12 15 17 18 20 22 25 28 30 31 35 36 40	.100	.100	.180	.338	.468	.370	5
		43 44 49 50 55 60 61 65 70	.100	.100	.180	.338	.468	.370	5
.125	Low	06 10 15 18 22 28 30 31	.125	.125	.205	.335	.475	.330	2
		35 36	.125	.125	.205	.335	.475	.330	4
		40 43 44 50	.125	.125	.205	.335	.475	.370	2
	High	06 10 15 18 22 25 28 30 31 32 35 36 40 43 44 45	.125	.125	.205	.335	.465	.370	5
		49 50	.125	.125	.205	.335	.465	.370	5
.156	Low	06 08 10 11 12 15 18 22 24 25	.156	.160	.220	.376	.548	.325	3
		28	.156	.160	.220	.376	.548	.438	4
		36	.156	.160	.223	.380	.553	.438	4
		43	.156	.160	.224	.375	.546	.500	4
	High	06 10 12 15 18 22 24 25 30	.156	.160	.221	.377	.502	.370	6
		28 31	.156	.160	.221	.377	.502	.370	7
		36 40 43	.156	.160	.221	.377	.502	.370	8

.156 contact centers, low profile, E dimension is shown as maximum rather than nominal.

CONTACT IDENTIFICATION

Type 2 shown



CONTACT ID TYPE	INSULATOR MARKINGS LETTERS G, I O & Q NOT USED
1	B 1 2 ..... 23 24 ..... 45 46 ..... A 1 2 ..... 23 24 ..... 45 46 .....
2	1 2 ..... 23 24 ..... 45 46 ..... A B ..... a b ..... AA BB .....*
3	1 2 ..... 23 24 ..... 45 46 ..... A B ..... AA BB ..... a b .....
4	1 2 ..... 23 24 ..... 45 46 ..... A B ..... A B ..... a b .....
5	1 3 ..... 45 47 ..... 89 91 ..... 2 4 ..... 46 48 ..... 90 92 .....
6	1 2 ..... 23 24 ..... 45 46 ..... A B ..... A B ..... a b .....
7	1 2 ..... 23 24 ..... 45 46 ..... A B ..... A B ..... a b .....
8	A B ..... A B ..... a b ..... 1 2 ..... 23 24 ..... 45 46 .....

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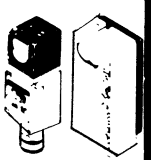
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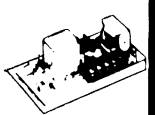
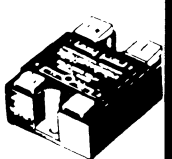
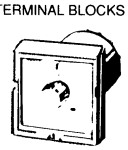
RELAYS


LIQUID LEVEL CONTROLS


SOLID STATE RELAYS

TERMINAL BLOCKS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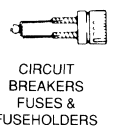
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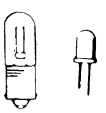
KNOBS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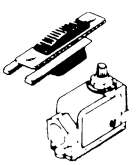
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- **Standard size types rated 30 A, 1000 V working**
- **Miniature size types rated 15 A, 1000 V working**

The original five-way binding posts — the first choice of electrical and electronic equipment manufacturers — are now available with more selections than ever before. All are designed to prevent accidental contact with current-carrying parts. Captive thumbnuts have a positive stop that allows enough space to make connections yet reduces the likelihood of accidental contact with electrically "hot" surfaces.

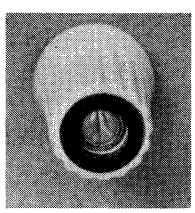
Plastic parts are molded of either Lexan* polycarbonate resin or nylon plastic per MIL-P-20693A, Type IV for excellent resistance to corrosive atmospheres, heat, oil or grease, abrasion and impact, chipping and cracking. Color selections are red, white, blue, yellow, black and green to assure ready circuit and polarity identification and more attractive panels.

Most types are available with either gold, nickel or tin plated brass current-carrying parts for improved conductivity and corrosion resistance. All metal parts are recessed for user and instrument protection and none touch the metal panel. Panel collars have "D" type shoulders for locking in keyed panel holes if desired. Types with larger No. 10-32 studs are also available.

Double Assembly Binding Posts — Available in a wide choice of red and/or black thumbnut color combinations in Custom Color Ring, Standard, Miniature and Larger Stud Types. They provide faster, more accurate ¾-inch (19 mm) center mounting on panels. Plastic insulating parts and metal current-carrying parts have the same specifications and features of single assembly types. All current-carrying parts are of gold plated finely machined brass. Thumbnut color combinations are red/black, black/black and red/red.

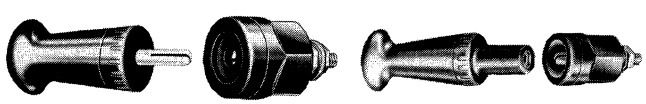
Militarized Binding Posts — Military specification types meet Military Specification MIL-P-55149/1B, a specification approved for use by all Departments and Agencies of the U.S. Department of Defense. They are available in standard size hexagonal nut and miniature size fluted nut types. Both styles are available with either black or red nylon plastic insulating parts. Current-carrying parts are gold plated brass per QQ-B-626. Operating temperatures are −40° to 225°F and dielectric strength is 3000 V.

Custom Color Ring Binding Posts



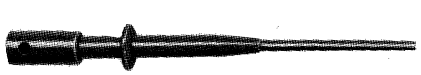
Cataloged Custom Color Ring Series types have neutral gray plastic insulating parts with thumbnut rings in red, white, blue, yellow, black or green colors for panels with superb visual appearance. The gray plastic parts coordinate and harmonize with most modern equipment finish colors. Contingent on minimum quantity requirements, the colors of insulating parts can be customized to meet the specific needs of any application. Miniature fluted nut types are rated for 15 A, 1000 V working; standard and larger stud hex and fluted nut types for 30 A, 1000 V working.

SUPERCON® Electrical Connectors



Socket and pin type single-conductor plugs and receptacles with nylon plastic parts and gold plated brass current-carrying parts. Wiring connections can be soldered or solderless with plug fastening screws that accept a wide range of cable sizes. Simple, 2-piece threaded plug construction in distinctive, functionally designed grip. Available in 25, 50, 100 and 250 A ratings. The 25, 50 and 100 A types are rated 125-250 VAC or DC current interrupting, 600 V unenergized connect or disconnect use only; 250 A types are rated 600 V unenergized connect or disconnect use only.

5-WAY® Test Probes



For test connections to PC boards and other components. Designed for fast, secure hook-on connections and will grip a component lead or IC package pin with 16 ounces of clamping force. For touch contact, the probe tip can be locked in the extended position. The large end of the probe has a banana plug receptacle for test lead connection. Current-carrying parts are beryllium copper and the plastic body is durable nylon available in either red or black. The compression spring is stainless steel for long life and resistance to corrosion.

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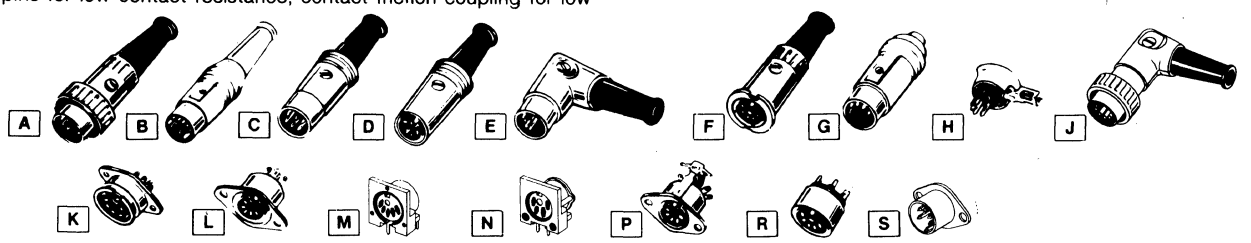
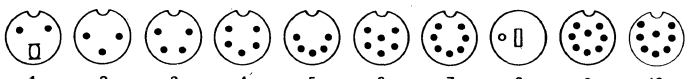
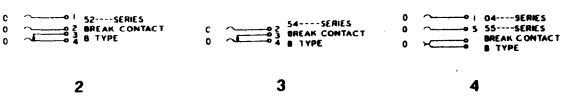
Designed for low level circuitry, for unlimited use in computer, commercial, industrial, consumer and military applications. Exact replacements for plugs and receptacles, used on most foreign built recorders, radios and dictation equipment. Also used extensively for computer keyboard, I/O and peripheral applications. "Switchcraft/DIN" 2 to 8 contact connectors include male and female plugs and receptacles with bright nickel-plated barrels & plastic snap-on shells. Lock-ring coupling, silver plated contact pins for low contact resistance, contact friction coupling for low mechanical interference noise, exclusive "automatic" grounding and polarization provisions. Full line of receptacles offer thru panel, PC board and surface mounting. Positioning "Ground Key-Rib" or "Ground Contact" — electrically integral with the connector shell — is provided in each plug and receptacle (except those with plastic housing or shells) to ground or shield the connector shell. Right angle PC board mount for common ground use also available.



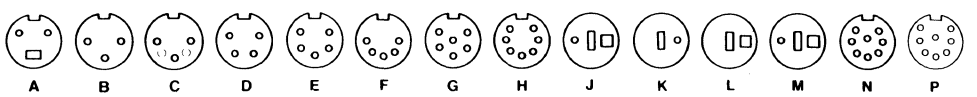
PIN ARRANGEMENTS

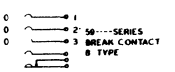


SCHEMATIC CIRCUITS



CONTACT ARRANGEMENTS





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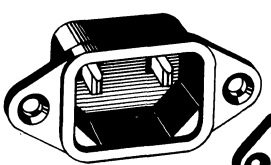
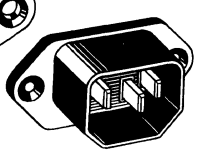
Switchcraft's versatile system of molded cable assemblies and mating receptacles meets the increased demand for modern, miniature connectors for a wide range of electrical/electronic applications. Connectors are DIN circular type and are fully field-proven in electronic applications. Strict requirements of FCC 20780 docket are fully addressed in offering fully shielded links.

The system comprises male and female plugs, locking and non-locking, with from 3 to 8 pins/contacts. Units are fully molded and protected with a rugged handle and advanced design cable relief. A complete range of mating receptacles is also available.

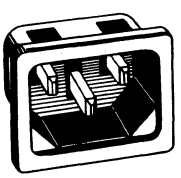
EUROPEAN AC RECEPTACLES



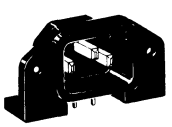
EAC-228
UL, CSA



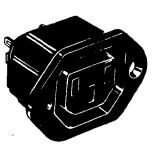
EAC-325
UL, CSA, VDE



No. EAC-409



EAC-303
UL, CSA, VDE



EAC-305,
EAC-306
UL, CSA, VDE

Part No. EAC-228 — 2-pin male receptacle with std. solder lugs. Mounts from front/rear of panel with 2, #5 screws or .125 in. (3.18 mm) dia. rivets (not supplied). 15 A, 250 V AC rated; UL & CSA listed. Mates with Switchcraft power cord Nos. P-2723 & P-2724.

Receptacles mate with European power plugs. Choose from panel/chassis or PC mount types. U.L. and C.S.A. listed types. Rating 6 A, 250 V AC or 15 A, 250 V AC. Nos. EAC-305 & EAC-309 are VDE approved. Contacts/Terminals: Brass, nickel sulfamate & electrotinned.

Part No. EAC-303 — Grounding type 3-pin male receptacle with right-angle housing and pins for PC board mtg. Ground lug (solder type) also supplied. .136 in. (3.45 mm) dia. housing holes also permit panel/chassis mount. 6 A, 250 V AC rating: U.L. & C.S.A. listed. Same rear mount as No. EAC-309. Pin terminals silver-plated brass. Mates with Switchcraft power cord Nos. P-2722, P-2725, P-2727 & P-2728.

Part No. EAC-305 — Grounding type, 3-contact female receptacle. Rated: 6 A, 250 V AC: U.L. & C.S.A. listed. Front panel/chassis mount in 1.275 in. (32.39 mm) x 1.56 in. (39.62 mm) hole with 2, #5 screws or .125 in. (3.18 mm) rivets (not supplied). Mates with Switchcraft power cords Parts Nos. P-2721, P-2725; Belden SPH-388; or equiv. Contacts/terminals: brass.

No. EAC-306 — Similar to EAC-305, except 15 A, 250 V AC rating U.L. & C.S.A. listed.

Part No. EAC-309 — Grounding types, 3 pin male receptacle. 6 A, 250 V AC; U.L., C.S.A., VDE listed. Mates with Switchcraft power cords Nos. P-2392, P-2720, P-2721, P-2722, P-2725, P-2727, P-2728; Belden SPH-386; or equiv. Rear mounts in 1.201 in. (30.51 mm) x .875 in. (22.22 mm) hole or front mounts in 1.08 in. (27.43 mm) x .785 in. (19.94 mm) hole in chassis/panel with 2, #5 screws or .125 in. (3.18 mm) dia. rivets (not supplied). Longer grounding pin allows ground circuit to "make" before power circuit, and "break" after power circuit disconnects. Pins .045 in. (1.14 mm) x .157 in. (3.99 mm) and terminals: silver plated.

Part No. EAC-324 — 3-pin male receptacle with short solder lugs. Extended socket housing (mtg. flange on rear) provides more behind panel depth. Mounts with 2, #4 screws or .094 in. (2.38 mm) dia. rivets (not supplied) from front/rear of panel. 15 A, 250 V AC; UL & CSA listed. Mates with Switchcraft power cord Nos. P-2723 & P-2724.

Part No. EAC-325 — Similar to EAC-324, except female. Mates with Switchcraft power cord Nos. P-2721 & P-2725.

Part No. EAC—405 — Same as EAC-305, except "snap-in" mount.

Part No. EAC-409 — 3-pin male recep. with solder lug terms. Rated: 6 A, 250 V. "Snap-in" front panel mount.

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ADVANCED "Q-G" AUDIO CONNECTORS, AA(*) F and AA(*) M SERIES

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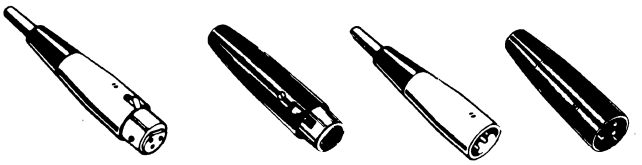
3. **New**...rugged, 1-piece cable clamp to relieve pulling and twisting strains on terminations.
4. **New**..."No Screws" flex relief retention system.
5. **New**..."Dual Point" shell grounding system.

...AND NEW AA3* CORD PLUGS ARE FULLY SUPPORTED BY A FULL LINE OF TRADITIONAL SWITCHCRAFT CORD PLUGS AND RECEPTACLES

Switchcraft "Quick-Ground" connectors feature a separate "Ground-Terminal" electrically integral with connector shell. Ground continuity between mating plugs automatically accomplished through exclusive "Ground Contactors". Possible loss of insert screw is eliminated by new "Captive-Design" insert screw. Socket and pin assemblies utilize "wedge-action" to insure firm, reliable positioning in connector shell. Inserts are easily removable for wiring & soldering. High impact thermosetting plastic material insures long reliable insert assy. life. Female connectors have latch lock feature to hold conectors firmly together. Plugs and receptacle mechanically keyed for proper mating. "Q-G" (*) Series 3-,4-, 5-, 6-, and 7-pin/contact connectors offer 4-, 5-, 6-, 7-, & 8-pin contact versatility when "Ground-Terminal" is used. Used interchangeably with Switchcraft QGP connectors (page 41): 3- and 4-contact (Amphenol 91-850 and Excellite 91-450 Series, and Cannon XLR-3, XLR-4): 5-contact (Cannon XLR-5 and Amphenol Excellite 91-450 Series). Cord plug part no. suffix "L" indicates strain relief accepts cables from .25 in. (6.35 mm) to .328 in. (8.33 mm) dia.; other plugs accept cables up to .25 in. (6.35 mm) dia. (*) Number of insert contacts or pins must be specified to complete part number. Part number with suffix "B" indicates cord plug with "Black-Velvet" black finish (minimizes glare and permits stable "through-connector" shielding). Suffix "D" indicates type with "FAS-DISCONNECT" detent feature U.S. Patent 3,219,961; Canadian Patent No. 761, 114 (June 13, 1967)

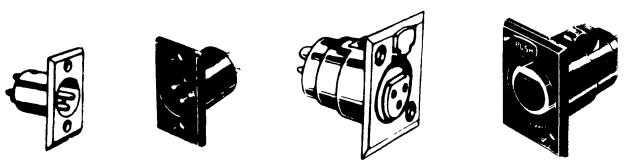
PLUGS



AA(*)F AA(*)FB AA(*)M AA(*)MB

RECEPTACLES

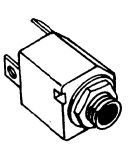
Series B(*)M Series B(*)MB Series B(*)F Series B(*)FB



Series D(*)M Series D(*)MB Series D(*)F, D(*)FD Series D(*)FB

Y3FD Y3FPC

HIGH POWER SPEAKER JACK



No. Z15J

FEATURES

- 15 A continous with 30°C heat rise.
- 10,000 insertion/withdrawal cycle (min.)
- Positive detent retains plug.
- RED jack housing indicates high power rating.
- Screwdriver or solder terminations.

Specifications:

ELECTRICAL (QG Connectors Only)
Contact Resistance: 50 milliohm max., per pole
Current Rating: 3 pole-15 A; 4 pole-10 A, 5 & 6 pole-7.5 A; 7 pole-5 A at 125 Vac.
Insulation Resistance: 1,000 megohms, min.
Dielectric Withstanding Voltage: 1,000 V (rms)
Capacitance: 2 pF between pins and 4 pF between pins and shell, max. (A3M & A3F).

MECHANICAL (QG Connectors Only)

Insertion/Withdrawal Forces: 7 lb. max., 5 lb. nominal, insertion; 7 lb. max., 5 lb. nominal, withdrawal

MATERIAL QG Connectors

Shell: Die cast zinc. Satin nickel finish on all shells, except a black finish on "Black-Velvet" shells.
Insert Insulation: High-impact, molded thermoplastic.
Socket Contacts: Phosphor bronze, silver plated, chromate dipped; bifurcated on 3-contact type. 20 microinch gold (over 100 microinch nickel) plated on part number A3FBAU.
Pin Contacts: Brass, silver plated, chromate dipped. Resists tarnishing, and provides excellent electrical conductivity. 20 microinch gold (over 100 microinch nickel) plated on part number A3MBAU.
Latchlock: High-strength die-cast zinc.
Latch Release: Steel, nickel plated.
Latch Detent: Formed stainless steel.
Insert Screw: Stainless steel.
Flex Relief Bushing: TPR thermoplastic rubber.
Mounting Nut and Washer: Brass, nickel plated. (Black finish for "Black Velvet" receptacles).
Mounting Wall Plates: Cold-rolled steel, with stainless steel finish.

QGP Connectors
Shell: Die-cast zinc, non-reflective Vel-Tone finish.
Insert Insulation: High strength, reinforced thermoset plastic.
Socket Contacts: Phosphor bronze, 50 microinch gold (over 50 microinch nickel) plated.
Pin Contact: Brass, 50 microinch gold (over 50 microinch nickel) plated.
Latchlock: Die-cast zinc, non-reflective nickel finish.
Latch Release: Steel, nickel plated.
Cable Relief Bushing: Flexible gray neoprene.
Barrel: (Female connectors only) Stainless steel.
Mounting Screws: Stainless steel, Passivated, non-reflective finish.
Spanner Nut: (QGP-3-28) Die-cast zinc, nickel plated.
Nut: (QGP-3-29) Brass, nickel plated.
Washer: (QGP-3-29) Steel, nickel plated.

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Switchcraft

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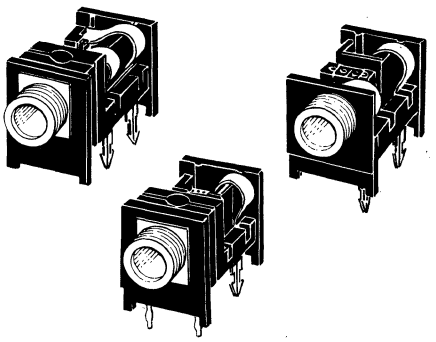


RIGHT ANGLE PHONE JACKS

Monaural (2-cond.) and stereo (3-cond.) right angle PC mount jacks have new bifurcated terminals which provide distinct advantages:

1. Snap-in positive retention of jack in PC board during wavesoldering.
2. Bifurcated terminals permit additional solder flow path.
3. Added strength between panel/chassis and PCB during soldering by "wicking" solder through PC board and up sides of terminals.
4. Improved tip design facilitates positive mechanical retention and electrical contact of differing mating plug tip shapes (industry standard commercial plugs and other ¼ in. phone plugs).

Series RA49B — .708 in. high, insulated (threaded) bushing.

Series RA49C — .742 in. high, metal (threaded) bushing.

Series RA70B — .924 in. high, insulated (threaded) bushing.

Series RA70C — .958 in. high, metal (threaded) bushing.

Series RA49B (Insulated Bushing)	Series RA49C (Metal Bushing)	Series RA70B (Insulated Bushing)	Series RA70C (Metal Bushing)	Description	Schematic[1]	Typical Mating Plug[2]
RA49B-11	RA49C-11	RA70B-11	RA70C-11	2-cond. open circuit	I	250
RA49B-12A	RA49C-12A	RA70B-12A	RA70C-12A	2-cond. shunt on tip	III	
RA49B-12B	RA49C-12B	RA70B-12B	RA70C-12B	3-cond. double open circuit	IV	260
RA49B-14B	RA49C-14B	RA70B-14B	RA70C-14B	3-cond. Double closed circuit	XII	

NOTES: [1]See Hi-D Jax page for schematics. [2]Switchcraft part number.

TINI "Q-G" CONNECTORS

Miniature connectors are ideal for use with slim lavaliere microphones and miniature instrumentation. Features: 4 series of plugs and receptacles: 3, 4, or 5 pins/contacts; full cable clamp and flex relief; "Through-Connector" shielding; latch locking; polarized mating; "scoop-proof" pin protection; panel/chassis & P.C. board terminating (receptacles only); and attractive escutcheons in colors.

MICROPHONE: Uses shielded or unshielded cables. Shield may be connected to pin/contact "through" circuit to cable clamp strain relief. Alternate connection permits using metal plug housings to completely shield internal connections and pins/contacts.

INSTRUMENTATION: Multi-pin connecting in industrial, R & D, medical and production instrumentation.

Part Nos.	Insert Contacts	Dim. In. (mm)	
		Length	Dia.
TA3F	3	1.9 (48.3)	.413 (10.5)
TA4F	4		
TA5F	5		
TA3FL	3	1.4 (35.56)	
TA4FL	4		
TA5FL	5		
TA3M	3	.204 (5.18)	
TA4M	4		
TA5M	5		
TA3ML	3	1.535 (39.0)	
TA4ML	4		
TA5ML	5		

CORD PLUGS

Series TA(*)F, TA(*)FL

Series TA(*)M, TA(*)ML

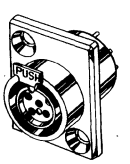
INSERT ARRANGEMENTS

Terminal View of Pins

Part Nos.	Insert Contacts	Receptacle Mtg. Dim., In. (mm)	
		Length	Dia.
TB3M	3	.703 (17.86)	Front Mount .25 (6.35) max.
TB4M	4		
TB5M	5		
TY3F	3	.978 (24.84)	Front Mount .375 (9.5) Rear Mount .093 (2.3)
TY4F	4		
TY5F	5		
TY3FPC	3	.933 (23.7)	Front Mount .312 (7.9) Rear Mount .093 (2.3)
TY4FPC	4		
TY5FPC	5		

RECEPTACLES

Series TB(*)M



Series TY(*)F, TY(*)FPC

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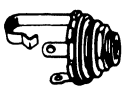
Littel-Jax PHONE JACKS

Quality phone jacks that mate with standard .25 in. (6.35 mm) or .21 in. (5.33 mm) phone plugs. Notched insulating washers mechanically interlock springs and solder lugs. "V" bend in tip spring firmly holds mating plug. Minimum space requirements. Mounts in single .375 in. (9.52 mm) hole, panels up to .156 in. (3.96 mm) thick, except L-11 and L-12A in panels up to .25 in. (6.35 mm) thick. PC-12A; std. .25 in. (6.35 mm) dia. bushing.

Littel-Jax PHONE JACKS with QUICK CONNECT TERMINALS. Littel-Jax jacks, Nos. FA-11 & FAL-11 with quick connect terminals accept AMP FASTON* 205 Series receptacles. Mounts in .375 in. (9.52 mm) dia. holes on 1.375 in. (34.92 mm) centers (min.) Locknut and washer supplied. *Trademark of AMP INC.



C-11

PC-12A

FA-11

TWO CONDUCTOR TYPES

Part No.	Schematic No.	Typical Mating Plug	MIL-Type	Description
11	I	250	—	Open circuit
C-11	I	440,445, 470[1]	MIL Type JJ-034, Part No. M641/6-1	With locating pin (non-turn device)
FA-11	I	250	—	AMP FASTON 205 Series. Quick connect terminals.
FAL-11	I	250	—	.375 in. (9.52 mm) lg. bushing. Quick connect terminals.
L-11	I	250	—	.375 in. (9.52 mm) lg. bushing
S-11	I	S-250	—	.210 in. (5.33 mm) I.D. bushing
12A	III	250	—	Tip shunt
C-12A	III	440, 445, 470[1]	MIL Type JJ-089, Part No. M641/12-1	—
L-12A	III	250	—	.375 in. (9.52 mm) lg. bushing
S-12A	III	S-250	—	.210 in. (5.33 mm) I.D. bushing
PC-12A	III	250	—	P.C. board mtg.
13	V	250	—	Isolated "make" circuit
13A	VI	250	—	Transfer circuit
13E	IX	250	—	Isolated "break" circuit

NOTE: [1] Mating Plugs — PJ-055B, M642/4-1; PJ-055R, M642/4-2; PJ-055M, 642/4-3.

THREE CONDUCTOR TYPES

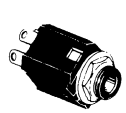
12B	IV	267	—	Double open circuit
C-12B	IV	480 (PJ-068, M642/5-1)	MIL Type JJ-033, Part No. M641/5-1	—
L-12B	IV	267	—	.375 in. (9.52 mm) lg. bushing
S-12B	IV	480 (PJ-068, M642/5-1)	—	.21 in. (5.33 mm) I.D. bushing
13B	VII	267	—	Tip shunt
S-13B	VII	480 (PJ-068, M642/5-1)	—	.21 in. (5.33 mm) I.D. bushing
14B	XII	267	—	Double closed circuit

Hi-D Jax ENCLOSED PHONE JACKS

Series 110: Smaller, compact phone jacks mate with std. .25 in. (6.35 mm) phone plugs. Molded body protects integral silver-plated springs. Low contact resistance; low electrical leakage and low capacity between springs. Mounts on .625 in. (15.88 mm) center in single .375 in. (9.52 mm) hole in panels up to .156 in. (3.96 mm) thick, depth behind panel 1.094 in. (27.79 mm). All jacks with "M" prefix designed and adjusted to mate with telephone and MIL-std. plugs. Jacks with PC terms, mount to single, double-sided and multilayer boards up to .094 in. (2.39 mm) thick. Standoff shoulders; mounting hardware supplied.

Series RN-110: Right angle jack, saves mounting space on PC boards for commercial and telephone/MIL applications. Available in 2- and 3-cond. types with or without shunt circuits; all mate with .25 in. (6.35 mm) dia. COMMERCIAL or TELEPHONE/MIL plug finger configurations. Right angle jack permits tip of mating plug to be inserted parallel with PC board. Can be mtd. on PC boards, combined PC board and panel/chassis, or panel/chassis only. Jack bushing mounts through .375 in. (9.52 mm) dia. hole in panels or chassis up to .141 in. (3.58 mm) thick. Mtg. centers .625 in. (15.88 mm) min. Washer & locknut supplied.

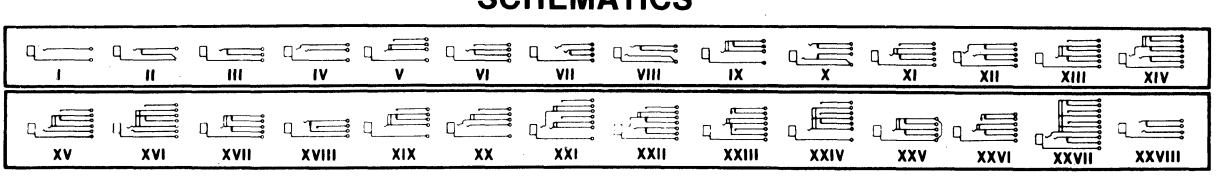
SERIES 110



SERIES N-110

SERIES RN-110

SCHEMATICS



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"Tini-D Jax" MINIATURE ENCLOSED PHONE JACKS

PC-142A

Small, completely enclosed 2-cond. molded phone jack. Phenolic housing protects bifurcated beryllium copper springs from bending during mounting. Mounts on .375 in. (9.52 mm) centers in .25 in. (6.35 mm) dia. hole in panels up to .125 in. (3.18 mm) thick. Depth behind panel .625 in. (15.88 mm).

Part No.	Description	Schematic No.	Typical Mating Plug
142A	Bushing mount	III	750
PC-142A	PC board mount[1]		

NOTE: [1] Threaded bushing for conventional mounting and special spring terminals that "snap-in" PC boards up to .125 in. (3.18 mm) thick.

"Micro-D Jax" SUBMINIATURE ENCLOSED PHONE JACK

MDSL-2A

MDSL-2A-RA

MDPC-2A

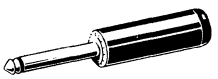
"Super-small," shunted, fully enclosed jack — only .312 in. (7.92 mm) x .344 in. (8.74 mm) x .688 in. (17.48 mm). 1-piece molded body locks all internal parts in place. Mates with Switchcraft Micro-Plug phone plugs. PC terminals have standoff shoulders. Nos. MDSL-2A & MDSL-2A-RA have #10-48 threaded bushing; mounting washer & locknut supplied.

MDPC-2A-RA

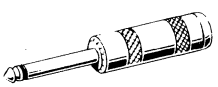
Part No.	Schematic No.	Typical Mating Plug	Cond.	Terminals	Mounting In. (mm)
MDSL-2A	III	850, 851	2	Solder lug	Mounts thru .203 (5.16) hole, in panels up to .063 (1.6) thick. Singly or in rows on .350 (8.89) min. centers. Adjacent sleeves touch when mtd. on .315 (8.00) centers.
MDPC-2A	III	850	2	PC	Mounts singly or in rows on .315 (8.00) min. centers or .350 (8.89) min. centers
MDSL-2A-RA	III	850, 851	2	Solder lug	Same as Part No. MDSL-2A except right angle solder lug terms. for min. space. Behind panel clearance .382 (9.70)
MDPC-2A-RA	III	850	2	PC	Same as Part No. MDPC-2A except right angle PC terms. Above PC board clearance .345 (8.76)

Littel-Plug PHONE PLUGS

Phone plugs fit std. .25 in. (6.35 mm) phone jacks. Solder terminal plugs have built-in cable clamp. Shielded metal handles are nickel-plated brass or durable molded plastic: 1.688 in. (42.88 mm) long x .5 in. (12.7 mm) dia. Max. cable dia.: 2.97 in. (7.54 mm).



No. 250



No. 280

THREE CONDUCTOR

260	Screw terminals, black handle.	12B
S-260	Screw terminals, black handle, .206 in. (5.23 mm) dia. sleeve & tip.	S-12B
267	Combination cable clamp & solder lugs, black handle.	12B
269	Same as 267 except red handle.	12B
290	Screw terminals, shielded handle.	12B
297	Same as 267 except shielded handle.	12B

TWO CONDUCTOR

Part No.	Description	Typical Mating Littel-Jax Jacks
240	Screw terminals, black handle.	11
C-240	Screw terminals with integral cord clamp, black handle.	11
245	Screw terminals, red handle.	11
C-245	Same as C-240 except red handle.	11
250	Solder lugs, black handle.	11
255	Solder lugs, red handle	11
270	Screw terminals, shielded handle.	11
C-270	Same as C-240 except shielded handle.	11
280	Solder lugs, shielded handle.	11
288	Special shielded type. Wide insulator between tip-sleeve; use in 3-cond. jack to perform a 2-cond. function without shorting.	11
S-250	Solder lugs, black handle, .206 in. (5.23 mm) dia. sleeve and tip.	S-11
S-280	Same as S-250 except shielded handle.	S-11

3501F

3501MC

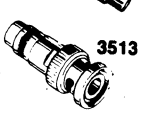
3501FR

3502

3503

3558

3511, 3511A
3512, 3512A



3513

PHONO JACKS AND PLUGS

Low cost 2-cond. jacks and plugs for record players, FM-AM tuners, tape recorders, test equipment, etc. 3501MC has .375 in. (9.52 mm) O.D. shell and cable clamp. 3501FP for front panel mount in .25 in. (6.35 mm) hole in panels up to .125 in. (3.18 mm) thick. 3501FR for rear panel mount in .375 in. (9.52 mm) hole in panels up to .203 in. (5.16 mm) thick. 3502 has unique cable clamp with .406 in. (10.31 mm) O.D. shielded removable handle. 3503 extension jack has shielded removable handle .406 in. (10.31 mm) O.D. with cable clamp.

Series 3558 are phono plugs with cable clamp and "snap-on" color-coded plastic handles in red, black and white.

Series 3511, 4 Leaf Clover Jax, molded phono Jack with dual contact surfaces for low shunt resistance. Open and closed circuit types. Mates with all Switchcraft phono plugs.

Part No.	Description
3501F	Phono jack
3501M	Plug, less cable clamp
3501MC	Plug with cable clamp
3501FP	—
3501FR	Phono jack
3502	Plug
3503	Extension Plug
3558-1	Plug, red handle
3558-2	Plug, black handle
3558-5	Plug, white handle
3511	Phono jack, open circuit
3511A	Phono jack, open circuit grounded
3512	Phono jack, closed circuit
3512A	Phono jack, closed circuit grounded
3513	Phono Jack-to-BNC Connector Adapter

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SYMBOLS USED BY INTERNATIONAL REGULATORY AGENCIES

These symbols appear on many electrical/electronic components distributed in the world market. They indicate that a country's standard-setting agency has approved the design of the component and/or a testing agency has approved the performance of the component in meeting the standard. This page lists only those countries that have a *symbol* to represent their authority.

Argentina (IRAM) Instituto Argentino de Racionalization de Materiales

Australia (SAA) Standards Association of Australia

Austria (ÖVE) Österreichischer Verband für Elektrotechnik

Belgium (CEB) Comité Electrotechnique Belge

Brazil (ABNT) Associação Brasileira de Normas Teonicas

Canada (CSA) Canadian Standards Association

Czechoslovakia Urad pro Normalizaci a Mereni (Office for Standards and Measurements)

Denmark (DEK) Dansk Elektroteknisk Komite (Danish Electrotechnical Committee)

Egypt (EOS) Egyptian Organization for Standardization and Quality Control

Finland (SETI) Electrical Inspectorate

France (UTE) Union Technique de l'Électricité

Germany, Democratic Republic of (East) (ASMW) Amt für Standardi-sierung Messwesen und Warenprufung (Office for Standardization, Metrology and Quality Control)

Germany, Federal Republic of (West) (DKE) Deutsche Electrotechnische Kommission im DIN und VDE (German Electrotechnical Commission of DIN and VDE)

Greece (ELOT) The Hellenic Organization of Standardization

Hong Kong Hong Kong Standards & Testing Centre

Hungary (MSZH) Magyar Szabvanyugi Hivatal (Hungarian Office for Standardization)

India (ISI) Indian Standards Institute "Manak Bhavan"

Indonesia Badan Kerjasama Standardisasi LIPI-YDNI (LIPI-YDNI Joint Standardization Committee)

Iran Institute of Standards and Industrial Research of Iran

Ireland (IIRS) Institute for Industrial Research and Standards

Israel (SII) Standards Institution of Israel

Italy (CEI) Comitato Elettrotecnico Italiano (Italian Electrotechnical Committee)

Japan (JISC) Japanese Industrial Standards Committee Agency of Industrial Science and Technology

Korea, Republic of (South) Industrial Advance Administration

Mexico (DGN) Dirección General de Normas Secretaria de Patrimonio y Fomento Industrial Puente de Tecamachalco

Netherlands (NEC) Nederlands Elektrotechnisch Comite

New Zealand (SANZ) Standards Association of New Zealand

Norway (NEK) Norsk Elektroteknisk Komite (Norwegian Electrotechnical Committee)

Pakistan Pakistan Standards Institution

Poland Polski Komitet Normalizacji Miar i Jakosci (Polish Committee for Standardization, Measures and Quality Control)

Portugal (CEP) Comissão Electrotécnica Portuguesa

Romania Institutul Roman de Standardizare (Romanian Standards Institute)

Singapore Singapore Institute of Standards and Industrial Research

South Africa (SABS) South African Bureau of Standards

Spain (IRANOR) Instituto Nacional de Racionalización y Normalización

Sweden (SEK) Svenska Elektriska Kommissionen (Swedish Electrotechnical Commission)

Switzerland (SEV) Schweizerischer Elektrotechnischer Verein Postfach

Turkey (TSE) Turk Standardlari Enstitusu (Turkish Standards Institution)

United Kingdom (BSI) British Standards Institution

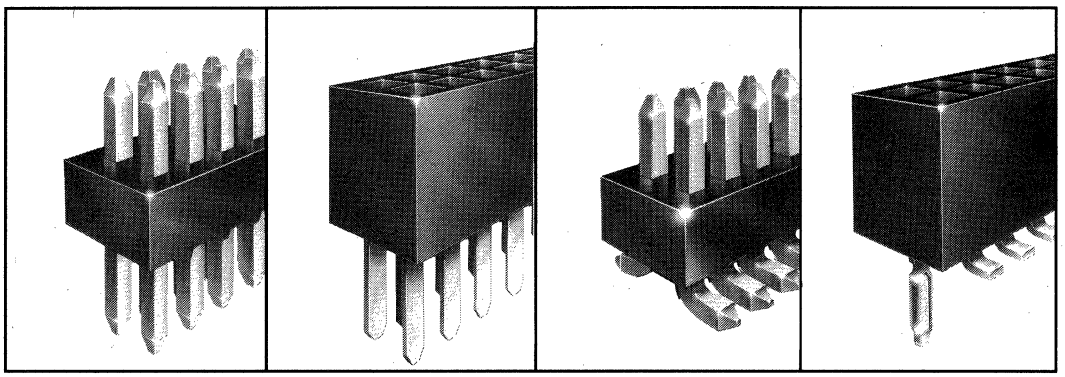
United States Underwriters Laboratories Inc. Recognized Component Mark

United States Underwriters Laboratories Inc.

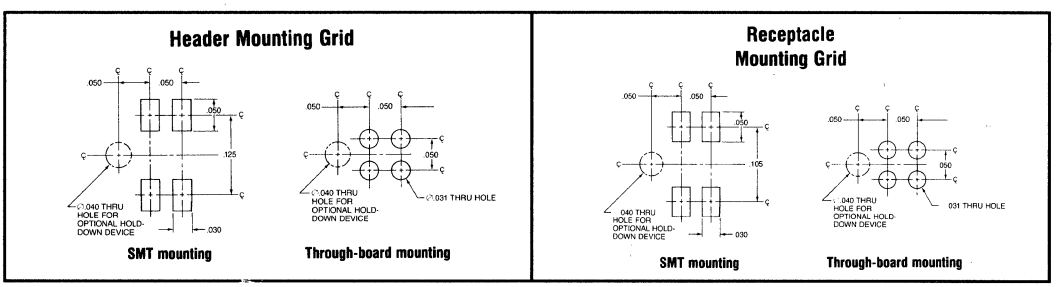
Venezuela CODELECTRA en Conjunto con COVENIN Avda. Ppal.

Yugoslavia Federal Institute of Standardization

TEKA HIGH DENSITY .050 CONNECTOR SYSTEM



Soldertail Header | Soldertail Receptacle | SMT Header | SMT Receptacle



General Information

Teka High Density Connectors are available in through-board and SMT configurations. Your custom and modified applications are welcome.

Contact Teka Customer Service for connector size and plating options. Samples and catalogs are available.

Materials

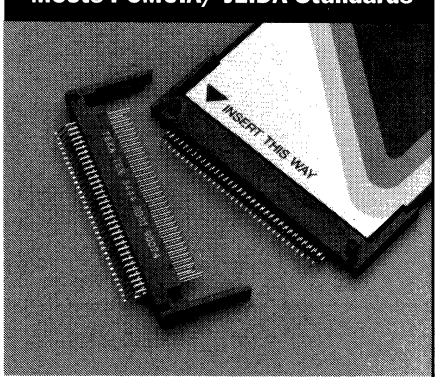
- Receptacle: BeCu contacts
- Header: Copper alloy
- Hi-temp housing: GF LCP, UL 94VO
- Vapor phase and infrared compatible

All Connectors Made in USA

Design Features

- .050 pin spacing
- Receptacle mates with .018" square or round pin
- Selective pin lengths
- Selective pin loading
- Polarized guide rails
- Locating feature for exact termination alignment
- Low insertion force receptacle
- Hold-down device available
- SMT and solder-tail available

U.S. Made Memory Card Interface Meets PCMCIA/ JEIDA Standards



68 pin header application of Teka High Density Connector System uses liquid crystal polymer insulator body. *Made in USA*

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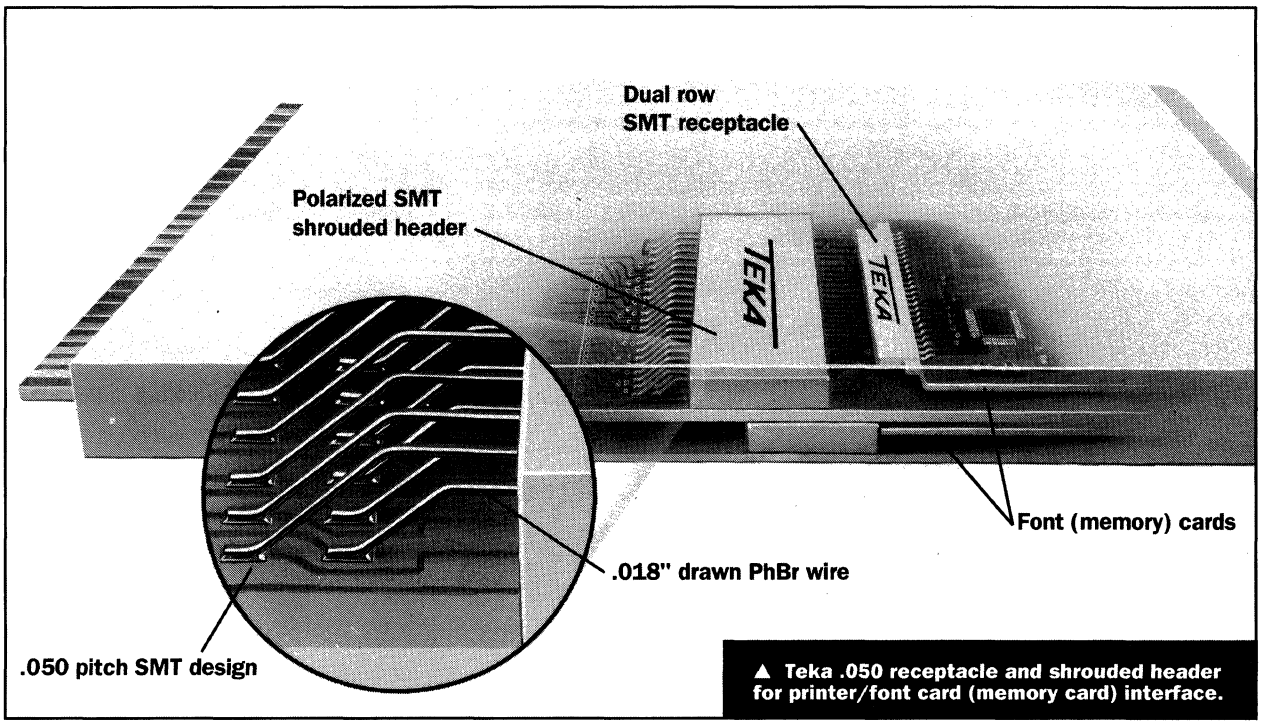
GET RAPID RESPONSE TO YOUR CUSTOM HIGH DENSITY APPLICATIONS.



▲ Teka .050 receptacle and shrouded header for printer/font card (memory card) interface.

CALL THE TEKA/INTERPLEX TEAM.

When the clock is ticking.
You want results, not excuses. Call Teka and you will get the proposal drawings, prototypes and test results you need quickly.

Teka's complete in-house design and production facilities are geared to provide you the fast turn-arounds you need to complete your electronic system and begin shipping product.

Choose with confidence.
You are in good company when you choose Teka. Because we build advanced interconnects for some of the top electronics companies in the U.S. Including high-density and surface-mount designs, standard, modified and custom.

In fact we have achieved and maintain "Preferred Vendor" status with a number of major OEMs.

A leader in U.S. memory card interconnection systems.
As one of the participants in the development of the PCMCIA standard, Teka is ready to apply this compact and cost-efficient technology to the growing number of memory card applications.

Complete interconnect design and production capabilities.

Design
- Engineering consulting
- Proposal drawings
- Prototyping
- Testing

Production
- Molding
- Stamping
- Skiving
- Plating
- Assembly
- Testing

Call us today!
For design consultation, samples, prints or just answers to your questions. We want to help you solve your high-density application problems.

All Connectors Made in USA

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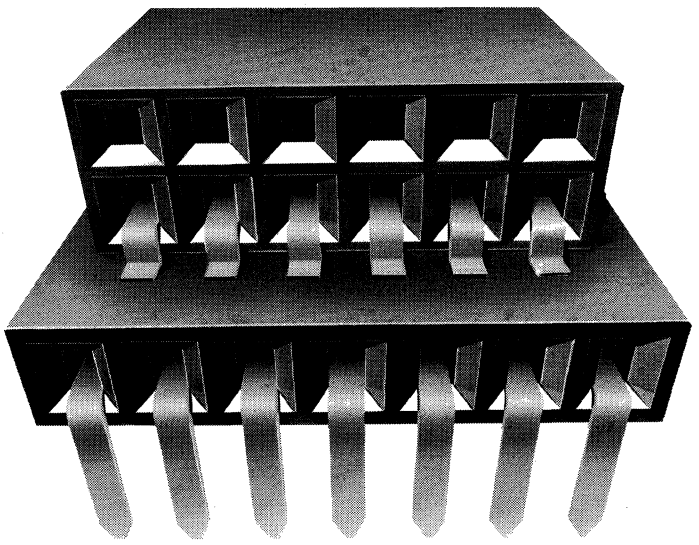
KNOCKOUTS



The TKO™ PCB Connector Series

HIGH PERFORMANCE AND LOW COST

COMPARE TKO™ FEATURES

See for yourself. TKO outscores the competition and even Teka's own standard "Taper Box" Connector in every category.

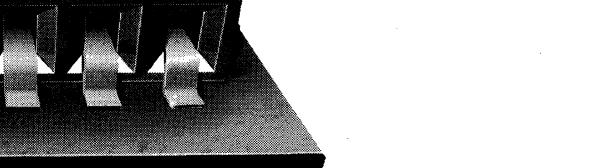
Specification	Teka TKO	Teka Taper Box	Competitor
Cycles	200 min.	100 min.	
Point of Wipe	.145"	.160"	
BeCu Contact	Standard	Optional	
High Temp Plastic	Standard	Not Avail.	
Low Profile Height	Available	Not Avail.	
SMT Configuration	Available	Not Avail.	
Solder Bearing Leads	Available	Not Avail.	
Top or Bottom Entry (vertical style)	Optional	Top Only	
UL Approved	Yes	Yes	
LIF Design	Yes	No	
Cost Low	Moderate		

TKO is a proven receptacle series that is currently in use throughout the industry in a wide variety of applications. For information and technical assistance re: your application, please contact Teka Customer Service.

Horizontal SMT

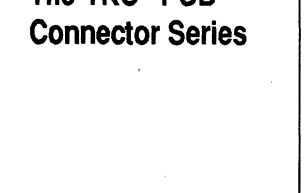
Horizontal Soldertail

Vertical Low Profile SMT



Quality features in a low-cost design.

Call for a catalog or samples and the location of your nearest representative. Call (401) 785-4110.



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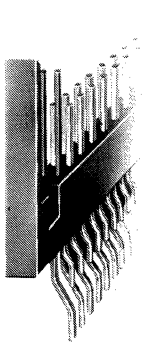
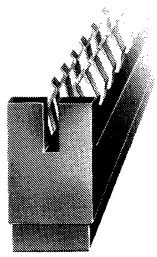
NEED SPECIAL OR CUSTOM CONNECTORS FAST?

Custom Examples (enlarged):

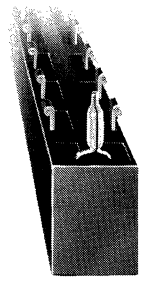


High Density SMT Memory Card Connector

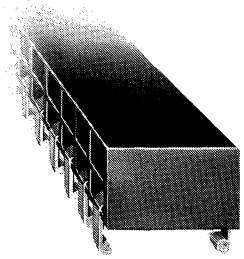


High Density Edgecard

Header with 30° Bend and Retentive Lead

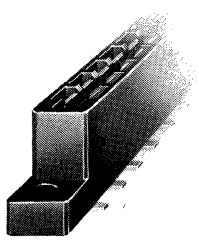


Solder-bearing Lead Butt Design Vertical TKO with Retentive Lead

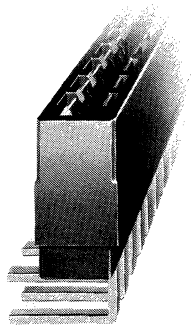


Solder-bearing Lead Butt Design Horizontal TKO

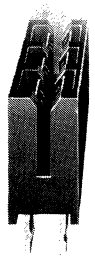
Edgecard Special Examples:



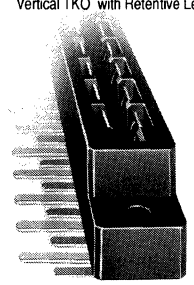
Surface-mount Edgecard



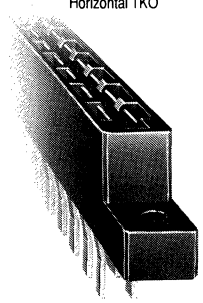
Right Angle Edgecard with Even Tails



3 Position Edgecard with Retentive Leads



Right Angle Edgecard .156" Spacing with Uneven Tails



Edgecard with 062" Card Extender

CALL TEKA.

YOUR PROBLEM IS THAT...
most connector companies are not organized to effectively respond to the demanding needs of the custom connector business. Fast-paced development and production schedules require extremely tight coordination of the manufacturing process, while the reliability of the end-product remains critical.

YOUR SINGLE SOURCE
You need only make one call... Teka Interconnection Systems. We provide all the expertise you need *right in-house* — including connector design, tooling, molding, stamping, plating, assembly and testing. Applying the same advanced engineering skills and technology that built the broad line of quality Teka PCB connectors.

SOLVING PCB CONNECTOR PROBLEMS
Teka harnesses the resources and experience within the entire group of Interplex Industries companies, and puts it to work for you. Your project benefits through increased cost-efficiency and faster turnaround.

CALL US TODAY !
End your search for custom and modified standard PCB connectors right here.

Call Teka Interconnection Systems at (401) 785-4110. We have representatives nation-wide, ready to assist you.

All Connectors Made in USA

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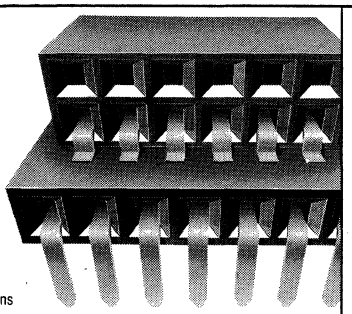
TEKA TKO

PCB Connectors
SMT or Soldertail

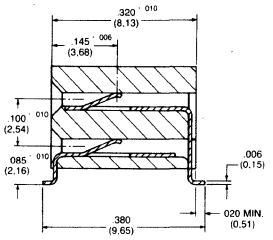


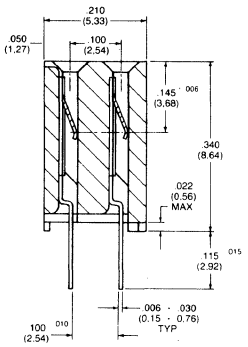
General Information
- Design provides low cost, highly reliable interconnection
- Ideal for mother/daughter board interconnections
- Mates with both .025 square or round pins
- Vertical or horizontal configurations
- Single or Double row

Features
- Surface mount and solder tail configurations
- Designed for use with double-sided and multilayered PCB's
- High-temp. plastic allows infra-red and vapor phase soldering
- .145 ± .006 point-of-normal-force contact
- Low insertion force design
- BeCu contacts
- Selective gold plating
- Standoffs
- Packaging for robotic assembly available

Technical Data
- Current rating = 3 amp (maximum)
- Dielectric withstanding voltage = 1000 VAC RMS (minimum)
- Insulation resistance = 10,000 megaohms (minimum)
- Contact resistance = 30 milliohms (maximum)
- Contact retention = 2 lbs. (minimum)
- Durability = 200 mating cycles (minimum)
- Temperature ranges = −65 degrees celsius to +125 degrees celsius
- Mating force: = 4 oz./contact (maximum)

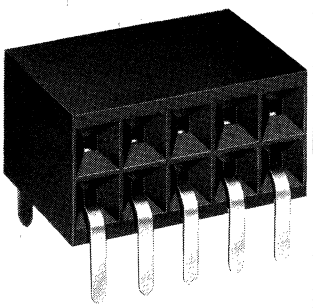
All Connectors Made in USA





TEKA TAPER BOX

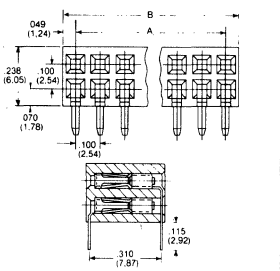
PCB Connectors
.100"&.150" Centerlines

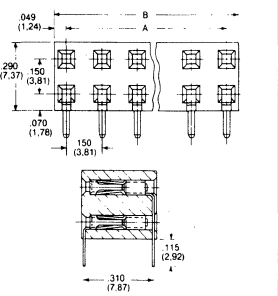


General Information
- Patented design features centering action to position male header pins for optimum contact redundancy
- Four-sided contacts are tapered to avoid off-center pin alignment.
- Design provides highly reliable performance under high vibration conditions
- Interchangeable with connectors of similar type
- Ideal for mother/daughter board interconnections

Features
- .160" ± .006" point-of-normal-force contact
- Copper alloy contacts with selective gold plating
- Standoffs
- Mates with .025" square or round pins
- Single and double row, vertical and horizontal configurations

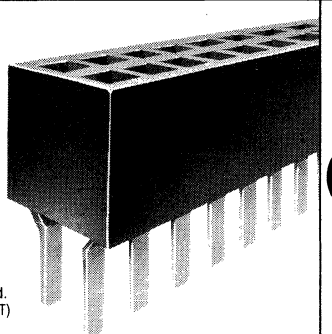
Technical Data
- Current rating = 3 amps
- Dielectric withstanding voltage at sea level:
  - 1250 VRMS (.100" centers)
  - 1500 VRMS (.150" centers)
- Insulation resistance = 5,000 megaohms (min.)
- Contact resistance = 15 milliohms (max..)
- Insertion force = 5 oz. max. per contact
- Withdrawal force = 2 0z. min. per contact
- Normal force = 2 oz. min. per contact point
- Operating Temperature = -65°C to +125°C
- Housing: glass-filled polyester
- UL approval





TEKA LOW PROFILE

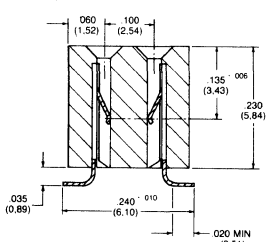
Vertical PCB Connectors

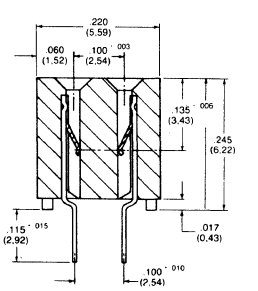


General Information
- For use where space between PC boards is limited.
- Above board height: .245" (solder tail). 265" (SMT)
- Design provides low cost, highly reliable interconnection
- Ideal for mother/daughter board interconnections
- Mates with both .025 square or round pins
- Single or double row

Features
- Surface mount and solder tail configurations
- Designed for use with double-sided and multilayered PCB's
- High-temp. plastic allows infra-red and vapor phase soldering
- .145 ± .006 point-of-normal-force contact
- Low insertion force design
- BeCu contacts
- Selective gold plating
- Standoffs
- Packaging for robotic assembly available

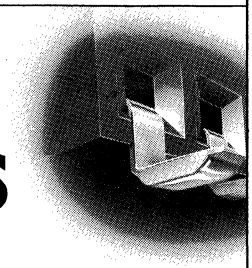
Technical Data
- Current rating = 3 amp (maximum)
- Dielectric withstanding voltage = 1000 VAC RMS (minimum)
- Insulation resistance = 10,000 megaohms (minimum)
- Contact resistance = 30 milliohms (maximum)
- Contact retention = 2 lbs. (minimum)
- Durability = 200 mating cycles (minimum)
- Temperature ranges = −65 degrees celsius to +125 degrees celsius
- Mating force: = 4 oz./contact (maximum)





TEKA SBL-SMT CONNECTORS

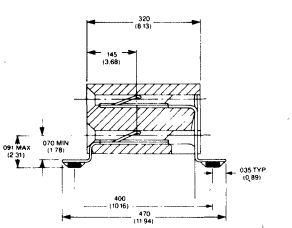
Solder-bearing Lead
Surface Mount PCB Connectors



General Information

Teka introduces the *SBL (solder-bearing lead) Connectors*, a new generation of two-piece SMT connectors designed to virtually eliminate rework on PCB's due to connector solder-joint problems.

The patented design features a precise amount of flux core solder, attached to each contact leg, assuring confidence of solder-joint integrity using vapor reflow and infrared processes. This design advance was made possible by a precision tamping process developed by Interplex Industries.



Features
- Interchangeable with connectors of similar design
- .145 ± .006 Point-of-normal-force contact
- .100 centerline spacing
- Mates with .025 square or round pin
- BeCu contacts with selective gold plating
- Low insertion force design
- Vapor phase solderable: Rynite housing
- Approvals: UL

Technical Data
- Current rating = 3 amp (maximum
- Dielectric withstanding voltage = 1000 VAC RMS (minimum)
- Insulation resistance = 10,000 megohms (minimum)
- Durability = 200 mating cycles (minimum)
- Temperature ranges = −65C to +125C
- Mating force: = 4 oz./contact (maximum)

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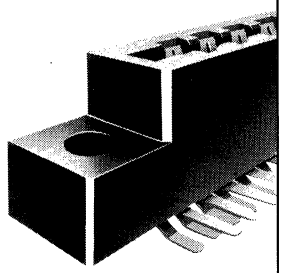
TEKA SPECIAL EDGECARD

High Reliability



General Information

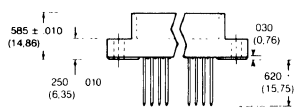
- Modified to fit your requirements
- Spacing: .100, .125 and .156"
- Flush mount or center mount
- Variety of tail configurations:
  - External PCB retention tail
  - Card extender
  - Wire wrap
  - DIP solder
  - Right angle - flush
  - Right angle - uneven
- 2 x 52 PC edgecard available

Features

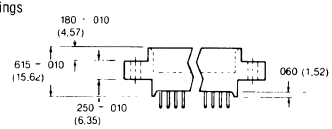
- High reliability pre-loaded bifurcated simple cantilever contact design
- Mates with .054" to .071" PC boards
- With or without mounting ears, threaded bushings or inserts
- Polarization keys: in-contact, in-between
- Shorting contacts
- Standoffs
- Selective plating

Technical Data

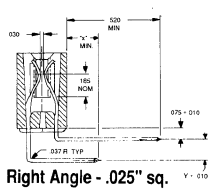
- Insulation Resistance: 5000 megohms min.
- Capacitance (picofarads): 2 max.
- Operating Temperature: – 65° to + 125° C
- Insertion Force: 16 oz. max. per contact pair
- Withdrawal Force: 1 oz. min. per contact pair
- Life: 500 cycles min.
- Normal Forces: 150 grams min. (.062 PCB)
- Housing: Glass-Filled Thermo-Plastic
  - Polyester UL 94 V-0
- Contact: CA510 Phosphor Bronze
  - CA 172 Beryllium Copper (Soldertail only)
  - CA725 Alloy Copper Nickel
- Floating Bushings: Brass, nickel plated (standard)
- Threaded Inserts: Brass, nickel plated (standard
- *T in alloy: – 40° C to + 105° C
- **For high temperature material consult factory.



Wire Wrap - .025" sq.



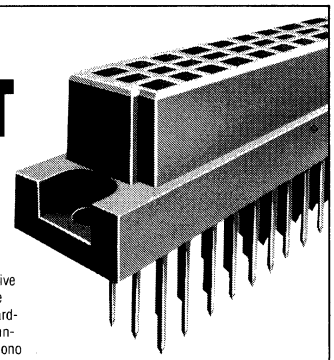
DIP Solder



Right Angle - .025" sq.

TEKA LOW-COST DIN

Styles C & R



General Information:

The Teka Econo DIN series is an economical alternative to existing female DIN connectors. The patented one piece dual-beam contact design offers a reliable board-to-board interconnection with optimum contact redundancy, without compromising performance. Teka Econo DIN meets the requirements of the 41612 specification.

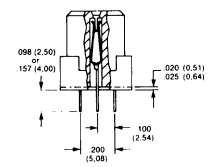
This design advance was made possible by a precision stamping process developed by Teka parent company, Interplex Industries Inc.

Features

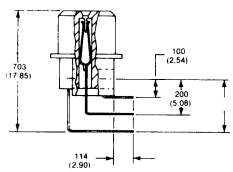
- Low cost/high performance design
- Density: up to 96 contacts in 3 rows
- Mounting: standard and inverse
- Contacts, female: self centering, pre-loaded
- Tails: DIP solder or compliant
- Housings: chamfered lead-ins
- Plating: selective gold on contact area, tin alloy tails
- Specifications: conforms to DIN 41612 styles C & R

Technical Data

- Operating Voltage: 300 VRMS
- Current (Max): 3 amps per contact
- Contact Resistance: 20 Milliohms (max)
- Dielectric Strength: 1000 V
- Insulation Resistance: 10^{12} Ohms
- Operating Temperature: – 55° C to + 125° C
- UL Flammability: 94 V-0
- Insertion Force: Style C, 20.2 pounds max. (96 positions)
- Withdrawal Force: Style C, 3.24 pounds min. (96 positions)
- Contacts: Phospor Bronze
- Housing: Glass filled polyester



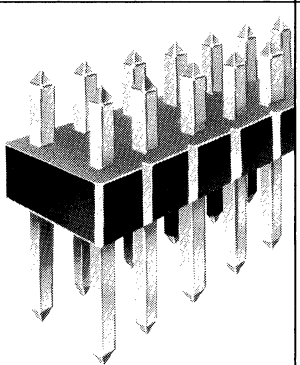
Style C - Standard



Style R - Inverse

TEKA HI-TEMP HEADERS

Standard .025" Square Posts
.100" x .100" Matrix



General Information

- Single & dual row, vertical and right angle configurations
- Single row available in 1x36 position double row available in 2x36 position
- .100" centerline spacing; double row headers are on .100" x .100" grid
- Low cost I/O interconnection
- Standard mating pin lengths are .230" and .318"
- Stackable end-to-end
- Consult factory for optional pin lengths and plating

Features

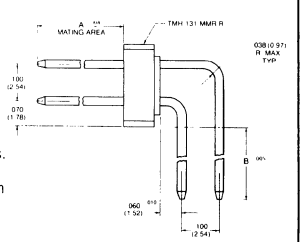
- High temperature plastic allows infra-red and vapor phase soldering.
- Standoffs permit cleaning of soldering contaminates.
- Barb feature provides improved retention.
- Drawn wire pins provide smooth contact surfaces on all sides.
- Selective gold plating available.

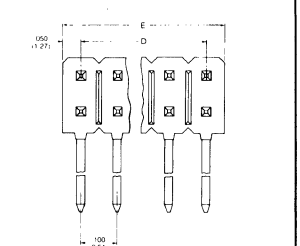
Technical Data

- Current rating = 5 amps (maximum).
- Dielectric withstanding = 7500 VAC RMS (minimum).
- Insulation resistance = 10,000 megaohms (minimum).
- Operating temperatures = 600 VDC (sea level).
- Contact retention = 4 lbs. (minimum).
- Contact = copper alloy.
- Insulator body = thermoplastic PET, UL flammability rating 94 VO.

Test Data

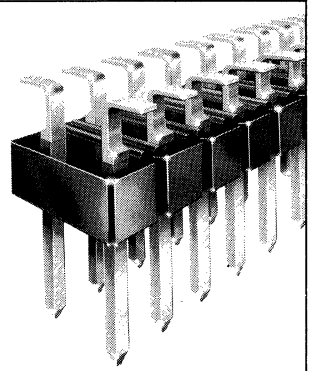
Specifications, prints and samples are available upon request from Teka Customer Service.





TEKA SMT HEADERS

Single and Double Row



General Information

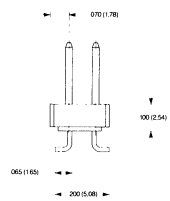
- Single row available in 1x36 position double row available in 2x36 position
- .100" centerline spacing; double row headers are on .100" x .100" grid
- Standard mating pin lengths are .230" and .318"
- Stackable end-to-end
- Consult factory for optional pin lengths and plating

Features

- High temperature plastic allows infra-red and vapor phase soldering.
- Barb feature provides improved retention.
- Drawn wire pins provide smooth contact surfaces on all sides.
- Selective gold plating available.

Technical Data

- Current rating = 5 amps (maximum).
- Dielectric withstanding = 7500 VAC RMS (minimum).
- Insulation resistance = 10,000 megaohms (minimum).
- Operating temperatures = 600 VDC (sea level).
- Contact retention = 4 lbs. (minimum).
- Contact = copper alloy
- Insulator body = thermoplastic PET, UL flammability rating 94 VO.



All Connectors Made in USA

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TEKA

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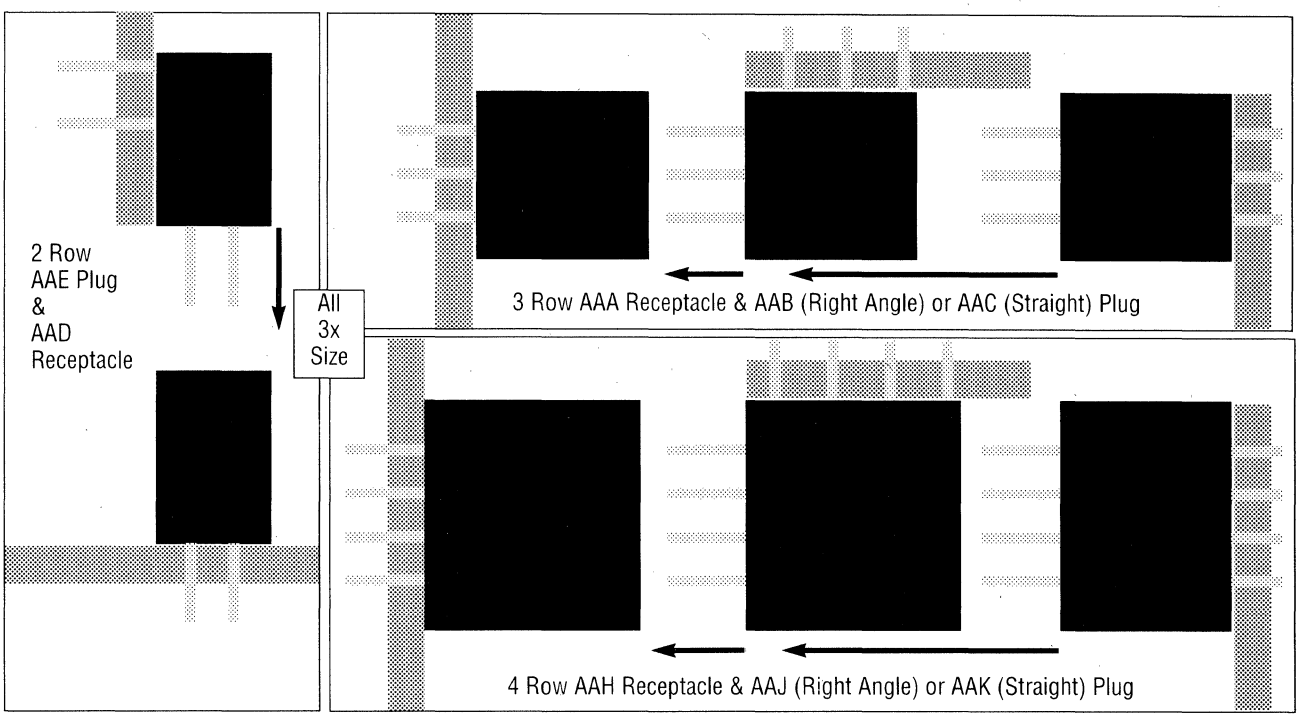
INTERCONNECTION SYSTEMS, INC.

45 Salem Street
Providence, RI 02907-2888
(401) 785-4110
FAX: (401) 461-2310

TEXAS INSTRUMENTS VHD

MIL-C-53302
Connector System
10 to 210 Positions, .075" Centerline x .0375" Offset
2, 3 & 4 Row Receptacles & Plugs



The Texas Instruments VHD Series Contact System is on the QPL listings for MIL-C-53302 in a variety of slash configurations. These connectors are intended for very high density applications and are capable of handling currents up to 3 Amperes.

The schematic representations above are intended to show the basic configurations available. Note that all receptacles have straight through bodies while the plugs can be either straight or right angle. In the figures above only printed circuit boards are shown. Several other options are available as shown on the next pages.

The mating matrices provide guidance on which plugs fit which receptacles and which contacts and hardware will mate.

Please contact your distributor or the factory for polarization details. Dozens of polarization schemes are available.

Insulator (body) Mating Matrix

Plugs > Receptacles	AAB	AAC	AAE	AAJ	AAK
AAA	X	X			
AAD			X		
AAH				X	X

Contact Mating Matrix

Pins > Receptacles	A005	A006	A007	A008	A009	A010	A011	A017	A018	A019	A028	A029	A030	A031	A032	A033
A062	X	X	X	X	X	X	X	X	X	X						
A063	X	X	X	X	X	X	X	X	X	X						
A064	X	X	X	X	X	X	X	X	X	X						
A061	X	X	X	X	X	X	X	X	X	X						
A014	X	X	X	X	X	X	X	X	X	X						
A066	X	X	X	X	X	X	X	X	X	X						
A072											X	X	X	X	X	X
A073											X	X	X	X	X	X
A074											X	X	X	X	X	X
A020											X	X	X	X	X	X
A075											X	X	X	X	X	X

Hardware Mating Matrix

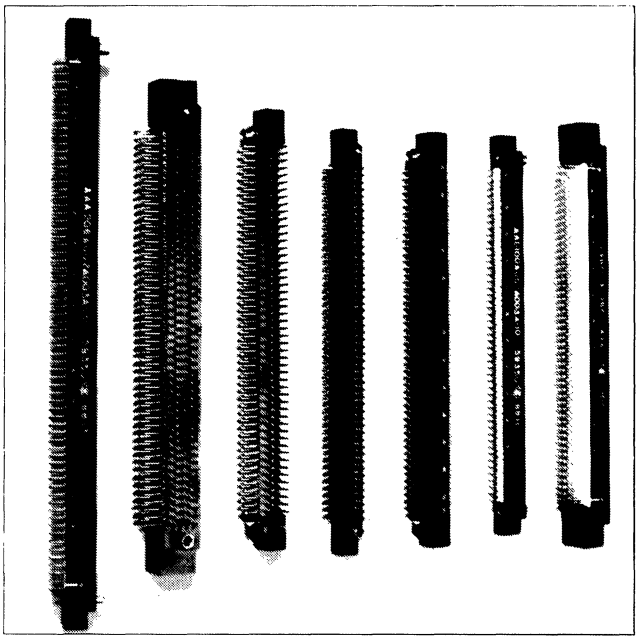
	A001	A003	A007	A009	A011	A012	A013	A014	A015	A004	A006	A008	A016	A017	A019	A020	R2YY	R1YY
A002			X			X	X		X									
A003		X																
A010	X			X	X			X										
A005										X		X			X			
A006											X							
A018													X	X		X		
P2YY																	X	
P1YY																		X

Polarized guide sets will mate only if both are "YY".

TEXAS INSTRUMENTS • 34 Forest St. • Attleboro, MA 02703 • 508-699-3800 Ext 5211, 5234, 5303

VHD Series (MIL-C-55302), .075" Centerline x .0375" Offset Straight Receptacle, Straight & Right angle Plugs 2, 3 & 4 Rows, 10-210 Positions, 3A, 750Vrms (sea level)

The VHD Series of connectors are available in 2, 3, or 4 row configurations, straight plug or receptacles and right angle plugs. The 2 row design offers the option of choosing a 10-100 position connector (increment of 10). While the 3 row design is available with 80, 122, 152, or 206 positions. The 4 row connector is available in 210 positions. All VHD connectors meet or exceed MIL-C-55302 requirements and offer a wide variety of contact and hardware configurations.



PERFORMANCE

Contact Rating	3 Amperes
Contact Resistance	.020 Ohms max. individual .010 Ohms max. average Per MIL STD-1344/3004
Contact Engaging Force	2.5 oz. max. average 3 oz. max. individual Tested with .0245" dia. pin
Contact Separation Force	.5 oz. minimum Tested with .0245" dia. pin
Gang Mating/Unmating	.25 lbs./contact max. mate .04 lbs./contact min. unmate
Durability	500 cycles per MIL-C-55302
Oversize Pin Exclusion	.033" dia. pin @ 21 oz. force
Solderability	Per MIL-STD-202/208
Temp. Cycling	-65°C to +125°C per MIL-STD-1344/1003, 5 (1) hr. cycles
Dielectric Withstanding Voltage	750Vrms @ sea level 250Vrms @ 70,000 ft. per MIL-STD-1344/3001
Insulation Resistance	4500 megohms @ 500Vdc per MIL-STD-1344/3001
Vibration	No discontinuities >1µsec per MIL-STD-1344/2005, condition III, 10-2000 Hz, 15G peak
Shock	No discontinuities > 1µsec per MIL-STD-1344/2004 100G sawtooth
Salt Spray	Per MIL-STD-1344/1001, 5% salt @ 95°F, 48 hrs.
Humidity	Per MIL-STD-1344/1002, II, 10 days @25-65°C, 80-98% relative humidity

SPECIFICATIONS

Contacts	Base material - Beryllium Copper per QQ-C-530 Plating - 50 µinch Au per MIL-G-45204, type II, grade C, class 1 over 50-150 µinch nickel per QQ-N-290
Body Insulator	Glass filled polyphenylene sulfide (ryton) per MIL-M-24519
Hardware	Stainless steel per ASTM-A582, passivated or beryllium copper per QQ-C-550, nickel plated per QQ-N-290, 50-150 µinch
Marking	Per MIL-STD-1285

REFERENCE MIL-C-55302 / 190-193

The designer must check that the contact and hardware styles added to the insulator produce a combination that is on the QPL.

PART NUMBERING SYSTEM

		Mountings: Earless	Mountings: Ears				
2 Row	Receptacle	ACD	AAD	100	XXXX	XXXX	A00
	Rt Ang Plug	ACE	AAE	100	XXXX	XXXX	A00
3 Row	Receptacle	ACA	AAA	122	XXXX	XXXX	A00
	Rt Ang Plug	ACB	AAB	122	XXXX	XXXX	A00
	Straight Plug	ACC	AAC	122	XXXX	XXXX	A00
4 Row	Receptacle	ACH	AAH	210	XXXX	XXXX	A00
	Rt Ang Plug	ACJ	AAJ	210	XXXX	XXXX	A00
	Straight Plug	ACK	AAK	210	XXXX	XXXX	A00

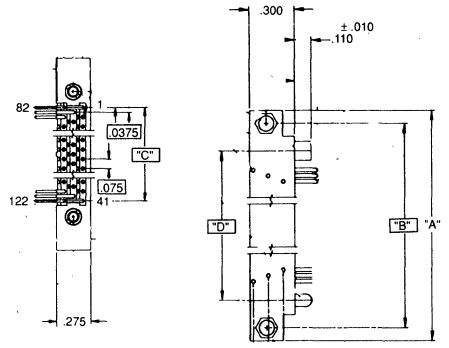
Rows	Number of positions
2	010,020,030,040,050,060,070,080,090,100
3	080, 122,152,206
4	210

Hardware	2-3 Row	4 Row
Guide set	A003	A006
Fixed jack set	A010	A005
Turning jackset, .490" long, slotted screw	A001	
Turning jackset, .500" long, slotted screw		A008
Turning jackset, .700" long, slotted screw	A011	A004
Hex turning jackset, .545" long	A014	
Short hex turning jackset, .200" long	A009	A019
Polarized guide set (*= R or Y)(#=1 or 2)	*2YY	* 1YY
P = Plug R = Receptacle		

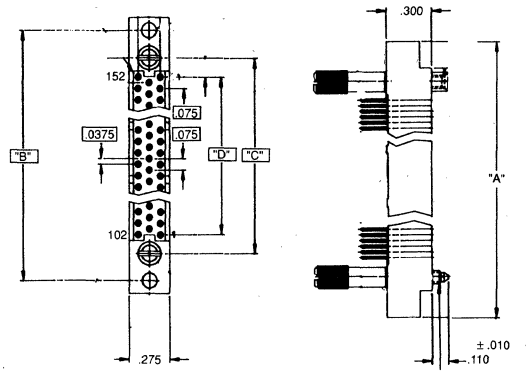
Contact Type: Length	Straight Receptacle 2-3 Row	Straight Receptacle 4 Row	Rt Angle Plug 2 Row	Rt Angle Plug 3 Row	Rt Angle Plug 4 Row	Straight Plug 2-3 Row	Straight Plug 4 Row
Solder							
.109"Dip	A062	A072	A017	A005	A028	A008	A031
.140"Dip	A063	A073	A018	A006	A029	A009	A032
.172"Dip	A064	A074	A019	A007	A030	A010	A033
.234"Dip	A014						
.100"Cup	A061	A071				A011	A085
Wire wrap	A066	A075					

No Variation or Special Variations - Consult factory

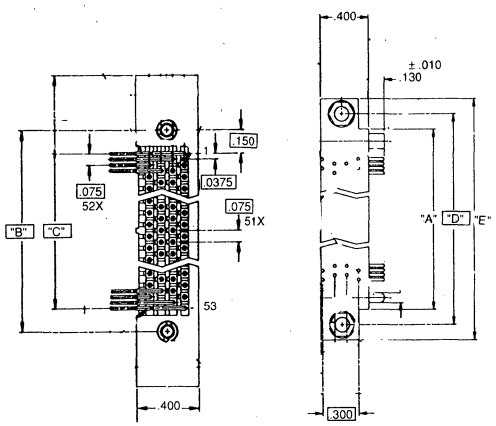
VHD Series (MIL-C-55302), Plug & Receptacle Dimensions



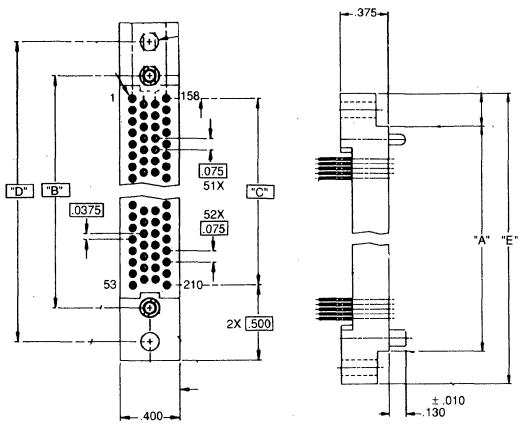
DIMENSIONS	NO. OF POSITIONS			
	80	122	152	206
"A" ± .010	2.730	3.780	4.530	5.880
"B" BSC	2.560	3.610	4.360	5.710
"C" BSC	1.950	3.000	3.750	5.100
"D" BSC	2.200	3.250	4.000	5.350



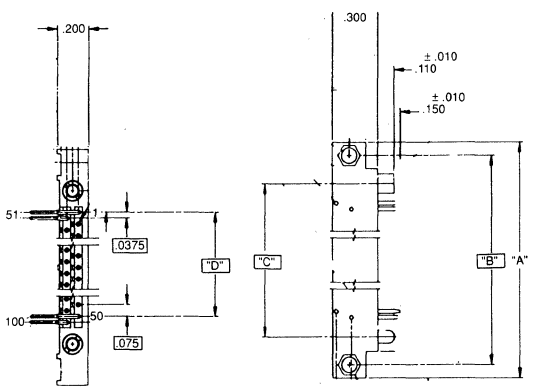
DIMENSIONS	NO. OF POSITIONS			
	80	122	152	206
"A" ± .010	2.730	3.780	4.530	5.880
"B" BSC	2.560	3.610	4.360	5.710
"C" BSC	2.200	3.250	4.000	5.350
"D" BSC	1.950	3.000	3.750	5.100



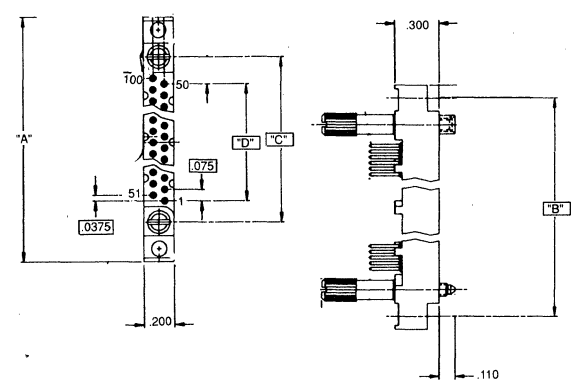
DIMENSIONS	NO. OF POS.	DIMENSIONS	NO. OF POS.
	210		210
"A" ± .010	4.400	"D" BSC	4.650
"B" BSC	4.200	"E" .010	4.900
"C" BSC	3.900		



DIMENSIONS	NO. OF POS.	DIMENSIONS	NO. OF POS.
	210		210
"A" ± .010	4.400	"D" BSC	4.650
"B" BSC	4.200	"E" .010	4.900
"C" BSC	3.900		



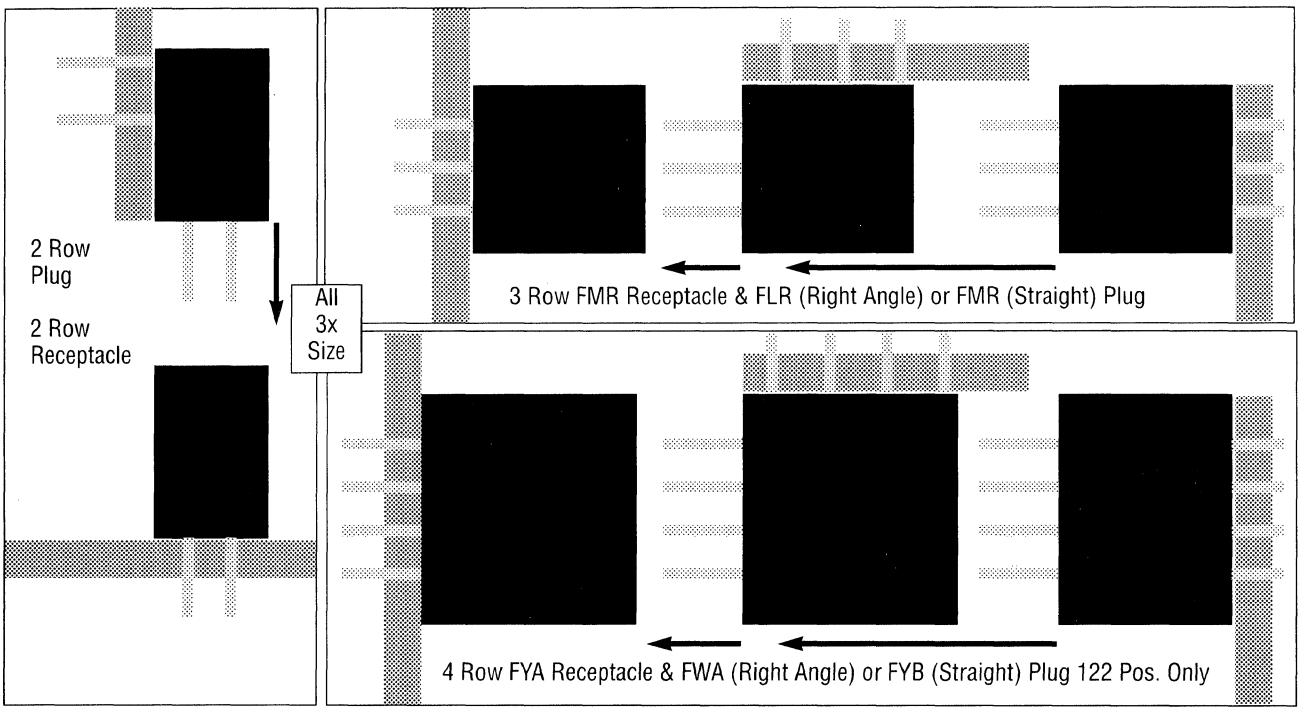
DIMENSIONS	NO. OF POSITIONS									
	10	20	30	40	50	60	70	80	90	100
"A" ± .010	1.138	1.513	1.888	2.263	2.638	3.013	3.388	3.763	4.138	4.513
"B" BSC	.968	1.343	1.718	2.093	2.468	2.843	3.218	3.593	3.968	4.343
"C" BSC	.618	.993	1.368	1.743	2.118	2.493	2.868	3.243	3.618	3.993
"D" BSC	.300	.675	1.050	1.425	1.800	2.175	2.550	2.925	3.300	3.675



DIMENSIONS	NO. OF POSITIONS									
	10	20	30	40	50	60	70	80	90	100
"A" ± .010	1.138	1.513	1.888	2.263	2.638	3.013	3.388	3.763	4.138	4.513
"B" BSC	.968	1.343	1.718	2.093	2.468	2.843	3.218	3.593	3.968	4.343
"C" BSC	.618	.993	1.368	1.743	2.118	2.493	2.868	3.243	3.618	3.993
"D" BSC	.300	.675	1.050	1.425	1.800	2.175	2.550	2.925	3.300	3.675

TEXAS INSTRUMENTS F Series

MIL-C-53302 Connector System
10 to 208 Positions, .100" Centerline x .050" Offset
2, 3 & 4 Row Receptacles & Plugs



The Texas Instruments F-Series Contact System is on the QPL listings for MIL-C-53302 in a variety of slash configurations. These Cable/PWB connectors are intended for PWB, applications and are capable of handling currents up to 5 Amperes.

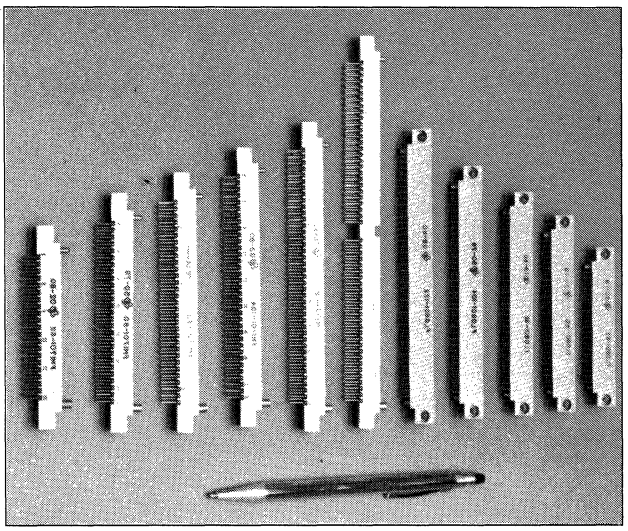
The schematic representations above are intended to show the basic configurations available. Note that all receptacles have straight through bodies while the plugs can be either straight or right angle. In the figures above only printed circuit boards are shown. Several other options are available as shown on the next pages.

The mating matrices provide guidance on which plugs fit which receptacles and which contacts and hardware will mate.

Please contact your distributor or the factory for polarization details. Dozens of polarization schemes are available.

F Series (MIL-C-55302), .100" Centerline x .050" Offset Straight & Right angle Receptacles & Plugs 2 & 3 Rows, 10-160 Positions, 5A, 1000Vrms (sea level)

F-Series connectors are available in 3 connector configurations, straight plug or receptacle and right angle plugs. F-Series offers you the option of selecting a 1, 2, 3, or 4 row style connector suitable to your application.
All F-Series connectors meet or exceed the requirements of MIL-C-55302 and offer a wide variety of contact and hardware configurations.



PERFORMANCE

Contact Rating	5 Amperes (22 & 24 AWG)
Contact Resistance	.020 Ohms max. individual .010 Ohms max. average Per MIL STD-1344/3004
Temp. Cycling	-65°C to +125°C per MIL-STD-1344/1003, 5 (1) hr. cycles
Dielectric Withstanding Voltage	1000Vrms 60 Hz @ sea level 300Vrms 60 Hz @ 70,000 ft. per MIL-STD-1344/3001
Insulation Resistance	5000 megohms @ 500Vdc per MIL-STD-1344/3001
Vibration	No discontinuities >1µsec per MIL-STD-1344/2005, condition III, 10-2000 Hz, 15G peak
Salt Spray	Per MIL-STD-1344/1001, 5% salt @ 95°F, 48 hrs.
Shock	No discontinuities > 6ms per MIL-STD-1344/2004 100G sawtooth
Durability	500 cycles per MIL-C-55302
Humidity	Per MIL-STD-1344/1002, II, 10 days @25-65°C, 80-98%RH
Gang Mating/Unmating (Low)	.25 lbs/contact max. mate .04 lbs/contact min. unmate

SPECIFICATIONS

Contacts	Base material - Beryllium Copper per QQ-C-530 Plating - 50 µinch Au per MIL-G-45204, type II, grade C, class 1 over 50-150 µinch nickel per QQ-N-290
Body Insulator	Glass filled Polypheneyne Sulfide (Ryton) per Mil-M-2451 or Diallyl Phthalate per Mil-M-14.
Hardware	Stainless steel per MIL-C-55302, or beryllium copper per QQ-C-530/Ni plate
Marking	Per MIL-STD-1285

REFERENCE

MIL-C-55302 / 21, 22, 55-66, 59-60, & 138-139
The designer must check that the contact and hardware styles added to the insulator produce a combination that is on the QPL.

PART NUMBERING SYSTEM

FAR0123-44-33-22

FAR	01	23	-44	-33	-22
Body style					
	Contact type				
		Hardware code			
			Number of positions		
				Polarization orientation (if applicable)	
					Special variation (if applicable)

BODY STYLES

Code	Description	Positions
FAR	Plug, no mtg ears	10,14,20,24,26,30,36,40, 44,50,54,56,60,66,70
FBR	Receptacle, no mtg ears	10 Thru 70
FCR	Plug, mtg ears, RA mtg & trmnls	10, 14, 20, 24, 26, 30, 36, 40, 44, 50, 54, 56, 60, 66, 70, 90, 100, 120
FDR	Receptacle with mtg ears	10-70
FE	Plug with mtg ears	10-70
FF	Plug, no mtg ears RA mtg & trmnls	10-70
FG	Plug, mtg ears, RA mtg, str trm	10-70
FKA	Plug, crmp, rmvbl cntct, no ears	10 Thru 70
FKB	Rcpt, crmp, rmvbl cntct, no ears	10 Thru 70
FKD	FKB with mtg ears	10 Thru 70
FKE	FKA with mtg ears	10 Thru 70
FKM	FKD, mtg ears, 3 rows only	50,62,80,92,104
FKN	FKM with no mtg ears, 3 rows	50,62,80,92,104
FLR	Plug, similar to FC, 3 rows	50,62,80,92,104,160, 208
FMR	Rcpt, similar to FD, 3 rows	50,62,80,92,104,160, 208
FR	Quarter Round	59
FRA/FRB	Receptacle/Plug	
FSA	1 row plug, no mtg ears	3 thru 22
FSB	1 row receptacle, no ears	3 thru 22
FSF	Rt angle 1 row plug, no ears	3 thru 22
FST	Rt angle 1 row rcptcl, no ears	3 thru 22
FTBR	Rt angle rcptcl no ears Test connector/Card extender	10 Thru 70
FTDR	With mtg ears	10 Thru 70
FWA	Plug, Ears, RA mtg	122
FYA	Receptacle, Ears	122
FYB	Straight plug, Ears	122

F Series Mating Matrix

INSTRUCTIONS:

To assure the correct mating of all F Series Connectors, please reference the following:

1. Connector Body Mates. (same position only).
2. Connector Contact Mates.
3. Connector Hardware Mates.

CONTACT MATING MATRIX

- Assure all plug connectors have male pin contacts
- Assure all recepticle connectors have female socket style contacts
- All pin contacts will mate with all socket contacts

Please note that straight-through connectors may utilize either straight pin contacts or straight sockets, hence the mating positions of offset contacts should be confirmed with the factory.

CONNECTOR MATING MATRIX

Male Plug Connectors	Female Receptacle Connectors								
	FBR	FDR	FMR	FR	FSB	FSD	FT	FK	FYA
FAR	•	•					•	•	
FCR	•	•					•	•	
FE	•	•					•	•	
FF	•	•					•	•	
FG	•	•							
FLR			•						
FR				•					
FSA					•	•			
FSC					•	•			
FSE					•	•			
FSF					•	•			
FMR			•						
FK	•	•	•					•	
FWA									•
FYB									•

F SERIES PIN CONTACTS

Pin Description*	2-3 Row		122 Pos. 3 Row	
	Code	Term"	Code	Term"
Solder Dip	01	140	301	.100
Solder Dip	02	.172	302	.132
RA Sold Dip	07	.109		
RA Sold Dip	08	.140	307	.115
RA Sold Dip	09	.172	309	.147
RA Sold Dip	10	.468		
Solder Cup	11	.100	311	.060
WW, Strt	14	.625	314	.585
Flex, Strt	15	.058		
RA, WW	18	.530	318	.505
RA Sold Cup	20	.140		
Flex Circ	22	.100	322	.053
RA, WW	23	.625	323	.600
RA	26	.266	326	.241

*WW=Wire Wrap; RA=Right Angle; Strt=Straight; Flex=Flex Circuit

F SERIES SOCKET CONTACTS

Socket Description*	2-3 Row		122 Pos. 3 Row	
	Code	Term"	Code	Term"
Solder Cup	53	.100	353	.060
Solder Dip	54	.140	354	.100
Solder Dip	55	.172	355	.132
WW	56	.625	356	.585
Solder Dip	62	.109	362	.069
Solder Dip	63	.203	363	.163
Flex, Strt	66	.058		
Solder Dip	67	.234	367	.194
Cnt, Sld Cup	69	.525	369	.485
Flex Circ	71	.094	371	.053
Solder Cup	77	.140	377	.100
Solder Dip	78	.212	378	.172
WW	79	.665	379	.625
WW, Strt	85	.500		
Strt, WW	84	.375		
Strt, Flex	59	.140		

*WW=Wire Wrap; Sck=Socket; Strt=Straight; Flex=Flex Circuit

F SERIES HARDWARE: GUIDE SETS, JACKSETS & SOCKETS, TURNING HARDWARE

Std	122	Crmp	FT	Description
00	300	X	100	No hardware
01	301	G	101	Guide set
02	302		102	2 guide pins
03	303		103	2 guide sockets
04	304			Long guide set
05	305			2 long guide pins
06	306			2 long guide sockets
07	307	F	107	Fixed jackset
08	308	FR	108	Fixed jackset reversed
09	309		109	2 fixed jackscrews
10	310		110	2 fixed jacksockets
11	311			Long fixed jackset
12	312			Long fixed jackset reversed
13	313			2 long fixed jackscrews
14	314			2 long fixed jacksockets
15	315	S	115	Short turning jackset
16	316	SR	116	Short turning jackset reversed
17	317	S2M	117	2 short turning jackscrews
18	318	S2F	118	2 short turning jacksockets
		M2F		2 medium trng jacksockets
19	319	M		Long turning jackset
20	320	MR		Long turning jackset reversed
21	321			2 long turning jackscrews
22	322	M2F		2 long turning jacksockets
23	323	GR	123	Guide set reversed
24	324	LR		Long guide set reversed
25	325		125	Hex turning jackset
26	326		126	Hex turning jackset reversed
27	327		127	2 hex truning jackscrews
28	328	S2FH	128	2 hex turning jacksockets
29	329			Fixed jackset .187"
31	331	L		Long turning jackset .695"
32	332			Long round gd set mtg ext .147"
33	333	PG	133	Guide set polarized
34	334			Long polarized guide set
35	335			Extra long fixed jackset
36	336			Long guide set cut to .187"
37	337			Long plrzd gd set cut to .100"
38	338			Long turning jkset rev to .695"
39	339			Long gd set mtg ext to .160"
41	341			Long turning jackset
42	342			Turning jkset scrw .7", jksckt .2"
43	343			Turning jksckt .7" lng, jkscrw .2"
44	344	L2F	2	Long turning jackscerws .700"
45	345			2 Long turning jacksockets .700"
46	346			Short trng jkset BeCu hex knb
		SH		Short trng hex knob
		SHR		Short trng hex knob reverse
47	347			Fixed jackset reversed .187"
48	348			2 long fixed jacksockets
50	350			Special polarized guide set
57				Long hex int trng jkset .25" knob

Applications

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Telecom Applications:

Many Trompeter products were developed specifically for the telecom industry.

BNC Miniature Coax 75Ω Wrench Crimp cable connectors (U20 Series): Typically withstands 100-110 lbs. pull! **75Ω Tool Crimp** (U220 Series): Typically withstands 70-90 lbs. pull and exceeds MIL-C-39012B, category "D" requirements. Both series accommodate many industry standard cables made by AT&T, Comm/Scope, etc. (AT&T 728, 734A and 735).

Standard and Miniature 75Ω Coax Patching Products: Plugs, jacks , panels, patch cords and cable assemblies.

DSX Modules: Rugged, dependable DSX modules meet or exceed the highest government and industry standards. Designed for accessing and cross-connecting DS4, DS-4E and DS-3 transmissions. Dimensionally equivalent replacement for the ADC DSX-4M (Rear cross-connect).

Custom Panels: Trompeter has manufactured custom distribution panels with BNC connectors for DS3 data transmission rates (45 megabits) which are used in distribution systems related to DSX applications.

Broadcast Applications:

Even with the advent of highly sophisticated digital switching equipment, Trompeter patching products still provide for the practical and affordable re-routing of RF and Video signals.

Custom panels with our 75Ω miniature patching for **high-density low VSWR** applications (Electronic News Gathering (ENG) and remote broadcast vans and trailers, etc.) have been developed to meet the industry's need for quality high-density RGBS patching.

50Ω & 75Ω Standard and Miniature Coax Patching: Normal-through jacks, paralleling jacks, panels, patch plugs, looping Plugs, patch cords and cable assemblies.

Audio Patching: Single and dual jacks, looping plugs and patch cords.

Cable Jacks & Plugs: (See Telecom applications)

Military Applications

***Military Twinax /Triax Applications*:** MIL-STD-1553B applications are found in **naval surface ships, battle tanks, helicopters, missiles, space vehicles, combat aircraft** and in many ground applications such as **data networks** and **perimeter security** for airports, armories, and other government installations. **Trompeter** provides matching components of Twinax/Twinax connectors and cable for improving the transmission capabilities and interference rejection of data transmission systems. Trompeter components will meet or exceed **MIL-STD-1553B** requirements for airborne and ground check-out **MIL-STD- 1760** "external stores". For detailed information on the features and benefits of each series see: **Twinax/Triax Connectors: Introduction** in our **free catalog.**

General Applications:

70 Series: Miniature Twinax/Triax (TRB/TRT): Used for digital data bus, video pair, airborne MIL-STD-1553B, base-band circuit and other "Noise Free Guarded" circuit applications. Used on larger military aircraft, naval surface ships, and on the Trident submarine.

150 Series: Subminiature Twinax/Triax (TRS/TTM): Used for digital data bus, video pair and airborne MIL-STD-1553B weight reduction, base-band circuit and other "Noise Free Guarded" circuit applications. Used on ASW/ Patrol, CAS/Attack, Tanker and all types of military aircraft.

70 Series: Concentric Miniature Patching and 150 Series: Concentric Subminiature Patching: Quick disconnect, high density connectors to quickly route/ program signals. Used in ground support applications.

80 Series: Standard Twinax/Triax (TRC/TRN): Standard "C" sized concentric connectors. Designed for ship-board data bus MIL-STD-1397.

30 Series: Miniature Connectors (TWBNC/TWTNC): 2-Pin polarized 2-lug/threaded connectors.

450 Series: Subminiature Twinax : Concentric connectors designed for airborne digital data bus weight reduction applications. Used on CAS/Attack, Stealth, Military transport and all types of military aircraft.

MIL-C-39029-90 /91 : Twinax Contacts for Digital Data Bus Multi-pin Connector. Mated pair of scoop- proof concentric contacts to fit the #8 cavity in multi-pin connectors such as the **MIL-C-38999 Series 1, 3, & 4,** and the **MIL-STD-1760 "external stores" type.** Fully QPL'd.

Standard Patching Systems

provide limitless flexibility to easily reroute video signals.

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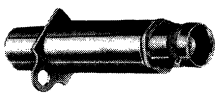
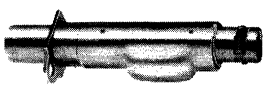
Patch Jacks

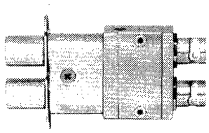
A Cable Entry



B BNC

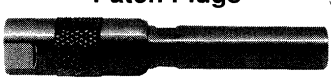


C BNC Self Terminating

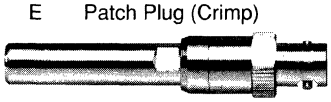


D Normal Thru
(5/8" Centers Only)

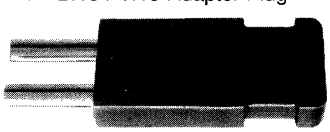
Patch Plugs



E Patch Plug (Crimp)



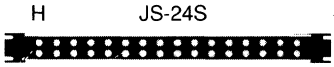
F BNC / TNC Adapter Plug



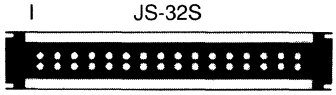
G Looping Plug

Panels

H JS-24S

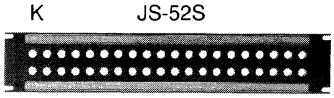


I JS-32S



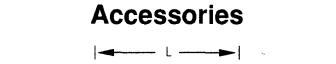
J JS-32A
(5/8" Spacing)

K JS-52S

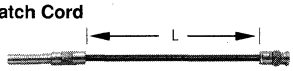


L JS-52W
(1" Spacing)

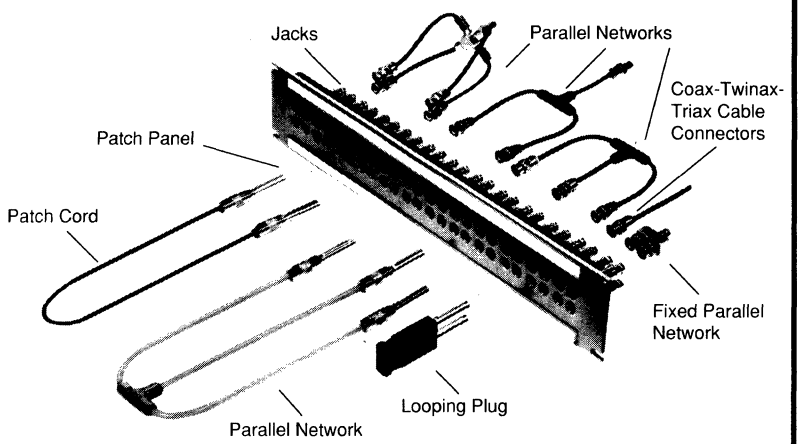
Accessories



Patch Cord



Cable Assembly (Std Patch and BNC)



RCA 50Ω (pin size .070") and **Western Electric (WE) 75Ω (pin size .090")** available The two series are not interchangeable but can be intermixed on the same panel with TEI's audio patch jacks. **Call for FREE Catalog!** for our complete line of standard and miniature patching plugs, jacks & panels for coax, twinax and triax

PATCH JACKS SINGLE / DUAL

FIG	Function	Rear Entry	RCA 50Ω	Western Electric 75Ω
A	Single	Cable Entry	J3E-Δ	J3WE-Δ
B	Single	BNC Standard (TNC Available)	J3	J3W
	Single	Solder Pot	J3D	J3WD
	Single, Self Terminating	Cable , Crimped	J13C-R	J13WC-R
C	Single, Self-Terminating	BNC Standard (TNC Available)	J13-R	J13W-R
D	Normal Thru	BNC Standard (TNC Available)	J14 Series	J14W Series

PLUGS

FIG	Function	RCA 50Ω	Western Electric 75Ω
E	Patch Plugs (Crimp)	PL1C-Δ	PL1WC-Δ
F	Adapter Plug	AD1	AD1W
G	Looping Plug	LP-Z	LPW-Z

*Δ: Cable Group Designation"s

Δ	1	2	5	4	3
RG Cable	58	59	122	174	223

* R: Substitute Resisitance for R (1/2 W 5%)

PANEL HEIGHT	NO. ROWS	FIG.	PANEL DESIGNATION AND NO. OF SINGLE JACKS ACCOMODATED												
1 3/4"	1	H	12	14	16	20	24S	26	28						
	2	I-K								32S		40S	52S		
3 1/2"	2	J-L					24L		28A	32A	36A	40	48	52	56

ORDERING INFORMATION

Panel Assemblies **JSI - 12 / J3W**
Panel Type (JS-Aluminum)(JSI- Insulated)
# of Jack Holes
Jack Type Panels Only- Leave "Jack Type" Blank)

Cable Assemblies **PC - L - Z**
Assembly Model
Standard Length in inches (6,12,18,24,or36)
Impedence (Ohms) (50,75,93)

Coax Connectors

BNC • TNC • TPS • TCM

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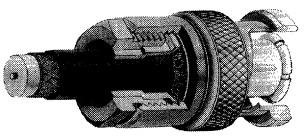
• Bulkhead Plugs • Adapters • Bulkhead Feedthru Jacks • Bulkhead jack • Circuitboard Jacks • • Bulkhead Cable Jacks • Cable Plugs • Bulkhead Cable Plugs • Cable Jacks • Push Plugs •

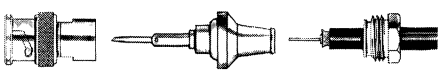
Quality is the Trompeter difference...

We connect you with Quality...

- Fully enclosed, heat treated beryllium copper outer conductor spring for positive electrical contact, improves EMI suppression
- "Pull to destruct force" approaching the tear strength of the cable itself
- 3-piece design for fast easy assembly
- Bayonet or Threaded Versions
- 50 ohm-75 ohm Versions

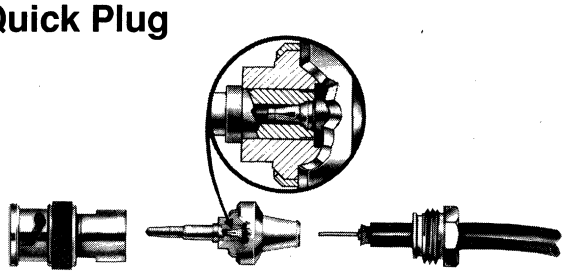
Wrench Crimp





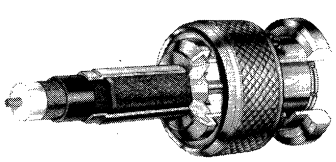
- No insulating material remaining between braid and clamping surfaces when fully assembled
- Holds TFE or similarly jacketed cable without the use of additional hardware
- Floating sleeve permits clamping of the braid without rotary movement
- Captive center contact does not rely on cable for positioning

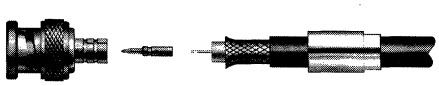
Quick Plug



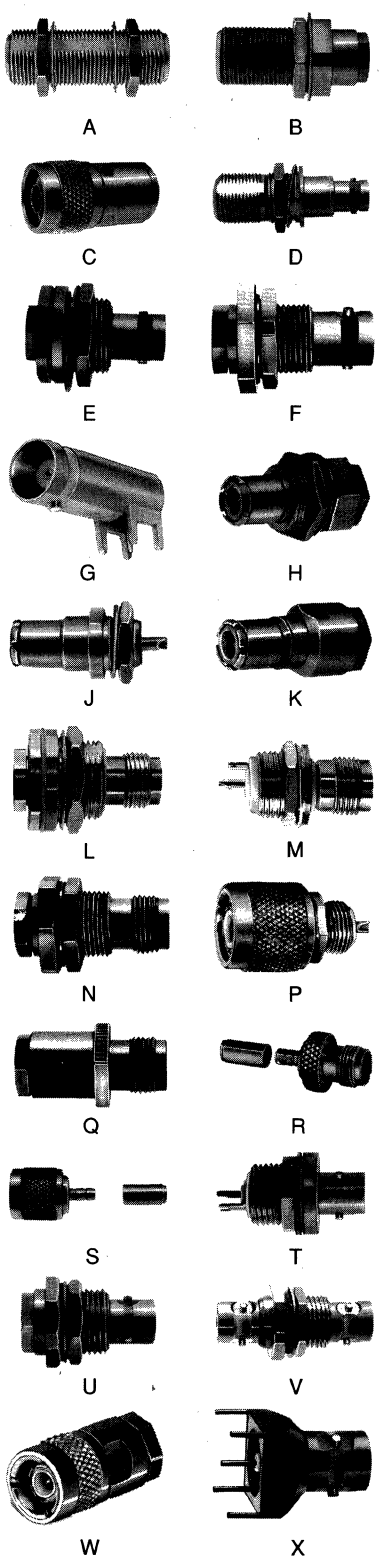
- Wrench crimp design utilizing a solderless, scratch free center conductor retention clamp. (BNC & TNC cable plugs for RG-59,solid center conductor wire only)

Tool Crimp





- Meets MIL-C-39012B, Category "D" Requirements
- Stepped sleeve crimp provides strong attachment



Coax Connectors

BNC • TNC • TPS • TCM

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90 Series: Standard Coax Threaded, N Connectors

Fig	I	Description	C	NOTES	50 ohm	75 ohm	Mounting	Spot Face
		Bulkhead jack	S		J 95	UJ 95	D5.094	SF10
A		Feed-thru bulkhead jack			BJ 98-2-L	UBJ 98-2-L	DD4/to2.25	N/A
B		Bulkhead cable jack	W		BJ 95-N	UBJ 95-N	DD4.203	N/A
	I	Bulkhead cable jack	W		BJ 96-N	BJ 96-N	DD4.203	N/A
C	I	Cable plug	W		PL 95-N	UPL 95-N		
	I	Coupling adapter			ADI 95	UADI 95	DD4.203	N/A
D		Coupling adapter			AD 95	UAD 95	DD4.310	N/A

20 Series: Miniature Coax, BNC Connectors

Fig	I	Description	C	NOTES	50 ohm	75 ohm	Mounting	Spot Face
		Bulkhead jack	S	Front mount	BJ 20	UBJ 20	D5.125	SF 5
	I	Bulkhead jack	S	Rear mount	BJ 21	UBJ 21	D3.147	SF 6
E	I	Bulkhead jack	W	Rear mount	BJ 26-N	UBJ 26-N	D2.143	SF 3
	I	Bulkhead jack	W		BJ 26GF-N	UBJ 26GF	D8.094	SF12
	I	Bulkhead jack	S	Front mount	BJ 27	UBJ 27	D3.147	SF 7
	I	Bulkhead feed-thru jack			BJ 28	UBJ 28	D3.156	SF 7
	I	Bulkhead feed-thru jack		Ground-filter	BJ 28GF	UBJ 28GF	D8.094	SF11
F		Bulkhead cable jack	W	Rear mount	BJ 29-N	UBJ 29-N	D3.218	N/A
	I	Bulkhead cable jack	T	Rear mount	BJ 226-N	UBJ 226-N	D2.143	SF 3
	I	Bulkhead cable jack	T	Ground-filter	BJ 226GF-N	BJ 226GF-N	D8.094	SF12
		Bulkhead cable jack	C	Rear mount	BJ 229-N	UBJ 229-N	D3.218	N/A
		Bulkhead plug	S	Front mount	PL 21	UPL 21	C2.085	SF28
		Cable jack	W		CJ 20-N	UCJ 20-N		
		Cable jack	T		CJ 220-N	UCJ 220-N		
		Cable plug	W		PL 20-N	UPL 20-N		
		Cable plug	T		PL 220-N	PL 220-N		
		Quick plug	W		QP 20-N	N/A		
		CB bulkhead jack	S	Ground-filter	CBBJ 26GF	CBBJ 26GF	D8.094	SF12
		CB jack	S	3-leg	CBJ 20	UCBJ 20		
		CB jack	S	4-leg	CBJ 22	UCBJ 22	DD8.250	
G		Right angle CB jack	S	4-leg	CBJR 20	CBJR 20		
		Right angle CB jack	S	4-leg,"Tall"	CBJR 20A	UCBJR 20A		
	I	Right angle CB jack	S	4-leg	CBBJR 26	UCBBJR 26	D3.156	
	I	Right angle CB jack	S	4-leg,"Tall"	CBBJR 26A	UCBBJR 26A	D3.156	
		Right angle CB jack	S	4-leg	CBBJR 29	UCBBJR 29	D3.179	
		Right angle CB jack	S	4-leg,Tall"	CBBJR 29A	UCBBJR 29A	D3.179	
		Push-on bulkhead jack	S		BJ 120	UBJ 120	C1.120	SF28
		Push-on bulkhead jack	T		BJ 120C-N	UBJ 120C-N	C1.120	SF28
H		Push-on panel plug	W		PL 122-N	UPL 122-N	DD5.156	SF 6
		Push-on panel plug	S		PL 121	UPL 121	C2.085	SF28
		Push-on cable plug	T	BNC/TNC	PL 223-N	UPL 223-N		
K		Push-on cable plug	W	BNC/TNC	PL 123-N	UPL 123-N		
		Coupling adapter			AD 28	UAD 28		

40 Series: Miniature Coax Threaded, TNC Connectors

Fig	I	Description	C	NOTES	50 ohm	75 ohm	Mounting	Spot Face
		Bulkhead jack	S		BJ 40	UBJ 40	D5.125	SF 5
	I	Bulkhead jack	S	Rear mount	BJ 41	UBJ 41	D3.147	SF 6
L	I	Bulkhead jack	W	Rear mount	BJ 46-N	UBJ 46-N	D2.143	SF 3
		Bulkhead jack	W	Ground-filter	BJ 46GF-N	UBJ 46GF-N	D8.094	SF12
M	I	Bulkhead jack	S	Front mount	BJ 47	UBJ 47	D3.147	SF 7
	I	Bulkhead jack	T	Rear mount	BJ 246-N	N/A	D2.143	SF 3
		Bulkhead cable jack	T	BJ 249-N	N/A	D3.218	N/A	
		Bulkhead cable jack	T	Ground-filter	BJ 246GF-N	N/A	D8.094	SF12
N		Bulkhead cable jack	W		BJ 49-N	N/A	D3.218	N/A
		Feed-thru bulkhead jack			BJ 48	UBJ 48	D3.156	SF 7
		Feed-thru bulkhead jack		Ground-filter	BJ 48GF	UBJ 48GF	D8.094	SF11
P		Bulkhead plug	S		PL 41	UPL 41	C2.085	SF28
Q		Cable jack	W		CJ 40-N	UCJ 40-N		
R		Cable jack	T		CJ 240-N	N/A		
		Cable plug	W		PL 40-N	N/A		
S		Cable plug	T		PL 240-N	UPL 240-N		
		Quick plug	W		QP 40-N	N/A		
		CB bulkhead jack	S	Ground-filter	CBBJ 46GF	UCBBJ 46GF	D8.094	SF12
		Rt angle CB bulkhead jack	S	4-leg	CBBJR 46	UCBBJR 46	D8.094	
		Coupling adapter			AD 48	UAD 48		

130 Series: Miniature coax Threaded, F Connectors

Fig	I	Description	C	NOTES	50 ohm	75 ohm	Mounting Hole	Spot Face
		Bulkhead cable jack	S	F	BJ 130	N/A	DD2.094	SF14
		Bulkhead cable jack	W	F	BJ 139-N	N/A	DD2.125	SF30
		Male cable plug	W	F	PL 130-N	N/A		
		Rt angle Male cable plug	W	F	PL 131-N	N/A		
		F jack/BNC plug adapter		F	AD 133	N/A		
		F plug/BNC jack adapter		F	AD 130	N/A		

50 Series: Subminiature Coax 3-lug, 4-lug and Threaded, TPS & TPM Connectors

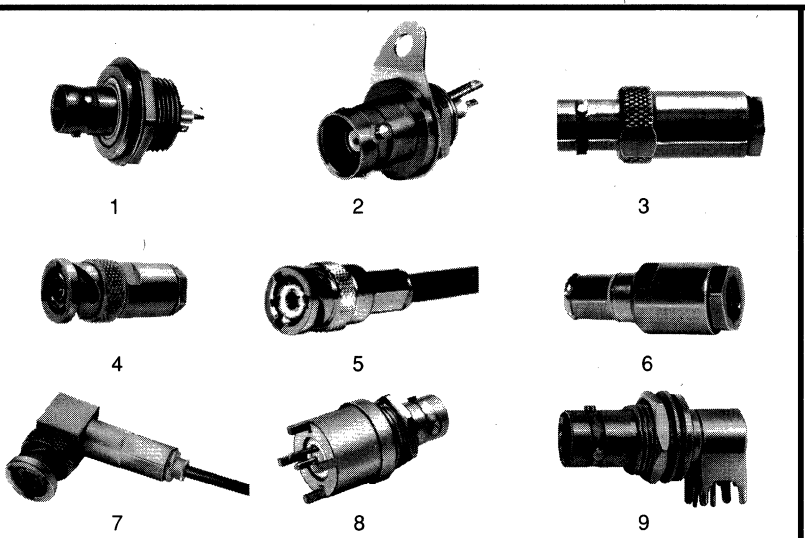
Fig	I	Description	C	Notes	3-lug	4-lug	Threaded	Mounting Hole	Spot Face
		Bulkhead jack	S		BJ 50	BJ 50FL	BJ 350	D6.218	N/A
T	I	Bulkhead jack	S		BJ 57	BJ 57FL	BJ 357	D4.171	SF 2
U		Bulkhead jack	W		BJ 59-N	BJ 59FL-N	BJ 359-N	D4.125	SF 4
V		Feed-thru bulkhead jack			BJ 58	BJ 58FL	BJ 358	D5.171	SF 9
		Cable jack	W		CJ 50-N	CJ 50FL-N	CJ 350-N		
W		Cable plug	W		PL 50-N	PL 50FL-N	PL 350-N		
		Cable plug	T		PL 50C-N	PL 50CFL-N	PL 350C-N		
		Push on cable plug	W		PL 53-N	PL 53-N	PL 53-N		
X		CB jack	S	4-leg	CBJ 50-N	CBJ 50FL	CBJ 350		

Codes: **I**-Insulated, **N**-Cable Group, **S**-Solder Pot, **T**-Tool Crimp, **W**-Wrench Crimp, **N/A**-Not Available / Applicable, **Call**-Call factory for availability

Twinax / Triax Connectors

for MIL-STD-1553B Applications

TROMPETER ELECTRONICS, INC. A small business company
31186 La Baya Drive, Westlake Village, CA 91362-4047
Phone: (818) 707-2020 • Fax: (818) 706-1040

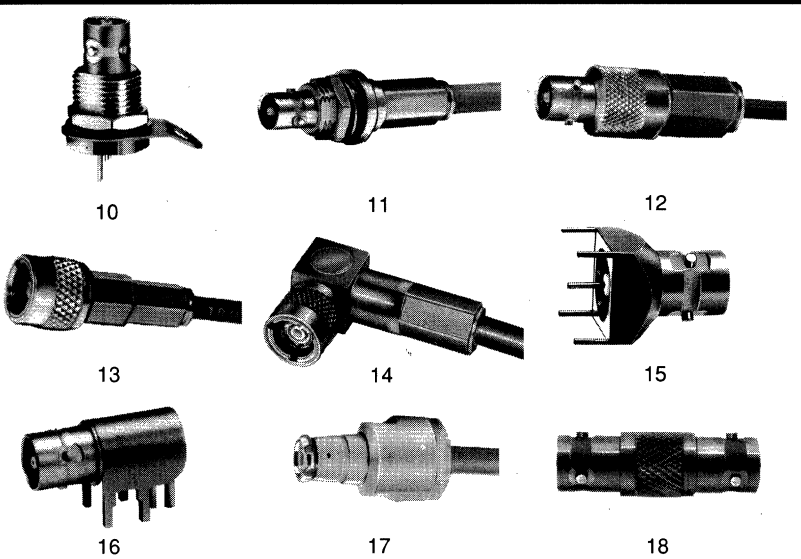


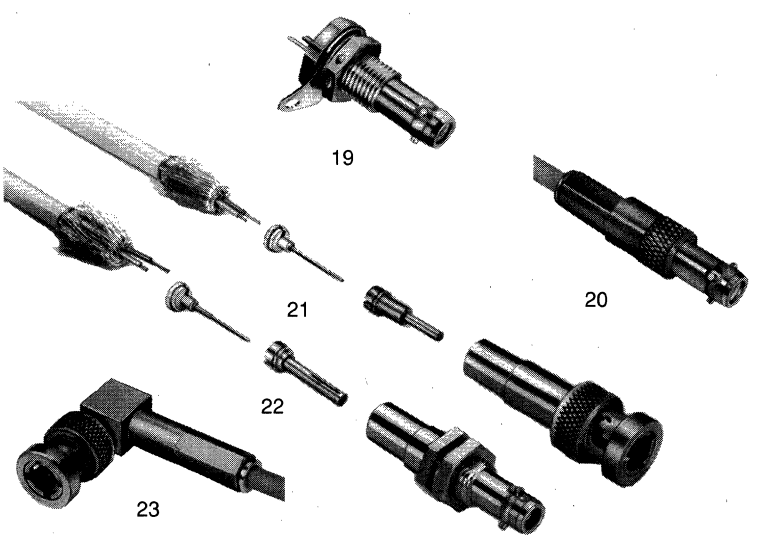
Trompeter's Miniature 2, 3, and 4-lug 70 Series MiniatureThreaded 370 Series

- Size identical to the BNC / TNC series.
- Available in wrench crimp and tool crimp.
- Twinax concenric connectors used for MIL-STD 1553B Data Bus applications.
- Rugged, dependable twinax and triax applications.
- Provide for polarized primary and redundant data bus needs.
- Concentric patching also available.

Trompeter's Subminiature 150 Series

- Concentric twinax & triax jacks, plugs & receptacles for high density installations.
- Series designed specifically for Digital data bus applications where weight is of primary concern (MIL-STD-1553B), Video Pair, baseband circuit & other applications where "Noise Free Guarded" circuits are required.
- Do not require mechanical alignment for mating.
- Concentric patching also available.





Trompeter's Subminiature 450 Series

- Concentric twinax connectors designed for airborne digital databus applications where weight is of primary concern (MIL-STD-1553B).
- Features "full crimp" design.
- Compatable with Raychem series.
- Available in 3-lug, 4-lug and threaded.
- 3 different keyings available in 3-lug configurations.
- Meets 500 hour (MIL-STD 1344) salt spray requirement.
- Weatherproof designs.
- Inspectable assembly. (No blind solder connections)

Twinax / Triax Connectors

for MIL-STD-1553B Applications

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70 Series: Miniature Twinax/Triax Concentric Connectors, TRB/TRT

Fig	Description	I	C	Notes	2-Lug	3-Lug	4-Lug	Threaded	Mounting Hole	Spot Face
	Bulkhead cable jack	I	C		BJ 74C-N	BJ 74CTL-N	BJ 74CFL-N	BJ 374C-N	D2.140	SF24
	Bulkhead cable jack		W		BJ 79-N	BJ 79TL-N	BJ 79FL-N	BJ 379-N	D3.109	SF15
	Bulkhead cable jack		C		BJ 79C-N	BJ 79CTL-N	BJ 79CFL-N	BJ 379C-N	D3.109	SF15
1	Bulkhead jack	I	S		BJ 72	BJ 72TL	BJ 72FL	BJ 372	D2.140	SF 8
	Bulkhead jack	I	S	Rear mount	BJ 75	BJ 75TL	BJ 75FL	BJ 375	D2.140	SF24
	Bulkhead jack		S	Rear mount	BJ 76	BJ 76TL	BJ 76FL	BJ 376	D3.250	N/A
2	Bulkhead jack		S	Front mount	BJ 77	BJ 77TL	BJ 77FL	BJ 377		
	Feed-thru bulkhead jack	I			BJ 73	BJ 73TL	BJ 73FL	BJ 373	D2.140	SF 8
	Feed-thru bulkhead jack				BJ 78	BJ 78TL	BJ 78FL	BJ 378	D3.187	N/A
3	Cable jack		W		CJ 70-N	CJ 70TL-N	CJ 70FL	CJ 370-N		
	Cable jack		C		CJ 70C-N	CJ 70CTL-N	CJ 70CFL	CJ 370C-N		
	Cable plug		C		PL 73C-N	N/A	N/A	N/A		
4	Cable plug		W		PL 74-N	PL 75-N	PL 75FL-N	PL 375C-N		
5	Cable plug		C		PL 74C-N	PL 75C-N	PL 75CFL-N	PL 375-N		
6	Push-on cable plug		W		PL 73-N	N/A	N/A	N/A		
7	Right angle cable plug		C		PLR 74C-N	PLR 75C-N	PLR 75CFL-N			
8	CB bulkhead jack		S		CBBJ 79	CBBJ 79TL	CBBJ 79FL	CBBJ 379	D3.109	
9	Rt angle CB bulkhead jack		S		CBBJR 79	CBBJR 79TL	CBBJR 79FL	CBBJR 379	D3.125	
	CB jack		S		CBJ 70	CBJ 70TL	CBJ 70FL	CBJ 370		
	Coupling adapter				AD 78	AD 78TL	AD 78FL	AD 378		
	Fixed paralleling jack			"2 plugs,1 jack"	TN2	TN2TL	TN2FL	TN2T		
	Fixed paralleling jack			"2 jacks,1 plug"	TN2A	TN2TLA	TN2FLA	TN2TA		
	Tee adapter			No chain	BN 73	BN 73TL	BN 73FL	BN 373		
	RFI Cap for BJ77 jack			No chain	RFI 77-1	RFI 77TL-1	RFI 77FL-1	RFI 377-1		
	RFI Cap for PL75 plug			No chain	RFI 75-1	RFI 75TL-1	RFI 75FL-1	RFI 375-1		
	Termination jack			70 Series	Call	TNGBJ1-1-R	Call	TNTF1-1-R	D3.218	N/A
	Termination plug			70 Series	Call	TNG1-1-R	Call	TNT1-1-R		
	Bulkhead jack		S	Rear mount	BJ 150	N/A	BJ 150FL	BJ3150	D4.218	N/A

150 Series: Subminiature Twinax/Triax Concentric Connectors, TRS/TTM

Fig	Description	I	C	Notes	2-Lug	3-Lug	4-Lug	Threaded	Mounting Hole	Spot Face
	Bulkhead jack	I	S	Front mount	BJ 152	N/A	BJ 152FL	BJ3152	D9.208	N/A
	Bulkhead jack	I	W	Rear mount	BJ 154-N	N/A	BJ 154FL-N	BJ3154-N	D9.116	SF14
	Bulkhead jack	I	C	Rear mount	BJ 154AC-N	N/A	BJ 154ACFL-N	BJ3154AC-N	D9.116	SF14
	Bulkhead jack	I	S	Rear mount	BJ 155	N/A	BJ 155FL	BJ3155	D9.148	SF14
10	Bulkhead jack		S	D-hole mount	BJ 157	N/A	BJ 157FL	BJ3157	D6.187	N/A
	Bulkhead jack		S	Flange mount	Call	N/A	Call	Call	C1.187	N/A
	Bulkhead jack		W		BJ 159-N	N/A	BJ 159FL-N	BJ3159-N	D4.125	SF 4
11	Bulkhead jack		C		BJ 159AC-N	N/A	BJ 159ACFL-N	BJ3159AC-N	D4.125	SF 4
	Feed-thru bulkhead jack	I	S		BJ 153	N/A	BJ 153FL	BJ3153	D9.116	SF14
	Feed-thru bulkhead jack				BJ 158	N/A	BJ 158FL	BJ3158	D5.171	SF 9
	Cable jack		W		CJ 150-N	N/A	CJ 150FL-N	CJ3150-N		
12	Cable jack		C		CJ 150AC-N	N/A	CJ 150ACFL-N	CJ3150AC-N		
	Cable plug		C		PL 155-N	N/A	PL 155FL-N	PL3155-N		
13	Cable plug		C		PL 155AC-N	N/A	PL 155ACFL-N	PL3155AC-N		
14	Right angle cable plug		C		PLR 155AC-N	N/A	PLR 155ACFL-N	PLR3155AC-N		
15	CB jack		S	4-leg	CBJ 157	N/A	CBJ 157FL	CBJ3157		
16	Right angle CB jack		S	4-leg	CBJR 157	N/A	CBJR 157FL	CBJR3157		
	Push-on bulkhead jack		S	Front mount	BJ 151	N/A	N/A	N/A	C1.063	SF29
17	Push-on cable plug		W		PL 153-N	N/A	N/A	N/A		
	Push-on cable plug		C		PL 153AC-N	N/A	N/A	N/A		
	Push-on bulkhead plug				PL 151	N/A	N/A	N/A	C1.088	SF27
18	Coupling adapter				AD 158	N/A	AD 158FL	AD3158		
	Tee adapter			No chain	BN 153	N/A	BN 153FL	BN3153		
	RFI Cap for PL155 plug				RFI 155-1	N/A	RFI 155FL-1	RFI3155-1		
	Termination plug			150 Series	N/A	TNGM1-1-R	Call	TNTM1-1-R		

450 Series: Subminiature Twinax/Triax Keyed 3-lug, 4-lug and Threaded Concentric Connectors... Includes three (3) different keyed 3-lug versions, a 4-lug version and a threaded version. Each version has two (2) pin and socket arrangements for a total of ten (10) different polarized and keyed combinations.

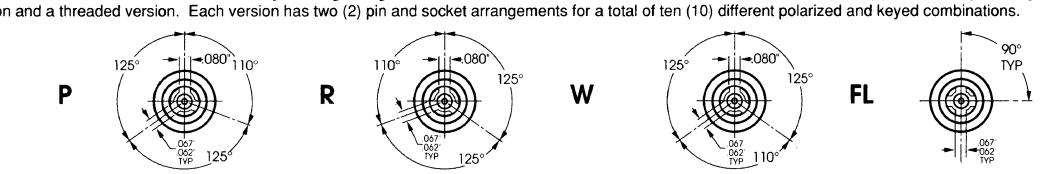

Fig	Description	Pin Socket	C	Notes	3-Lug P Key	3-Lug R Key	3-lug W Key	4-lug	Threaded	Mntg Hole-Spt Fc
19	Bulkhead jack	P	S	Rear mounting	BJ 450PP	BJ 450RP	BJ 450WP	BJ 450FLP	BJ3450P	DD8.250
19	Bulkhead jack	S	S	Rear mounting	BJ 450PS	BJ 450RS	BJ 450WS	BJ 450FLS	BJ3450S	DD8.250
	Bulkhead jack	P	S	Front mounting	BJ 457PP	BJ 457RP	BJ 457WP	BJ 457FLP	BJ3457P	DD8.250
	Bulkhead jack	S	S	Front mounting	BJ 457PS	BJ 457PS	BJ 457WS	BJ 457FLS	BJ3457S	DD8.250
20	Cable jack	P	C		CJ 450ACPP-N	CJ 450ACRP-N	CJ 450ACWP-N	CJ 450ACFLP-N	CJ3450ACP-N	
20	Cable jack	S	C		CJ 450ACPS-N	CJ 450ACRS-N	CJ 450ACWS-N	CJ 450ACFLS-N	CJ3450ACS-N	
21	Cable plug	P	C		PL 455ACPP-N	PL 455ACRP-N	PL 455ACWP-N	PL 455ACFLP-N	PL3455ACP-N	
21	Cable plug	S	C		PL 455ACPS-N	PL 455ACRS-N	PL 455ACWS-N	PL 455ACFLS-N	PL3455ACS-N	
22	Bulkhead cable jack	P	C	Rear mounting	BJ 459ACPP-N	BJ 459ACRP-N	BJ 459ACWP-N	BJ 459ACFLP-N	BJ3459ACP-N	DD8.156 SF31
22	Bulkhead cable jack	S	C	Rear mounting	BJ 459ACPS-N	BJ 459ACRS-N	BJ 459ACWS-N	BJ 459ACFLS-N	BJ3459ACS-N	DD8.156 SF31
23	Right angle cable plug	P	C		PLR 455ACPP-N	PLR 455ACRP-N	PLR 455ACWP-N	PLR 455ACFLP-N	PLR3455ACP-N	
23	Right angle cable plug	S	C		PLR 455ACPS-N	PLR 455ACRS-N	PLR 455ACWS-N	PLR 455ACFLS-N	PLR3455ACS-N	
	RFI Cap				RFI 455	RFI 455	RFI 455FL	RFI3455		
	Contact Assembly		N	Socket/pin	SP 450AC-N					
	Termination			In-line	TBJ 451P-R-1	TBJ 451P-R-1	TBJ 451P-R-1	TBJ 451FLP-R-1	TBJ3451P-R-1	DD8.156 /.125
	Termination			Bulkhead	TNG 451P-R-1	TNG 451P-R-1	TNG 451P-R-1	TNG 451FLP-R-1	TNG3451P-R-1	

Codes: **I**-Insulated, **N**-Cable Group, **R**-Resistance, **S**-Solder Pot, **T**-Tool Crimp, **W**-Wrench Crimp, **N/A**-Not Available / Applicable, **Call**-Call factory for availability

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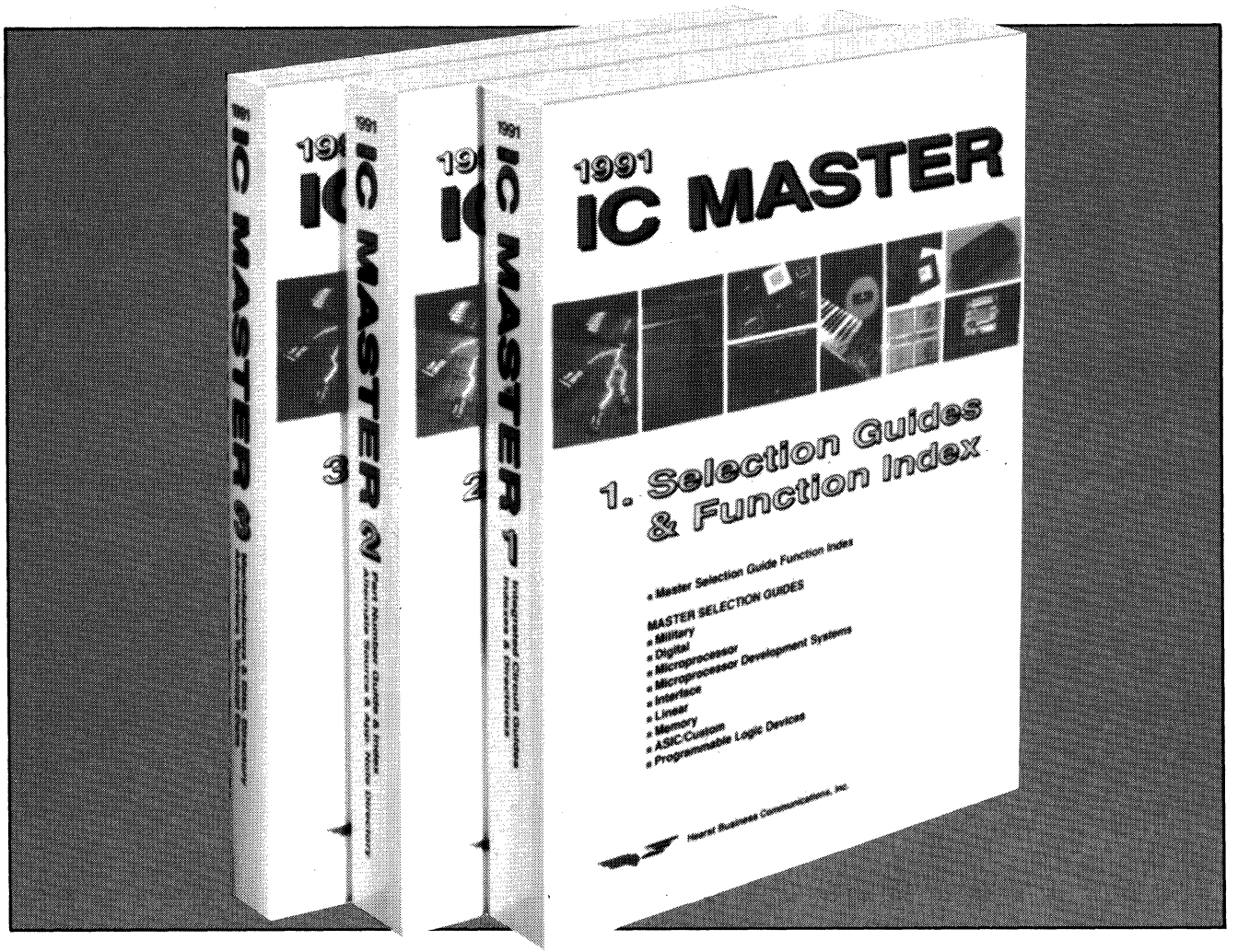

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Terminals - Sockets - Connectors

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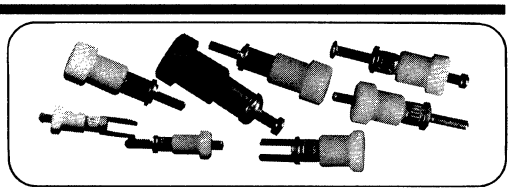
Simplest to use - no hole chamfering required; very high reliability. Used in space, military, and commercial applications.



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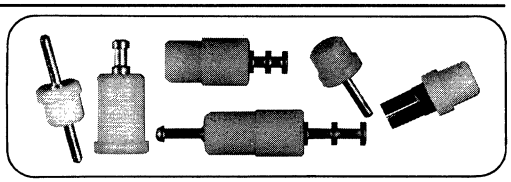
Teflon Insulated Terminals & Jacks

Suitable for all metal chassis applications - commercial and Mil-T-55155 types.



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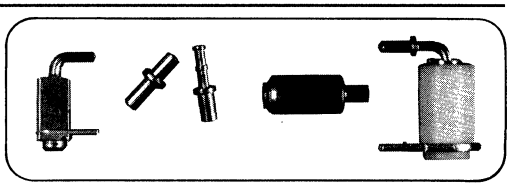
Available in brass, copper or beryllium copper for all P.C. applications. Controlled heat treat and plating assure excellent staking and solderability.



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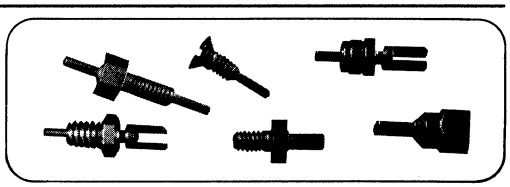
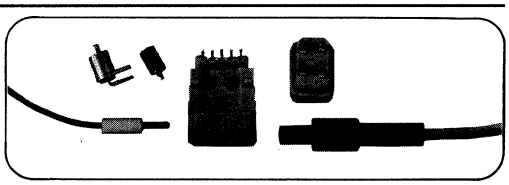
Terminals

Made to same high standards as above designs, grounding terminals are one-piece brass units knurled or threaded for inserting or bolting to the metal chassis.



JACKS&PLUGS

For CoAx connection from plug to P.C. cards. Special Teflon insulated miniature banana plug design for highest reliability.



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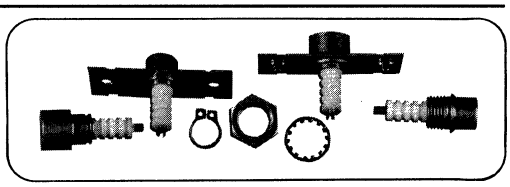
HV Miniature Connectors offer Teflon insulation. Optimum creepage path for high-voltage use is engineered to meet Mil-C-8384. Break-down voltage to 18,000 vdc.



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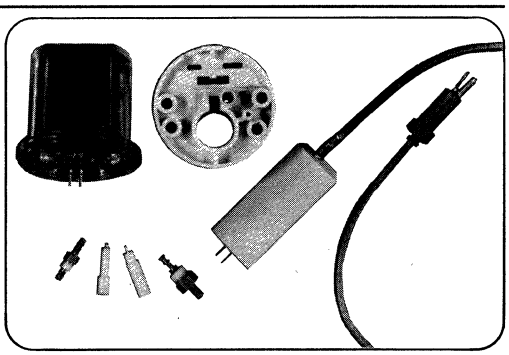

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CONNECTOR TECHNICAL SPECIFICATIONS

ELECTRICAL	CONNECTOR SERIES DT	SP
Contact Resistance (per contact) Initial After cycling**	10 millohms max. 20 millohms max.	10 millohms max. 20 millohms max.
Insulation resistance (adjacent contacts)	1000 megohms min.	1000 megohms min.
Dielectric withstanding voltage (adjacent contacts)	1000 VRMS @ 60 sec. duration	1000 VRMS @ 60 sec. duration
Current rating (per Contact)	3.0 amps maximum	2.0 amps maximum
Contact Interruptibility (during rotation of a mated VPC cordset)	No interruption of duration ≥ 50 μ sec.	No interruption of duration ≥ 50 μ sec.
Durability (mating cycles) Plating type 1 Plating type 2	750 minimum 1000 minimum	500 minimum 750 minimum

**Cycling is in accordance with the Durability specified minimum mating cycles.

MECHANICAL	CONNECTOR SERIES DT	SP
Insertion Force (to fully insert matching fully populated male into female) Female / Male Plug Size (max.): 8–10 position 0.254″ × 0.454″; 6 position 0.254″ × 0.384″; 4 position 0.254# × 0.304″	2 lbs maximum	4 lbs maximum
Plug Retention in Female (plug mated into female shall not disengage and maintains electrical continuity. Load is applied parallel with plug axis and away from female.)	20 lb max. load	20 lb max. load
Female Retention on Printed Circuit Board (Female installed on PCB shall not disengage from PCB under load. Load is applied parallel with PBC axis and in the direction rear to front of female.) Prior to flow solder / After flow solder	20 lb max. load 20 lb max. load	20 lb max. load 20 lb max. load
Spring Contact Life (based on passing the contact interruptibility test after the specified mating cycles. Not based on plating durability.)	≥5,000 cycles nominal	≥3,000 cycles nominal
Contact Durability After Overstress (Based on passing the contact interruptibility test after mating of a handset 4 position plug into 5 or 8 or 10 position female and/or mating of a 5 position plug into 8 or 10 position female.)	500 cycles max.	500 cycles max.

MATERIAL	CONNECTOR SERIES DT	SP
Female connector housing/cover	High Temperature polyamide and/or polyester	same
Housing/cover flammability	passes UL94V-D	same
Contact	Beryllium copper	same
Plating:		
Barrier underplate	50 micro-inch minimum nickel	same
Type 1-Standard (comparable to 50 micro-inch hard gold)	15 micro-inch minimum AUPO gold alloy	same
Solder post	100 micro-inch minimum tin-lead	same

ADVANCED TECHNOLOGY IN A MODULAR CONNECTOR

DATA TRANSMISSION (DT) SERIES

- Impedance matching contact configuration
- Minimizes standing wave reflections
- Capable of data transmission rates above 4 Mbps
- Large surface mating area for long contact life
- Multiple points of contact for connection integrity
- Mating life of 750 or 1,000 cycles minimum
- Highest reliability contact material —beryllium copper—
- Contacts are not damaged when overstressed by smaller modular plugs

SAFETY PROBE (SP) SERIES

- Conforms to Underwriters Laboratories (UL) Requirements
- Meets requirements of International Electrotechnical Commission (IEC) safety probe test
- Recessed, protected contact mating portion
- Rectangular or surface mating area for good contact life
- Multiple points of contact for connection integrity
- Mating life of 500 or 750 cycles minimum
- Highest reliability contact material —beryllium copper—
- Contacts are not damaged when overstressed by small modular plugs

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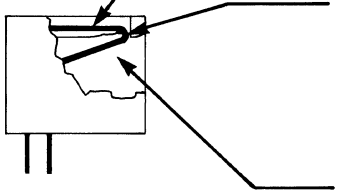
CONNECTORS (con't)

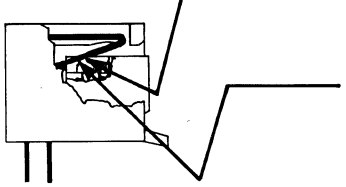
TRADITIONAL MODULAR FEMALE CONNECTORS



Spring contacts are phosphorbronze, offering only moderate contact life.

Contact fulcrum area located close to mating plug body means that contact can be easily damaged.

Spring contact on each outside position may be bent or overstressed if a handset plug is mated into a six or eight position female, or a six position plug is mated into an eight position female.



Contact force fluctuates up to 40 grams as plug moves around, while remaining mated with female.

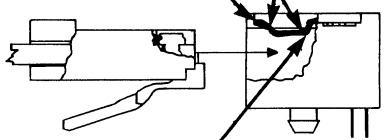
Impedance matching does not occur between spring contact and male contact, resulting in poor Voltage Standing Wave Ratio (VSWR) = 2.7.

Spring contact has only a single point of contact with male contact, causing rapid wear and plating loss.

VPC DT MODULAR FEMALE CONNECTORS

BERYLLIUM COPPER—THE BEST SPRING CONTACT MATERIAL—is used for all contacts to provide long life reliability after thousands of noting cycles.

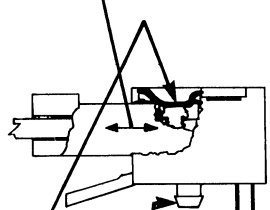
Contact free ends cannot hook/tear into finger tips because ends are in pockets.



Contact is preloaded, cantilever design for maintaining 100 grams typical contact force to assure high reliability.

Spring contacts eliminate the stress that can occur when incorrect plugs are inserted.

Contact force remains constant as plug is pushed or pulled while in a fully mated condition. Contact surfaces of spring contact and male contact are parallel and aligned with each other.



Large contact mating surface area provides
- Significantly improved impedance matching between spring contact and male contact, better Voltage Standing Wave Ratio (VSWR) = 1.7
- Multiple points of contact for connection redundancy, prevent interruption of signals
- Longer plating life because wear is not concentrated at one point while mated
- Higher current carrying capacity > 3.0 amps

Snap-lock feet with 360° wraparound lock ledges on both sides provide positive mechanical anchoring to .062 thick PCBs to prevent stress of soldered posts during plug insertion and removal.

VIRGINIA PLASTICS
1701 MIDLAND ROAD/SALEM, VA 24153
P.O. BOX 4577/ROANOKE, VA 24015-0577
703-375-0100
FAX 703-375-0135

CONNECTOR PART NUMBER SELECTOR GUIDE

Standard Part Number Selection

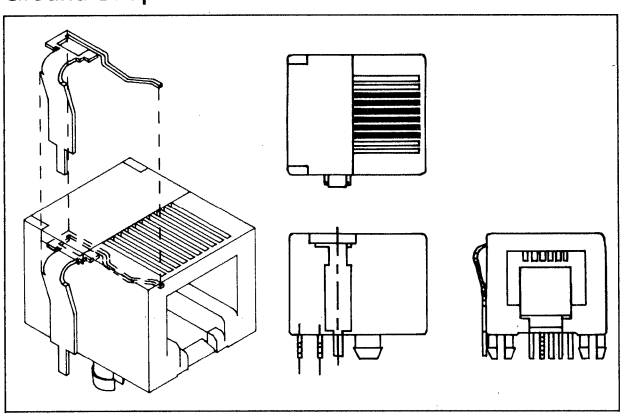
Female DT Series Low Profile				
NUMBER OF CONTACTS / POSITION TYPE*	4 CONTACT	5 CONTACT	8 CONTACT	10 CONTACT
4 Position	020.000.010	N/A	N/A	N/A
6 Position	020.000.229	020.000.196	020.000.024	N/A
8 Position Keyed	020.000.821	N/A	020.000.184	020.000.059
8 Position Unkeyed	N/A	020.000.212	020.000.023	020.000.069

Female DT Series Facade				
NUMBER OF CONTACTS / POSITION TYPE*	4 CONTACT	5 CONTACT	8 CONTACT	10 CONTACT
4 Position	N/A	N/A	N/A	N/A
6 Position	020.000.007	020.000.003	N/A	N/A
8 Position Keyed	N/A	N/A	020.000.002	020.001.708
8 Position Unkeyed	N/A	N/A	N/A	N/A

*Position type refers to Federal Communications Commission (FCC) Part 58; plug widths. (i.e. 4 position .300″ plug width, 8 position .450″ plug width)

Shielded Low Profile Connectors

Ground Strap DT Series



IGS SHIELDED MODELS

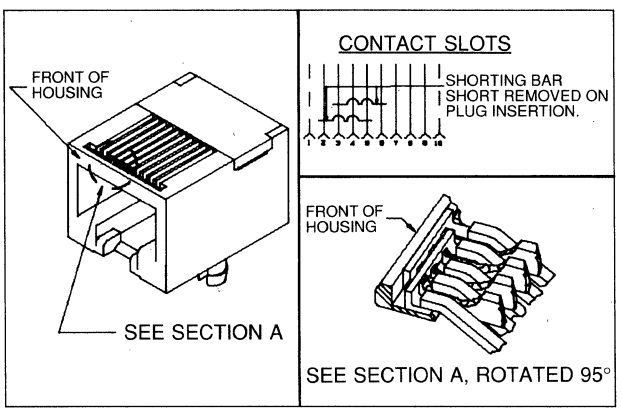
Diagram applies to all three Shielded DT Low Profile Connectors:
P/N 020.000.130; P/N 020.001.025;
P/N 020.001.024.

FEATURES

- Compatible with all FCC standards 5 and 8 position plugs
- Utilizes ground strap contact
- Highest reliability contact material—beryllium copper—
- No special or non-standard male connectors required
- Provides more efficient EMI transfer and control than standard spring contacts
- Eliminates need for metal covers on plugs for many applications
- Spring contact section is identical to DT series
- Grounding is from cable drain wire pierced by contact blade (of plug) mated to ground strap contact
- Ground strap body (in comparison with typical contact body) has better width-to-length ratio for reducing radiated EMI
- Ground strap body is not interleaved with any contacts carrying data signals to reduce signal coupling through the ground path
- Ground strap solder post located at side of connector, physically away from signal traces, and can be surrounded by ground plane of PCB

Specialty Low Profile Connectors

Make and Break DT Series

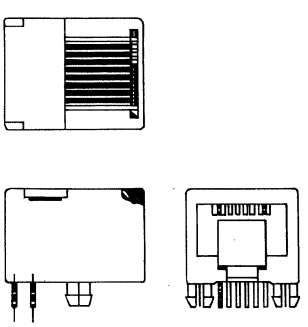


FIRST LOW PROFILE CONNECTOR WITH MAKE AND BREAK CAPABILITIES

FEATURES

- Connector shown: Universal Service Order Code: RJ48X/VPC- P/N: 020.001.373
- T/R: T1 R1: 8 position Jack with Shorting Bars
- Mechanical Usage: Low Profile Unkeyed 8 Position Connector
- Typical Usage: Digital Data Transmission for High Speed Telecommunications Devices
- Other connectors are available for StarLAN®and other local area network applications

TYPE RJ48X



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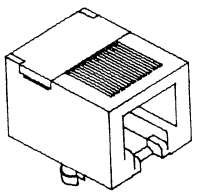
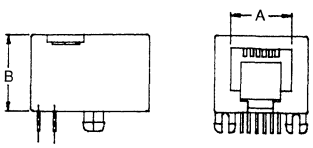
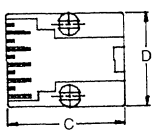
P.O. BOX 4577/ROANOKE, VA 24015-0577
703-375-0100
FAX 703-375-0135

MODULAR FEMALE CONNECTORS

Low Profile Female







Low Profile Features

- Total height less than 1/2 (.50) inch
- Occupies minimum PCB real estate
- Connector depth less than .75 inch
- Universal connector body size

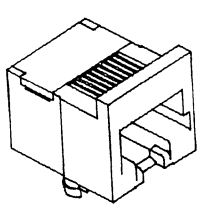
PART NUMBER	NO. OF POS.	NO. OF CONTACTS	SERIES DT//SP	DIMENSIONS					
				A	B	C	D	E	F
020.000.010	4	4	DT	.308 7.82	.490 12.45	.682 REF 17.32 REF.	.590 14.99	— —	— —
020.000.463	6	4	SP	.390 9.91	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	— —	— —
020.000.229	6	4	DT	.390 9.91	.490 12.45	.682 REF. 17.32 REF.	.590 14.99	—	—
020.000.461	6	6	SP	.390 9.91	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	—	—
020.000.186	6	6	DT	.390 9.91	.490 12.45	.682 REF. 17.32 REF.	.590 14.99	—	—
020.000.996	8K	8	SP	.470 11.94	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	—	—
020.000.184	8K	8	DT	.470 11.94	.490 12.45	.682 REF. 17.32 REF.	.590 14.99	— —	— —
020.000.997	8	8	SP	.470 11.94	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	—	—
020.000.023	8	8	DT	.470 11.94	.490 12.45	.682 REF. 17.32 REF.	.590 14.99	—	—
020.000.024	6	8	DT	.470 11.94	.490 12.45	.682 REF. 17.32 REF.	.590 14.99	— —	— —
020.000.069	8K	10	DT	.470 11.94	.490 12.45	.682 REF. 17.32 REF.	.590 14.99	— —	— —
020.000.068	8	10	DT	.470 11.94	.490 12.45	.682 REF. 17.32 REF.	.590 14.99	— —	— —
020.000.462	6	4	SP	.390 9.91	.490 12.45	.736 REF. 18.59 REF.	.590 14.99	.505 12.83	.613 15.57
020.000.007	6	4	DT	.390 9.91	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	.505 12.83	.613 15.57
020.000.460	6	6	SP	.390 9.91	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	.505 12.83	.613 15.57
020.000.003	6	6	DT	.390 9.91	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	.505 12.83	.613 15.57
020.000.995	8	8	SP	.470 11.94	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	.618 15.70	.613 15.57
020.000.002	8	8	DT	.470 11.94	.490 12.45	.736 REF. 18.69 REF.	.590 14.99	.618 15.70	.613 15.57

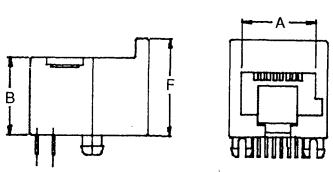
DIMENSIONING: CHART CONTAINS DIMENSIONS IN INCHES OVER MILLIMETERS.

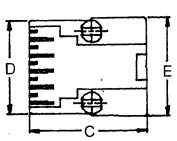
Specialty Low Profile

High Density DT Series
Six Position Type 6/8
Eight Position Type 8/10

Facade Female



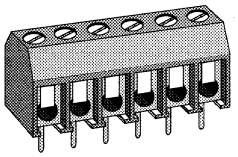
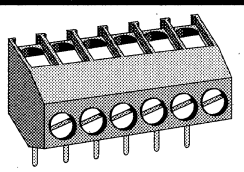




Facade Features:

- Low profile body, height less than 1/2 (.50) inch
- Front face approximately 5/8 inch height
- Fits enclosure openings for standard height modular jacks
- Occupies minimal PCB real estate
- Connector depth less than .75 inch

SCREW CONNECTORS FOR PRINTED CIRCUIT BOARDS
SERIES 93, 94, 95, 96 AND 97

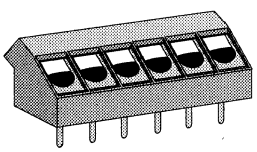
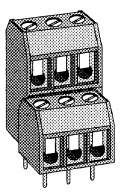



Horizontal Wire Entry

Type	Center to center spacing	Height	Width	No. of poles
950-DS	5mm/.197in	10mm/.39in	8mm/.31in	2-32
970-DS	5mm/.197in	13mm/.51in	9mm/.35in	2-32
970-HSEDS	5mm/.197in	27mm/1.063in	10.5mm/.41in	2-32
940-DS	5.08mm/.2in	11.5mm/.45in	8mm/.31in	2-32
960-DS	5.08mm/.2in	13.5mm/5.3in	9mm/.35in	2-32
977-DS	7.5mm/.295in	13mm/.51in	9.5mm/.38in	2-3
910-DS	10mm/.394in	14mm/.55in	9mm/.35in	2-12
952-DS	10mm/.394in	10mm/.39in	8mm/.31in	2-16
972-DS	10mm/.394in	13mm/.51in	9mm/.35in	2-16
942-DS	10.16mm/.4in	11.5mm/.45in	8mm/.31in	2-16
962-DS	10.16mm/.4in	13.5mm/.53in	9mm/.35in	2-16

Vertical Wire Entry

Type	Center to center spacing	Height	Width	No. of poles
951-DS	5mm/.197in	8mm/.31in	10mm/.39in	2-32
971-DS	5mm/.197in	9mm/.35in	13mm/.51in	2-32
941-DS	5.08mm/.2in	8mm/.31in	11.5mm/.45in	2-32
961-DS	5.08mm/.2in	9mm/.35in	13.5mm/.53in	2-32
977-OPSGDS	7.5mm/.295in	9mm/.35in	13mm/.51in	2-19
953-DS	10mm/.394in	8mm/.31in	10mm/.39in	2-16
973-DS	10mm/.394in	9mm/.35in	13mm/.51in	2-16
943-DS	10.16mm/.4in	8mm/.31in	11.5mm/.45in	2-16
963-DS	10.16mm/.4in	9mm/.35in	13.5mm/.53in	2-16

45° Wire Entry

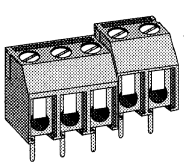
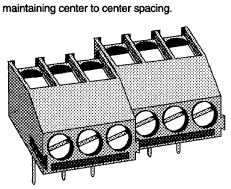
Type	Center to Center spacing	Height	Width	No. of poles
974-DS	5mm/.197in	12mm/.47in	12.5mm/.49in	2-26
976-DS	7.5mm/.295in	12mm/.47in	12.5mm/.49in	2-3
975-DS	10mm/.394in	12mm/.47in	12.5mm/.49in	2-13

Double Level Horizontal Wire Entry

Type	Center to center spacing	Height	Width	No. of poles
970-EDS	5mm/.197in	27mm/1.063in	20.2mm/.80in	4-64

Dovetail Interlocking Versions

2 and 3 position terminal blocks can be assembled to required lengths while maintaining center to center spacing.

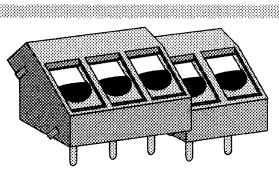
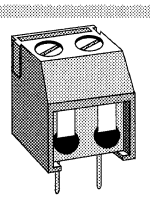



Horizontal Wire Entry

Type	Center to center spacing	Height	Width	No. of poles
930-T-DS	3.5mm/.138in	8.7mm/.34in	8mm/.31in	2-3
950-T-DS	5mm/.197in	10mm/.394in	8mm/.31in	2-3
970-T-DS	5mm/.197in	13mm/.51in	9mm/.35in	2-3
940-T-DS	5.08mm/.2in	11.5mm/.45in	8mm/.31in	2-3
960-T-DS	5.08mm/.2in	13.5mm/.53in	9mm/.35in	2-3

Vertical Wire Entry

Type	Center to center spacing	Height	Width	No. of poles
931-T-DS	3.5mm/.138in	8mm/.31in	8.7mm/.34in	2-3
951-T-DS	5mm/.197in	8mm/.31in	10mm/.394in	2-3
971-T-DS	5mm/.197in	9mm/.35in	13mm/.51in	2-3
941-T-DS	5.08mm/.2in	8mm/.31in	11.5mm/.45in	2-3
961-T-DS	5.08mm/.2in	9mm/.35in	13.5mm/.53in	2-3

45° Wire Entry

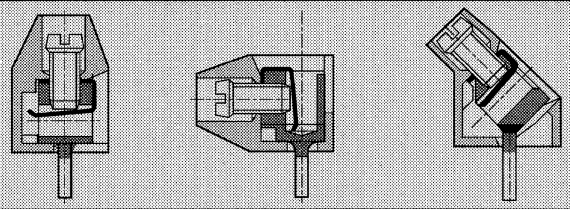
Type	Center to center spacing	Height	Width	No. of poles
974-T-DS	5mm/.197in	12mm/.47in	12.5mm/.49in	2-3
964-T-DS	5.08mm/.2in	12mm/.47in	12.5mm/.49in	2-3
976-T-DS	7.5mm/.295in	12mm/.47in	12.5mm/.49in	2-3

2 Pins /2 Screws per Pole

Type	Center to center spacing	Height	Width	No. of poles
970-TX-DS-2	5mm/.197in	13mm/.51in	9mm/.35in	1

4 Pins / 4 Screws per Pole

Type	Center to center spacing	Height	Width	No. of poles
970-TX-DS-4	5mm/.197in	13mm/.51in	9mm/.35in	1



General

Series 93 to 97 screw connectors for printed circuit boards are available with both metric and imperial center to center spacings and offer a choice of horizontal, vertical or 45 degree wire entry. All horizontal wire entry versions have standoffs at the base to allow flux and solvents to drain during flow soldering operations. Wire protectors prevent damage to finely stranded wires from the turning screw. Series 94 and 95 are available from 2 to 32 poles per strip and can be installed end to end while maintaining center to center spacing. T types feature a dovetail interlocking system and are available in 2 and 3 pole versions which can be combined to form larger configurations. Series 93 features captive screws.

Technical Data

Center to center spacing:

Series 93:	3.5mm/.138in
Series 94:	5.08mm/.200in 10.16mm/.400in
Series 95:	5mm/.197in 10mm/.394in
Series 96:	5.08mm/.200in 10.16mm/.400in
Series 97:	5mm/.197in 10mm/.394in

Nominal Cross Section:

Series93:	26-16 AWG Cu/1.0mm²
Series 94:	26-14 AWG Cu/1.5mm²
Series 95:	26-14 AWG Cu/1.5mm²
Series 96:	26-12 AWG Cu/2.5mm²
Series 97:	26-12 AWG Cu/2.5mm²

Wire Stripping Length: 6mm/0.24in

Recommended Hole Ø in P.C. Board:

Series 93:	1.20mm/.047in
Series 94 - 97:	1.30mm/.05in

International Approvals

Series	UL: File No. E69841
93	26-16 AWG Cu 300V, 7A
94, 95	26-14AWG Cu 300V 15A
96, 97	26-12 AWG Cu 300V, 20A

Series	CSA: File No. LR24322
93	16-16 AWG Cu 300V 7A
94, 95	26-14 AWG Cu 300V 15A
96, 97	26-10 AWG Cu 300V 15A

VDE Rated 0110
VDE test report following. VDE 0609 for types 970 - 975 will be provided on request.

Material

Moulding: Polyamide, self-extinguishing to UL 94, grey colour

From 2 to 8 poles: V-0
Upper Temperature Limits:
short time: ≥ 140°C/284°F
continuous: ≥ 80°C/176°F
cold resistant: ≤ -40°C/-40°F
Comparative Tracking Index: CTI>600

From 9 to 32 poles: V-1
Upper Temperature Limits:
short time: ≥ 200°C/392°F
continuous: ≥ 100°C/212°F
cold resistant: ≤ -40°C/-40°F
Comparative Tracking Index: CTI>175

Terminal Body: tin-plated brass

Wire Protector: copper alloy

P.C. Pin: Ø1mm/0.04in ≙0.75mm²
all types with pin in right angle to wire entrance: tin plated copper
all types with pin in axis to wire entrance: tin plated brass

Screw: zinc-plated steel, yellow chromated

Available Options

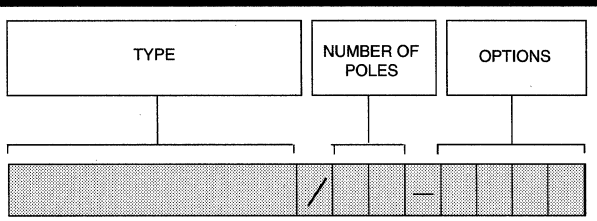
CN:	Consecutive Numbering
SM:	Special Marking (please provide sketch)
BS:	Brass Screws
G05:	Gold-plating (5 microinches)
G30:	Gold-plating (30 microinches)
S30:	Silver-plating (30 microinches)
XXMM:	Longer P.C. pins up to 75mm/3in (horizontal and 45° wire entry versions only). Indicate length in millimeters.
Note:	All blocks are available without wire protector (delete -DS from type number)

Accessories

Self Adhesive Marker Strips

Type	Center to center spacing	Marked
BST3.50/24	3.50mm/.138in	1 to 24
BST5.00/12	5.00mm/.197in	1 to 12
BST5.00/32	5.00mm/.197in	1 to 32
BST5.08/12	5.08mm/.200in	1 to 12
BST5.08/32	5.08mm/.200in	1 to 32
BST7.50/19	7.50mm/.295in	1 to 19
BST10.00/16	10.00mm/.394in	1 to 16
BST10.16/16	10.16mm/.400in	1 to 16

HOW TO ORDER



U.S.A.: WECO Electrical Connectors Inc.
Trimex Building, Rt. 11, Mooers, NY 12958
Tel: (518) 298-4810 Fax: (518) 298-5938

CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

PLUG-IN SCREW CONNECTORS FOR PRINTED CIRCUIT BOARDS
TYPE 950-FL-DS

WECO®

General
Type 950-FL-DS plugs are available from 2 to 24 poles per strip. The male mating pins are offered in pinstrips up to 64 poles (type 971-SLW) or individually soldered (type LST-1.3 x 6.5).

Pinstrip and connector base design provide directional orientation when mating the two parts. A specially shaped contact spring with integral wire protector ensures a secure contact with relatively small insertion and removal forces. The female plug features captive screws.

Technical Data
Center to Center Spacing:
5mm/0.197in
10mm/0.394in spacing available on request.

Nominal Cross Section:
26-14 AWG Cu/1.5mm²

Breakdown Voltage: 2500V

Wire Stripping Length: 6mm/0.24in

Recommended Hole Ø in P.C. Board:
Type 971-SLW: 1.3mm/0.05in
Type LST-1.3 x 6.5: 1.5mm/0.06in

International Approvals
UL: 300V, 10A
26-14 AWG Cu.
File No. E69841

CSA: 300V, 10A
26-14 AWG Cu.
File No. LR24322

VDE Rated 0110

Material
Plug Moulding: Break resistant polyamide, self extinguishing UL94V0, grey colour

Upper Temperature Limits:
short time: 140-160°C/284-320°F
continuous: 80-100°C/176-212°F
cold resistant: -40°C/-40°F

Leakage Current Resistance:
CTI > 600

Terminal Body: tin plated brass

Single Pins LST: Ø1.3mm/0.05 in, silver plated brass

Pin Strip 971-SLW: Ø1mm/0.04in

Pin Strip Moulding: PBTP GF (fibreglass reinforced), self extinguishing UL94V0, black colour

Pin: Tin plated brass

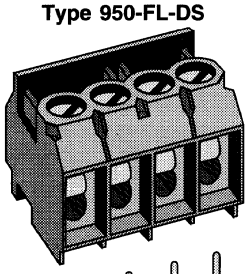
Screw: M 2 6 zinc plated steel. Tightening torque max. 0.4Nm/3.5lb in.

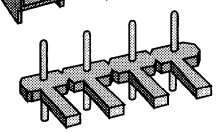
Available Options
CN: Consecutive Numbering
SM: Special Marking (please provide sketch)
BS: Brass screws
G05: Gold-plating (5 microinches)
G30: Gold-plating (30 microinches)
S30: Silver-plating (30 microinches)

Accessories
Self Adhesive Marker Strips:

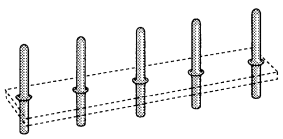
Type	Marked
BST-5.00/12	1 to 12
BST-5.00/32	1 to 32

PLUG
Type 950-FL-DS



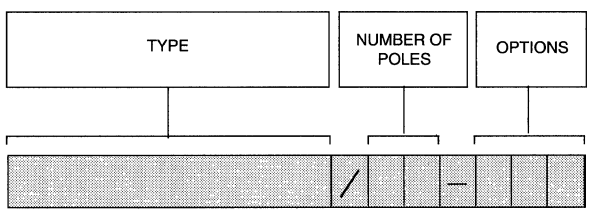


PINSTRIP
Type 971-SLW



INDIVIDUALLY SOLDERED PINS
Type LST-1.3 x 6.5

HOW TO ORDER



TAB CONNECTORS FOR PRINTED CIRCUIT BOARDS
SERIES 900

WECO®

General
Series 900 tab type connectors offer the advantage of using receptacle equipped conductors for quick connecting and disconnecting to printed circuit boards. Instead of individually inserting the quick connect blades onto the printed circuit board, the 900 Series combines the required number of tabs into a strip. This eases the handling and cuts down on assembly time and cost. The quick connect blades come in various styles and types to meet your required plug-in direction. All quick connect blades feature double pin soldering and are tightly interlocked into the polyamide insulation housing. This ensures a reliable relief for the solder points when fitting and removing receptables.

Technical Data
Center to center spacing:
5mm/0.197in
7.5mm/0.295in
10mm/0.394in
Other (please provide sketch)

Recommended Hole Ø in P.C. Board:
1.3mm/0.05in

International Approvals
UL: 5mm versions:
125V, 15A
7.5mm and 10mm versions:
250V, 15A
File No. E69841

CSA: 5mm and 7.5mm versions:
300V, 10A/50V, 15A
10mm versions:
300V, 10A/150V, 15A
File No. LR24322

VDE Rated 0110

Material
Moulding: Polyamide self extinguishing UL94V2, grey colour

Upper Temperature Limits:
short time: ≥ 140°C/284°F
continuous: ≤ 80°C/176°F
cold resistant: ≤ -40°C/-40°F

Comparative Tracking Index: CTI > 600

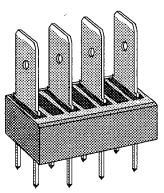
Tabs: tin plated brass

P.C. Pin: Ø1 x 0.8mm/0.04 x 0.03in

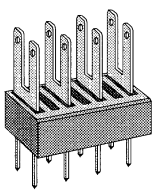
Available Options
CN: Consecutive Numbering
SM: Special Marking (please provide sketch)
G05: Gold-plating (5 microinches)
G30: Gold-plating (30 microinches)
S30: Silver-plating (30 microinches)

Accessories
Self Adhesive Marker Strips:

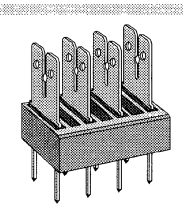
Type	Marked	Center to center spacing
BST-5.00/12	1 to 12	5mm/.197in
BST-5.00/32	1 to 32	5mm/.197in
BST-7.50/19	1 to 19	7.5mm/.295in
BST-10.00/16	1 to 16	10mm/.394in



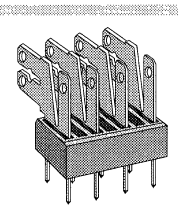
Type 900-SUN



Type 900-SH

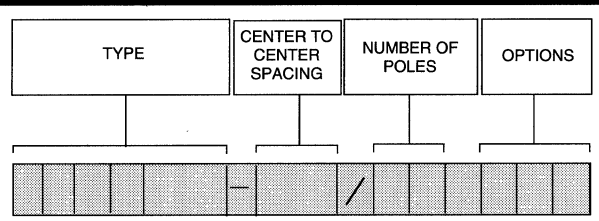


Type 900-S



Type 900-W

HOW TO ORDER

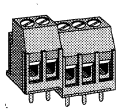


U.S.A.: WECO Electrical Connectors Inc.
Trimex Building, Rt. 11, Mooers, NY 12958
Tel: (518) 298-4810 Fax: (518) 298-5938

CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

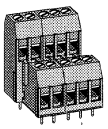
WECO®

SCREW CONNECTORS FOR PRINTED CIRCUIT BOARDS
SERIES 150 MULTILIFT



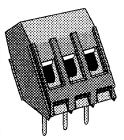
Type	Center to center spacing
150-A-111	5mm/0.197in
150-A-112	10mm/0.394in

Dimensions
Height: 19.6mm/0.77in
Width: 12.3mm/0.48in



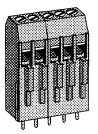
Type	Center to center spacing
150-B-151	5mm/0.197in
150-B-152	10mm/0.394in

Dimensions
Height: 34mm/1.34in
Width: 22.6mm/0.89in



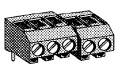
Type	Center to center spacing
150-C-111	5mm/0.197in
150-C-112	10mm/0.394in

Dimensions
Height: 16.5mm/0.65in
Width: 19.3mm/0.76in



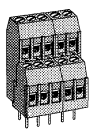
Type	Center to center spacing
150-B-111	5mm/0.197in
150-B-112	10mm/0.394in

Dimensions
Height: 34mm/1.34in
Width: 13.85mm/0.54in



Type	Center to center spacing
150-A-121	5mm/0.197in
150-A-122	10mm/0.394in

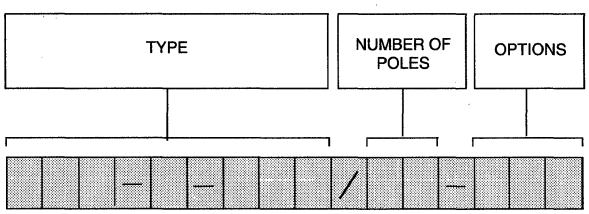
Dimensions
Height: 12.3mm/0.48in
Width: 19.6mm/0.77in



Type	Center to center spacing
150-B-153	5mm/0.197in
150-B-154	10mm/0.394in

Dimensions
Height: 34mm/1.34in
Width: 22.6mm/0.89in

HOW TO ORDER



General

These connectors with extra large clamping area have a lift-terminal which guarantees a high pressure fitting and a fatigue strength wire protection even after countless disconnections.

All types have captive screws and a dovetail interlocking system with 2 or 3 poles per strip. Blocks can be assembled to form required pole configurations.

Center to center spacing is 5mm/0.197in and 10mm/0.394in. All types have a test hole for a test plug with a diameter of 2.3mm/0.09in. All blocks are shipped unmarked as standard.

Technical Data

Center to center spacing:
5.00mm/0.197in and 10.00mm/0.394in

Nominal Cross Section:
26-12 AWG Cu/4.0mm²

Clearance and Creepage Distance:
> 3.2mm/0.13in ≙ 380V to VDE 0110 Insulation Group B

Breakdown Voltage: > 2500V

Wiring Stripping Length: 8.00mm/0.31in

Recommended Hole Ø in P.C. Board:
1.30mm/0.05in

International Approvals

UL: 300V, 20A
26-12 AWG Cu
File No: E69841

CSA: 300V, 20A
26-10 AWG Cu
File No. LR24322

VDE Rated 0110

Material

Moulding: Break Resistant polyamide, self extinguishing, to UL994VO, grey colour

Upper Temperature Limits:
short time: ≥ 140°C/284°F
continuous: ≥ 80°C/176°F
cold resistant: -40°C/-40°F

Comparative Tracking Index: CTI>600

Terminal Body: nickel-plated brass

P.C. Pin/Wire Protector: tin-plated brass

P.C. Pin Profile: 1 x 0.8mm/0.04 x 0.03in

Screw: M3 zinc-plated steel, yellow chromated tightening torque 4.5lb/in.

Available Options

CN: Consecutive Numbering
SM: Special Marking (please provide sketch)
BS: Brass Screws
GØ5: Gold-plating (5 microinches)
G3Ø: Gold-plating (30 microinches)
S3Ø: Silver-plating (30 microinches)

Note: If more than one option is required, please separate each option by a dash (–).

Accessories

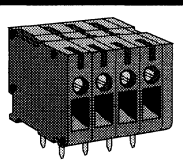
Self Adhesive Marker Strips

Type	Center to center spacing	Marked
BST5.00/12	5.00mm/.197in	1 to 12
BST5.00/32	5.00mm/.197in	1 to 32
BST10.00/16	10.00mm/.394in	1 to 16

Marker strips are UL recognized in the category of marking and labelling systems materials.

WECO®

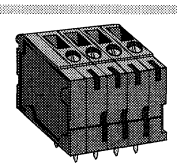
SCREW CONNECTORS FOR PRINTED CIRCUIT BOARDS
SERIES 180 AND 182



Wire entrance and set screw are in line with circuit board.

Type	Center to center spacing
180-A-111	5mm/0.197in
182-A-111	7.5mm/0.295in

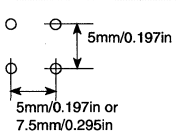
Dimensions
Height: 19.5mm/0.77in
Width: 18.5mm/0.73in



Wire entrance and set screw are at right angle to circuit board.

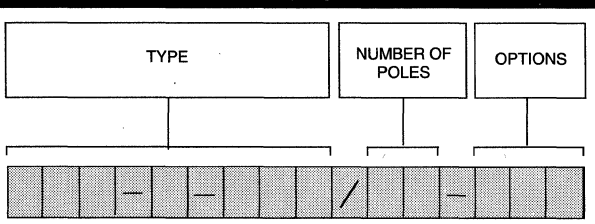
Type	Center to center spacing
180-A-121	5mm/0.197in
182-A-121	7.5mm/0.295in

Dimensions
Height: 18.5mm/0.73in
Width: 19.5mm/0.77in



P.C. Board Hole Layout

HOW TO ORDER



General

This design provides accessibility in tight spots, by arranging wire entrances in line with screw driver access. It does so in the horizontal or vertical direction, depending on the type. Reliable torque absorbtion of screw clamps is achieved by providing two exit pins per pole with center distances of 5.0 or 7.5 mm, and by the mechanical interlock features of the assembly. Connectors can be assembled in any desired length, preferably not exceeding 12 poles.

Beyond providing ease of systems service, the feed-through in-line feature provides designers with a component for dust protected systems by effectively reducing leakage to the environment.

The increasing importance of susceptibility to extraneous electro-magnetic interference (EMI), interstage coupling, or conversely, electromagnetic radiation, is also addressed by this connector design. Connections to the inner chassis or cabinet can be made through small holes in the chield, thereby maintaining its properties to the greatest extent, while permitting connecting service from the outside.

Technical Data

Center to center spacing:
Series 180: 5.00mm/0.197in (without spacers)
Series 182: 7.50mm/0.295in (with spacers)

Center to center spacing may be modified by inserting spacers of 2.5mm/0.098 in between individual connectors, thereby increasing the center to center pin distance to 7.5mm/0.295in. Special versions, or customer-assembled blocks may employ the spacer in any desired position to vary the pin spacing. The last individual connector in a block is closed by an end section.

Clamping Range:
26-12 AWG solid wire
26-14 AWG stranded wire

Wire Stripping Length: 9.00mm/0.37in

Recommended Hole Ø in P.C. Board:
1.30mm/0.05in

International Approvals

UL: Pending
File No: E69841

CSA: Pending
File No: LR24322

VDE: Rated 0110

Material

Moulding: Polyamide, break resistant self extinguishing, to UL94, V-O, grey colour

Upper Temperature Limits:
short time: ≥ 140°C/284°F
continuous: ≥ 80°C/176°F
cold resistant: -40°C/-40°F

Comparative Tracking Index: CTI>600

Clamp and Pressure Pad: zinc-plated steel, chromated

Internal Bus with Solder Pins: tin-plated copper, pin 1 x 0.8 mm

Screw: M2.5 steel, zinc-plated, chromated

Torque Maximum: 0.4 Nm/ 3.5 in-lbs

Available Options

CN: Consecutive Numbering
SM: Special Marking (please provide sketch)
GØ5: Gold-plating (5 microinches)
G3Ø: Gold-plating (30 microinches)
S3Ø: Silver-plating (30 microinches)

Note: If more than one option is required, pleaseseparate each option by a dash (–).

Accessories

Self Adhesive Marker Strips

Type	Center to center spacing	Marked
BST-5.00/12	5.00mm/.197in	1 to 12
BST-5.00/32	5.00mm/.197in	1 to 32
BST-7.50/19	7.50mm/.295in	1 to 19

Marker strips are UL recognized in the category of marking and labelling systems materials.

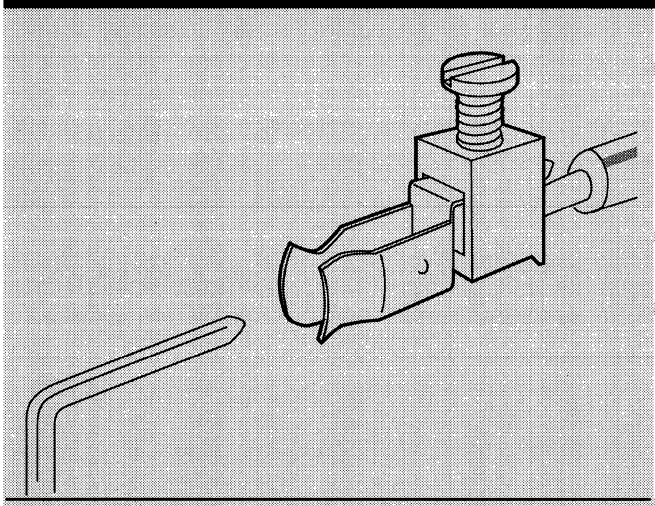
U.S.A.: WECO Electrical Connectors Inc.
Trimex Building, Rt. 11, Mooers, NY 12958
Tel: (518) 298-4810 Fax: (518) 298-5938

CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

PLUG-IN SCREW CONNECTORS FOR PRINTED CIRCUIT BOARDS

SERIES 120 AND 121 CONECTA®

WECO®



General

This plug-in screw connector system is available in various possible combinations.

A reliable connection is provided at the screw side with a lift-terminal and at the plug-in side with a locked contact. The lift system ensures a high pressure fitting and a fatigue strength wire protection even after countless disconnections.

Plugs are equipped with captive screws and are available up to 24 poles per strip. Double level headers are available up to 48 poles. All blocks are shipped unmarked as standard.

Technical Data

Center to center spacing:
5.00mm/0.197in and 5.08mm/0.200in. (10.00mm/0.394in and 10.16mm/0.400in available on request)

Nominal Cross Section:
26-14 AWG Cu/1.5mm²

Tracking Distance and Air Gap:
> 3.0mm/0.12in△380V to VDE 0110, Insulation Group B

Breakdown Voltage: > 2500V

Wiring Stripping Length:
7.00mm/0.28in

Recommended Hole Ø in P.C. Board:
1.40mm/0.06in

International Approvals

UL: 300V, 10A
26-14 AWG Cu
File No: E69841

CSA: 300V, 10A
26-12 AWG Cu
File No. LR24322

VDE Rated 0110

Material

Moulding: Break Resistant polyamide, self extinguishing, to UL994VO grey colour

Upper Temperature Limits:
short time: 140-160°C/284-320°F
continuous: 80-100°C/176-212°F
cold resistant: -40°C/-40°F

Comparative Tracking Index: CTI> 600

Terminal Body: nickel-plated brass

Contact Spring: tin-plated bronze

P.C. Pin: □ 1mm/0.04in △1mm² tin-plated brass

Screw: M3 zinc-plated steel, yellow chromated tightening torque 4.5lb/in.

Available Options

CN:	Consecutive Numbering
SM:	Special Marking (please provide sketch)
GØ5:	Gold-plating (5 microinches)
G3Ø:	Gold-plating (30 microinches)
S3Ø:	Silver-plating (30 microinches)

Note: If more than one option is required, please separate each option by a dash (—).

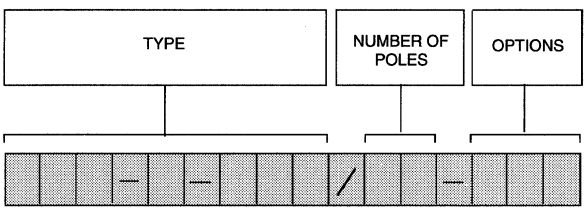
Accessories

Self Adhesive Marker Strips

Type	Center to center spacing	Marked
BST5.00/12	5.00mm/0.197in	1 to 12
BST5.00/32	5.00mm/0.197in	1 to 32
BST5.08/12	5.08mm/0.200in	1 to 12
BST5.08/32	5.08mm/0.200in	1 to 32

Marker strips are UL recognized in the category of marking and labelling systems materials.

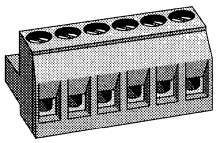
HOW TO ORDER



Series 120 and 121 Plugs
Available 2 to 24 poles

Type	Center to center spacing
120-A-111	5.00mm/0.197in
121-A-111	5.08mm/0.200in

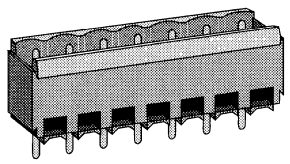
Dimensions
Height: 15mm/0.59in
Width: 18.4mm/0.72in



Series 120 and 121 Headers
Available 2 to 24 poles
Double level versions available 4 to 48 poles

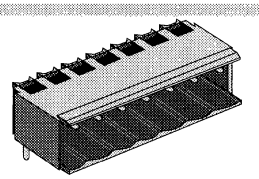
Type	Center to center spacing
120-M-121	5.00mm/0.197in
120-M-221	5.00mm/0.197in w. sidewalls
121-M-121	5.08mm/0.200in
121-M-221	5.08mm/0.200in w. sidewalls

Dimensions
Height: 12mm/0.47in
Width: 8.4mm/0.33in



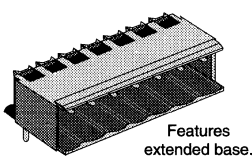
Type	Center to center spacing
120-M-111	5.00mm/0.197in
120-M-211	5.00mm/0.197in w. sidewalls
121-M-111	5.08mm/0.200in
121-M-211	5.08mm/0.200in w. sidewalls

Dimensions
Height: 8.4mm/0.33in
Width: 12mm/0.47in



Type	Center to center spacing
120-M-311	5.00mm/0.197in
120-M-411	5.00mm/0.197in w. sidewalls

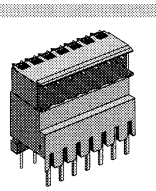
Dimensions
Height: 8.4mm/0.3in
Width: 14.8mm/0.58in



Features extended base.

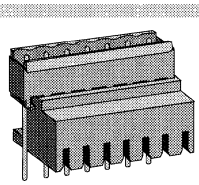
Type	Center to center spacing
120-M-181	5.00mm/0.197in
120-M-281	5.00mm/0.197in w. sidewalls
121-M-181	5.08mm/0.200in
121-M-281	5.08mm/0.200in w. sidewalls

Dimensions
Height: 23.4mm/0.92in
Width: 12mm/0.47in



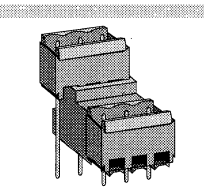
Type	Center to center spacing
120-M-191	5.00mm/0.197in
120-M-291	5.00mm/0.197in w. sidewalls
121-M-191	5.08mm/0.200in
121-M-291	5.08mm/0.200in w. sidewalls

Dimensions
Height: 22.8mm/0.89in
Width: 15mm/0.59in



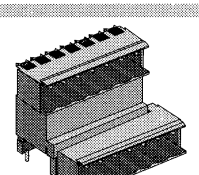
Type	Center to center spacing
120-M-161	5.00mm/0.197in
120-M-261	5.00mm/0.197in w. sidewalls
121-M-161	5.08mm/0.200in
121-M-261	5.08mm/0.200in w. sidewalls

Dimensions
Height: 22.8mm/0.89in
Width: 23.4mm/0.92in



Type	Center to center spacing
120-M-151	5.00mm/0.197in
120-M-251	5.00mm/0.197in w. sidewalls
121-M-151	5.08mm/0.200in
121-M-251	5.08mm/0.200in w. sidewalls

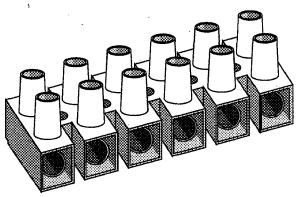
Dimensions
Height: 23.4mm/0.92in
Width: 22mm/0.87in



U.S.A.: WECO Electrical Connectors Inc.
Trimex Building, Rt. 11, Mooers, NY 12958
Tel: (518) 298-4810 Fax: (518) 298-5938

CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

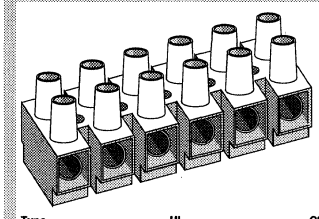
WECO® TERMINAL STRIPS FOR PANEL / CHASSIS MOUNTING



Series 300
These screw terminal strips are used for connecting stripped, unterminated, stranded or solid copper wires, ranging from 22-6 AWG depending on product type selected. Each strip has 12 circuits and can easily be field cut to the required number of poles. They can also be ordered factory-cut in any requested pole number.

Type	Amps	UL Volts	AWG	Amps	CSA Volts	AWG	Height	Width	Screw Size
302-HDS	20	250	20-12	20	300	20-14	15mm/.59in	16mm/.63in	M2.6
323-HDS	30	250*	20-10	20	300	18-12	16mm/.63in	21mm/.83in	M3
324-HDS	35	250*	14-8	35	250	14-8	18.5mm/.73in	22mm/.87in	M3.5
326-HDS	50	250	14-8	50	250	14-8	22.5mm/.89in	30mm/1.18in	M4
327-HDS	65	300	14-6	65	300	14-6	25mm/.98in	30mm/1.18in	M5

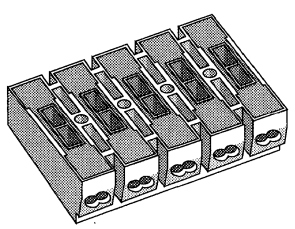
*600 volts with insulating base.



FU Versions
FU type terminal strips feature a raised base to increase creepage distance from the mounting surface. All other dimensions and components are identical to the standard versions

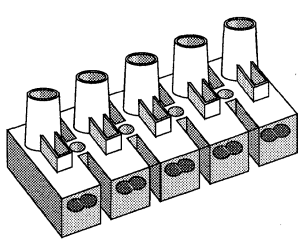
Type	Amps	UL Volts	AWG	Amps	CSA Volts	AWG	Height	Width	Screw Size
323-FU16.5-HDS	30	250*	20-10	30	300	20-10	16.5mm/.65in	21mm/.83in	M3
323-FU18.5-HDS	30	250*	20-10	30	600	20-10	18.5mm/.73in	21mm/.83in	M3
324-FU-HDS	35	300*	14-8	35	600	14-8	21.3mm/.84in	22mm/.87in	M3.5
327-FU-HDS	65	600*	14-6	65	600	14-6	28.5mm/1.12in	30mm/1.18in	M5

*600 volts with insulating base.



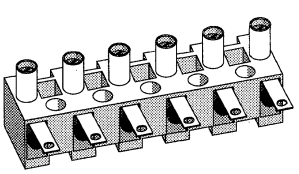
Type 810
Each pole has 4 terminal points which can be operated independently. The stripped conductor is inserted up to the top of the terminal, where it is then clamped by the steel spring. To release the conductor from the clamp, insert a screwdriver through the appropriate opening and depress the spring clip.

Type	Amps	UL Volts	AWG	Amps	CSA Volts	AWG	Height	Width
810	10	300	18-16	10	300	18-16	10.5mm/.41in	26.5mm/1.04in



Type 820-DS
Terminal strip Type 820-DS is provided with a double push-in connection similar to Type 810. The opposite side is equipped with a sturdy screw-type connection. A wire protector (DS-Types) prevents damage to the wire from the turning screw.

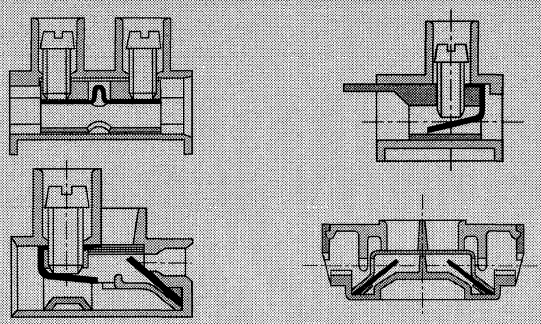
Type	Amps	UL Volts	AWG	Amps	CSA Volts	AWG	Height	Width	Screw Size
820-DS	10	250	10 max	10	250	10 max	16mm/.63in	19.2mm/.76in	M3.5



Types 302 LF-DS and 322 LFS-DS
These screw-solder terminal strips offer solder tabs on one side and screw terminations on the other.

Type	Amps	UL Volts	AWG	Amps	CSA Volts	AWG	Height	Width	Screw Size
302-LF-DS	6	250	20-14*	6	250*	20-14	15mm/.59in	22.5mm/.89in	M2.6
322-LFS-DS	10	300	20-12	10	300	20-12	15.5mm/.61in	21mm/.83in	M3

*600 volts with insulating base.



General
All types are available from 1 to 12 poles. A mounting hole is provided between every circuit. The screws are captive and are backed-out and ready for wiring. Each circuit of the terminal strips has a wire protector to prevent damage to the wire from the turning screw. The wire protector is a thin steel or copper alloy plate placed between screw and wire. All metal parts of this terminal are completely recessed in the flexible polyamide moulding. This dead-front design ensures safety and prevents short circuiting. Its flexible construction allows use on uneven surfaces.

Technical Data

Type	Center to Center Spacing:
302	8mm/.315in
322, 323, 810, 820	10mm/.394in
324	11.5mm/.453in
326, 327	14.5mm/.571in

Type	Nominal Cross Section:
302, 323	22-14 AWG Cu/2.5mm²
324	2x13 AWG Cu/2x2.5mm²
326	14-8 AWG Cu/10mm²
327	5 AWG Cu/16mm²
322	11 AWG Cu/4mm²
810	4x16 AWG Cu/5x1.5mm²
820	2x14 AWG Cu/2x1.5mm²

Type	Wire Stripping Length
302	5mm/.197in
322, 323	6.5mm/.25in
324	7mm/.27in
810, 820	7.5mm/.295in
326, 327	9mm/.35in

International Approvals
UL:
File No. E69841

CSA:
File No. LR 24322

Material
Type 810
Moulding: Polyamide PA6, UL94V2, white and red colour
Terminal Body: Tin plated brass
Spring: Stainless steel

Type 820
Moulding: Polyamide PA6-V2, white colour
Terminal Body: Tin plated brass
Spring: Stainless steel
Wire Protector: Copper alloy
Screw: zinc plated steel, yellow chromated

Types 302, 322, 323, 324
Moulding: Polyamide PA6-V2, white colour
Terminal Body: Nickel plated brass
Wire Protector: Stainless steel
Screw: Zinc plated steel, yellow chromated

Types 326, 327
Moulding: Polyamide PA6-V0, white colour
Terminal Body: Nickel plated brass
Wire Protector: Stainless steel
Screw: Zinc plated steel, yellow colour

Upper Temperature Limits (for all types):
short time: ≥140°C/284°F
continuous: ≥80°C/176°F
cold resistant: ≤-40°C/-40°F

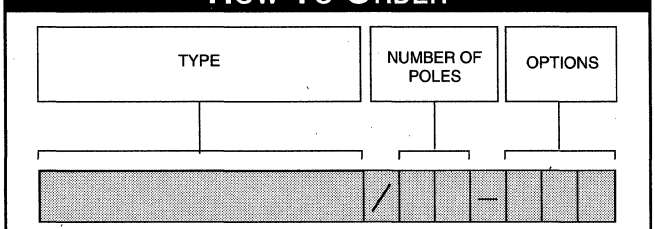
Comparative Tracking Index: CTI>600

Available Options
BS: Brass Screws
VB: Marked 12 11 10 9 8 etc.
VT: Marked 1 2 3 4 5 etc.
LH: Marked 1 2 3 4 5 etc.
RH: Marked 12 11 10 9 8 etc.
VBR: Marked 1 2 3 4 5 etc.
VTR: Marked 12 11 10 9 8 etc.
LHR: Marked 12 11 10 9 8 etc.
RHR: Marked 1 2 3 4 5 etc.
SM: Special Marking (please provide sketch)

Accessories
Marker Strips

Type	No. of Poles	Center to center spacing	For types
BST-302	1 to 75	8mm	302
BST-322	1 to 60	10mm	322
BST-323	1 to 60	10mm	323
BST-324	1 to 52	11.5mm	324
BST-326	1 to 41	14.5mm	326, 327

HOW TO ORDER



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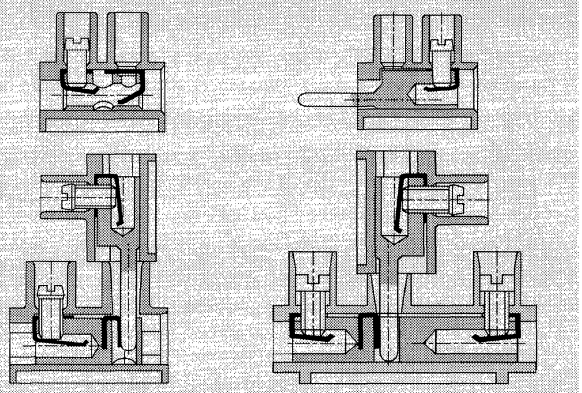
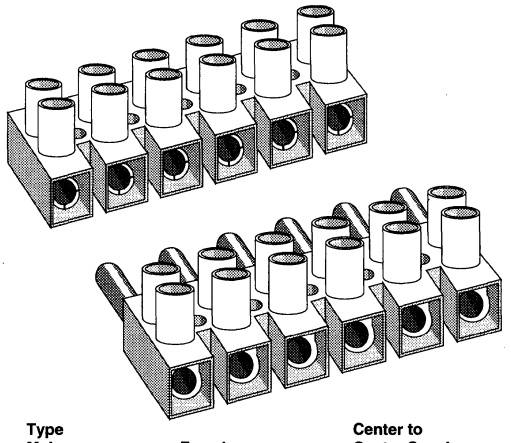
Tel: (514) 694-9136 Fax: (514) 694-0956

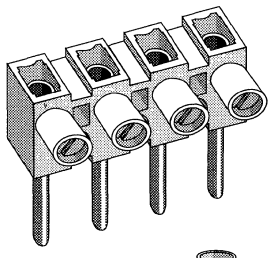
PLUG-IN TERMINAL STRIPS FOR PANEL / CHASSIS MOUNTING
SERIES 300-S

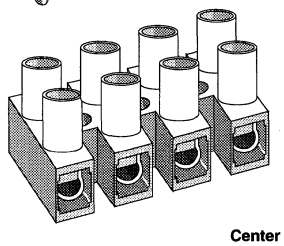
WECO®



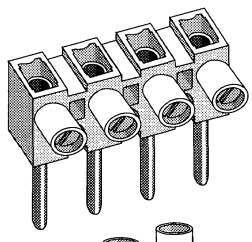


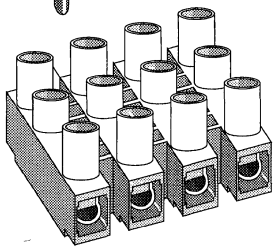
Type Male	Female	Center to Center Spacing
302-SV-DS	302-FB-DS	8mm/.315in
322-SV-DS	323-FB-HDS	10mm/.3949in
324-STFS-DS	324-STFB-DS	11.5mm/.450in





Type Male	Female	Center to Center Spacing
322-SVW-DS	323-FBW-DS	10mm/.394in





Type Male	Female	Center to Center Spacing
322-SVW-DS	323-PHFBW-DS	10mm/.394in

General

Plug and socket connectors are particularly suitable for installations where simple circuit closing and opening is required. By pre-wiring various equipment sections, it is possible to use plug and socket connectors to provide a quick and reliable connection at final assembly. Therefore wire confusion is avoided.

The screws are captive. Each screw connection can be equipped with a wire protector which avoids damage to the conductor from the turning screw.

Standard strip has 12 circuits and can easily be field cut to required number of poles or ordered as required. A mounting hole is provided between each circuit. The terminal screws are backed out and ready for wiring. The dead front design is for safety and avoids short circuitry.

Technical data

Center to Center Spacing:
8mm; 10mm or 11.5mm

Nominal Cross-Section:
2.5mm²; 4mm²; 6mm²
(13, 11, 9 AWG Cu)

International Approvals

UL
See table

CSA
See table

VDE
rated 0110

Material

Moulding: Polyamide, self-extinguishing to UL 94, V-2, white colour

Upper Temperature Limits:
short-time ≥140°C/284°F
continuous ≥80°C/176°F
cold-resistant ≤-40°C/-40°F

Comparative Tracking Index: CTI > 600

Terminal Body: Nickel plated brass

Spring Clip: Stainless steel strip

Screw: Zinc plated steel, yellow chromated

Available Options

*All versions are available without wire protectors (delete DS or HDS from type description)

BS:	Brass Screws
VB:	Marked 1 2 3 4 5 6 7 8 9 10 11 12 etc.
VT:	Marked 1 2 3 4 5 6 etc.
LH:	Marked 1 2 3 4 5 etc.
RH:	Marked 12 11 10 9 8 etc.
VBR:	Marked 1 2 3 4 5 6 7 8 9 10 11 12 etc.
VTR:	Marked 12 11 10 9 8 7 6 5 4 3 2 1 etc.
LHR:	Marked 12 11 10 9 8 etc.
RHR:	Marked 5 4 3 2 1 etc.
SM:	Special Marking (please provide sketch)

Accessories

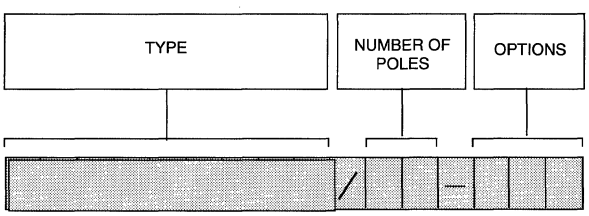
Marker Strips

Type	No. of Poles	Center to Center Spacing	For Types
BST-302	1 to 75	8mm/.315in	302
BST-322	1 to 60	10mm/.394in	322
BST-323	1 to 60	10mm/.394in	323
BST-324	1 to 52	11.5mm/.450in	324

Connector Designation			Length (with 12 circuits)		UL recognized for (File #E69841)			CSA Approved for (File #LR24322)			Screw Tightening Torque
Male	Female	No. of circuits	mm	in	Volts	Amps	AWG	Volts	Amps	AWG	lb. / in.
302-SV-DS	302-FB-DS	1-12	95	3.87	250 (1)	6	20-14	300	6	20-14	3.5
322-SV-DS	323-FB-HDS	1-12	117	4.61	250 (1)	20	18-12	300/150	10/15	18-12	4.5
322-SVW-DS	323-FBW-DS	1-12	117	4.61	250 (1)	20	18-12	300/150	10/15	18-12	4.5
322-SVW-DS	323-PHFBW-DS	1-12	117	4.61	–	–	–	300	20	18-12	4.5
324-STFS-DS	324-STFB-DS	1-12	135	5.31	250 (2)	25	18-10	300	30	18-10	7

(1) 300V with insulating base
(2) 600V with insulating base

HOW TO ORDER



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TAB CONNECTORS FOR PANEL / CHASSIS MOUNTING

WECO®

General

Type 401 offers a tab connection and is available with 4.8mm/.187in or 6.3mm/.250in tabs.

Type 401LF combines a tab type connector on one side with a solder tab on the opposite side. Types 401 and 401-LF provide a mounting hole between each circuit and are available from 1 to 12 poles.

Types 406 and 407 are used as lead distributors equipped with 6.3mm/.250in tabs. Type 406 has a single connector on one side while the other side is equipped with a double connector. Both sides of type 407 have double connectors.

Technical Data

Center to Center Spacing:
401-4.8/-6.3: 12.3mm/0.48in
401-LF (PA/PVC)-4.8/-6.3: 12mm/0.47in

Nominal Cross Section:
Tabs 4.8mm/0.187in:
2.5mm² (max)/22-14 AWG Cu
Tabs 6.3mm/0.250in:
6.0mm² (max)/10 AWG Cu

Material

401-LFPA-4.8/-6.3
Moulding: Polyamide, self-extinguishing to UL94, V-2, white colour.
The polyamide material used for this connector passed the Spherical Pressure Test in compliance with VDE 0470 at 125°C/258°F; this test is required for insulation material in several CEE and VDE regulations.

Upper Temperature Limits:
short-time: ≥140°C/284°F
continuous: ≥80°C/176°F
cold-resistant: ≤-40°C/-40°F
Comparative Tracking Index: CTI>600

401-4.8/-6.3 and 401-LFPVC-4.8/-6.3
Moulding: Transparent plasticised PVC
Upper Temperature Limits:
short-time approx: 80°C/176°F
continuous approx: 70°C/158°F
Comparative Tracking Index: >400
Tab: 4.8/6.3x0.8 (0.187/0.25x0.03in) Nickel plated brass,
LF-types: tin plated brass

406, 407-PVC, 440-PVC
Moulding: Transparent plasticised PVC
Upper Temperature Limits:
short-time approx: 80°C/176°F
continuous approx: 70°C/158°F
Comparative Tracking Index: >400
Tabs (only 406, 407-PA/PVC):
nickel plated brass
6.3x0.8mm (0.25x0.03in)
for receptacles to DIN 46247

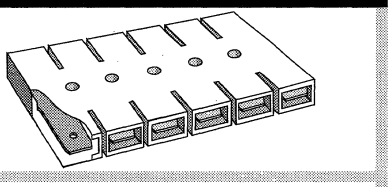
International Approvals

CSA
Type 401/4.8 300V, 15A
Type 401/6.3 300V, 25A
Type 401-LF 300V, 15A

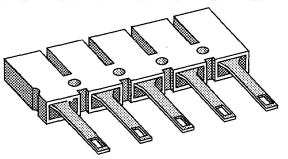
UL
Type 401 250V, 25A
Type 401-LF 250V, 15A

Available Options:

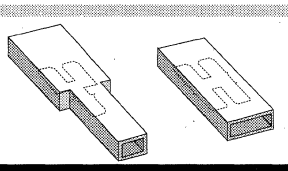
G05: Gold Plating (5 microinches)
G30: Gold Plating (30 microinches)
S30: Silver Plating (30 microinches)



Type 401-4.8
1-12 poles, 4.8mm/.187in Tabs
Type 401-6.3
1-12 poles, 6.3mm/.25in Tabs

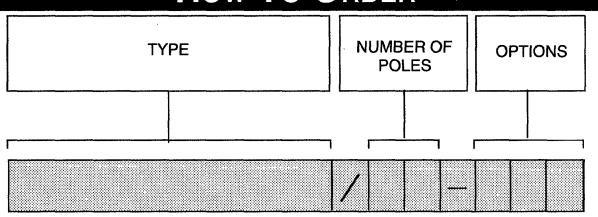


Type 401-LFPA-4.8 1-12 poles, 4.8mm/.187in Tabs — Polyamide moulding
Type 401-LFPA-6.3 1-12 poles, 6.3mm/.250in Tabs — Polyamide moulding
Type 401-LFPVC-4.8 1-12 poles, 4.8mm/.187in Tabs — PVC moulding
Type 401-LFPVC-6.3 1-12 poles, 6.3mm/.250in Tabs — PVC moulding



Type 406
3 connections per pole
Type 407
4 connections per pole

HOW TO ORDER



MULTI-POINT TAB CONNECTORS FOR PANEL / CHASSIS MOUNTING

WECO®

General

Multi-point tab connectors are equipped with tab terminals of various sizes and combined assemblies on one strip or even on one contact.

Distributors and space-saving multi-tier designs increase the connection density.

Tab connectors combined with either screw terminals or solder terminals on the other side provide an immediate solution to most connection problems thanks to the countless possible combinations.

Technical Data

Types 304 and 306
Nominal Cross Section:
Tabs 2.8 (0.11in):
1mm² (max)/16 AWG cu (max)
Tabs 4.8 (0.087in):
2.5mm² (max)/14 AWG Cu (max)
Tabs 6.3 (0.25in):
6mm² (max)/10 AWG Cu (max)

Types 983-F and 307-PCM
Center to Center spacing:
Series 307: 11mm/0.43in
Type 983 F: 10mm/0.39in
Nominal Cross Section:
2.5-6mm²/14-10 AWG
Breakdown Voltage: >5000V
Wire Stripping Length (screw conn.): 8.5mm/0.33in

Material

Types 304, 306 and 983-F
Moulding: Polyamide, self-extinguishing to UL94, V-2, grey colour

Upper Temperature Limits:
short time: ≥140°C/284°F
continuous: ≥80°C/176°F
cold-resistant: ≤-40°C/-40°F
Comparative Tracking Index: CTI>600
Tabs: Nickel plated brass
Soldering Tongue: Tin plated brass
Wire Protector: Copper alloy
Screw: zinc plated steel, yellow chromated
Rivet: Tin plated copper

Type 307
Moulding: Grey polycarbonate
Upper Temperature Limits:
Short-time: max. 135°C/274°F
Continuous: max. 135°C/274°F
Cold-resistant: -100°C/-148°F
Comparative Tracking Index: CTI>175
Tab, Flat Terminal: Nickel plated brass
Rivet: Tin plated copper
Terminal Screw: M4 galvanized steel
Spring and Washers: galvanized steel, yellow chromated

International Approvals:

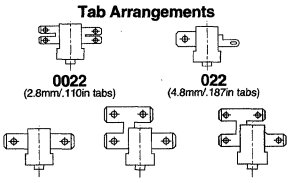
Type	UL
304, 306:	250V, 25/15A, 10/14AWG
983-F	250V, 15A, 20-12AWG
307-PCM (4.8 tabs)	250V, 15A, 12AWG
307-PCM (6.3 tabs)	250V, 25A, 10AWG

File No. E69841

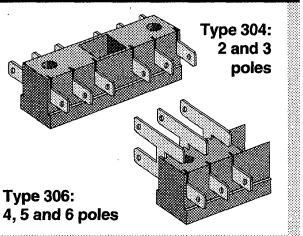
Type	CSA
304	300V, 25A, 10AWG
306	300V, 15A, 10AWG
983-F	300V, 20A, 18-14AWG
307-PCM	300V, 25A, 18-14AWG

File No. LR 24322

Tab Arrangements

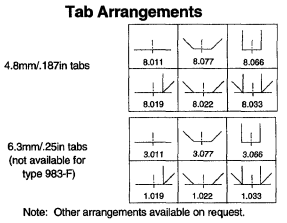


Note: Products may be stacked for high density applications



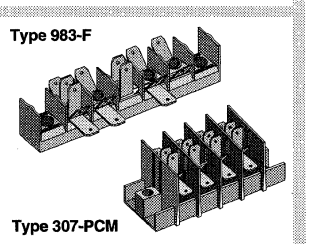
Type 304: 2 and 3 poles
Type 306: 4, 5 and 6 poles

Tab Arrangements



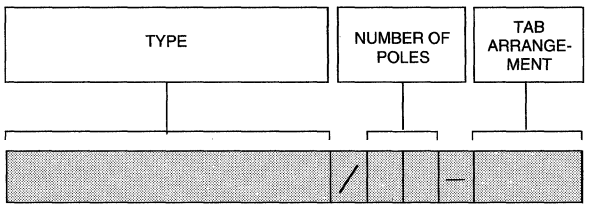
Note: Other arrangements available on request.

Type 983-F



Type 307-PCM

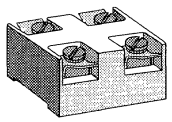
HOW TO ORDER



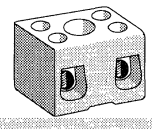
U.S.A.: WECO Electrical Connectors Inc.
Trimex Building, Rt. 11, Mooers, NY 12958
Tel: (518) 298-4810 Fax: (518) 298-5938

CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

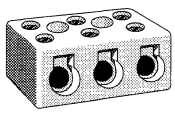
WECO® Ceramic Terminal Blocks



Type 560-K4DF

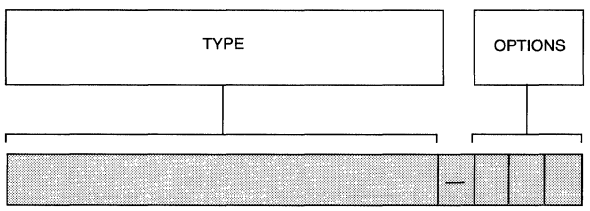


Types 2-DIN-46284 (2 pole) and 3-DIN-46284 (3 pole)



Types 4010-B (2 pole) and 4011-B (3 pole)

How To Order



General

Ceramic Terminal Blocks are designed for high temperature applications and provide reliable electrical contact in environments up to 465°F/240°C including furnace construction, motors and intrinsically safe electrical equipment. Type 560-K4DF-V2A features stainless steel inserts and withstands temperatures of 940°F/500°C. For further information on our complete line of ceramic products please contact our head office.

Technical Data

Type 560-K4DF
Nominal Cross Section:
13AWG Cu/2.5mm²
Length x width x height:
40x32x20mm/1.57x1.26.0.79in

Types 2-DIN-46284, 3-DIN-46284
Nominal Cross Section:
13AWG Cu/2.5mm²
max Term.-space: 9AWG Cu/6.0mm²

Types 4010-B, 4011-B
Nominal Cross Section:
7AWG Cu/10mm²
max Term.-space: 5AWG Cu/16mm²

International Approvals

UL
Type 560:
300V, 20A, 20-12AWG
File No. E69841

CSA
Types 2-DIN-46284, 3-DIN-46284, 2-DIN-46284-HDS, 3-DIN-46284-HDS:
300V, 20A, 18-12AWG
Type 560:
300V, 25A, 20-12AWG
600V, 5A, 20-12AWG
File No. LR24322

Material

Type 560 K4DF:
Mount: Steatite, KER 220 DIN 40685
Screw Terminal: nickel plated brass
Screw: M4 zinc plated steel
Binding Clip: zinc plated steel

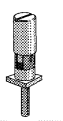
Type 560-K4DF-V2A:
All metal parts (terminal, binding screw, binding clip and spring washer B4 DIN 127) are made of stainless steel for extreme temperatures up to 500°C/940°F

Types 2-DIN-46284, 3-DIN-46284, 4010-B, 4011-B:
Moulding: Glazed porcelain KER 111 DIN 40685
Terminal Body: nickel plated brass
Screw: M3; 4010-B, 4011-B: M4 zinc plated steel

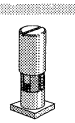
Available Options

V2A: Stainless steel inserts for 940°F/500°C (type 560 K4DF only)
HDS: Wire protector (types 2-DIN-46284, 3-DIN-46284, 4010-B, 4011-B only)

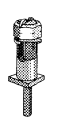
WECO® Grounding Terminals



Type	Nominal Cross-Section mm² (AWG Cu)	Rated Current	Height	Width
DFG-1-EN	2x4 (2x11)	30A	32mm/1.26in	8mm/.31in
DFG-2-EN	2x6 (2x9)	40A	38mm/1.50in	10mm/.39in
DFG-3-EN	2x6 (2x9)	53A	46mm/1.81in	11.5mm/.45in
DFG-5-EN	2x25 (2x3)	95A	67mm/2.63in	16mm/.63in



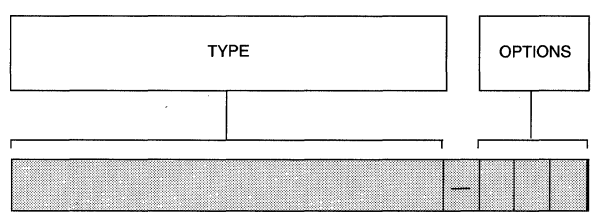
Type	Nominal Cross-Section mm² (AWG Cu)	Rated Current	Height	Width
DFB-1-EN	2x4 (2x11)	30A	26mm/1.02in	8mm/.31in
DFB-2-EN	2x6 (2x9)	40A	31.5mm/1.24in	10mm/.39in
DFB-3-EN	2x10 (2x7)	53A	38mm/1.50in	11.5mm/.45in
DFB-5-EN	2x25 (2x3)	95A	57mm/2.24in	16mm/.63in



Type	Nominal Cross-Section mm² (AWG Cu)	Rated Current	Height	Width
GS-0-B	2x2.5 (2x13)	26A	21mm/.83in	10mm/.39in
GS-1-B	2x4 (2x11)	34A	23mm/.91in	12mm/.47in
GS-2-B	2x6 (2x9)	44A	26mm/1.02in	14mm/.55in
GS-3-B	2x10 (2x7)	61A	31mm/1.22in	17mm/.67in
GS-$-B	2x16 (2x5)	82A	35mm/1.38in	19mm/.75in
GS-5-B	2x35 (2x2)	135A	44mm/1.73in	24mm/.94in
GS-6-B	2x50 (2x1/0)	168A	52mm/2.05in	30mm/1.18in
GS-7-B	2x70 (2x2/0)	207A	62mm/2.44in	36mm/1.42in

Type	Nominal Cross-Section mm² (AWG Cu)	Rated Current	Height	Width
DFD-1-EN	1x4 (1x11)	30A	20mm/.79in	18mm/.71in
DFD-3-EN	1x10 (1x7)	53A	28mm/1.10in	27mm/1.06in
DFD-5-EN	1x70 (1x2/0)	180A	51mm/2.01in	45mm/1.77in
DFD-6-EN	1x120 (1x5/0)	255A	65mm/2.56in	64mm/2.52in

How To Order



General

Grounding Terminals are suitable for installation in apparatus, machinery and installation equipment of all types. They are used mainly in applications requiring a locked screw connection. WECO grounding terminals provide maximum operational reliability and meet the requirements of the corresponding VDE regulations.

The DF type mantle terminals consist of an upper cylindrical nut, and a lower, tapered and slotted bolt. A pressure pad travels up or down within that slot, depending on the direction of rotation. A small spring, situated between pressure pad and cylindrical nut, transmits contact pressure to the wire and thereby insures the integrity of the electrical connection despite vibration or temperature cycling effects. In addition, the spring and pressure pad provide a very effective friction lock to assure a durable and stable connection.

Notes on installation:
The above-specified terminals can be used for equipment of temperature classes T1 to T6 at ambient temperatures up to 40°C/104°F resulting from self-heating at the specified current. If the terminals are to be fitted as live parts in a terminal compartment – at least of enclosure IP 54 – the requirements in accordance with EN 50014-1977/VDE 0171, Part 1/5.78, Sections 14.2 to 14.4, must also be observed. In addition, the terminals must be locked at the base of the slotted bolt to prevent twisting.

Material

Slotted bolt, mantle nut and clamping member: nickel plated brass

Spiral Spring: spring steel, blue annealed (types DFG, DFB, DFD), zinc plated steel (type GSB)

Test Certificates

E Exe II

Type DFG
Part certificate of the German National Standards Laboratory (PTB), Braunschweig PTB No. Ex-81/3122 U dated 7.7.1981, Dimension sheet No. 200006

The locked mantle terminals DF are approved in accordance with European Standard DIN EN 50014/VDE 0171, Part 1/5.78 and DIN EN 50019/VDE 0171 Part 6/5.78.

Type DFB
Part certificate of the German National Standards Laboratory (PTB), Braunschweig PTB No. Ex-81/3122 U dated 7.7.1981, Dimension sheet No. 200006.

The locked mantle terminals DF are approved in accordance with European Standard DIN EN 50014/VDE 0171, Part 1/5.78 and DIN EN 50019/VDE 0171 Part 6/5.78.

Type DFD
Part certificate of the German National Standards Laboratory ³PTB), Braunschweig PTB No. Ex-81/3132 U dated 23.10.1981, Dimension sheet No. 220003.

Available Options

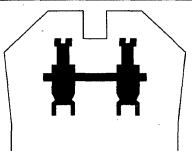
G05: Gold Plating (5 microinches)
G30: Gold Plating (30 microinches)
S30: Silver Plating (30 microinches)

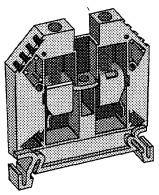
U.S.A.: WECO Electrical Connectors Inc.
Trimex Building, Rt. 11, Mooers, NY 12958
Tel: (518) 298-4810 Fax: (518) 298-5938

CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

WECO®

Rail Mounted Terminal Blocks For DIN EN 50022, 50035 and 50045 Mounting Rails





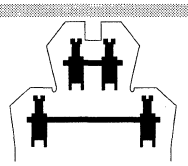
Feed-Through

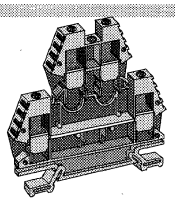
For DIN EN 50022 or 50035 Mounting Rails:

Type	Width	Height	Length	Amps	Volts	AWG	Colours
Euro 4	6mm/.24in	36mm/.42in	44mm/1.73in	20	600	18-12	Grey, blue, yellow/green
Euro 6	7mm/.28in	36mm/1.73in	50mm/1.97in	20	600	18-8	Grey, blue, yellow/green
Euro 10	9mm/.35in	44mm/1.73in	50mm/1.97in	65	600	18-6	Grey, blue, yellow/green
Euro 16	12mm/.47in	49mm/1.93in	56mm/2.20in	85	600	14-4	Grey, blue, yellow/green
Euro 35	16mm/.63in	61mm/2.40in	62mm/2.44in	140	600	14-1/0	Grey, blue, yellow/green
Euro 70	26mm/1.02in	75mm/2.95in	74mm/2.91in	175	600	14-3/0	Grey, blue, yellow/green

For DIN EN 50045 Mini Rail:

Type	Width	Height	Length	Amps	Volts	AWG	Colours
Euro 4	6mm/.24in	28mm/1.10in	32mm/1.26in	20	300	18-12	Grey

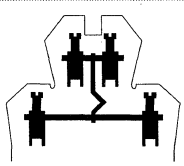


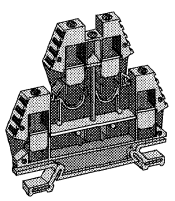


Two Stage

For DIN EN 50022 or 50035 Mounting Rails

Type	Width	Height	Length	Amps	Volts	AWG	Colours
Euro D4/1	6mm/.24in	55mm/2.17in	66mm/2.60in	20	600	18-12	Grey, blue, yellow/green

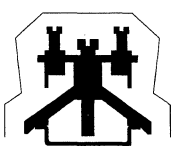


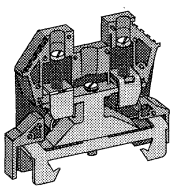


Two Stage Cross Connect

For DIN EN 50022 or 50035 Mounting Rails

Type	Width	Height	Length	Amps	Volts	AWG	Colours
Euro D4/1	6mm/.24in	55mm/2.17in	66mm/2.60in	20	600	18-12	Grey, blue, yellow/green

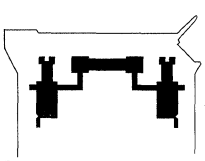


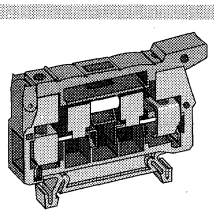


Ground

For DIN EN 50022 or 50035 Mounting Rails

Type	Width	Height	Length	Amps	Volts	AWG	Colours
Euro E4	7mm/.28in	36mm/1.42in	44mm/1.73in'	-	-	18-12	yellow/green
Euro E6	8mm/.31in	44mm/1l73in	50mm/1.97in	-	-	18-8	yellow/green
Euro E16	12mm/.47in	49mm/1.93in	56mm/2.20in	-	-	14-4	yellow/green

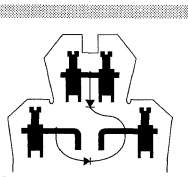


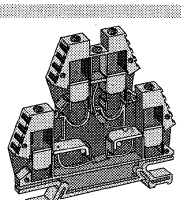


Fuse

For DIN EN 50022 or 50035 Mounting Rails

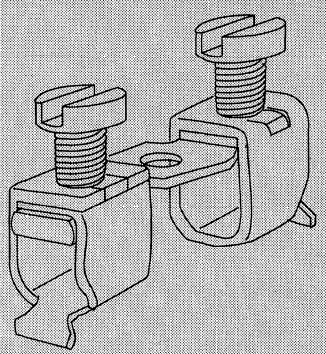
Type	Fuse Holder	Width	Height	Length	Amp	Volts	AWG	Colours	Fuse Size
Euro S4	Plug-in	8mm/.31in	36mm/1.42in	66mm/2.60in	8	600	18-12	grey	5x20, 5x25
Euro S10	Lever operated	10mm/.39in	50mm/1.97in	82mm/3.23in	8	600	18-6	grey	.25in
Euro S10-5	Lever operated	10mm/.39in	50mm/1.97in	82mm/3.23in	8	600	18-6	grey	5x20, 5x25





Diode

Please contact WECO for a list of available versions.
Note: May also be supplied without diodes for special component requirements



General

WECO offers a line of modular rail mounted terminal blocks designed for DIN standard mounting rails. These space saving terminals feature captive screws and polyamide 6.6 UL94V2 mouldings.

In addition to the standard feed-through blocks, the line also includes 2 stage, ground, fuse and diode blocks. Jumper combs, covers and marker tags are also available. These terminal blocks may also be used in conjunction with our rail mounted electronic modules for specific interface or component requirements.

Materials

Plastic body: Polyamide 6.6 UL94V2

Tracking Resistance:
IEC Publication 112: CTI>600
VDE 0303: KB>600

Clamp: Hardened steel, electroplated with zinc, chromated

Internal bus: High grade copper alloy, electro-plated with nickel

Screws: steel, zinc plated and chromated

Jumper comb: Electrolytic copper

International Approvals

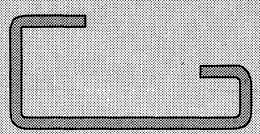
UL
File No. 107887

CSA
File No. LR84816

VDE
File No. 13464-1440-1001

SEV
File No. ASEV 87.1 03010U

Mounting Rails:



DIN EN 50035
"G Rail" – Unperforated
2 meter length
Article No. 51.W03.200

DIN EN 50022
"C Rail" – Unperforated
2 meter length
Article No. 51.W02.200

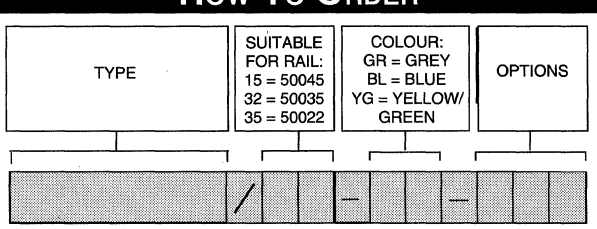
DIN EN 50045
"Mini Rail" – Unperforated
2 meter length
Article No. 51.W01.200

Marker Tags
Please contact WECO for a list of available versions

Accessories:

		Not Available for types:
CO:	Cover	Euro E4, Euro S4
ES:	End Section	Euro E4, Euro S4, Euro 70
EB:	End Bracket	Euro E4, Euro S4, Euro 70
JC2:	Jumper Comb 2 pos.	Euro E4, Euro S4, Euro 70
JC3:	Jumper Comb 3 pos.	Euro E4, Euro S4,Euro 70
JC4:	Jumper Comb 4 pos.	Euro E4, Euro S4 Euro 70,
JS:	Jumper Strip 0.5 meter	Euro E4, Euro S4, Euro 70 .

How To Order

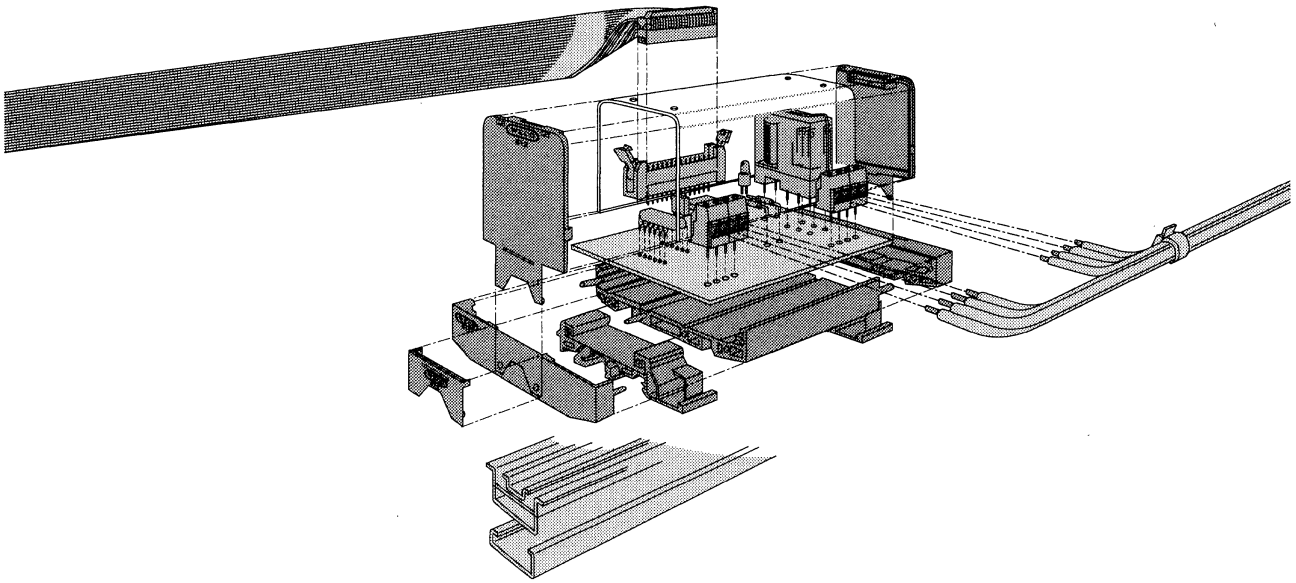


U.S.A.: WECO Electrical Connectors Inc.
Trimex Building, Rt. 11, Mooers, NY 12958
Tel: (518) 298-4810 Fax: (518) 298-5938

CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

ELECTRONIC MODULES FOR MOUNTING RAILS TO DIN EN 50022, 50035 AND 50045

WECO®



Rail Mounted Modules

The most important criteria of today's large and complex production machinery is ease of design, cost effective maintenance and minimum down time.

Recognizing this, the industrial control and machine industry has tended towards greater centralization of components, test and disconnect points. Trouble shooters are more effective and safer if their area of activity is accessible and logically arranged. This, amongst other things, has resulted in rail mounted terminal blocks, which have proven to be very effective.

Grouping of terminal blocks and inclusions of diodes, fuses and switches came as the next step. Down time and cost of repair have benefitted considerably from the introduction of the more advanced rail mounted module.

One category serves as interface getween controller of microprocessor and power circuits, others serve as interface between two wiring systems. Other units carry components such as diodes, fuses, and varistors: or sub systems such as power supplies, opto couplers and relays.

Maintenance personnel are now able to identify problems in a central, well designated area without crawling around potentially dangerous machinery.

The modules listed below are suitable for all popular DIN rails as well as individual panel mounting by means of spacers.

For detailed information, or modules to your specifications, please contact the appropriate WECO office listed below.

RELAY MODULE MRPA. 1,4,8 relays each with one SPDT contact. Contact rating 380V AC 8 A. Choice of operating voltage.

RELAY MODULE MRPB. 1,2,4 relays each with two SPDT contacts. Contact rating 380V AC 8 A. Choice of operating voltage.

RELAY MODULE MRPC. 1,2,4 relays each with two SPDT contacts. Contact rating 250V AC 3 A. Choice of operating voltage.

RELAY MODULE MRPD. 1 relay. Double SPDT contact, rated125V AC 0.48 A, 60V DC 0.5 A. 24V Op volt. AgPd contacts.

RELAY MODULE MRKA. 1-11 relays with 4 SPDT silver, gold-plated contacts rated 115V AC 0.43 A. DC operating voltage 24V.

TIMER MODULE MRZA. Slow make. One SPDT contact 220V 3A. Operates on 24V DC. Adj time delay, 3 ranges, 0.15-60 sec.

TIMER MODULE MRZB. Slow brake. One SPDT contact 220V AC 3A. Operates on 24V DC. Adj time delay, 3 ranges, 0.15-60 sec.

RELAY PULSING MODULE MRZE. Symmetrical pulses, adj. in 3 ranges (1-200 per min.) Oper. voltage 24V DC. SPDT contact.

MODULES TO YOUR SPECIFICATIONS We custom design modules specifically for your application. Please submit your requirements for a proposal.

INTERFACE MODULE MTB 60V AC 1A Plug connector input, acc. to DIN 41651. Choice of output terminals 10-64 contacts.

INTERFACE MODULE MTBI. 24V AC 1A Plug connector input, choice of output terminals. One LED per channel. 10-64 contacts.

INTERFACE MODULE MTD 125V AC 1.5A D-Sub miniature plug input. Choice of output terminals. 9-50 contacts.

DISTRIBUTOR MODULE MTE 125V AC 1.5A Multi conduit cable input via plug according to DIN 41612. Choice of output terminals.

THREE PHASE SURVEILLANCE AND ALARM MODULE MRPU For surveillance of single and 3 phase networks. Input voltage is 220V AC. Choice of terminals.

10 CHANNEL SURVEILLANCE AND FAULT ALARM MODULES MSM Recommended for the surveillance of large installations. Input voltage is 220V AC. Choice of terminals.

MOTOR PROTECTION MODULE MTMS Monitors motor winding temperatures. Protects against overheating. Choice of terminals.

INTERFACE MODULE MTK 125V AC 1.5A EURO-BOARD carrier with 64in/out positions with choice of terminals. Board 100 x 160mm.

INDICATOR (LED) MODULE MAZ Seven LED's red, green or yellow. Operating voltages optional. 5.12.24 DC, 110 AC

DO IT YOURSELF MODULE MBC PCB for component mounting. 250V AC 5A 8 or 12 channels. Choice of terminals.

DIODE MODULE, MDD Choice of 1 or 3 A, maximum of 12 channels. Choice of terminals. Choice of diode combinations.

EMPTY MODULE HOUSING Accomodates customer designed PCB's of variable sizes for rail, or panel mounted applications.

DIODE LAMP-TEST MODULE MDL 250V AC max. 1N4007 - 1A. By255 - 3A Maximum 11 channels. Check annunciator circuits.

RECTIFIER MOD. MGR 220V AC max. Choice of1A or 3A. Bridge rectifier Varistor protected. Choice of different versions.

POWER SUPPLY MODULE MPU Output 24V DC. 1A max. Non regulated. Input 220 / 110V AC.

POWER SUPPLY MODULE MPR Output 24V DC. ± 0.5 V 1.1A. Regulated. Input 220 / 110V AC

VARISTOR MODULE MWV Choice of operating voltage 11-275V. Max. 8 channels. Choice of configuration.

FUSE MODULE MSG Maximum of 6 glass cartridge fuses. 6.3A max., 250V AC max. Choice of terminals.

OPTO COUPLER MODULE MHST Up to 4I/O couplers per Module. Complete galvanic separation. DC, AC input and output.

SEMICOND. SWITCH MODULE MHSA 01 Switching (RMS): 240V. 2A Peak 100A. Opto-coupler isolation. Control 5-30V DC.

DC SEMICOND. SWITCH MOD. MHSD 01 Switching: 40V DC max. 1A max. Opto-coupler isolation. Control 8 - 30V. 3 - 12 mA.

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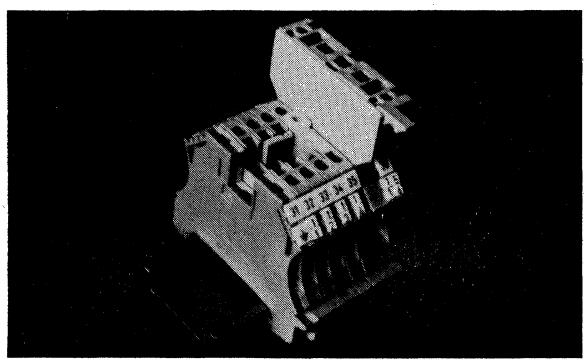
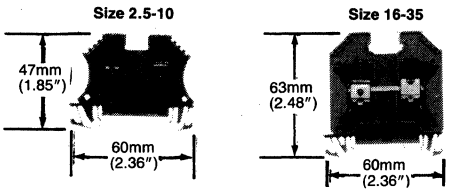
CANADA: WECO Electrical Connectors Inc.
16805 Hymus Blvd., Kirkland, Que. H9H 3L4
Tel: (514) 694-9136 Fax: (514) 694-0956

Weidmüller

FEED THROUGH TERMINAL BLOCKS

W SERIES





Weidmuller's W Series makes it simple to design modular terminal block assemblies.

FEATURES

- high density: 0.2 inches per block for AWG 12.
- only two profiles: reduces required accessories and gives you an easier-to-read marking area.
- completely insulated current-carrying components, even with jumper connections.
- expanded marking options, ideal for use with PLC circuitry.
- vibration-proof clamping system made from corrosion-resistant zinc-plated steel.
- moldings made of Wemid, a thermoplastic that combines a UL 94 V-O rating, an operating temperature range to 250°F, and the resilience of nylon.

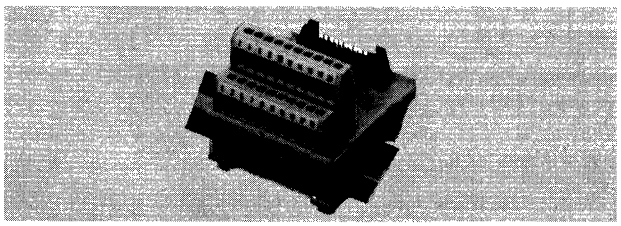
Weidmuller offers many other terminal blocks, including our popular SAK Series, a full line of terminal strips that mount directly to your panel, and specialty blocks including multi-level blocks, thermo-couple blocks, etc. Call for details.

Feed-through Terminal Blocks	Type	AWG	Rating	Thickness	Cat. No.
	WDU 2.5	22-12	600V/25A	5mm (.197")	**10200.0**
	WDU 4	22-10	600V/35A	6mm (.236")	**10201.0**
	WDU 6	20-8	600V/45A	8mm (.315")	**10202.0**
	WDU 10	16-8	600V/60A	10mm (.394")	**10203.0**
	WDU 16	14-6	600V/70A	12mm (.472")	**10204.0**
	WDU 35	12-2	600V/115A	16mm (.630")	**10205.0**
Ground Terminal Blocks					
	WPE 2.5	22-12		5mm (.197")	**10100.0**
	WPE 4	22-10		6mm (.236")	**10101.0**
	WPE 6	20-8		8mm (.315")	**10102.0**
	WPE 10	16-8		10mm (.394")	**10103.0**
	WPE 16	14-6		12mm (.472")	**10104.0**
	WPE 35	12-2		16mm (.630")	**10105.0**
Fuse Terminal Blocks					
for 5mm fuses					
no LED indicator	WSI 6	20-8	300V/10A	8mm (.315")	**10110.0**
12VDC/10-28VAC LED	WSI 6 LED	20-8	300V/10A	8mm (.315")	**10113.0**
15-30VDC/30-60VAC LED	WSI 6 LED	20-8	300V/10A	8mm (.315")	**10122.0**
40-60VDC/80-120VAC LED	WSI 6 LED	20-8	300V/10A	8mm (.315")	**10123.0**
110VDC/220VAC LED	WSI 6 LED	20-8	300V/10A	8mm (.315")	**10124.0**
for 1/4 inch fuses					
no LED indicator	WSI 6/2	20-8	600V/16A	12mm (.472")	**10140.0**
12VDC/10-28VAC LED	WSI 6/2 LED	20-8	600V/16A	12mm (.472")	**10141.0**
15-30VDC/30-60VAC LED	WSI 6/2 LED	20-8	600V/16A	12mm (.472")	**10142.0**
40-60VDC/80-120VAC LED	WSI 6/2 LED	20-8	600V/16A	12mm (.472")	**10143.0**
110VDC/220VAC LED	WSI 6/2 LED	20-8	600V/16A	12mm (.472")	**10144.0**
Disconnect Terminal Blocks					
with test sockets					
with knife switch	WTR 2.5	22-12	300V/10A	5mm (.197")	**10112.0**
with diode plug	WTR 2.5 D	22-12	300V/10A	5mm (.197")	**10132.0**
Accessories					
Rail (Steel)	TS35 x 7.5				**3834.0**
End Bracket	EW 35			8mm (.33")	**3835.6**
End plate profile 2.5-10	WAP2.5-10			1.5 (.06")	**10500.0**
End plate profile 16-35	WAP16-35			1.5 (.06")	**10501.0**
Combination end plate					
and end bracket					
profile 2.5-10	WEW 2			8mm (.315")	**10612.0**
profile 16-35	WEW 1			12mm (.472")	**10590.0**
Jumper Assemblies	Information available on request				
Test plugs and adaptors	Information available on request				
Dekafix marking tags	Information available on request				

Weidmüller

ELECTRONIC INTERFACE MODULES

TRANSITION MODULES



Weidmuller's RD and RI interface modules let you connect discrete wires to cables terminated with D-Sub or IDC connectors. All types may be mounted on 32mm or 35mm DIN rail. A high current version (5 amps per line) of the D-sub interface is available.

Other transition modules are available for use with DIP, card edge, and DIN connectors. Modules are also available with components mounted in each circuit.

RIBBON CABLE INTERFACES

Height: 70mm (2.77")
Width: 70mm (2.77")
Wire size: 22-12 AWG
Ratings: 150V/1A per pole

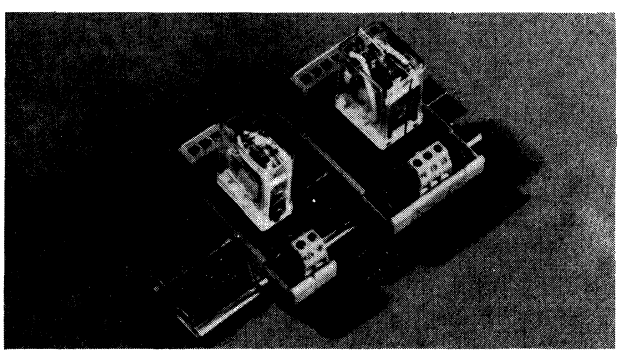
Poles	Type	Length	Cat. No.
10	RI 10 A	44mm (1.57")	91489.0
14	RI 14 A	50mm (1.97")	91489.1
16	RI 16 A	56mm (2.20")	91489.2
20	RI 20 A	65mm (2.55")	91489.3
26	RI 26 A	85mm (3.35")	91489.4
30	RI 30 A	95mm (3.73")	91489.5
34	RI 34 A	106mm (4.14")	91489.6
40	RI 40 A	120mm (4.73")	91489.7
50	RI 50 A	150mm (5.92")	91489.8
60	RI 60 A	175mm (6.89")	91489.9
64	RI 64 A	182mm (7.15")	91490.0

D SUBMINIATURE CONNECTOR INTERFACES

Also available in high current versions. Connectors have provisions for jack screws.
Height: 70mm (2.77")
Width: 70mm (2.77")
Wire size: 22-12 AWG
Ratings: 150V/1A per pole

Poles	Type	Length	Catalog Numbers	
			Connector half on module contains...	
			Pins	Sockets
9	RD 9A	44mm (1.57")	91063.8	91064.1
15	RD 15A	56mm (2.20")	91064.4	91239.3
25	RD 25A	85mm (3.35")	91064.8	91064.5
37	RD 37A	115mm (4.53")	91064.2	91064.0
50	RD 50A	150mm (5.92")	91188.4	91188.6

RELAY SOCKET MODULES



Weidmuller's relay socket modules offer compact, convenient mounting along with plug-in sockets to keep costs low when replacing relays. Modules are available to fit a wide variety of relays, including many not shown here.

For low level switching, TTL logic control is available for the Idec/ Eagle Signal modules (DC types up to 110 volts).

Weidmuller also offers a wide range of optocoupler socket modules for solid state switching.

Other interface modules include line and fuse indicators, surge suppressors, analog converters, and resistor/capacitor networks. Call today for information.

RELAY SOCKET ASSEMBLIES

Wire size: 22-12 AWG
Contact Voltage: 250 Volts

Compatible with listed relays	Type	Contacts	Catalog numbers	
			Diode in parallel w/ coil	without diode
P&B KH; Idec RY4 Aromat HC4	RS-14A	4PDT	91009.3	91009.9
Octal*	RS-21A	DPDT	91000.3	91035.9
P&B KH; Midtex 156 Aromat HC2	RS-3A	DPDT	91010.1	91035.8
P&B R10 Aromat K2	RS-6A	DPDT	91010.7	91010.8
P&B R10 Aromat K2	RS-18A	4PDT	91052.2	91052.3
11 pin round	RS-23A	3PDT	91356.0	91356.1
P&B KU; Aromat HP Idec RR 1.2 & 3B	RS-KU2	3PDT	91051.9	91052.1

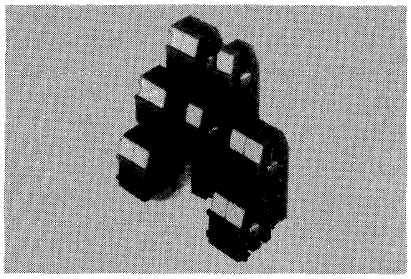
*Other types available for octal timer relays.

Idec RH1B SPDT
Eagle Signal 1601C

Contacts Form C	Catalog numbers		
Height (w/relay): 77mm (3.0") Width: 70m (2.75")	Single Channel	Four Channel	Eight Channel
Length: mm in	20mm 0.78"	75mm 2.95"	166mm 6.12"
6 VDC	91051.6	91053.0	91053.5
12 VDC	91052.5	91053.2	91054.6
24 VDC	91044.3	91044.4	91044.5
with Relay	91040.8	91058.9	91055.3
48 VDC	91052.6	91053.3	91055.0
110 VDC	91052.9	91053.4	91055.2
6 VAC	91045.8	91050.5	91050.9
12 VAC	91045.9	91050.6	91051.0
24 VAC	91050.3	91050.7	91051.4
115 VAC	91045.5	91045.6	91045.7
with Relay	91048.1	91059.7	91055.5
240 VDC	91050.4	91050.8	91051.5

Weidmüller

TERMINAL BLOCKS FOR PRINTED CIRCUIT BOARDS

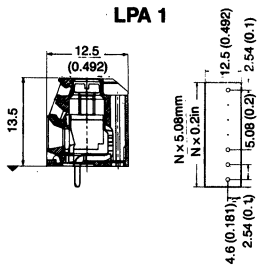


Weidmuller's high density terminal blocks for printed circuit boards use the same proven technology as its DIN-rail terminal blocks. Products come in single-, double-, and triple-level versions; 90°, 45°, and 180° orientations; 5.08mm (.2 inches), 7.62mm (.3 inches), and 5mm centers; standard and TOP (wire and screw co-planar) wire entry; and almost any number of poles. In short, Weidmuller has a block for any PC board application.

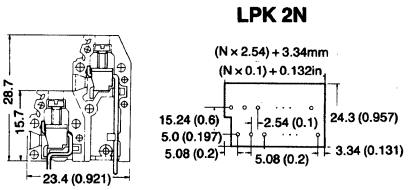
The LP Series features Weidmuller's vibration-proof clamp, easy-to-use Dekafix marking, closed-bottom construction for trouble-free soldering, and accessories (not shown) including fuseholders and disconnects.

Many other blocks are available in addition to the ones listed here. Call for details.

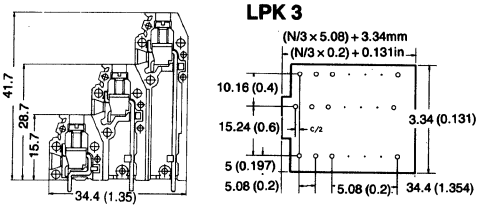
LPA 1



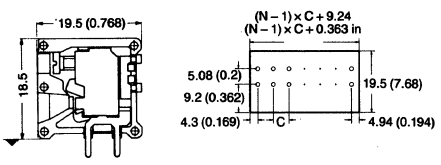
LPK 2N



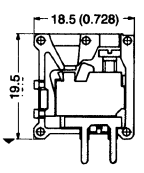
LPK 3



TOP 1.5 90°



TOP 1.5 180°



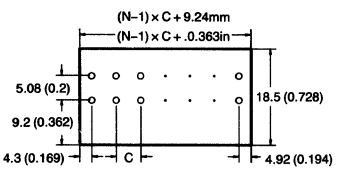
90° Blocks

TECHNICAL DATA

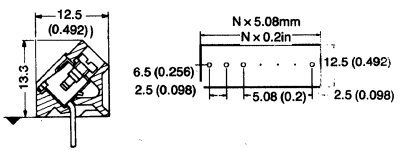
Ratings (UL/CSA)	300V/10A
Wire size AWG	26-14
Pin length	4.5mm (.177")
Mounting hole diameter	1.3 + 0.1mm (.051")
Center-to-center spacing	5.08mm (.2in)

LPA 1		LPK 2N		LPK 3	
Positions	Cat. No.	Positions	Cat. No.	Positions	Cat. No.
2	14040.6	4	14501.6	6	14585.6
3	14041.6	6	14502.6	9	14586.6
4	91503.4	8	14503.6	12	14587.6
5	91503.5	10	13798.6	15	13802.6
6	91503.6	12	14504.6	18	14588.6
7	91503.7	14	14505.6	21	14589.6
8	91503.8	16	14506.6	24	14590.6
9	91503.9	18	14507.6	27	14591.6
10	91504.0	20	13800.6	30	13804.6
11	91504.1	22	14508.6	33	14592.6
12	91504.2	24	14509.6	36	14593.6
13	91504.3	26	14510.6	39	14594.6
14	91504.4	28	14511.6	42	14595.6
15	91504.5	30	14512.6	45	14596.6
16	91504.6	32	14513.6	48	14597.6

	MAXIMUM LENGTH AVAILABLE
LPA	Assembled on request
LPK 2N	48 positions
LPK 3	72 positions



MK 8



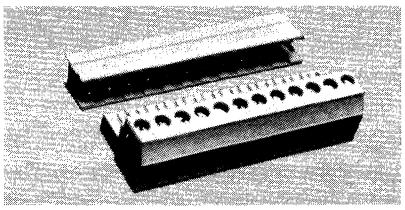
	MK 8 45° Blocks		TOP 1.5 GS Blocks with TOP Clamping System			
Technical Data	UL		UL			
Ratings (industrial)	150/15A		300/10A			
Wire size AWG	22-14		22-14			
Pin length	5mm (.197")		4.5mm (.177")			
Mounting hole diameter	1.3 + 0.1mm (.051")		1.3 + 0.1mm (.051")			
Center-to-center spacing	5.08 (0.2")		5.08mm (0.2in)			
			90 degrees		180 degrees	
	Type	Cat. No.	Type	Cat. No.	Type	Cat. No.
Components						
Single-pole module			TOP 1.5 GS/1	6442.6	TOP 1.5 GS/1	6440.6
End plate/Spacer			AP/ZP	5697.6	AP/ZP	5697.6
Complete PCB Terminal Blocks						
2 poles	MK 8/2	3320.6	TOP 1.5 GS/2	6419.6	TOP 1.5 GS/2	5699.6
3 poles	MK 8/3	3078.6	TOP 1.5 GS/3	6420.6	TOP 1.5 GS/3	5701.6
4 poles	MK 8/4	3077.6	TOP 1.5 GS/4	6421.6	TOP 1.5 GS/4	5703.6
10 poles	MK 8/10	3026.6				

821 SOUTHLAKE BLVD. • RICHMOND, VIRGINIA 23236 • TEL: 804-794-2877 • TELEX: 82-8376 • FAX: 804-794-0252

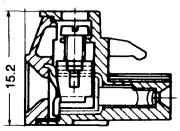
Weidmüller

PRINTED CIRCUIT BOARD CONNECTORS

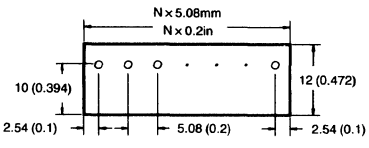
Weidmuller's PC board connectors use our proven screw clamp system to speed installation time and save space. And they add the quick-disconnect feature of a two-piece connector so you can easily change circuit boards and minimize maintenance time.

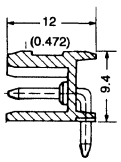


BLA

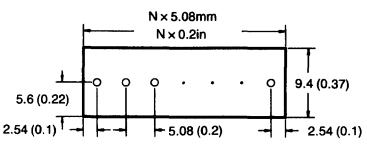


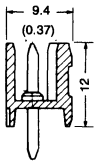
SLA 90





SLA 180

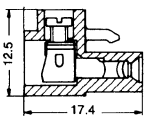


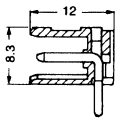


BLA/SLA SYSTEM

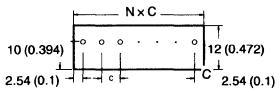
Weidmuller's BLA/SLA system uses our vibration-proof clamp, and features an innovative coding system that prevents mismating without loss of circuits. BLA/SLA connectors are made from a UL 94 V-O rated glass-filed polyester that maintains tight tolerances even in harsh, high-heat, high-humidity conditions.

BL





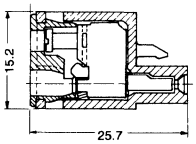
SL 90

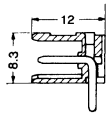


BL/SL System

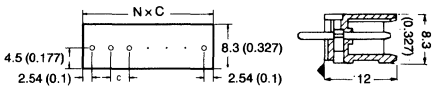
Weidmuller's popular BL/SL system is available in both 5.08mm (.2 inch) and 5mm center-to-center versions. The BL TOP plug lets you access both the screw and the wire from the same side.

BL TOP





SL 180



BLA/SLA CONNECTORS

Technical Data

Ratings (UL/CSA)	300V/10A
Wire size AWG for BLA	22-12
Pin length for SLA	4.5mm
Mounting hole diameter	1.3 + 0.1mm (.051")
Center-to-center spacing	5.08mm (0.2in)

BL/SL CONNECTORS

Technical Data

Ratings (UL/CSA)	300V/10A
Wire size AWG for BL	22-12
Wire size AWG for BL TOP	22-14
Pin length for SL	4.5mm
Mounting hole diameter	1.3 + 0.1mm (.051")
Center-to-center spacing	5.08mm (0.2in)

Positions	Standard Entry	Locking Tabs	Top Entry	90 degree header		180 degree header	
				Open Ends	Closed Ends	Open Ends	Closed Ends
BLA Plug				SLA		SLA	
2	12817.6	13560.6		13468.6	13514.6	13491.6	13537.6
3	12818.6	13561.6		13469.6	13515.6	13492.6	13538.6
4	12819.6	13562.6		13470.6	13516.6	13493.6	13539.6
5	12820.6	13563.6		13471.6	13517.6	13494.6	13540.6
6	12821.6	13564.6		13472.6	13518.6	13495.6	13541.6
7	12822.6	13565.6		13473.6	13519.6	13496.6	13542.6
8	12823.6	13566.6		13474.6	13520.6	13497.6	13543.6
9	12824.6	13567.6		13475.6	13521.6	13498.6	13544.6
10	12825.6	13568.6		13476.6	13522.6	13499.6	13545.6
11	12826.6	13569.6		13477.6	13523.6	13500.6	13546.6
12	12827.6	13570.6		13478.6	13524.6	13501.6	13547.6
Available to 24 positions							
BL Plug				SL		SL	
2	12591.6		13358.6	1126.6		1113.6	
3	12592.6		13559.6	1125.6		1112.6	
4	12593.6		13360.6	1124.6	12349.6	1111.6	12363.6
5	12594.6		13361.6	1123.6	12350.6	1110.6	12364.6
6	12595.6		13362.6	1122.6	12351.6	1109.6	12365.6
7	12596.6		13363.6	1121.6	12352.6	1108.6	12366.6
8	12597.6		13364.6	1120.6	12353.6	1107.6	12367.6
9	12598.6		13365.6	1119.6	12354.6	1106.6	12368.6
10	12599.6		13366.6	1118.6	12355.6	1105.6	12369.6
11	12600.6		13367.6	1117.6	12356.6	1104.6	12370.6
12	12601.6		13368.6	1116.6	12357.6	1103.6	12371.6
Available to 15 positions (BL TOP to 12 positions)							

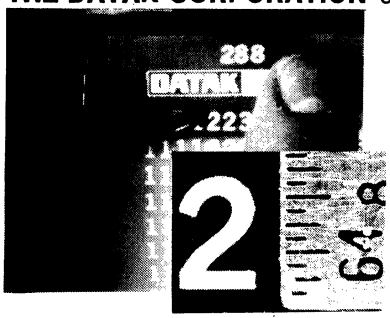
821 SOUTHLAKE BLVD. • RICHMOND, VIRGINIA 23236 • TEL: 804-794-2877 • TELEX: 82-8376 • FAX: 804-794-0252

PANEL HARDWARE

Manufacturer	Starting EEM Page No.	Bezels	Dials, Instrument	Pointers, Dial	Handles	Knobs	Knob Types				Panel Markings	Plates, Escutcheon	Drives & Drive Mechanisms	Shaft Couplings	Shaft Locks	Speed Reducers
							Control-Shaft Locking	Limit Stop	Slip Clutch	Ratio Drive Torque						
Datak	C•1583										√					
Elma Electronics	C•1584	√	√	√	√	√	√	√	√		√	√	√			
Jan Hardware	C•1585				√	√	√	√	√	√			√	√	√	√
JMJ Technical Prod. Inc.	C•1591	√														
Power Dynamics	C•1592	√		√		√	√			√	√					
RMF Products Inc.	C•1593	√														
Selco Products	C•1594	√	√	√		√					√					

DATAK dry TRANSFERS and COATINGS

THE DATAK CORPORATION 55 Freeport Blvd., #23, Sparks, NV 89431 (702) 359-7474 Fax: 702-359-7494



HOW THEY WORK . . . These amazing letters, words and art patterns transfer to any clean surface. Just rub down with a ballpoint pen! Heat-resistant adhesive is safe for diazo copies.

MASTER ART QUALITY . . . Razor sharp edge definition makes DATAK transfers superb for original artwork or prototypes.

TAILOR-MADE COATINGS . . . Any old protective spray won't work over dry transfers. Our formulas flow evenly over the transfer and protect it perfectly on all classes of surfaces: glass, paper, wood, metal, plastics or paint.

TITLES and COMPONENT DESIGNATION SETS for ELECTRONIC EQUIPMENT

Newest **professional titles** have thousands of ⅛"(12 pt.) and 0.105"(10 pt.) words for both standard and micro-sized equipment control panels. Sets have 24 sheets, 3½"x 5". 12 point sets use bold face type, have one letter and one number sheet; 10 point sets are bold face titles and include 4 each, light and bold number and letter sheets. Letter and number sets have 12 identical sheets.

Component designation sets (TERMINAL and CHASSIS MARKING sets) include 24 sheets, 3½" x 5" of sequential numbers, letters and letter combinations conforming to ANSI Y32.16 and IEEE STD 200. This series is ⅛"size only. See JotDraft #JD192-JD251 for .085"through .250" designation numbers. Coat transfers for protection. See coatings section.

MICRON MICROFARADS	METER METER mHz
ABCDEFGHIJKLMN	OPQRSTUVWXYZ
1111223344555556	67788990000;;;;
ABCDEFGHIJKLMN	OPQRSTUVWXYZ
1111223344555556	67788990000;;;;
VIDEO VOICE VOL	VOLUME VOR VU
ABCDEFGHIJKLMN	OPQRSTUVWXYZ
11112233445555	667788990000;;;
JJJJPPPP 363738	394041424344454

948 Black (949 White) 10 pt. Titles	**$12.95**
950 Black (951 White) 10 pt. Bold Letters	**8.35**
952 Black (953 White) 10 pt. Bold Numbers	**8.35**
954 Black (955 White) 10 pt Lt. Face Letters	**8.35**
956 Black (957 White) 10 pt. Lt. Face Numbers	**8.35**
9581 Black (9591 White) 12 pt. Titles	**12.95**
9601 Black (9611 White) 12 pt. Bold Letters	**8.35**
9621 Black (9631 White) 12 pt. Bold Numbers	**8.35**
9661 Black (9671 White) Terminal & Chassis set	**12.95**

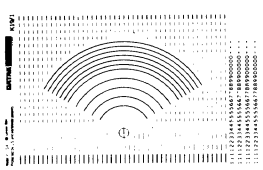
DATAMARK™ TITLES, PATTERNS, ALPHABETS and NUMBERS

These are smaller assortments for specialized electronic applications. Type matches professional 9581-9671 series. Switch patterns match some that are in #968 Meter Dial and Switch Marking set. All sets contain six 3½" x 5" sheets. Coat transfers for protection. See coatings section.

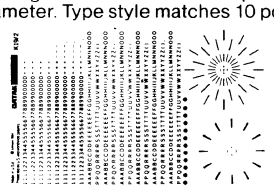
K58B Black (K58W White) Audio, TV, Hi-Fi	**$4.95**
K59B Black (K59W White) Amateur Radio, CB	**4.95**
K60B Black (K60W White) Experimenter, Home, Intercom	**4.95**
K61B Black (K61W White) Test Equipment, Industry	**4.95**
K62 Marks and Switch Patterns, black, white asst.	**$4.95**
K63 ⅛"Letters and Numbers, black, white, gold, asst.	**4.95**
K64 ¼"Letters and Numbers, black, white, gold, asst.	**4.95**
K65 ½"Letters and Numbers, black, white, gold, asst.	**4.95**

METER DIAL and SWITCH MARKING SET

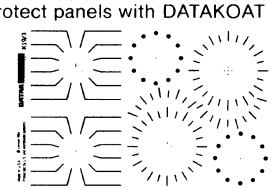
Crisp meter graduations let you modify dial scales fast. Saves time and money compared to a "mod center" job. Tap switch marks are preset to 7.5° and 15° detents but will transfer to any angle. The smallest switch pattern will match knob skirts down to 0.5"diameter. Type style matches 10 point professional title and letter sets described above. Complete set includes 12 sheets, 5"x 7"in black, white and red. Refill sheets available separately in uncut sets of 4 identical sheets. *K19/1 available in white as a refill only. Protect panels with DATAKOAT or HARDKOAT. Do not coat dialplates.



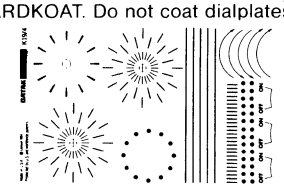
K19/1 BLK
K19/5 RED
K19/1* WHT



K19/2 BLK
K19/6 RED
K19/9 WHT



K19/3 BLK
K19/7 WHT
K19/12 RED



K19/4 BLK
K19/8, 10 WHT
K19/11 RED

968 Meter Dial and Switch Set . . . . . **$12.95** **K19/(Specify #) Refill of 4 identical sheets** **$7.35**

DATAKOAT™ PROTECTIVE COATINGS

DATAKOAT is a 100% acrylic high-solids water-clear coating for metals and plastics. It encapsulates dry transfers in a tough film. Its solvents will not attack most plastics, lacquers or cured enamels. The dry film has a high dielectric strength, is very flexible, moderately hard and extremely resistant to weathering and UV exposure. DATAKOAT is not recommended for transfers on paper.

04176 DATAKOAT Brushcoat and Thinner Kit (1 oz. ea.) **$3.75**
04177 DATAKOAT Gloss Spray (12 oz. net wt.) **6.45**
04178 DATAKOAT Matte Spray (12 oz. net wt.) **6.45**

HARDKOAT™ PROTECTIVE COATINGS

HARDKOAT is a clear, very high-solids quality cellulosic resin for paper, wood and other porous surfaces. Its solvents fuse the dry transfer into the surface while its resins bond to the surface with an extremely hard, flexible film. HARDKOAT may be used on metals and many painted surfaces where it gives superior protection against abrasion and scratching. Its solvents temporarily soften many plastic materials, so it should be used with caution. Multiple heavy coats may have a very faint yellowish tint. Use DATAKOAT if an absolutely water-clear coating is essential.

04170 HARDKOAT Gloss Spray (12 oz. net wt.) **$6.45**
04171 HARDKOAT Matte Spray (12 oz. net wt.) **6.45**

SEE SECTION 4200 FOR DATAK PRINTED CIRCUIT KITS AND WIRE MARKERS

ELMA

ELMA Electronic Inc.

25 JAHRE ANNÉE YEARS ELMA Electronic

Collet Safety Knobs and Front Panel Hardware

A Member Of The Sulzer Group, 41440 Christy Street, Fremont, CA 94538 • (415) 656-3400

All ELMA products are available off-the-shelf and REASONABLY PRICED

Safety Knobs

Modular Design

The modular design and the wide assortment of **ELMA** collet safety knobs offer countless possible combinations. The standard and wing knobs are of contemporary design, available in 7 sizes and various colors. A broad selection of accessory components is also available, including knobs, caps and pointers in no less than 7 colors, various printed dials, stators, sockets and nut covers are available in gloss or matte finish.

Material

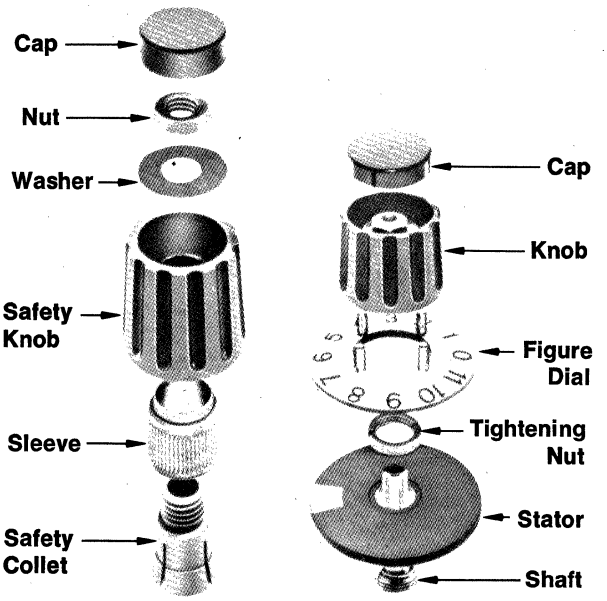
With the exception of the transparent figure dials all of the **ELMA** collet safety knobs and accessories are made of Polyamide.

Safety

With the knob installed and the cap in place there is no possibility of shock hazard as there are no exposed metal parts, thus satisfying both O.S.H.A. and U.L. requirements.

Colors

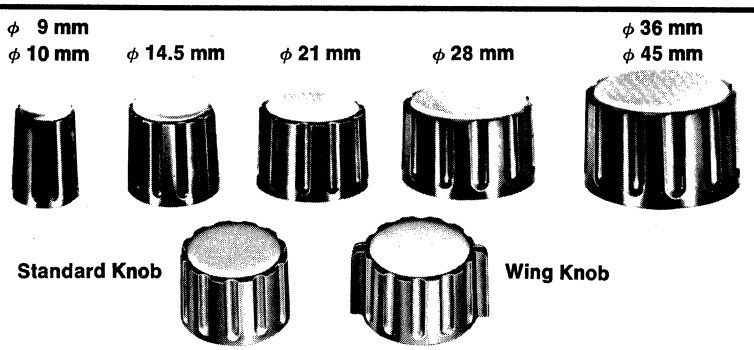
ELMA collet safety knobs offer a very wide choice of standard colors and color combinations in both glossy and matte finish. Collet knobs are available in light gray, black and red. Caps and pointers are available in light gray, black, red, blue, yellow, and green. In addition **ELMA** offers custom colors to meet your exacting requirements.



Collet Knob Sizes/Designs

ELMA collet safety knobs are available in diameters of 9 mm, 10 mm, 14.5 mm, 21 mm, 28 mm, 36 mm and 45 mm.

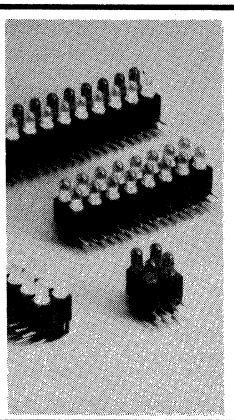
Every **ELMA** knob is available from stock in both conventional and wing versions, each with or without setting line.

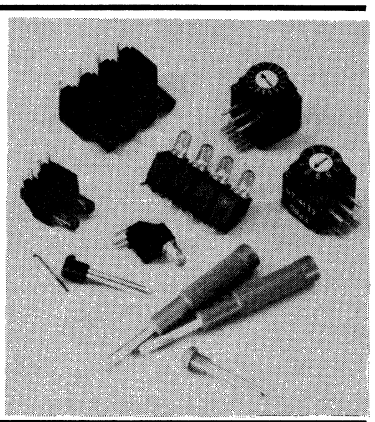


LED Arrays, Test and Switch Socket Arrays

General Description

- Small-size components with a maximum installed height not greater than 10.5 mm ensure a spacesaving assembly
- Adapted to DIN 41494, steps of 2.54 mm (0.1″)
- Assembly is quick and easy
- No additional hardware is required
- Precise positioning
- Soldering and cleaning by machine is possible
- Available in blocks, ready for assembly
- Tinned terminals
- Front panel components family consists of LED arrays, test and switch sockets, coded DIP switches and toggle switches and test plugs.





For complete information write or call for our catalog today!

See section 1400 (Cabinets, Enclosures, Racks & Chassis), section 5100 (Switches) for additional ELMA products!

Specials Are Our Specialty

JAN HARDWARE
MANUFACTURING COMPANY

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TEL: 718-361-0300
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KNOBS

WE CATALOG & MANUFACTURE MORE THAN 10,000 DIFFERENT KNOBS FOR COMMERCIAL, INDUSTRIAL, MILITARY AND OTHER GOV'T AGENCIES (FSN, MS, SM, SC, ON, NAS, AN, ETC.) WE INVITE YOUR INQUIRIES. PLEASE SEND FOR FREE CATALOG AND SAMPLES.

KNOBS PER MS91528 AND DESIGNER STYLES

Configuration meets performance MS91528, MIL-K-3926 and MIL STD. 24 2D (ships).
Knobs meet environmental conditions MIL-E-16400. QPL #3926–T.R. #J101
Patents: 4,012,966 and 4,077,503.
Others pending.

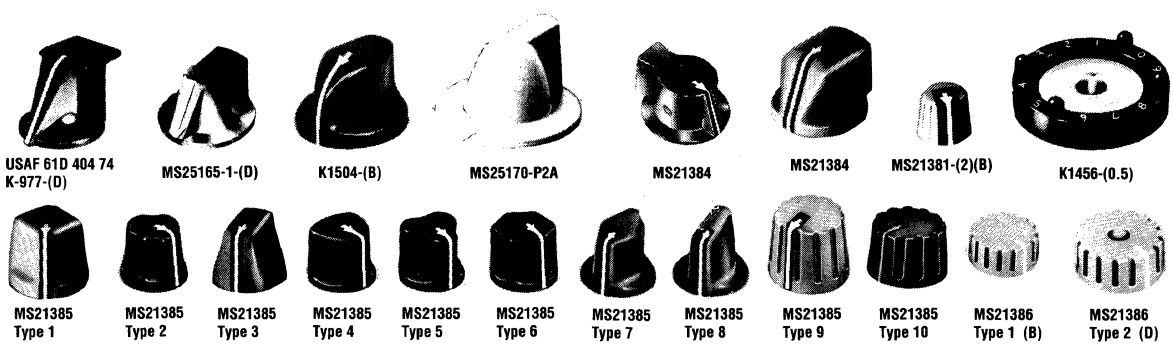
RANGE (Yellow) G | POINTER NO SKIRT (2)A | POINTER RING SKIRT (2)B | DOUBLE BAR 7(3)D | BAR POINTER (SHORT) 7(5)C | BAR POINTER (LONG) 7(6)A | BAR KNOB 7(7)A

HEX 7(8)B | MARKER (Green) H | BEARING (Grey) J | STANDARD HANDLE (4)B | METAL INLAY TOP | B SKIRT | C SKIRT | Concentric Controls

INTENSITY (Blue) A | TUNE (Orange) B | DIMMER (White) (c) | GAIN (Red) D | FOCUS (Violet) E | RANGE (Yellow) F | M SUPER DELUXE | NO SKIRT | RING SKIRT | DIAL SKIRT | .320 Max. LOCK POINTER SKIRT

TRANSILLUMINATED MOLDED PLASTIC KNOBS

MS24229-P1
MS25165-1
MS25166-1
NAS539
MS25169
MS25170-P2
MS25170-P1
MS21382
MS21384
MS21385
MS21386
MS21387
MS91528
MS24167
MS25167
MS25168

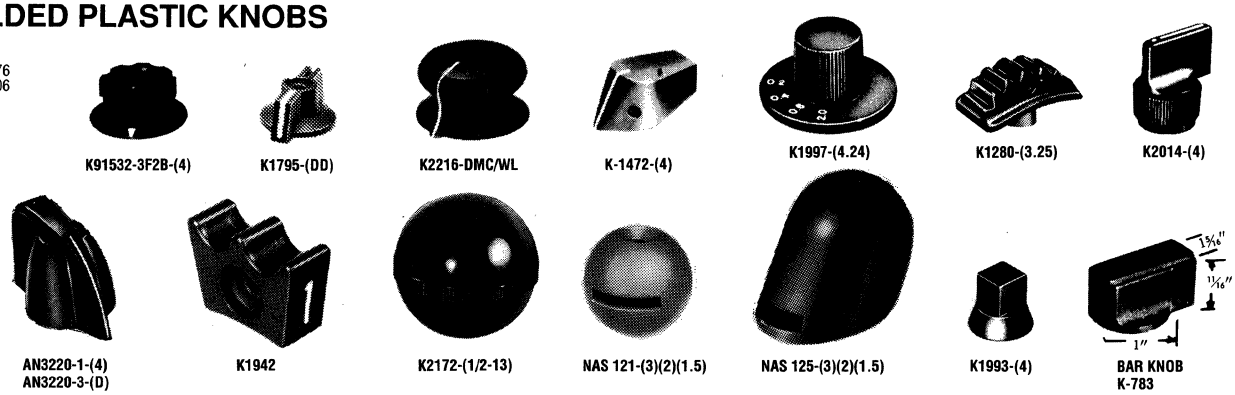


USAF 61D 404 74 K-977-(D) | MS25165-1-(D) | K1504-(B) | MS25170-P2A | MS21384 | MS21384 | MS21381-(2)(B) | K1456-(0.5)

MS21385 Type 1 | MS21385 Type 2 | MS21385 Type 3 | MS21385 Type 4 | MS21385 Type 5 | MS21385 Type 6 | MS21385 Type 7 | MS21385 Type 8 | MS21385 Type 9 | MS21385 Type 10 | MS21386 Type 1 (B) | MS21386 Type 2 (D)

MOLDED PLASTIC KNOBS

AN3220
SMC447976
SMC447306
NAS120
NAS121
NAS123
NAS124
NAS125
NAS168



K91532-3F2B-(4) | K1795-(DD) | K2216-DMC/WL | K-1472-(4) | K1997-(4.24) | K1280-(3.25) | K2014-(4)

AN3220-1-(4) AN3220-3-(D) | K1942 | K2172-(1/2-13) | NAS 121-(3)(2)(1.5) | NAS 125-(3)(2)(1.5) | K1993-(4) | BAR KNOB K-783

Specials Are Our Specialty

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MANUFACTURING COMPANY

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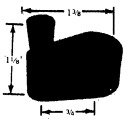
TEL: 718-361-0300
FAX: 718-784-0796

SLIP-CLUTCH KNOB with Spinners

The "slip clutch" (normally set for 3-6" lbs./in.) automatically disengages and slips when pre-determined torque has been exceeded.

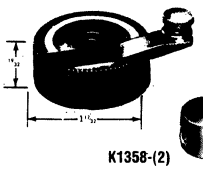
K1375
SPINNER KNOBS



RETRACTABLE SPINNER CRANK KNOB

MS-91522-1-(DD)
Aluminum Olive Drab.

K1622


K1358-(2)

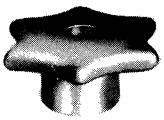
K2131-(4)

CAST ALUMINUM KNOBS

MS91523-1
SMC91018
MS91524
SM91525
SMB134094
SMB134171
SMB134884
SMB179515
SMB144319
SMC414401
SMC447226
SMD415160
SMD415161
SMD415223
SMC503203
SCB35862-1
SMC414393
SMC414399
SMC414680

K1996-(4)

MS91523-(DD)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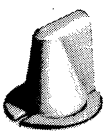
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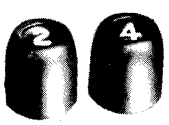
K1432-(5)

SMD 415160

SMC 503203

SMC 414401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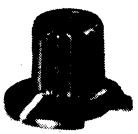
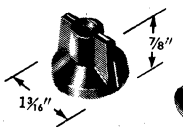

SMC 414393

SMC 414399


SCB35862-1

K1342-D

MS21360-1BID-(2)

NAS1553

SMD500501

MACHINED METAL KNOBS

SK630-(B)

K1105-(4)

AK-1326-(4)

K2007-(4)

NAS1553

K1409-(3)

K2125-(4)

K2010-(4)

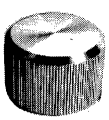
K1330

K1572-(2)

K2190-(2)

K2130-(10-32)

K2001-(3)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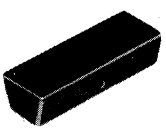
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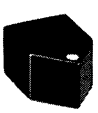
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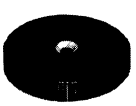

K1716-(4)

K2227-(2)

K2296-(6-32)

K1459

HI-VOLTAGE INSULATED COUPLINGS

U.S. PATENT NO. 2,681,387

MEETS MILITARY SPECIFICATIONS–TEMPERATURE-HUMIDITY - SHOCK - VIBRATION - FUNGUS

15 KV Breakdown—10 lb/in. torque
Series No. AK-5079 and No. AK-5164

Stainless steel shaft and screwdriver tip molded-integrally with Diallyl Phthalate per Mil Specs. Shock, vibration and fungus proof, they operate with ease over an ambient temperature range of −75°C to +175°C. Supplied with mounting hardware.

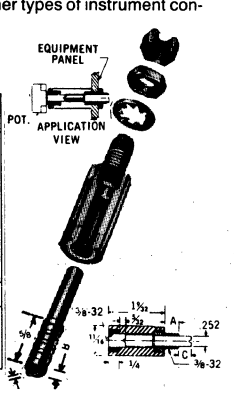
Screwdriver tip fits standard slotted shafts (potentiometer, etc.) without further machining. Suited to adjust high voltage controls protecting operating personnel. Also used to reduce ground capacitance on other types of instrument controls.

For Commercial Instrument Applications...
Available in general purpose Bakelite.

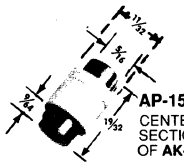
STANDARD TYPE

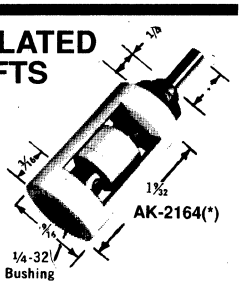
Cat. No.	Dimensions in Inches "A"	"B"	Shaft	"C"
AK-5164-X-1	3/8	3/16	Slotted	5/16
AK-5164-B-1	3/8	1/16	Slotted	5/16
AK-5164-X-2	3/8	3/16	Slotted	15/32
AK-5164-B-2	3/8	1/16	Slotted	15/32
AK-5164-X-3	3/8	3/16	No Slot	15/16
AK-5164-B-3	3/8	1/16	No Slot	15/16
AK-5164-X-4	3/8	3/16	No Slot	17/16
AK-5164-B-4	3/8	1/16	No Slot	17/16
AK-5164-X-5	3/8	3/16	Slotted	Minus 1/16
AK-5164-B-5	3/8	1/16	Slotted	Minus 1/16
WITH LOCKING TYPE BUSHING				
AK-5079-X-1	9/16	3/16	Slotted	1/8
AK-5079-B-1	9/16	1/16	Slotted	1/8
AK-5079-X-2	9/16	3/16	Slotted	9/32
AK-5079-B-2	9/16	1/16	Slotted	9/32

Note: (3/16") to be used with 1/8" long shaft.
(1/16") to be used with 1/4" long shaft.



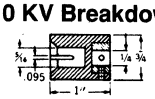
VOLTAGE: 6000VDC INSULATED COUPLINGS FOR 1/8" SHAFTS


AP-1540
CENTER SECTION OF AK-2164(*)


AK-2164(*)
1/4-32 Bushing

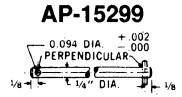
OFFSET-SHAFT (INSULATED) COUPLINGS

10 KV Breakdown



±30° Offset
AP-15299

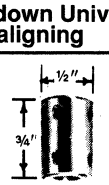
AP-15299



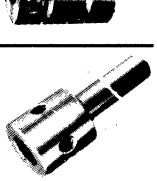
AUTOLINEAR (INSULATED) SHAFT COUPLINGS

2.5-5 KV Breakdown Universal, Miniature, Self-aligning

SHAFT COUPLING



1/4" SHAFT COUPLING EXTENDER



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MANUFACTURING COMPANY

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TEL: 718-361-0300
FAX: 718-784-0796

AK5610 INSULATED COUPLING

For ¼" shaft. ¾" dia. x ⅝" long.
Permits linear and angular misalignment up to .005" and/or 10°.
Breakdown voltage 3 KV.

STUD,GROUND

Multi-termination ground lugs.

- **Electrically sound**
- **Easily Installed**
- **Space saving**

Material: Brass, Half Hard
Finish: Tin Plate

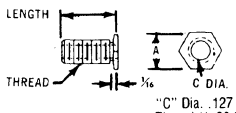
PANEL BEARING AND SHAFT ASSEMBLIES Cat. No. AP-15350 Series

For rotary control of components.
Stainless steel shaft ¼" dia. one end flatted completely assembled with retaining rings, jam nut and lock washer. Nickel plated, brass panel bearing. Fits panels up to 3/16" thick; mounts in 13/32" dia. hole

AP-15350( )

BUSHING, PANEL FOR ¼" AND ⅛" SHAFT

Typical Pt. No. PB 60814-B = ¼-28 Thd., 1/2 Lg. Brass w/.127 Hole.



"C" Dia. .127 .252
Thread 1/4-28 3/8-32

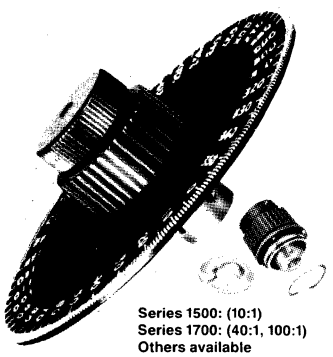
BUSHING EXTENDERS AK-5075-1 thru AK-5075-11

Permit staggered mounting of components having ¼" shafts, behind a panel.
Nickel plated brass.

AK-5075 ( )

MACROVERNIER REDUCTION DRIVE PRECISION TUNING BUILT INTO KNOB

- **Integral assembly**
- **Zero Backlash**
- **Infinite resolution with absolute shaft registration**
- **Driving torque-10 oz./in.**
- **Saves space behind the panel**
- **Installation in seconds, without special tools**
- **Knobs and Component Shaft rotate in same direction**



Series 1500: (10:1)
Series 1700: (40:1, 100:1)
Others available

MACROVERNIER CONTROL KNOBS— VISUAL INDEX

Single Unit KRD15–
"A" = 10:1 Vernier Drive
"B" = 1:1 Direct Drive

Double Unit KRD17–
"C" = Max. Ratio 100:1 OR 40:1
"D" = Min. Ratio 10:1 OR 4:1

FRONT FLANGE — Panel Mounted. 2 Screws.

2 PINS ONLY Component Mounted.

PANEL BUSHING — Separate Spacer. Secured by bushing. Panel Mounted.

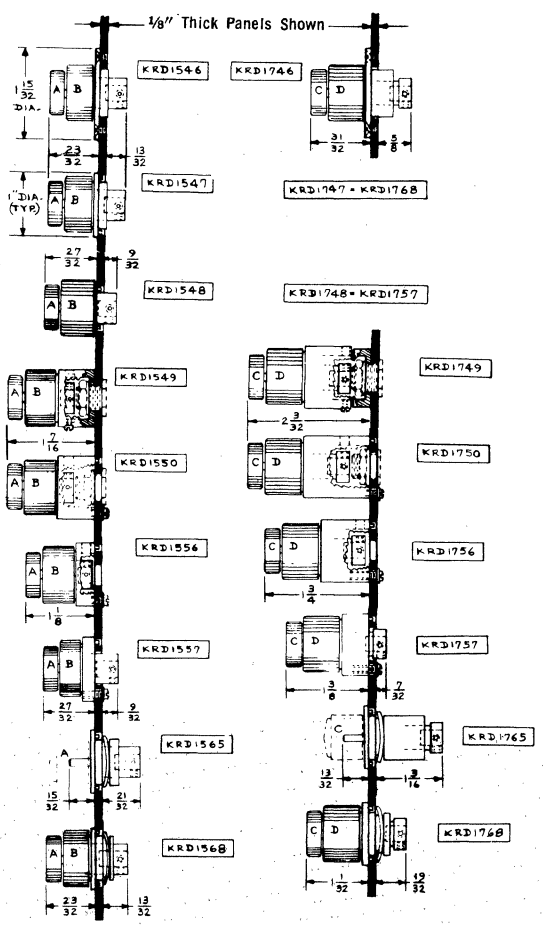
PANEL BUSHING — Integral Spacer.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Only. Panel Mounted.

SCREWS AND/OR PINS THRU PANEL.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Thru Panel.

SCREWS AND/OR PINS THRU PANEL.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Thru Panel.

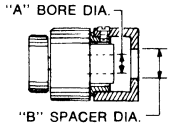
2 PINS AND BOWED RETAINING RING. Panel Mounted.
Single Knob — Max. Ratio Only.
(Various Size Knobs Available.)

2 PINS AND BOWED RETAINING RING. Panel Mounted.



COMPLETE PART NUMBERS

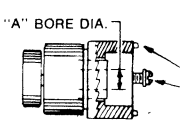
"A"



"A" +.002 −.000 Bore Dia.	First Dash No.
.127	-2
.190	-3
.252	-4

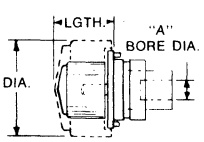
"B"

"B" Dia. Thru Spacer	Second Dash No.
.252 +.002 −.000	-4
1/4-32 THD.	-4T
.377 +.002 −.000	-6
3/8-32 THD.	-6T



"C"

Pins or Screws (180° Apart)	Second Dash No.
2 Pins Only	-7
2 Screws Only	-8



"D"

Knobs Dia.	Lgth.	Second Dash No.
23/32	25/32	-07
15/16	29/32	-09
19/32	13/16	-12
1 25/32	31/32	-17

LOW RATIO SINGLE UNITS
(10/1 Ratio Only)

KRD 1546-"A"
KRD 1547-"A"
KRD 1548-"A"
KRD 1549-"A"-"B"
KRD1550-"A"-"C"
KRD 1556-"A"-"C"
KRD 1557- "A"-"C"
KRD 1565-"A"-"C"
KRD 1568- "A"

HIGH RATIO DOUBLE UNITS
Ratios (100/10) or (40/4)

KRD 1746-"A"–
KRD 1749-"A"-"B"
KRD 1750-"A"-"C"
KRD 1756-"A"-"C"
KRD 1757- "A"-"C"
KRD 1765-"A"-"C"
KRD 1768-"A"

TYPICAL PART NUMBERS

*KRD 1550-4-8 *KRD 1749-3-6-100/10

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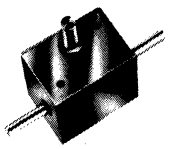
RATIO DRIVES

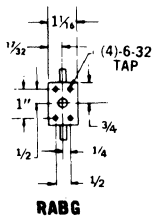
RIGHT ANGLE RATIO DRIVES — VERSATILE, MINIATURIZED, RIGHT ANGLE ROTARY CONTROLS



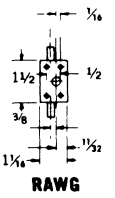
RAWG ( )
RABG ( )

Dual output stainless steel shafts at right angles to input, provide ideal type instrument control. With matched bevel, worm gears cover wide range of ratios.

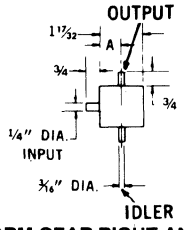
Especially useful for handling spring or gravity-loaded components. Output shaft automatically locks in any desired position yet remains free for smooth adjustment by input shaft. Assembled in dust-proof housings, gears are permanently pinned in place mounted in oilite bearings, and held under constant pressure.



RABG



RAWG



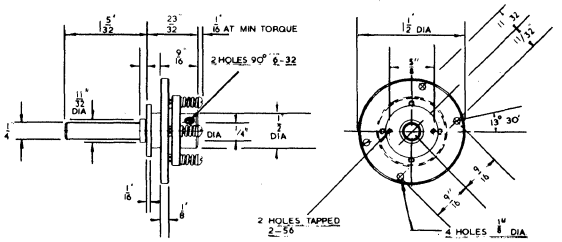
BEVEL GEAR RIGHT ANGLE DRIVES

Cat. No.	Ratio	"A"
RABG-1	1:1	7/8
RABG-2	2:1	7/8
RABG-3	3:1	7/8

WORM GEAR RIGHT ANGLE DRIVES

Cat. No.	Ratio	"A"
RAWG-1	5:1	3/4
RAWG-2	10:1	3/4
RAWG-3	20:1	3/4

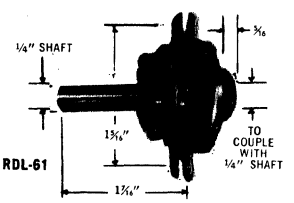
ADJUSTABLE TORQUE BALL-DRIVE - RDLA-601 6-1 ratio.



Output torque range 20 to 60 oz./inches (Standard: 25 oz./in.)

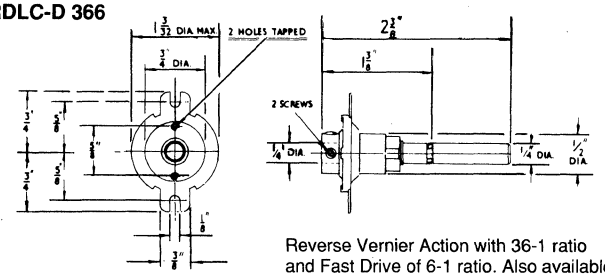
IN-LINE RATIO DRIVE–6.3:1

For smooth rotary control of components requiring Vernier adjustments. Suitable for use where panel space is at a premium. Durable, ruggedized ball bearing mechanisms.



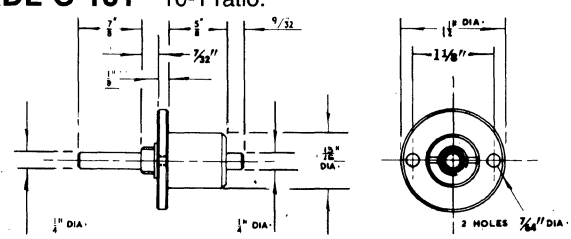
DUAL RATIO DRIVE

RDLC-D 366



Reverse Vernier Action with 36-1 ratio and Fast Drive of 6-1 ratio. Also available with flange bushing P/N RDLC-D 366-F

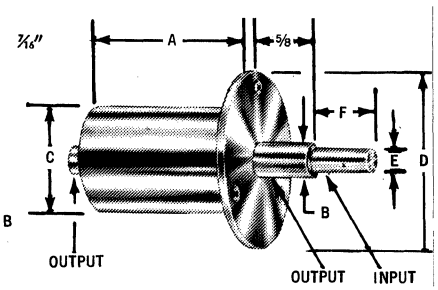
RDL-C-101 10-1 ratio.



DIRECT DRIVE, REVERSE VERNIER (RDS-R51) and CONTINUOUS DRIVE also available

REDUCTION DRIVES — BALL BEARING TYPE

For Fine Instrument and Machine Control



Cat. No.	Ratio
RDL-1	2.6:1
RDL-2	7.0:1
RDL-3	17.0:1
RDLC-1	2.6:1
RDLC-2	7.0:1
RDLC-3	17.0:1
RDLCC-1	2.6:1
RDLCC-3	17.0:1
RDL-4	45.0:1
RDL-5	120.0:1
RDL-6	300.0:1

All Ratios are ± 10%.

Employs precision ball bearings. For rotary control of components. Smooth motion. Ruggedly built, permanently sealed and lubricated.

Input and output shafts operate in SAME DIRECTION. Type "RDL" provides "in-line" intput-output shafts. Type "RDLC" is supplied with concentric shafts whereby the output envelopes the input shaft. An added feature of Type "RDLCC" is the output shaft in the rear.

SHAFT LOCKS

One-piece; fits standard 1/4" and 3/8"-32 thread of shaft bushing. Friction grip holds shaft to prevent accidental or vibrational disturbance of control setttings. Adjustment for semi-permanent locking, provided. Note: Part No's. 1047, 1048, 1049 maximum tightening torque—5 lb.-in.

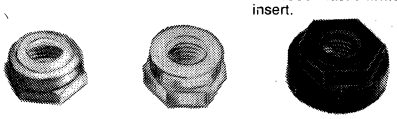
AK-1046 5/16" Hex OD. Metal w/plastic insert.

AK-1048 7/16" Hex OD. Metal w/plastic insert.

AK-1047 5/16" Hex OD. All Plastic.

AK-1049 7/16" Hex OD. All Plastic.

AK-1050 Plastic w/metal insert.



Ordering Data:

Nominal Shaft Dia.	Bushing Thd. Size
2 = 1/8"	4 = 1/4-32
4 = 1/4"	6 = 3/8-32

SHAFT KNOB LOCK

Prevents movement of controls due to shock, vibration, or accidental contact. Available matte or glossy finish.

Cat. No.
AK-1057-2 (*) (1/8" shaft) (Used with 71 Series Knob)
AK-1057-4 (*) (1/4" shaft) (Used with 91 Series Knob)
AK-1059-4 (*) (1/4" shaft) (Used with 121 Series Knob)
AK-1061-4 (*) (1/4" shaft)
*Specify "M" or "G" for matte or glossy finish.

Typical Part Numbers:
AK-1057-2MA = For 1/8" Shaft/matte finish/Black
AK-1059-4GA = For 1/4" Shaft/glossy finish/Black

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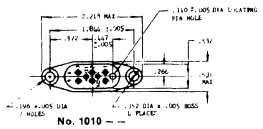
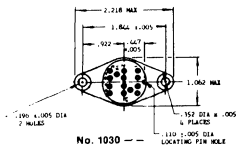
FAX: 718-784-0796

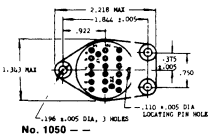
RELAY SOCKETS with Fixed or Removable Contacts!

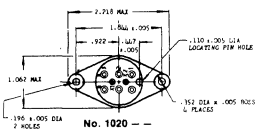
1000 SERIES

Jan's relay sockets are specifically designed for use with plug-in relays . . .in electronic circuit applications which demand quick and easy assembly and maintenance.
Available with dip-solder pin terminals for printed circuit assembly, or solder cup and turret terminals for direct wiring.For applications requiring removable contacts, solderless wire crimp terminations are available for #16, 20, 22, or 24 AWG wire sizes.



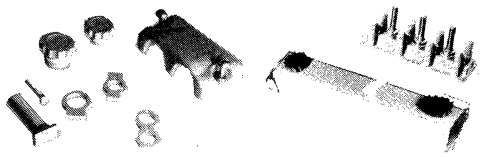


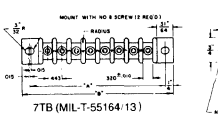


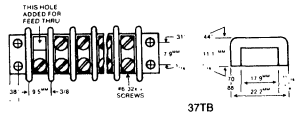


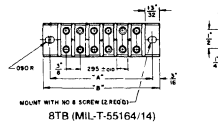
MS No.	JAN Part No.	MS No.	JAN Part No.
MS25322	No. 1010	MS25456	No. 1060
MS25324	No. 1020	MS25458	No. 1070
MS25326	No. 1030	MS25460	No. 1080
MS25328	No. 1040	MS25462	No. 1090
MS25330	No. 1050	MS25464	No. 1100

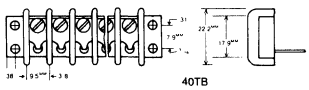
MILITARY TERMINAL BLOCKS AND ACCESSORIES











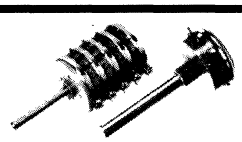
A complete line of Terminal Blocks and accessories, per MS18029, MS25046, MS25123, MS27212, NAS191. MIL-T-55164/13:/14:/23:/24
STYLE 7TB, 8TB, 25TB, 37TB, 38TB, 40TB, 41TB.

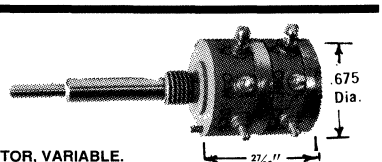
COMMERCIAL TERMINAL BLOCKS

In single or double row styles with accessories (marker strips, insulating covers, quick connect and solder terminals, jumpers,etc.)

POTENTIOMETERS / PRECISION WIRE WOUND

• LINEAR AND NON-LINEAR • SINGLE AND MULTI-TURN
• PENDULUM OPERATED • SECTORS AND GYRO PICKOFFS • SWITCHES
Reliable, competitively priced wire-wound potentiometers for commercial, industrial and military electronic equipment manufacturers.





- **EXCELLENT LINEARITY:** 0.03% available in single turn 5" diameter unit.
- **LONG LIFE:** Over two million revolutions with base metal windings.
- **WIDE TEMPERATURE RANGE:** Available for operation from –55°C to +125°C.
- **LOW NOISE:** Platinum alloy winding also insures low noise level.
- **RELIABILITY:** Welded taps for better mechanical and electrical connections.
- **HIGH RESOLUTION:** Wire as fine as 0.0003" diameter can be used.
- **CUSTOM DESIGNS:** Fast prototype delivery on special linear or non-linear units.
- **PRECISION CONSTRUCTION:** Anodized aluminum housings and polished steel shafts.
- **ACCURATE FUNCTIONS:** Welded taps to a single turn of wire eliminates shorted sections of winding at intermediate taps.
- **RUGGEDNESS:** Meets all applicable MIL Specs.
- **MAXIMUM STORAGE LIFE:** Maintained over long life and extreme environments by unique wiper designs compatible with winding configurations.

RESISTOR, VARIABLE.
Single and Dual gang.
Conforms to MIL-R-12934. Resistance values as required.
Linear design.
Power: 1 watt continuously, up to 70°C.; Mechanical rotation –300°; Electrical rotation –270°
Noise level less than 1% of total resistance.
Operating torque: 4.0 to 6.0 oz. in., detent where specified.
Detent torque: 5 oz. in above operating torque, or 6.0 to 14.0 oz. in. including unit operating torque.
Min. rotational life: 25,000 cycles. Operating Temp. –65°C to 150°C.
Clutch Knobs: It is recommended that potentiometers be adjusted by clutch knobs, limiting the torque exerted on shafts beyond their rotational limits.

Special designs upon request: winding/single or multi layer Versatile computerized winding machines will wind to above specifications or your design.

LIMIT STOP COMPONENTS and MINIATURIZED SLIP CLUTCH also available

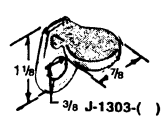
JACK COVERS (TRIMMER COVERS)

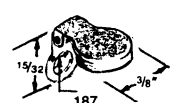
Fit jack or panel bushings used to keep out dust and moisture and prevent inadvertent disturbance of control. Outer surfaces finished in standard colors of baked enamel.

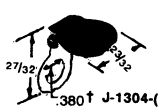
To Order Colors Specify:

(-1) Black Texture; (-2) Smooth Gray; (-3) Smooth Olive; (-4) Smooth Black; (-5) Bright Nickel Plate; (-6) Red (Top section only); (-7) White (Top section only).

Example: Jack cover, color black texture, order as **J-1301 (-1)**







*Overall height in closed position when mounted on panel.

JANSET® FUNCTIONAL KNOBS
"PUSH-TO-SET OR "PUSH-TO -TURN"

- SLIP CLUTCH
- BRAKE KNOB
- PULL-TO-TURN
- PUSH-TO-ENGAGE
- PRESS-TO-TURN
- LIFT-TO-TURN

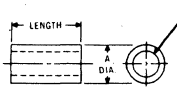
SLIP CLUTCH KNOBS

Specials Are Our Specialty

JAN HARDWARE
MANUFACTURING COMPANY

P.O Box 1199, Melville, NY 11747
TEL: 718-361-0300
FAX: 718-784-0796

STANDOFFS
SPACER-THRU HOLE



Clearance Hole	Code
.091 Dia. (No. 2 Screw)	1
.116 Dia. (No. 4 Screw)	2
.141 Dia. (No. 6 Screw)	3
.171 Dia. (No. 8 Screw)	4
.194 Dia. (No. 10 Screw)	5
.219 Dia. (No. 12 Screw)	6
.257 Dia. (No. ¼ Screw	7
.312 Dia.	8

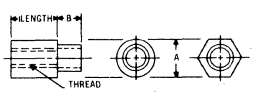
FINISH

CA = Clear Anodize
P = Passivate
A = Black Anodize
I = Iridite #14 (Golden Yellow)
C = Cadmium Plate
CCC = Cadmium Plate and Clear Chromate
N = Nickel Plate
X = Black Oxide
ZD = Zinc Dichromate
A = Allodin 1200

MATERIALS

B = Brass
A = Aluminum
SS = Stainless Steel
S = Steel
N = Nylon
PH = Phenolic
T = Teflon

STANDOFF–RIVET
–HEX AND ROUND

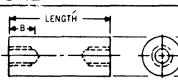


Code	Board Thickness	Shank B
1	1/32	.075
2	1/16	.105
3	3/32	.135
4	1/8	.165
5	3/16	.230
6	1/4	.290

STANDOFF–THREADED
–HEX & ROUND

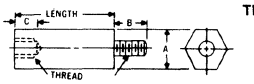
MATERIALS B = Brass A = Aluminum SS = Stainless Steel PH = Phenolic
SPECIAL SIZES AND MATERIALS/MANUFACTURED TO ORDER

STANDOFF–THREADED ENDS
–HEX & ROUND



Thread	Depth B
0-80	3/16
4-40	1/4
6-32	3/8
8-32	7/16

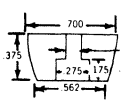
STANDOFF–MALE-FEMALE



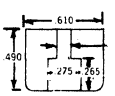
Thread	B	C
4-40	3/16	1/4
6-32	1/4	3/8
8-32	3/8	7/16
10-32	3/8	1/2

SPECIAL SIZES AND MATERIALS MANUFACTURED TO ORDER NOTE: Ceramic and Steatite spacers and standoffs also available.

CHASSIS AND CABINET BUMPERS



AK-575



AK-574

NO. AK-576-4 HEAVY DUTY CHASSIS AND CABINET BUMPER (WITH STEEL WASHER INSERT)

Molded neoprene. 1" diameter, 13/16" high. Configuration similar to AK-574 above. Color: Black. Other colors on request.
***No. AK-162610-4** New, improved non-marring, high tear strength, neoprene.

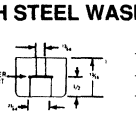


FIG 1

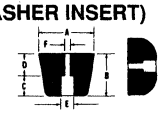
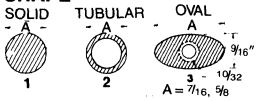


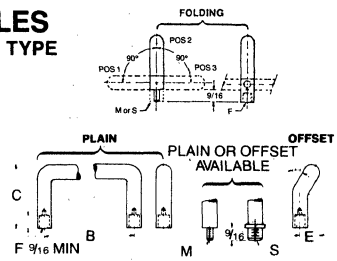
FIG 2

EQUIPMENT HANDLES

SHAPE



TYPE



HOW TO SPECIFY TYPE OF HANDLE

*TYPE	PREFIX	DESCRIPTION
PLAIN	NONE	—
OFFSET	ϕ, E	—
FOLDING	A	A = FREE 180°
	B	B = 2 POS., DETENT, 90°
	C	C = 3 POS., DETENT, 90°

A DIA.	3/16	1/4	5/16	3/8	7/16	1/2
M, F	4-40	8-32	10-32	10-32	10-32	10-32
S	10-32	1/4-28	5/16-24	3/8-24	3/8-24	3/8-24

RECOMMENDED CARRYING LOAD (lbs.) BASED ON HUMAN ENGINEERING FACTORS

A DIA.	1/4	3/8	1/2	5/8	3/4
JAN STD. (lbs.) MIL STD. 1472 (lbs. max.)	10-15 15	15-20 —	20-30 20	30-40 —	40-50 40

TYPICAL PART NUMBER

	H	OB	1	M	04	D03	A02	X
308	H	OA	1	F	10	C09	B08	A
A	H	SS	2	S	08	D00	A03	P

TYPE* (PREFIX)
H (HANDLE)
MATERIAL
SHAPE
THREAD M, F or S
A DIA. OR WIDTH
C DIMENSION
B DIMENSION
FINISH

Plain Handle Brass, Shape 1, Male Thd., A = 1/4 O.D., B = 43/16, C = 1 1/8, Black Oxide Finish.
30°, Offset, E = 1/2, Aluminum, Shape 1. Female Thd., A = 5/8 O.D., B = 39/16, C = 2 1/2, Blk. Anodized.
Folding Handle, 180°, Free. Stainless Steel, Shape 2. A = 1/2 Dia., B = 4", C = 1 1/2, Passivate, 3/8-24 thd.

MATERIAL
A — ALUMINUM
B — BRASS
S — COLD ROLLED STEEL
SS — STAINLESS STEEL

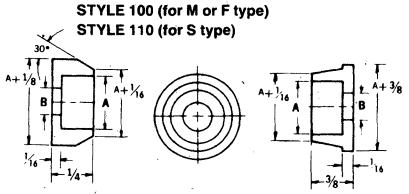
FINISH
A — BLACK ANODIZE
B — OPTICAL BLACK
C — CLEAR ANODIZE
E — SATIN ETCH
N — NICKEL PLATE
X — BLACK OXIDE
P — PASSIVATE
O — NO FINISH
BF—BRUSH FINISH-NO PLATING

DIMENSION:
θ Specify in Degrees
A, E Specify in 1/8 increments
C, B Specify with Letter + Fraction in 1/16 increments

LETTER VALUE:
A thru Z = 1 thru 26. When Specifying dimension in 1/16 increments, use numerator of fraction for Part No. See Examples.

FERRULES

STYLE 100 (for M or F type)
STYLE 110 (for S type)



STYLE 200 (for M or F type)
STYLE 210 (for S type)

HF OB 100 05 10 X

DESIGNATION
MATERIAL
STYLE
FINISH
B DIA.
A DIA.

NOTES: "A" dimension is specified in 1/16 increments using numerator of fraction for part No.
"B" Dia. is clearance hole. For thd., see table. For material and finish, see above. See examples.
Ferrule Brass, Style 100, A = 5/16 Dia. B = clearance for 10-32, Black Oxide

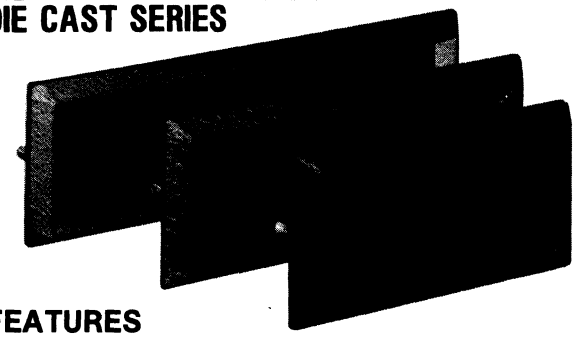
Thd. size	4-40	6-32	8-32	10-32	1/4-24	3/8-24
B	04	06	08	10	25	38

Note: Dimensions and configurations shown are approximate.

JMJ Technical Products, Inc.

STANDARD AND CUSTOM DIGITAL DISPLAY BEZELS

DIE CAST SERIES



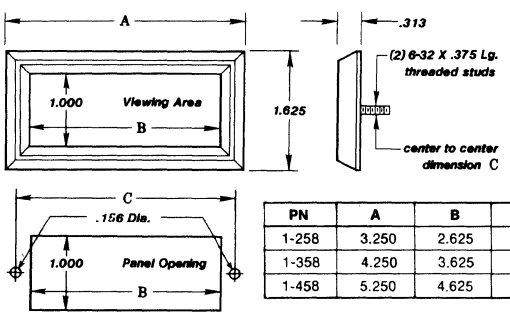
FEATURES

DIE CAST METAL FRAME

- Nonreflective black finish
- Durable — heat resistant
- Integral 6-32 mounting studs
- No exposed hardware
- Mounts in panels up to 3/16" thick
- Includes mounting hardware
- Available in three sizes
- Filters available in 10 colors and clear

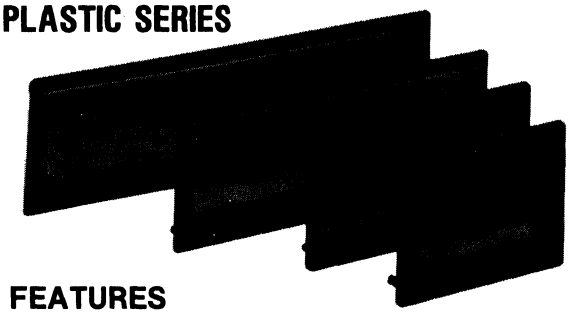
DESCRIPTION

The DIE CAST SERIES of bezels consist of a special plastic screen and a die cast metal frame. Mounting is accomplished by two 6-32 studs which can also be used to mount PC boards or other components behind the panel. The high quality of the screen and frame, combined with the universal sizes and mounting flexibility, make the bezels usable for a wide range of applications.



PN	A	B	C
1-258	3.250	2.625	3.000
1-358	4.250	3.625	4.000
1-458	5.250	4.625	5.000

PLASTIC SERIES



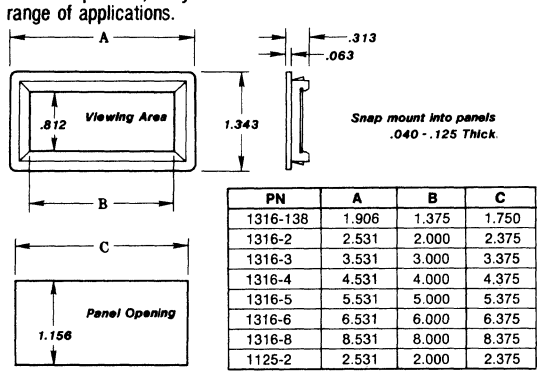
FEATURES

INJECTION MOLDED PLASTIC FRAME

- Nonreflective black finish
- Impact resistant ABS
- Snaps into front panels
- No exposed hardware
- Mounts in panels up to .125" thick
- Available in eight sizes
- Filters available in 10 colors and clear

DESCRIPTION

The PLASTIC SERIES of bezels consist of a special plastic screen and an injection molded ABS frame. Mounting is accomplished by a snap-fit into rectangular cut-outs from the outside. The combination of a high quality filter and an inexpensive, easy to mount bezel make this series ideal for a wide range of applications.



PN	A	B	C
1316-138	1.906	1.375	1.750
1316-2	2.531	2.000	2.375
1316-3	3.531	3.000	3.375
1316-4	4.531	4.000	4.375
1316-5	5.531	5.000	5.375
1316-6	6.531	6.000	6.375
1316-8	8.531	8.000	8.375
1125-2	2.531	2.000	2.375

LOW COST CUSTOM BEZELS

Our new fabricating facility is totally dedicated to the production of non-standard bezels. Using specially designed machines, we can now offer made-to-order sizes in proto-type or production quantities, without costly tooling or extended lead times.

TYPICAL BEZEL MATERIALS

- Aluminum
- Stainless Steel
- Plastic

DESIGN FLEXIBILITY

- Panel Seals
- Welded Studs
- Any Size Viewing Area
- Multi-Opening Bezels

VARIETY OF FILTER MATERIALS

- Anti-Reflective Coatings
- Polycarbonate
- Large Selection of Colors
- High Scratch Resistance

VARIETY OF FINISHING PROCESSES

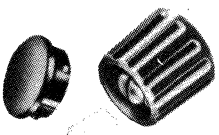
- Anodizing
- Painting
- Screening

Call or write for more information 50 Wheeler Point Rd., Newark, N.J. 07105 (201) 589-4257

PDI®
Power Dynamics, Inc.

COLLET KNOBS & ACCESSORIES

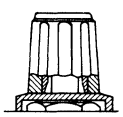
P.O. Box 539•59 Lakeside Avenue, West Orange, NJ 07052 (201) 736-5722•Fax (201) 736-8930



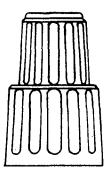
- NO FLATS
- NO SET SCREW
- NO SLIPPAGE

Our exclusive "VISE-GRIP" collet knobs offer distinguished styling, beauty and ease of mounting, as well as long life in the field. The exclusive "VISE-GRIP" collet works much the same way as a drill chuck. Once tightened, it will not work loose.

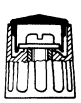
COLORS: Collet Knobs are available, in light gray, gray, black, red or aluminum...each in standard or matte finish. Caps are available in light gray, gray, black, red, blue, yellow, green or aluminum.



The 21mm, 28mm, and 36mm knobs sizes have recesses for nuts. Nut covers available for the 10mm and 15mm sizes.

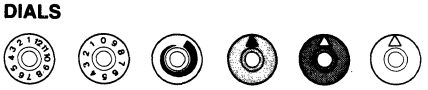


Double knobs with coaxial collet fastener are also available.



Caps available in two basic models—Flat or Peaked Cap. Flat caps can also be furnished with indicator line, straight or curved arrow or with disc aluminum and peaked with point. Caps easily snap into a defined position on top of the knob.

DIALS



A large selection of figure dials for indexing angles of 27°30′, 30°, 36°, and 60° together with colored discs dispense with the need for expensive manufacture of special units.

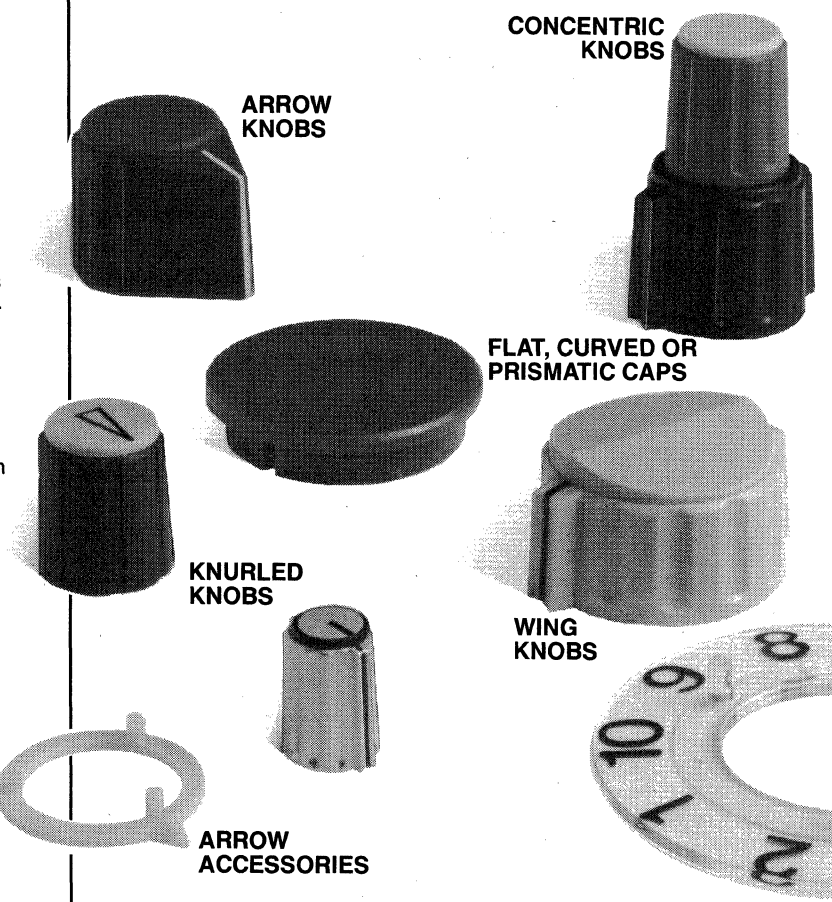
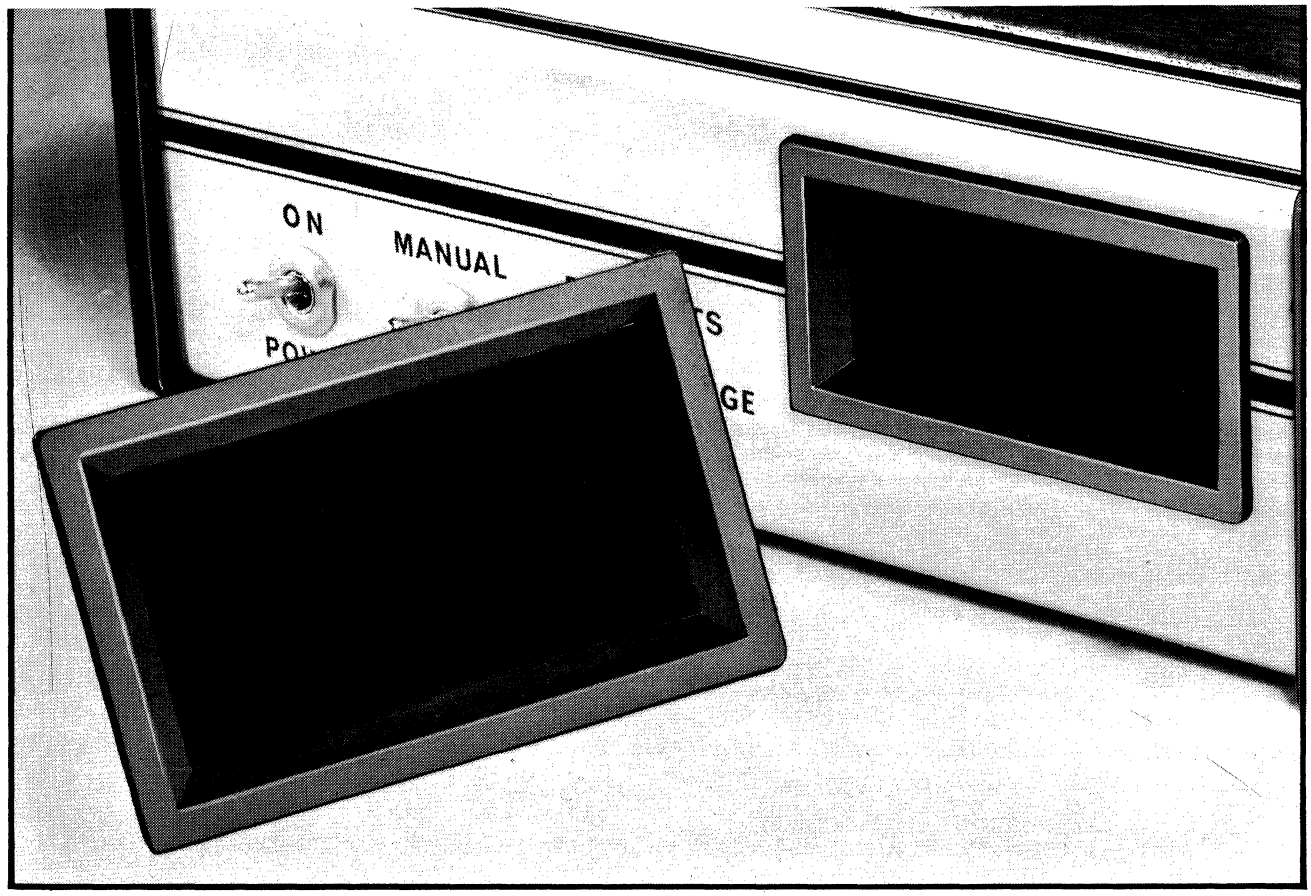


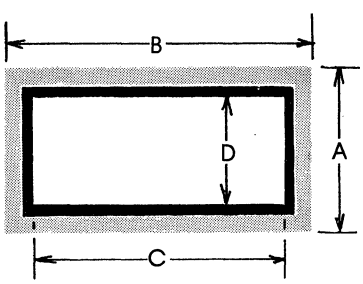
FIGURE 1 ARROW OR OTHER DIALS

Because of their high visibility, knobs exercise a profound effect on any product's marketability. Power Dynamics' knobs are the choice of many OEMs. Distinguished by their appearance and tactile feel, these finely crafted accessories add a dimension of quality to any product. Their long life and excellent fit on the shaft are the result of a clamping chuck mounting. Offered in a wide choice of sizes and colors to coordinate with any product design. All knobs in this catalog are available from stock for immediate delivery.

CALL OR WRITE POWER DYNAMICS, INC. FOR MORE INFORMATION • FSC60046



RMF MODEL 140 SERIES BEZEL & FILTER ASSEMBLY



Whatever your application may be, these low-cost bezel and filter assemblies will improve the front panel appearance and make the display itself more readable.

Attractive ABS plastic bezels are available in many sizes to match the most popular types of displays.

The colored acrylic filters have a special non-glare surface to make viewing easier. Standard colors are red and clear for LED and LCD displays although any color is available on special order.

INSTALLATION is fast and simple . . . merely insert the filter into the slots on the rear of the bezel, then push the entire assembly into the panel cutout. A quick and easy operation without the use of any tools, adhesive or hardware. Recommended panel thickness is from .040 to .125 in.

	DIMENSIONS				PANEL OPENING		FILTER*	
MODEL	A	B	C	D	HEIGHT	WIDTH	HEIGHT	WIDTH
140-1	1.343	1.906	1.375	.812	1.156	1.750	.875	1.437
140-2	1.343	2.531	2.0	.812	1.156	2.375	.875	2.087
140-3	1.343	3.531	3.0	.812	1.156	3.375	.875	3.040
140-4	1.343	4.531	4.0	.812	1.156	4.375	.875	4.078
140-5	1.343	5.531	5.0	.812	1.156	5.375	.875	5.078
140-6	1.343	6.531	6.0	.812	1.156	6.375	.875	6.078
140-8	1.343	8.531	8.0	.812	1.156	8.375	.875	8.078
141-2	1.656	2.531	2.0	1.125	1.469	2.375	1.187	2.087

*Filter Material is .030 thick

RMF PRODUCTS, INC.
P.O. Box 520, 1275 Paramount Parkway. Batavia, IL 60510
708 879-0020 FAX 708 879-6749

selco
Selco Products Co.
7580 Stage Road • Buena Park, CA 90621
Tel. (213) 921-0681 • (714) 521-8673 • 1-800-25-SELCO • FAX 714-739-1507

COLLET KNOBS

Function, styling, handling and simplicity of assembly were the designers' main criteria in the development of the Selco range of collet knobs. The various accessories (caps, pointers, figure dials and nut covers) push-fit into the basic knob to give added versatility. Caps are available in over 20 different colors.

MATERIALS

All knobs, caps, pointers and nut covers are made from Nylon and have a matte finish. The transparent figure dials are made from polycarbonate and the colored dials are of Nylon.

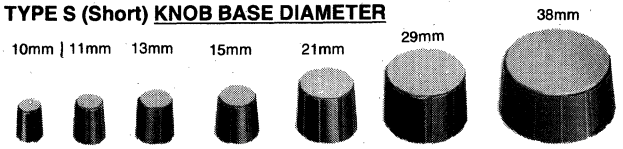
Collets, sleeves and nuts, installed into the knobs during manufacture, are of brass. They will accommodate a wide range of shaft lengths and bush lengths. All molded parts are stable in the temperature range −20°C to +70°C.

TURNING TORQUE

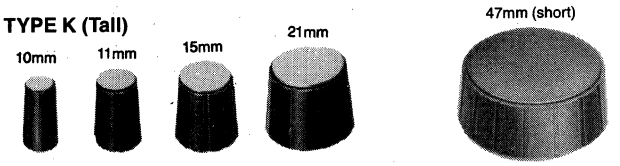
The torque that can be transmitted by knobs without slipping, assuming the knob has been adequately tightened on the shaft, is as follows:

Knob Type	Torque			
	Shafts 2mm, 3mm, 4mm, 1/8" and 3/16"		Shafts 6mm and 1/4"	
	In/Pds.	Ft./Pds.	In/Pds.	Ft./Pds.
S10, S11, SP11, K11	2.17	.18	–	–
S15, SP15, SB15, SW15	3.47	.288	6.94	.576
K15, W15, S21, SP21, SB21 SW21, K21, W21, S29, SP29, SB29, SW29, K29, W29, S38, SC38 S47	5.21	.432	10.42	.864

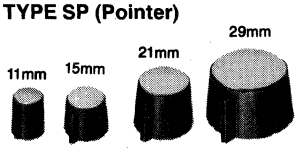
TYPE S (Short) KNOB BASE DIAMETER



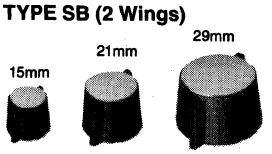
TYPE K (Tall)



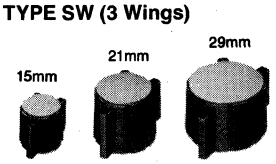
TYPE SP (Pointer)



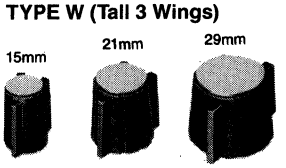
TYPE SB (2 Wings)



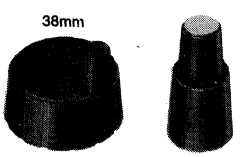
TYPE SW (3 Wings)



TYPE W (Tall 3 Wings)



TYPE SC — CRANKED KNOB

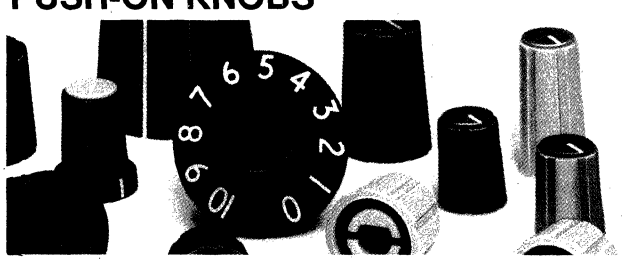


DUAL CONCENTRIC ASSEMBLIES

This table shows the knob combinations suitable for dual-concentric assemblies. Please contact sales office for details of special through-hole collets, if required.

TOP	10mm	11mm	15mm	21mm
BASE	13mm	15mm	21mm	29mm

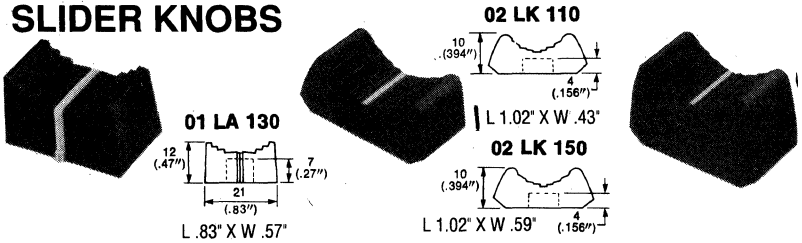
PUSH-ON KNOBS



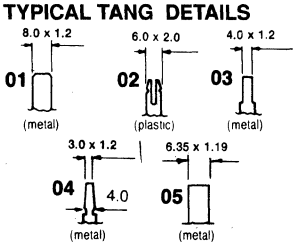
Selco push-on knobs provide a fast, secure method of shaft attachment. The internal molding is designed to grip the shaft securely with the option of a built-in metal compression ring. The knobs, molded from Nylon, are available in black and gray and have a matte finish. Colored caps are available in plain, with-line and with spot versions in over 20 different colors.

Selco also offers a full range of push-buttons for 3.33mm and 2.8mm switch shafts. (For use on ITT, Alps and other switches).

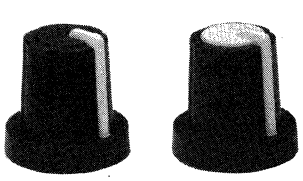
SLIDER KNOBS



TYPICAL TANG DETAILS

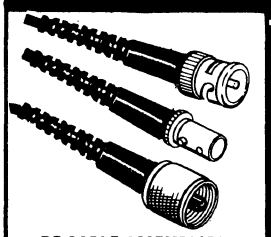


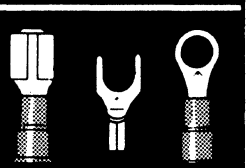
TWO PIECE/DOUBLE INJECTED/SOFT TOUCH PUSH-ON KNOBS

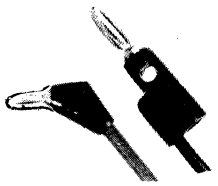


Most are available in 11mm and 13mm diameters. **Contact SELCO for more details.**

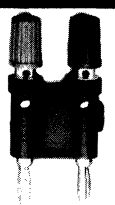
THE WORLD'S GREATEST COLLECTION


RF CABLE ASSEMBLIES


SOLDERLESS LUGS & TERMINALS


JUMPERS & PATCH CORDS

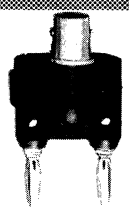
RF CONNECTORS

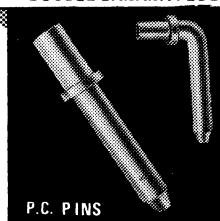

BINDING POST TO DOUBLE BANANA PLUG

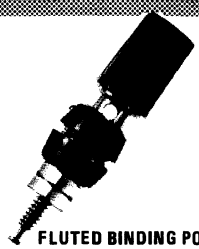
KNOBS

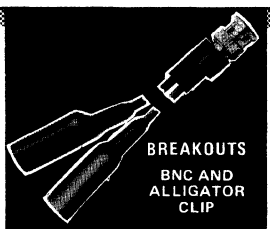
TEST POINT JACKS

PANEL JACKS

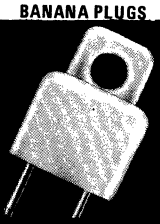

BNC FEMALE TO BANANA PLUGS

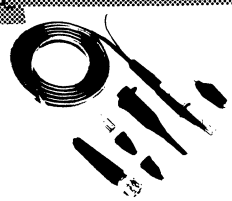

P.C. PINS

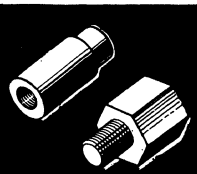

FLUTED BINDING POSTS

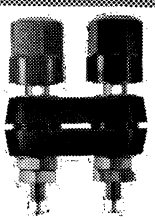

BREAKOUTS BNC AND ALLIGATOR CLIP

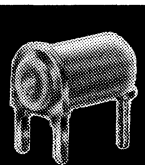
TEST ACCESSORIES

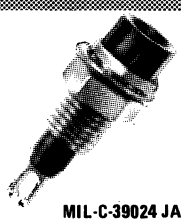

SHORTING PLUGS

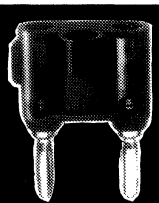

OSCILLOSCOPE PROBES

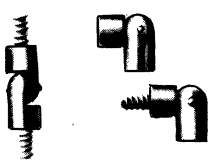

SPACERS & STANDOFFS


DUAL BINDING POSTS


90° NYLON P.C. JACK


MIL-C-39024 JACKS

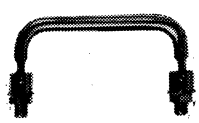

DUAL TEST ADAPTERS


HINGED STANDOFFS

TEFLON* PANEL JACKS

SAFETY HOOK TEST CLIPS

SAFETY TEST PROBE TO SHROUDED BANANA PLUG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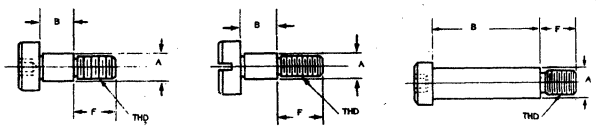
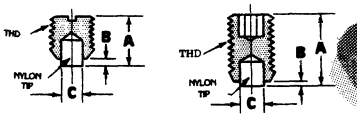
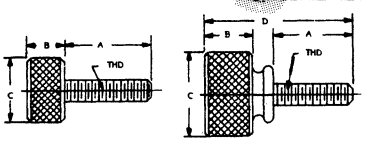
   - PRECISION SOCKET HEAD
   - PRECISION SLOTTED HEAD
   - STANDARD HEX SOCKET HEAD



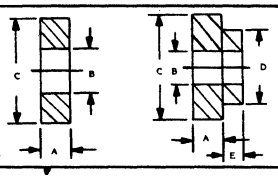
2. NYLON TIPPED SET SCREWS
   - SLOTTED
   - SOCKET



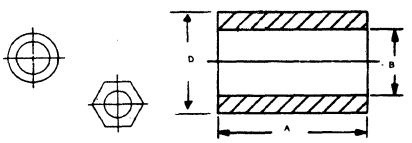
3. KNURLED THUMB SCREWS
   - PLAIN
   - WASHER FACE



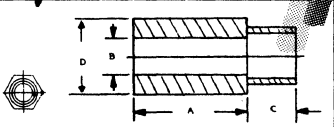
4. INSULATING NON-METALIC WASHERS
   - FLAT
   - SHOULDER



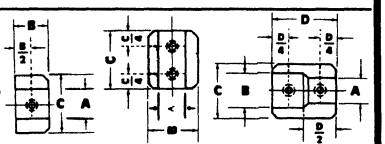
5. SPACERS
   - ROUND
   - HEX



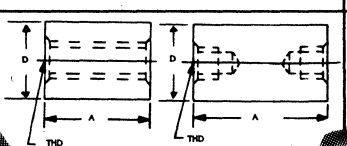
6. SWAGE SPACERS
   - ROUND
   - HEX



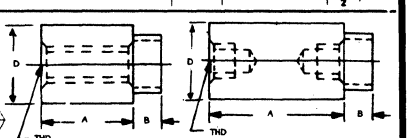
7. COLLARS & COUPLING SLEEVES
   - SINGLE SHAFT SLEEVES
   - REDUCED SHAFT SLEEVES



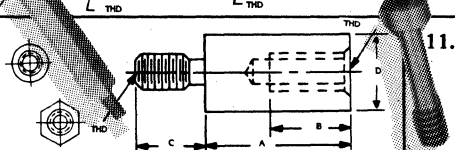
8. STANDOFFS-FEMALE
   - ROUND
   - HEX
   - SQUARE



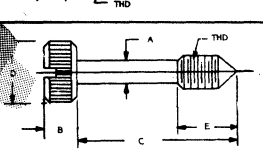
9. STANDOFFS -SWAGE
   - ROUND
   - HEX



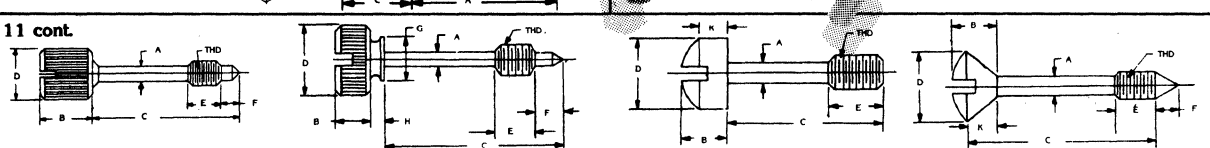
10. STANDOFFS-MALE/FEMALE
    - ROUND
    - HEX



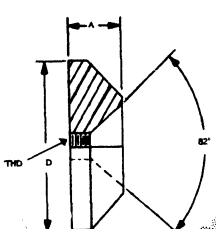
11. CAPTIVE PANEL SCREWS
    - 5 DIFFERENT TYPES OF SCREWS



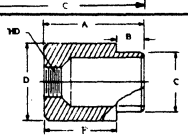
11 cont.



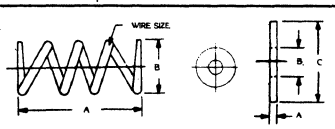
12. PANEL SCREW WASHERS



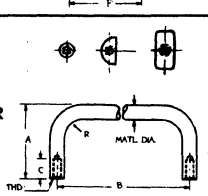
13. PANEL SCREW RETAINERS



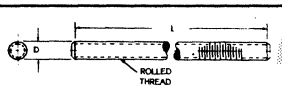
14. PANEL SCREW SPRINGS & WASHERS



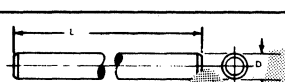
15. HANDLES
    - ROUND
    - HALF ROUND
    - RECTANGULAR



16. THREADED RODS



17. PRECISION GROUND SHAFTINGS



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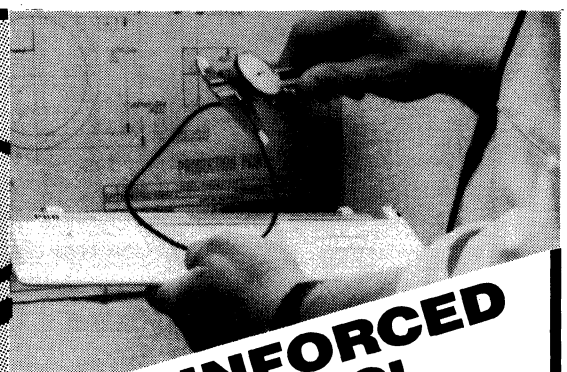

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  70±5 durometer ETHYLENE PROPYLENE ASTM call out: D-2000 3DA715 A26 B36 F19, Z_1 Z_2 Z_3 (PRB compound #EP-500)

  Z_2 = Specifications need to be defined; not included in this data.
  Z_3 = Specifications need to be defined; not included in this data.

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Standoffs and Spacers

Threaded and Unthreaded

Shapes: Round, Square, Hex
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Standoffs—

Male to Female

Shapes: Round, Square, Hex
Diameters: 1/8″ through 1/2″
Materials: Brass, Aluminum, Stainless Steel, Carbon Steel, Nylon

Captive Panel Hardware

Screws and Retainers

Head Configurations: Knurled and Slotted, Knurled and Unslotted, Slotted Hex, Unslotted Hex
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Retainers: Standard and Spring-Loaded

Standoffs—

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Shapes: Round, Hex
Diameters: 1/8″ through 3/8″
Materials: Brass, Aluminum, Stainless Steel, Cold Rolled Steel

Handles—

Panel and Rack

Shapes: Round,Oval, Rectangular, Half-Round
Styles: Internal Thread, External Thread, Straight, Offset, Hinged, Extruded
Materials: Brass, Aluminum, Stainless Steel, Carbon Steel

Precision Shoulder Screws

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Diameters: 1/4″ to 3/4″
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Types: Knurl, Shoulder, Plain, Push
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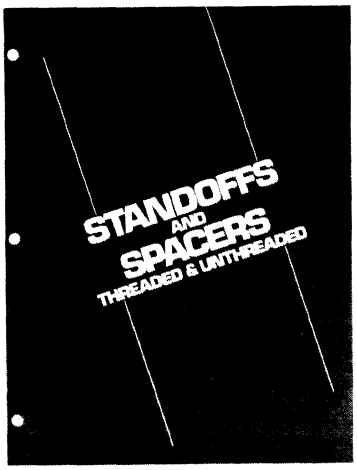
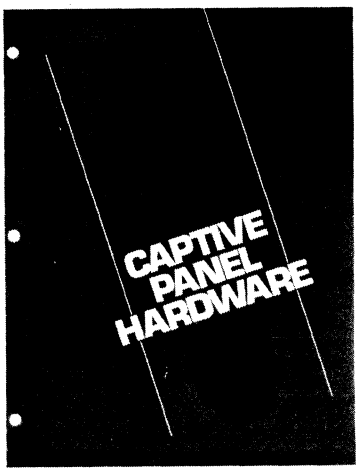
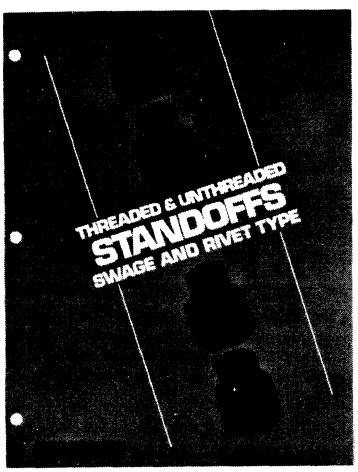


CATALOG H-1B

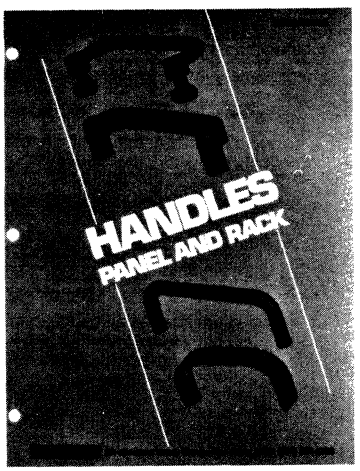
CATALOG H-2B



CATALOG H-3



CATALOG H-2



CATALOG H-6

CATALOG H-7

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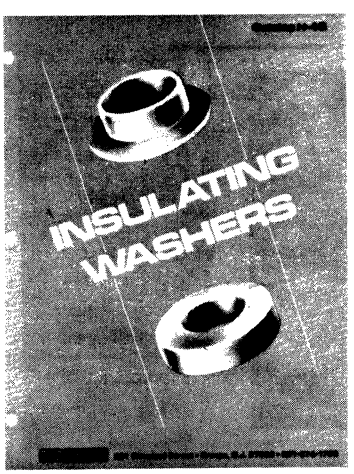
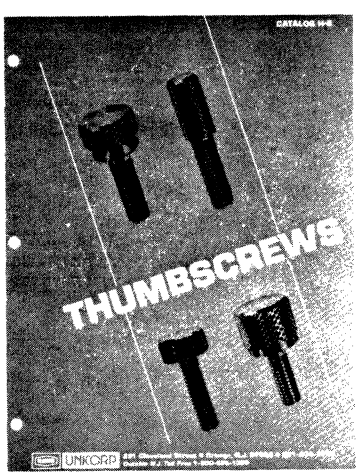


CATALOG H-4S



CATALOG H-5

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FANS & BLOWERS

Manufacturer	Starting EEM Page No.	Model/ Series	AC	DC	Type: Fan	Type: Blower	Noise dB	Capacity (CFM): 1-49	Capacity (CFM): 50-99	Capacity (CFM): 100-499	Capacity (CFM): 500 & up	Variable Speed Control
Advanced Tech	C•1605	JR1402	√	√	√		56		√	√	√	
		AD04		√	√		25	√				
		AD06		√	√		21	√				
		AD08		√	√		25	√				
		AD09		√	√		26	√				
		AD12		√	√		35		√			
		AD06UQ		√	√		22	√				
		AD125		√	√		37			√		
		JR3010	√	√	√		56		√	√	√	
Amco Engineering Co.	C•1609	BMI, BDS				√				√	√	√
		BTA3, BTA10			√						√	√
Delta Products Corp.	C•1610	DFB 60MM		14 24	√		Min.	√				
		DFB 80MM		12/24	√		Min.	√				
		DFB 92MM		12/24	√		Min.		√			
		DFB 120MM		12/24	√		Min.		√			
EBM Industries Inc.	C•1612	W2GW2S	√	√	√		24-62	√	√	√		Yes
		Tubeaxial, W2E Axial,	√	√	√		55-77				√	Yes
		C2E Single Inlet	√	√		√	51-83		√	√	√	Yes
		Centrifugal, D2E Dual Inlet,	√	√		√	45-65			√	√	Yes
		R2E Impelleres,	√	√		√	50-75		√	√	√	Yes
		QR/QVCrossflow,	√			√	53-72		√	√	√	Yes
		RM/RR Mixed-Flo	√			√	65-80				√	Yes
Etri Inc.	C•1615	98	√		√		23	√				√
		99	√		√		23	√				√
		113	√		√		23	√				√
		125	√		√		8			√		√
		126	√		√		8		√			√
		141	√		√				√	√		√
		146		√	√		31	√				√
		148	√				33-51			√		√
		159		√	√		31	√				√
		162		√	√		31	√				√
Fasco Inds., Motor Div.	C•1622	Dolar	√	√	√			√	√	√		
		Fasco	√			√		√	√	√		
		Torin	√	√	√	√		√	√	√	√	√
Indek Corp.	C•1624	EP	√		√		27 ~ 49	√	√	√		
		HDF		√	√		19 ~ 50	√	√	√		
		CDF		√			27 ~ 30	√				
		SDF		√			22 ~ 36	√				
Interfan	C•1626	PO003		√	√		30	√				√
		PO005		√	√		35	√				√
		PO012		√	√		36	√				√
		PO014		√	√		30	√				√
		PO020		√	√		33	√				√
		PO022		√	√		32	√				√
		PO025		√	√		35	√				√
		PO035		√	√		39	√				√
		PO040		√	√		38	√				√
		PO053		√	√		37		√			√
		PM082		√	√		45		√			√
		PM106		√	√		47			√		√
		POB23		√		√	51	√				√
		PM018	√		√		33	√				
		PM024	√		√		36	√				
		MM032	√		√		40	√				
		PM032	√		√		36	√				
		PM040	√		√		36	√				
		PM058	√		√		39		√			
		MM060	√		√		38		√			
		PM074	√		√		43		√			
		MM106	√		√		44			√		
		PM106	√		√		46			√		
		MM235	√		√		53			√		
		PMB24	√			√	53	√				

FANS & BLOWERS (cont.)

Manufacturer	Starting EEM Page No.	Model/ Series	AC	DC	Type: Fan	Type: Blower	Noise dB	Capacity (CFM): 1-49	Capacity (CFM): 50-99	Capacity (CFM): 100-499	Capacity (CFM): 500 & up	Variable Speed Control
McLean Engineering	C•1632	Centrifugal blower	√	√		√		√	√	√	√	
		Packaged blower	√	√		√		√	√	√	√	
		Card cooler								√	√	√
Mechatronics	C•1636	2412PS	√		√		29	√				
		3110PS	√		√		33	√				
		3115PS	√		√		25-44	√				
		3610PS	√		√		25-38	√				
		4710PS	√		√		30-38		√			
		4715PS/MS	√		√		28-46		√	√		
		5915PC	√		√		38-56			√		
		2408NL		√	√		18-26	√				
		2410NL		√	√		24-38	√				
		3108NL		√	√		24-37	√				√
		3110NL		√	√		20-36	√				√
		3610NL		√	√		24-36	√	√			√
		4710NL		√	√		25-39		√			√
		4715ML		√	√		38-43		√	√		√
		5920PL		√	√		45-54			√		√
		6820PL		√	√		42-52			√		√
Micronel U.S.	C•1646	V240		√	√		3+	√				√
		V300/350/360		√	√		41-52	√				√
		V460		√	√		28	√				
		V480		√	√		55	√				
		V570/580		√	√		27	√				
		V590/V600		√	√	√	56		√			
		L34/L39		√	√		22	√				
		F52/57/61		√	√		23-40	√				
		F70/75/80		√	√		23-41	√				
		F62LM/MM		√	√		20-26	√				
		F80LM/MM		√	√		26-35	√				
		V60GM		√		√	55	√				
		V80GM		√		√	50	√				
		V90GM		√		√	60	√				
		V340/350	√	√			14	√				
		V460	√	√			14-19	√				
		V570/580	√	√			24-30	√				
		V72	√	√			32	√				
NMB Technologies	C•1650	2408 NL		√	√		18.5-26	√				√
		2410 NL		√	√		24-38	√				√
		3110 NL		√	√		20-36	√				√
		3610 NL		√	√		24-36	√	√			√
		4710 NL		√	√		25-39		√			√
		4715 ML		√	√		35-44		√	√		√
		4715 PL		√	√		38-42		√			√
		5920 PL		√	√		45-54			√		√
		6820 PL		√	√		42-52			√		√
		2412 PL	√		√		29	√				
		3110 PS	√		√		33	√				
		3115 FS	√		√		31-44	√				
		3115 PS	√		√		25-38	√				
		3610 PS	√		√		25-38	√				
		4710 PS	√		√		30-38		√			
		4715 FS	√		√		40-56		√	√		
		4715 MS	√		√		28-41		√	√		
		4715 PS	√		√		28-46		√	√		
		5915 PC	√		√		38-56			√		
		SmartFan		√	√		22-45	√	√	√		√
Papst Mechatronic	C•1654	Axial-12V		√	√		26-37	√				√
		Axial-12V		√	√		26-37	√				√
		Axial-12V		√	√		33-45		√	√		√
		Axial-24V		√	√		26-51	√	√	√		√
		Axial-48V		√	√		38-51	√	√	√		
		Radial 12V		√		√	51	√				
		Radial 24V		√		√	51	√				
		Axial 115/60H	√		√		29-56	√	√	√		
		Radial 115/60H	√		√		54	√				
		Axial 12-24V	√		√		23-35	√				
		Axial 115/230	√		√		32-47	√	√	√		
		Radial 115V/ 50-60	√			√	54	√				
		Axial 230V/60H	√		√		29-56	√	√	√		
		Radial 230V/60H	√			√	26-56	√	√	√		
Product Technology Inc.	C•1661	A06	√				29	11				
		A08	√				17	30				
		A09	√				39	39				
		A12	√				39		115			
		A17	√				56		220			
		D02		√	√		35	1				
		D03		√	√		25	.071				
		D04		√	√		29	8				
		D06		√	√		28	21				
		D08		√	√		29	40				
		D09		√	√		29		51			
		D12		√	√		38			112		
		D17		√	√		50			220		

FANS & BLOWERS (cont.)

Manufacturer	Starting EEM Page No.	Model/ Series	AC	DC	Type: Fan	Type: Blower	Noise dB	Capacity (CFM): 1-49	Capacity (CFM): 50-99	Capacity (CFM): 100-499	Capacity (CFM): 500 & up	Variable Speed Control
Rodale Technical Sales	C•1662	A12M15HTS	√		√		43		85	2550		
		A09T15HTS	√		√		36	29				2250
		A08M15HWS	√		√		31	23				2300
		D12M12HWS		√	√		49			106		3000
		D24M12HWS		√	√		49			106		3000
		D09T12HWS		√	√		33		50			3400
		D09T24HWS		√	√		33		50			3400
		D08T12HWS		√			35	34				3100
		D08T24HWS		√			35	34				3100
		D06T12HWS		√			34	17				4600
		D06T24HWS		√			34	17				4600
		D04T12HWS		√			30	6				7000
		D04T24HWS		√			30	6				7000
U.S. Toyo Fan Corp.	C•1668	TF120	√		√		35			109		No
		TFDD120		√	√		39			106		Yes
		UST120	√		√		38			105		No
		TF92	√		√		36	34				No
		TFDD92		√	√		28	49				Yes
		UST92	√		√		35	36				No
		TF80	√		√		32	32				No
		TFDD80		√	√		30	33				Yes
		USTD80		√	√		27	35				Yes

AIR CONDITIONERS, COOLERS, HEAT PUMPS, HEAT SINKS

Manufacturer	Starting EEM Page No.	Type of System	Model/Series	Capacity Cooling (BTU/ hr.)	Features/Applications
Aavid Engineering	C•1604	PCB heat sinks Extruded heat sinks Liquid cold plates Liquid chill blocks Bonded fin assemblies Heat sink accessories	JEDEC Packages JEDEC and modules Modules Press packs Modules, press packs, jacks, JEDEC, etc. Various	Low & medium power Medium & high power Medium & high power Medium & high power Medium & high power	Standard & custom design Standard & custom design Standard & custom design Standard & custom design Standard & custom design Kon-Dux, Rubber-Duc, Tin Tabs, Kool Klips, In-Sil-8 Pads
EBM Industries Inc.	C•1612	Air conditioner, closed loop Heat exchnger, open loop	KG RK	275-1700 Watts	No filter, no primping Air to air or water cooled models
EG & G Wakefield Engrg.	C•1614	Heat sinks Heat sinks Liquid cold plates Accessories	Standard & custom Deltem™ Heat exchangers 180 Series & custom Various	 720 Series & custom	Power transistors, microprocessors, gate arrays, SCR PQFPs, PLCCs Liquid-to-air for system cooling Cooling power transistors Thermal compounds, pads, adhesives
Marlow Industries Inc.	C•1630	Thermoelectric coolers Heat pumps			Solid state cooling and heating (No moving parts)
McLean Midwest	C•1634	Air conditioners Heat exchangers Air conditioners (new)	13, 13HC, 17 24, 24WC 28, 28N 33NSM,33NRM, 33WC 36, 36N 47, 47N 52, 52HC 11TSM, 11RM 16 30TSM 11, 11WC 12, 14, 16 XR20-4, XR20-6, XR29-3 HE11, HE15, HE24, HE28 HE-30NSM, HE33NRM HE-36, HE-36HC HX-20SF, HX-20DF HX-26SF, HX-26DF HX-38SF, HX-38DF HX-60DF ProAir CR29 Series ProAir RCR11 Series	1200-2000 1400-4000 2000-3000-4000 2000-4000 4000-5000-6000-8000 4000-10,000 5000-19,000 2000-3000-4000 5000-6000-7000-8000-9000 4000-5000-6000 2000-3000-4000 2000-10,0004000 2000-4000 2000-4000	Side-mount to condensate evaporation Water-cooled, side-mount Side-mount, Narrow side-mount Narrow, water-cooled side-mount Side-mount, Narrow side-mount Side-mount, Narrow side-mount Side-mount Top mount, Track mount Internal mount Top mount Top or bottom mount, Water cooled Internal, Internal/rack, top/bottom mount Top, side, door & recessed mount Top, side, door & recessed mount Single fan, Double fan Single fan, Double fan Single fan, Double fan Double fan Single blower/side mount Rack mount design1
Melcor	C•1641	Thermoelectric heat pumps Solid State coolers	CP FC	see pages	Temp Range: —150°C - +80°C Quick cooling, Min. noise, Reduced speed
TECA	C•1664	Air conditioner Cold plate Liquid chiller	AHP-1801X AHP-1700 LHP-1700 AHP-1200X AHP-301 AHP-1000CP ALC-750	1500 1100 1500 600 240 560 750	Air cooled Nema 4X Air cooled Liquid cooled Air cooled NEMA 4X Air cooled (115/230 VAC) Solid state Air cooled solid state
Thermalloy	C•1667	Heat sinks & accessories	Various		Custom design

World's largest selection of extruded and stamped heat sinks and other THERMAL MANAGEMENT SOLUTIONS

Design and technical capabilities

Aavid is prepared to apply any thermal management discipline to meet your design requirements. No one else has our depth of experience. We regularly provide innovative, cost-effective solutions to complex thermal management problems. Our extensive thermal and mechanical CAD capabilities are available to help satisfy your specific needs. Ask our product engineers for application support.

Hundreds of standard heat sinks for PCBs

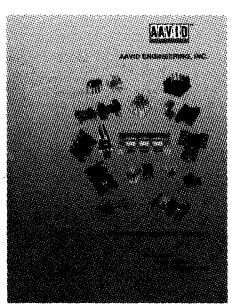
- For TO-3, TO-8, TO-18, TO-66, TO-92, TO-126, TO-127, TO-202, TO-218, TO-220, TO-247, TO-251 devices, etc.
- For pin grid array (PGA) packages: Intel 80486, Motorola 68040, etc.
- For leadless chip carrier sockets.
- For DIPs (plastic and ceramic), SIPs, and multiwatts.

Labor Saving Options

- **Spring clips** for mounting plastic power devices to heat sinks without bolts.
- **Interface pads,** grease free.
- **Tabs and standoffs.** Hot tin solder dipped for mounting heat sinks to PCBs.

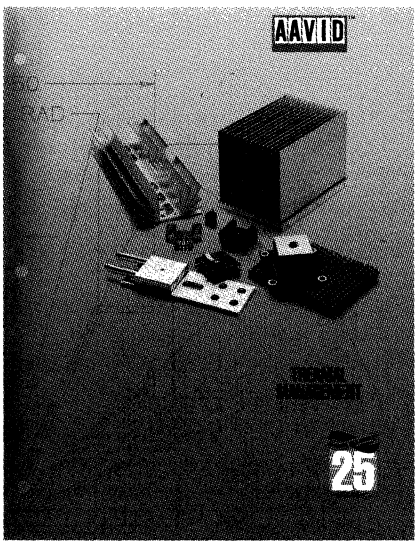
Accessories

Capacitor clamps, wave-solderable sockets, insulators and washers, thermally-conductive adhesives and compounds, including silicone-free thermal compounds.



BOARD-LEVEL SELECTOR GUIDE

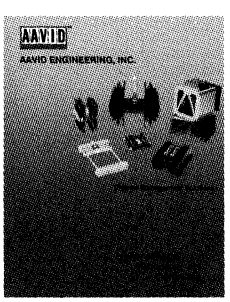
Covers board-level heat sinks and other cooling devices. Focuses on quick attachment products that are designed to reduce assembly costs.



112-PAGE FULL LINE CATALOG

Over 2500 standard extrusion profiles

Aavid offers the most complete selection of extruded heat sinks in the world. Some of the most unusual and complex extruded heat sinks are available. They are designed to cool all kinds of semiconductors—from power transistors to high-current SCRs, rectifiers, solid state relays and power modules.



HIGH-POWER FABRICATED EXTRUSIONS

Covers standard fabricated extrusions for cooling power semiconductors. Standard and customized extrusions for all medium- and high-power devices.

AAVID™

AAVID ENGINEERING, INC.

Standard fabricated extrusions

Many standard fabricated extrusions are available for cooling press packs (hockey pucks), stud-mount devices, power modules, DC-DC converters, TO-3s and other high-power JEDEC packages.

Forced convection coolers

Optimum thermal performance and low air flow resistance. Maximum heat transfer per ounce at minimum cost.

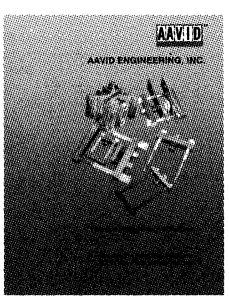
High power cooling products

- **Bonded-fin** heat sinks. 2-4 times more cooling per unit volume, lighter weight, and more design flexibility than extrusions.
- **Folded-fin** heat sinks. Lightest weight product for heavy-duty cooling.
- **Epoxy isolation** systems. Isolated heat spreaders and multi-piece isolation assemblies. High thermal conductivity.
- **Liquid-cooled** cold plates and bus bars. 10-30 times more cooling than air.
- **Clamps** for press pack semiconductors.
- **Heat pipe** assemblies.

Total manufacturing, fabricating, bonding, finishing

Aavid's capabilities go far beyond the usual stamping, extruding, casting and machining technologies, such as:

- Metallurgical, adhesive and mechanical bonding.
- Surface coating of all kinds.
- EDM machining, lapping, vibratory tumbling.
- Dozens of secondary operations.



CLAMPS FOR PRESS PACKS

Covers precision clamping systems for press pack semiconductors. Compressive force ratings up to 10,000 pounds; for semiconductors up to 4.72" diameter.

One Kool Path, Laconia, NH 03247-0400
TEL: 603-528-3400 • FAX: 603-528-1478

3030 Kilson Dr., Santa Ana, CA 92707-4203
TEL: 714-556-2665 • FAX: 714-556-5140

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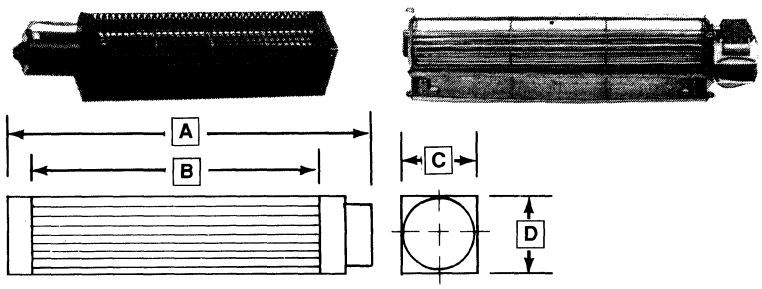
CROSS FLOW FAN

APPLICATIONS

- Air Movers
- Rack Cooling
- Main Frames
- Copy Machines
- Electronic Cabinets

All Advanced Technology Cross Flow Fans are custom assembled from standard subassemblies. Rotor speeds, CFM, noise levels and motor voltages can be varied to meet our customer special requirements.



E AIR FLOW (CFM)

F SOUND PRESSURE LEVEL- dB (A)

SERIES		30 110/220 V.(AR) SHADED POLE MTR.				40 110/220 V.(AR) SHD. POLE MTR.			40 12 VDC, 24 VDC, MTR.				
A	OVERALL LENGTH	6.62	8.59	10.56	14.5	7.53	10.68	14.62	8.47	11.62	15.56		
B	AIR FLOW LENGTH	3.94	5.91	7.88	11.82	4.73	7.88	11.82	4.73	7.88	11.82		
C	WIDTH	2.52	2.52	2.52	2.52	2.36	2.36	2.36	2.36	2.36	2.36		
D	HEIGHT	1.97	1.97	1.97	1.97	2.36	2.36	2.36	2.36	2.36	2.36		
E	AIR FLOW (CFM)	14	24.5	31.5	56	31.5	49	73.5	38.5	56	80.5		
F	SOUND PRESSURE LEVEL dB (A)	31	31	32	35	39	40	43	43	43	43		
SERIES		50 110/220 V.(AR) SHADED POLE MTR.						50 110/220 V.(AR) CAP. MTR.					
A	OVERALL LENGTH	7.40	8.59	8.98	12.14	14.50	16.86	8.20	9.38	10.56	12.92	15.29	17.65
B	AIR FLOW LENGTH	4.73	5.91	7.09	9.46	11.82	14.18	4.73	5.91	7.09	9.46	11.82	14.18
C	WIDTH	3.35	3.35	3.35	3.35	3.35	3.35	2.84	2.84	2.84	2.84	2.84	2.84
D	HEIGHT	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76
E	AIR FLOW (CFM)	38.5	49	56	77	94.5	101.5	70	84	98	105	161	178.5
F	SOUND PRESSURE LEVEL dB (A)	43	40	38	39	41	42	52	53	54	54	53	53
SERIES		60 110/220 V.(AR) SHADED POLE MTR.						60 110/220 V.(AR) CAP. MTR.					
A	OVERALL LENGTH	7.64	8.83	10.80	12.37	14.74	17.10	8.59	9.77	10.95	13.32	15.68	18.05
B	AIR FLOW LENGTH	4.81	5.99	7.17	9.53	11.90	14.26	4.73	5.91	7.09	9.46	11.82	14.18
C	WIDTH	3.74	3.74	3.74	3.74	3.74	3.74	3.15	3.15	3.15	3.15	3.15	3.15
D	HEIGHT	3.23	3.23	3.23	3.23	3.23	3.23	3.15	3.15	3.15	3.15	3.15	3.15
E	AIR FLOW (CFM)	42	52.5	66.5	84	129.5	136.5	70	87.5	87.5	112	105	126
F	SOUND PRESSURE LEVEL dB (A)	39	40	42	38	47	43	54	56	56	56	53	53

Rotor Material (AR) Aluminum (PR) Plastic

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	SERIES	90 110 V. (PR) CAP MTR.											
A	OVERALL LENGTH	8.43	11.98	15.52	19.07	22.62	26.56	28.96					
B	AIR FLOW LENGTH	3.43	6.97	10.52	14.07	17.61	21.55	23.52					
C	WIDTH	5.00	5.00	5.00	5.00	5.00	5.00	5.00					
D	HEIGHT	5.07	5.07	5.07	5.07	5.07	5.07	5.07					
E	AIR FLOW (CFM)	70	112	185.5	252	287	374.5	406					
F	SOUND PRESSURE LEVEL dB (A)	43	44	46	47	46	49	50					
	SERIES	90 110 V. (AR) CAP. MTR.											
A	OVERALL LENGTH	8.83	10.80	11.98	14.34	16.71	19.07	21.43	24.59	28.53			
B	AIR FLOW LENGTH	4.61	5.80	6.97	9.34	11.70	14.07	16.42	19.58	23.52			
C	WIDTH	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00			
D	HEIGHT	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07			
E	AIR FLOW (CFM)	91	101.5	112	178.5	217	252	283.5	357	423.5			
F	SOUND PRESSURE LEVEL dB (A)	43	44	44	46	46	47	47	49	49			
	SERIES	90 110 V. (PR) CAP. MTR.			90 110/220 V. (AR) CAP. MTR.					90 110/220 V. (AR) CAP. MTR.			
A	OVERALL LENGTH	16.90	21.28	23.88	10.87	13.24	15.60	17.97	20.33	22.69	25.84	29.79	
B	AIR FLOW LENGTH	4.11	18.44	20.80	9.46	11.82	14.18	16.55	18.91	21.28	24.43	28.37	
C	WIDTH	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	
D	HEIGHT	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	
E	AIR FLOW (CFM)	227.5	385	420	80.2	126	168	196	245	392	465.5	563.5	
F	SOUND PRESSURE LEVEL dB (A)	52	53	54	61	61	62	62	63	54	54	55	
	SERIES	110 110/220 V. (AR) CAP. MTR.									140 110/220 V. CAP. MTR.		
A	OVERALL LENGTH	8.16	9.34	10.91	13.28	16.04	18.40	20.76	24.03	27.97	16.98	25.81	30.93
B	AIR FLOW LENGTH	4.61	5.79	6.97	9.34	11.70	14.07	16.43	19.58	23.52	10.52	18.40	23.52
C	WIDTH	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	8.27	8.27	8.27
D	HEIGHT	6.19	6.19	6.19	6.19	6.19	6.19	6.19	6.19	6.19	7.71	7.71	7.71
E	AIR FLOW (CFM)	84	112	140	182	217	301	385	455	630	385	700	910
F	SOUND PRESSURE LEVEL dB (A)										58	60	62

Rotor Material (AR) Aluminum (PR) Plastic

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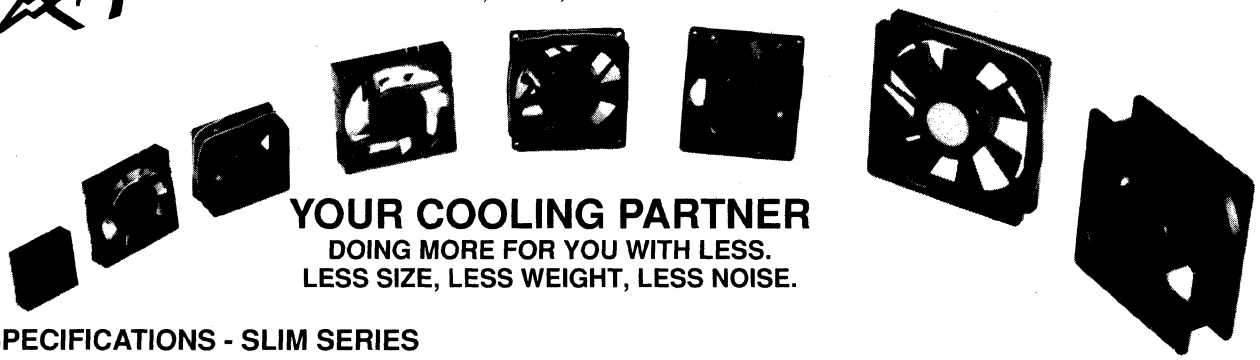

YOUR COOLING PARTNER

DOING MORE FOR YOU WITH LESS.
LESS SIZE, LESS WEIGHT, LESS NOISE.

SPECIFICATIONS - SLIM SERIES

SIZE Inch	SIZE Milli-meters	MODEL SLIM	VOLTAGE (V)	CURRENT (Amp)	POWER (W)	SPEED (rpm)	AIR FLOW (CFM)	STATIC PRESSURE (Inch-H20)	SOUND LEVEL (dB A)	WEIGHT (g)
1.58⌀ x 0.394	40⌀ x 13	AD0412MS-E80	12	0.05	0.60	6000	5.3	0.18	30.0	15.6
1.58⌀ x 0.788	40⌀ x 20	AD0412LS-C70	12	0.10	1.20	5000	3.2	0.095	25.5	
		AD0412MS-C70	12	0.13	1.56	6000	4.2	0.160	29.0	33.8
		AD0412HS-C70	12	0.15	1.8	7000	5.2	0.225	32.5	
2.36⌀ x 0.591	60⌀ x 15	AD0612LS-D70	12	0.07	0.84	3500	11.5	0.10	20.0	
		AD0612MS-D70	12	0.08	0.96	3900	13.1	0.11	23.0	20.0
		AD0612HS-D70	12	0.10	1.20	4500	16.7	0.17	27.0	
2.36⌀ x 0.788	60⌀ x 20	AD0612LS-C70	12	0.07	0.84	3500	13.6	0.10	21.0	
		AD0612MS-C70	12	0.08	0.96	3900	14.1	0.12	25.0	49.2
		AD0612HS-C70	12	0.10	1.20	4500	17.7	0.19	29.0	
2.36⌀ x 0.985	60⌀ x 25	AD0612LS-A50	12	0.09	1.08	3500	10.0	0.100	27.5	
		AD0612MS-A50	12	0.11	1.32	3900	11.5	0.14	31.0	68.0
		AD0612HS-A50	12	0.13	1.56	4500	13.6	0.185	33.0	
3.15⌀ x 0.788	80⌀ x 20	AD0812LS-C70	12	0.09	1.08	2030	26.5	0.07	23.0	
		AD0812MS-C70	12	0.12	1.44	2440	30.0	0.10	27.0	70.1
		AD0812HS-C70	12	0.17	2.04	3010	37.1	0.15	32.0	
3.15⌀ x 0.985	80⌀ x 25	AD0812LS-A50	12	0.10	1.20	2100	21.0	0.08	25.0	
		AD0812MS-A50	12	0.12	1.44	2550	25.0	0.12	30.0	108.8
		AD0812HS-A50	12	0.17	2.04	3000	30.0	0.165	36.0	
3.15⌀ x 0.985	80⌀ x 25	AD0812LS-A70	12	0.09	1.08	2030	26.5	0.07	23.0	
		AD0812MS-A70	12	0.12	1.44	2440	30.0	0.10	27.0	83.2
		AD0812HS-A70	12	0.17	2.04	3010	37.1	0.15	32.0	
3.62⌀ x 0.788	92⌀ x 20	AD0912LS-C70	12	0.13	1.56	2030	34.6	0.09	25.0	
		AD0912MS-C70	12	0.16	1.92	2430	41.7	0.14	30.0	86.1
		AD0912HS-C70	12	0.22	2.64	2740	47.7	0.17	33.0	
3.62⌀ x 0.985	92⌀ x 25	AD0912LS-A50	12	0.15	1.8	2100	31.5	0.10	31.0	
		AD0912MS-A50	12	0.18	2.16	2550	37.0	0.12	35.0	124.6
		AD0912HS-A50	12	0.26	3.12	3000	43.0	0.17	40.0	
3.62⌀ x 0.985	92⌀ x 25	AD0912LS-A70	12	0.13	1.56	2030	34.6	0.09	25.0	
		AD0912MS-A70	12	0.16	1.92	2430	41.7	0.14	30.0	99.0
		AD0912HS-A70	12	0.22	2.64	2740	47.7	0.17	33.0	
4.73⌀ x 0.985	120⌀ x 25	AD1212LS-A71	12	0.14	1.63	1650	52.9	0.11	35.0	
		AD1212MS-A71	12	0.20	2.40	1950	67.0	0.17	40.0	156.0
		AD1212HS-A71	12	0.34	4.10	2400	84.7	0.25	45.0	
4.73⌀ x 1.260	120⌀ x 32	AD1212LS-B51	12	0.25	3.0	1950	70.6	0.15	35.0	
		AD1212MS-B51	12	0.35	4.20	2540	84.7	0.21	40.0	222.8
		AD1212HS-B51	12	0.45	5.40	2800	95.35	0.29	47.0	
4.73⌀ x 1.516	120⌀ x 38.5	AD1212LS-F51	12	0.24	2.88	1950	67.0	0.12	34.0	
		AD1212MS-F51	12	0.35	4.20	2540	84.7	0.21	40.0	270.8
		AD1212HS-F51	12	0.45	5.40	2800	95.35	0.29	47.0	

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SPECIFICATIONS - SUPER SLIM SERIES

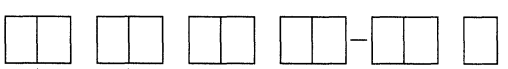
SIZE Inch	SIZE Milli-meters	MODEL SUPER SLIM	VOLTAGE (V)	CURRENT (Amp)	POWER (W)	SPEED (RPM)	AIR FLOW (CFM)	STATIC PRESSURE (inch-H20)	SOUND LEVEL (dB A)	WEIGHT (g)
1.58⌀ x 0.47	40⌀ x 12	AD0405MS-G70	5	0.14	0.7	4200	3.5	0.12	26	20
		AD0405HS-G70	5	0.18	0.9	5000	4.5	0.30	29	20
		AD0412MS-G70	12	0.06	0.7	4200	3.5	0.12	26	20
		AD0412HS-G70	12	0.09	1.1	5400	5.6	0.30	28	20
		AD0424MS-G70	24	0.04	0.96	4200	3.5	0.12	22	20
		AD0424HS-G70	24	0.055	1.32	5400	5.6	0.30	28	20
2.36⌀ x 0.56	60⌀ x 14	AD0605MS-H100	5	0.14	0.7	2550	9.1	0.12	23	45
		AD0605HS-H100	5	0.25	1.3	3100	10.5	0.16	30	45
		AD0612LS-H100	12	0.085	1.02	2400	9.1	0.12	23	45
		AD0612MS-H100	12	0.110	1.3	3400	11.2	0.18	32	45
		AD0612HS-H100	12	0.20	2.4	4300	14.0	0.32	38	45
		AD0624LS-H100	24	0.035	0.84	2400	9.1	0.12	23	45
		AD0624MS-H100	24	0.045	1.1	3400	11.2	0.18	32	45
		AD0624HS-H100	24	0.105	2.52	4300	14.0	0.32	38	45
3.15⌀ x 0.71	80⌀ x 18	AD0805LS-I90	5	0.13	0.65	2050	15.4	0.09	23	75
		AD0805MS-I90	5	0.26	1.3	2600	21.0	0.16	32	75
		AD0805HS-I90	5	0.57	2.85	3400	25.9	0.29	38	75
		AD0812LS-I90	12	0.125	1.5	2050	15.4	0.09	23	75
		AD0812MS-I90	12	0.125	1.5	2600	21.0	0.16	32	75
		AD0812HS-I90	12	0.290	3.12	3400	28.0	0.30	40	75
		AD0824LS-I90	24	0.06	1.44	2050	15.4	0.08	23	75
		AD0824MS-I90	24	0.08	1.92	2600	21.0	0.16	32	75
		AD0824HS-I90	24	0.15	3.6	3600	28.0	0.32	41	75

Our fans are becoming more intelligent. Our super smart fans can provide air volume proportional to equipment temperature thus minimizing noise and equipment temperature rise. Where fan operation is critical—sensor fans are available which provide an audio and/or visual signal should malfunction occur.

GENERAL SPECIFICATIONS

Dielectric Strength	5mA max. at 500V AC 1 min. between lead wire & outer sect.
Insulation Resistance	10M OHM between lead wire & outer section (DC 500V)
Life Expectation	50.000 hrs min. at temp. 25°C humidity 65% ± 20%
Operating Temperature	-10°C~+70°C (+14°C~+158°F)
Storage Temperature	-40°C~+75°C (-40°F~+167°F)
Weight	VARIES
Protection	Locked rotor protection. polarity protection — IC MODEL
Insulation Class	UL: Class A
Bearing	Ball bearing, SLEEVE BEARING
Lead Wire	UL 1007 AWG24
Casing Impeller	Black PBT (UL 94V-0) — 120-38MM, 125 BLOWER-ALUMINUM CASING

MODEL NUMBER CODE



FAN-TYPE: AD=DC FAN
DIMENSION: 04=40mm, 06=60mm, 08=80mm, 09=90mm, 12=120mm
VOLTAGE: 05=5 VOLTS, 12=12 VOLTS, 24=24 VOLTS, 48=48 VOLTS
SPEED: L=LOW, M=MEDIUM, H=HIGH
BEARING TYPE: S=SLEEVE, B=BALL

P.C. BOARD: 0=WITHOUT IC, 1=WITH IC, 2=SUPER SMART
IMPELLER: 5=5 BLADE, 7=7 BLADE, 8=8 BLADE
WIDTH: A=25.4mm, B=32mm, C=20mm, D=15mm, E=13mm, F=38.5mm, G=12mm, H=14mm, I=18mm

Note: Specifications are subject to change without notice.

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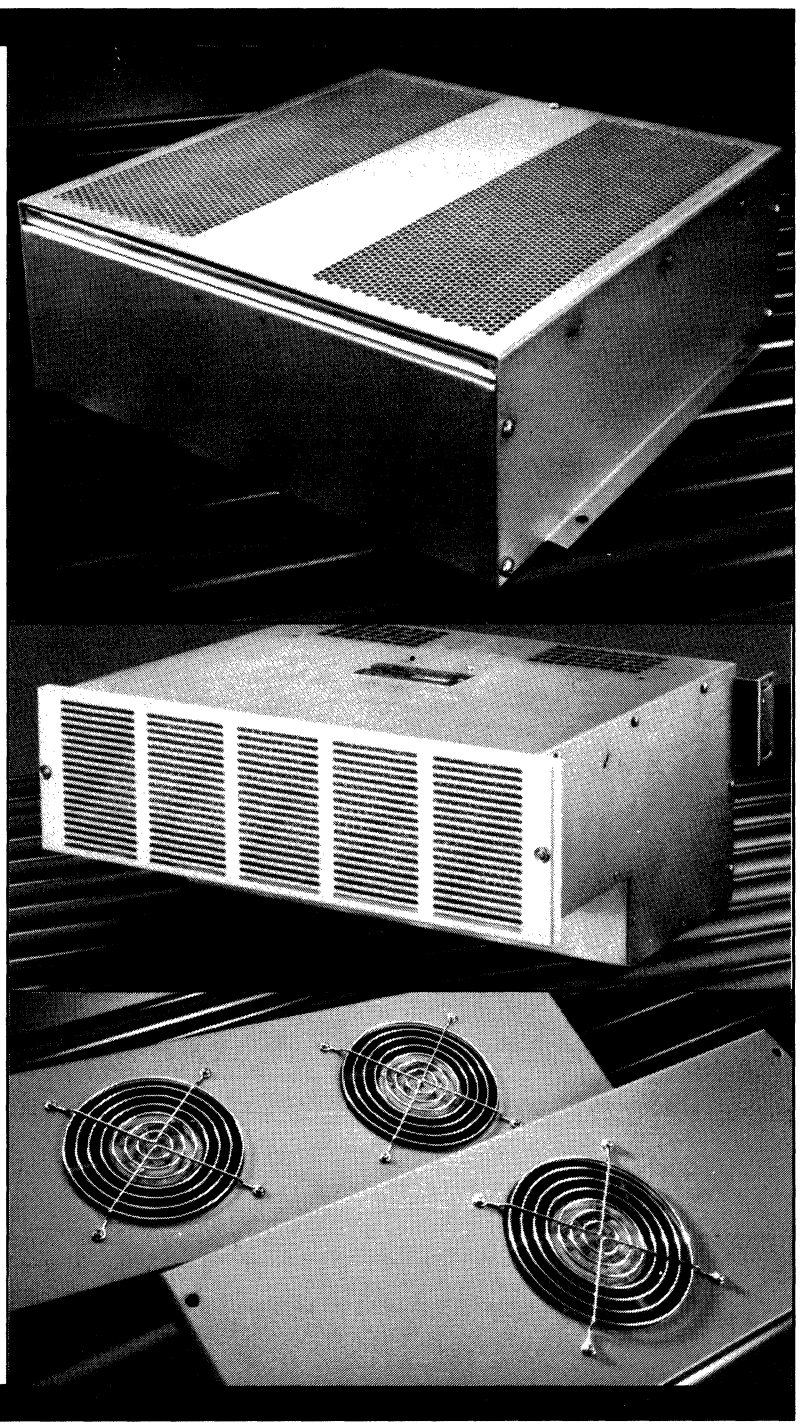

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DC FAN WITH MINIMUM NOISE

INTRODUCTION

- Every model undergoes rigorous aerodynamic analysis and anechoic chamber test to achieve minimum noise under high airflow and air pressure conditions.
- High precision maintenance-free ball bearing system provides super reliability.
- Frame and fan blade meet UL 94V-0 for flammability.
- Every model features locked rotor protection and polarity protection. All series offer auto-restarting and optional frequency generator function.
- Dynamic balancing is 100% tested to guarantee low vibration and excellent durability.
- Automatic multi-axes winding, surface-mount machine and highly automated assembly lines enable mass production and consistent quality.
- UL, CSA, VDE are approved.

TECHNICAL DATA FOR EACH SERIES

40MM SG SERIES

DELTA PART NO.	DFB0412LL	DFB0412L	DFB0412M
Rated Voltage (V)	12VDC	12VDC	12VDC
Operating Voltage Range (V)	6.0 ~ 13.8VDC	6.0 ~ 13.8VDC	6.0 ~ 13.8VDC
Rated Current (A)	0.03	0.04	0.07
Rated Input Power (W)	0.36	0.48	0.84
Max. Air Flow M^3/min. (CFM)	0.1 (3.5)	0.15 (5.3)	0.207 (7.3)
Max. Air Pressure mmH_2O (inH_2O)	1.15 (0.045)	2.4 (0.094)	4.2 (0.165)
Rotational Speed (r.p.m.)	3300	4400	5800
Acoustical Noise dB(A)	22	23	28
Weight	40g (1.41 OZ)		

All readings are typical values

60MM (THICKNESS 20MM)

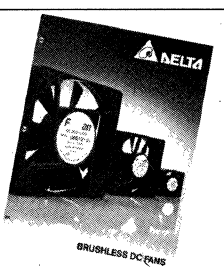
DELTA PART NO.	DFD0612L	DFD0612M	DFD0612H	DFD0624L	DFD0624M	DFD0624H
Rated Voltage (V)	12VDC			24VDC		
Operating Voltage Range (V)	6.0-13.8VDC			14.0-27.6VDC		
Rated Current (A)	0.06	0.09	0.11	0.05	0.08	0.10
Rated Input Power (W)	0.72	1.08	1.32	0.6	0.96	1.2
Max. Air Flow M^3/min. (CFM)	0.35 (12.4)	0.41 (14.5)	0.5 (17.7)	0.35 (12.4)	0.41 (14.5)	0.5 (17.7)
Max. Air Pressure mmAq (inAq)	2.25 (0.089)	3.06 (0.12)	4.0 (0.157)	2.25 (0.089)	3.06 (0.12)	4.0 (0.157)
Rotational Speed (r.p.m.)	3150	3700	4300	3150	3700	4300
Acoustical Noise dB(A)	23	26	30	23	26	30
Weight	54g (1.9 OZ)					

All readings are typical Values

60MM (THICKNESS 25.4MM)

DELTA PART NO.	DFB0612L	DFB0612M	DFB0612H	DFB0624L	DFB0624M	DFB0624H
Rated Voltage (V)	12VDC			24VDC		
Operating Voltage Range (V)	6.0-13.8VDC			14.0-27.6VDC		
Rated Current (A)	0.07	0.11	0.13	0.05	0.08	0.10
Rated Input Power (W)	0.84	1.32	1.56	1.20	0.96	1.20
Max. Air Flow M^3/min. (CFM)	0.41 (14.48)	0.46 (16.24)	0.55 (19.42)	0.41 (14.48)	0.46	0.55 (19.42)
Max. Air Pressure mmAq (inAq)	2.40 (0.094)	3.35 (0.13)	4.60 (0.181)	2.40 (0.094)	3.35	4.60 (0.181)
Rotational Speed (r.p.m.)	3000	3550	4100	3000	3550	4100
Acoustical Noise dB(A)	26	29	32	26	29	32
Weight	77g (2.72 OZ)					

All readings are typical Values



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DELTA QUALITY MAKES THE DIFFERENCE

GENERAL SPECIFICATIONS

Dielectric Strength	5mA max. at 500V AC 1min. between lead wire & outer section
Insulation Resistance	10M OHM between lead wire & outer section (DC 500V)
Life Expectation	50,000 hrs min. at temp 25°C, humidity 65%±20%
Operating Temperature	−10°C ~ +70°C (+14°F ~ +158°F)
Storage Temperature	−40°C ~ +75°C (−40°F ~ +167°F)
Protection	Locked rotor protection, polarity protection
Insulation Class	UL: Class A
Bearing	Ball bearing
Lead Wire	UL 1007 AWG24
Casing. Impeller	Black PBT (UL 94V-0)

* UL • CSA • VDE Approved

PART NUMBER DESIGNATION

DFB 08 12 M

Series No.

Size of Frame

Voltage
12:DC 12V
24:DC 24V

Speed
H: High Speed
M: Medium Speed
L: Low Speed
HN: Speed Between High & Medium
MN: Speed Between Medium & Low
LL: Below Low Speed

04: 40 mm Square
06: 60 mm Square
08: 80 mm Square
09: 92 mm Square
12: 120 mm Square

80MM SG SERIES

DELTA PART NO.	DFB0812L	DFB0812M	DFB0812H	DFB0824L	DFB0824M	DFB0824H
Rated Voltage (V)	12VDC			24VDC		
Operating Voltage Range (V)	6.0-13.8VDC			14.0-27.6VDC		
Rated Current (A)	0.05	0.08	0.16	0.04	0.06	0.1
Rated Input Power (W)	0.6	0.96	1.92	0.96	1.44	2.4
Max. Air Flow M³/min. (CFM)	0.58 (20.5)	0.85 (30)	1.06 (37.5)	0.64 (22.6)	0.85 (30)	1.06 (37.5)
Max. Air Pressure mmH_2O (inH_2O)	1.26 (0.05)	2.5 (0.098)	4.0 (0.157)	1.6 (0.063)	2.5 (0.098)	4.0 (0.157)
Rotational Speed (r.p.m.)	1800	2500	3200	2000	2500	3200
Acoustical Noise dB(A)	21.5	27	31.5	23.5	27	31.5
Weight	85g (3 OZ)					

All readings are typical Values

92MM SG SERIES

DELTA PART NO.	DFB0912L	DFB0912M	DFB0912H	DFB0924L	DFB0924M	DFB0924H
Rated Voltage (V)	12VDC			24VDC		
Operating Voltage Range (V)	6.0-13.8VDC			14.0-27.6VDC		
Rated Current (A)	0.11	0.15	0.26	0.07	0.12	0.16
Rated Input Power (W)	1.32	1.8	3.12	1.68	2.88	3.84
Max. Air Flow M³/min. (CFM)	1.04 (36.7)	1.14 (40.3)	1.41 (49.50)	1.04 (36.7)	1.14 (40.3)	1.41 (49.50)
Max. Air Pressure mmAq (inAq)	2.20 (0.087)	2.50 (0.098)	3.87 (0.152)	2.20 (0.087)	2.50 (0.098)	3.87 (0.152)
Rotational Speed (r.p.m.)	2050	2320	2980	2050	2320	2980
Acoustical Noise dB(A)	26	30	35	26	30	35
Weight	90g (3.18 OZ)					

All readings are typical Values

120MM SG SERIES

DELTA PART NO.	DFB1212L	DFB1212M	DFB1224L	DFB1224M
Rated Voltage (V)	12VDC		24VDC	
Operating Voltage Range (V)	6.0-13.8VDC		14.0-27.6VDC	
Rated Current (A)	0.25	0.37	0.15	0.33
Rated Input Power (W)	3	4.44	3.6	7.92
Max. Air Flow M³/min. (CFM)	1.8 (63.6)	2.1 (74.2)	1.8 (63.6)	2.1 (74.2)
Max. Air Pressure mmH_2O (inH_2O)	3.5 (0.138)	4.8 (0.189)	3.5 (0.138)	4.8 (0.189)
Rotational Speed (r.p.m.)	1930	2300	1930	2300
Acoustical Noise dB(A)	35.5	40.5	35.5	40.5
Weight	170g (6 OZ)			

All readings are typical Values

G. 120MM (THICKNESS 38MM) NEW SERIES

DELTA PART NO.	WFB1212LE	WFB1212ME	WFB1212HE	WFB1224LE	WFB1224ME	WFB1224HE
Rated Voltage (V)	12VDC			24VDC		
Operating Voltage Range (V)	6.0-13.8VDC			14.0-27.6VDC		
Rated Current (A)	0.23	0.32	0.49	0.18	0.24	0.29
Rated Input Power (W)	2.76	3.84	5.88	4.32	5.76	6.96
Max. Air Flow M³/min. (CFM)	2.4 (85)	2.73 (96)	3.05 (108)	2.4 (85)	2.73 (96)	3.05 (108)
Max. Air Pressure mmH_2O (inH_2O)	4.0 (0.157)	5.2 (0.205)	6.3 (0.248)	4.0 (0.157)	5.2 (0.205)	6.3 (0.248)
Rotational Speed (r.p.m.)	1950	2240	2520	1950	2240	2520
Acoustical Noise dB(A)	34.4	37.6	41.3	34.4	37.6	41.3
Weight	250 (13.6 OZ)					

All Readings are Typical Values UL, CSA, VDE in process

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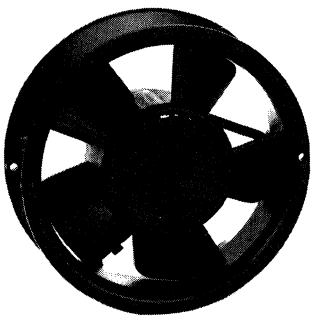

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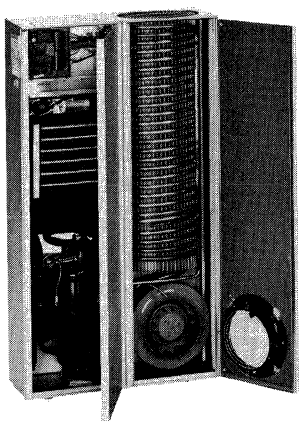

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- Brushless DC or AC
- Compact, shallow, high performance design
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- Narrow profile air movement
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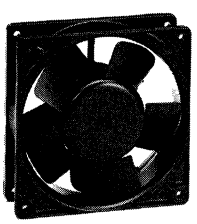

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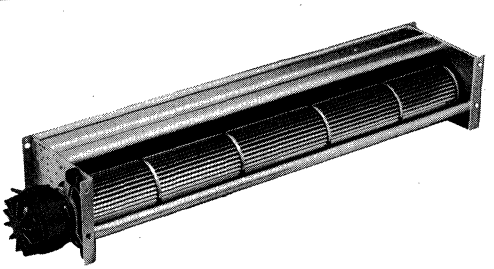

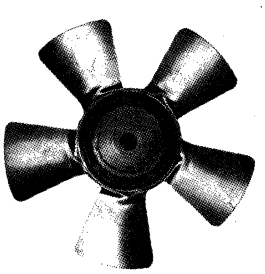

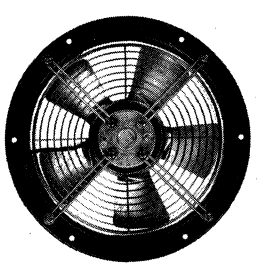

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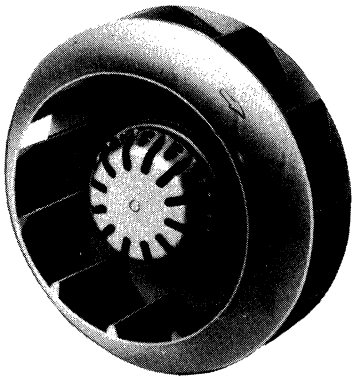
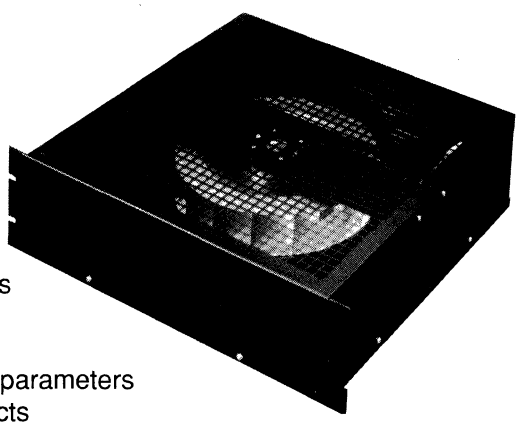
Heat Transfer

Standard Products:



MOTORIZED IMPELLERS

- Open blade design with 360° cooling
- Brushless DC or AC with speed control
- Operate efficiently without a housing
- Air performance from 75 to 10,870 CFM



CENTRIFUGAL BLOWERS

- High pressure performance
- Impeller sizes from 4" to 16"
- Dual inlet or single inlet models
- Brushless DC or AC external rotor motors

FLO-THRU MODULES

- Self-contained air moving packages
- Standard models for 19" or 24" rack enclosures
- Custom units to fit your specifications
- Higher CFM per U than competitive units
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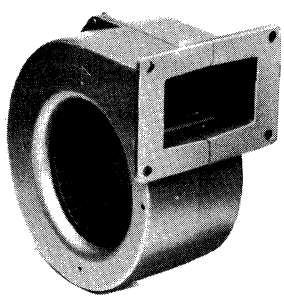

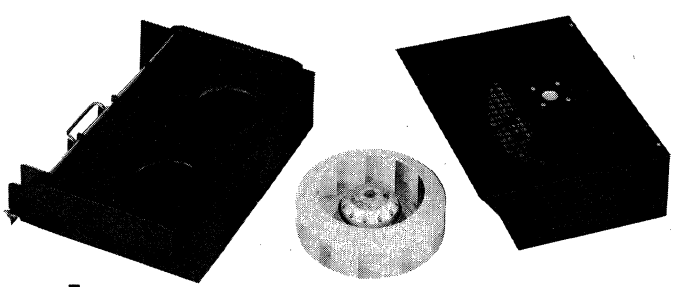

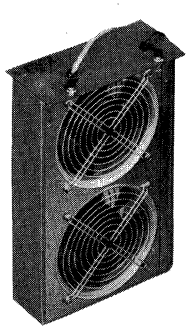

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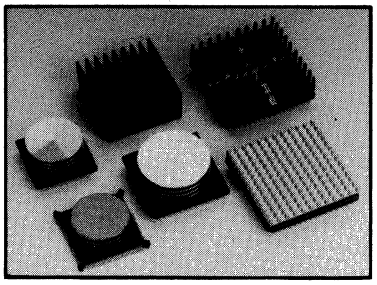
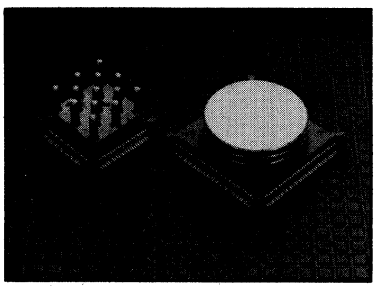


Heat Sinks for Gate Arrays and Microprocessors

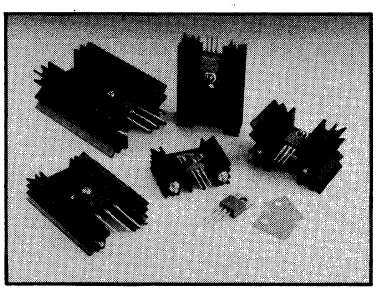
655-26AB	Pin Fin Heat Sink for Intel 80486 and other 132 to 168-Pin PGAs (0.26 in. H)
655-53AB	Pin Fin Heat Sink for Intel 80486 and other 132 to 168-Pin PGAs (0.525 in. H)
659-40AB	Unidirectional Heat Sink for Intel 80386, Motorola 68030 (0.285 in. H)
660-29AB	Unidirectional Heat Sink for Intel 80486, 860 (0.285 in. H)
662-15AG	Pin Fin Heat Sink for Low-Height PGA Applications (0.150 in.H)
851-36AG	Radial Fin Heat Sink for 68 to 84-Pin PGAs (0.360 in. H)
852-39AG	Radial Fin Heat Sink for 84 to 149-Pin PGAs (0.390 in. H)



DELTEM™ Plastic Heat Sinks for PQFPs, PLCCs

D10100-28	DELTEM™ Plastic Radial Fin Heat Sink for 68 to 84-ld PLCCs, 100 to 164-ld PQFPs (0.280 in. H)
D10650-40	DELTEM™ Plastic Pin Fin Heat Sink for 44 to 68-ld PLCCs, 100 to 132-ld PQFPs (0.400 in. H)
D10850-40	DELTEM™ Plastic Pin Fin Heat Sink for 68 to 84-ld PLCCs, 128 to 164-ld PQFPs (0.400 in. H)

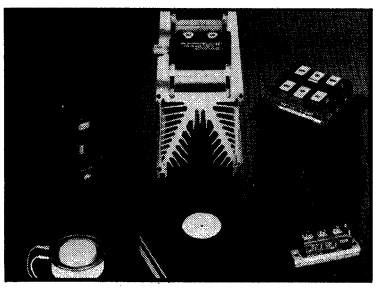
DELTEM™ Plastic Heat Sinks offer low-cost solutions for the unique heat dissipation problems of plastic IC packages, with less mass and lower weight, low cost, and reduced TCE mismatch.



Heat Sinks and Accessories for Power Transistors

637-15ABP	Wavesolderable Heat Sink for TO-220 (1.50 in. H*)
647-20ABP	Wavesolderable Heat Sink for TO-220 (2.00 in. H*)
657-15ABP	Wavesolderable Heat Sink for TO-218 (1.50 in. H*)
667-10ABPP	Wavesolderable Heat Sink for TO-220 (1.00 in. H*), to be used with 330SC SpeedClip for speedy assembly
175 Series	KAPTON™ Thermally Conductive Dielectric Interface Pads
126 Type	Non-Silicone, No-Creep Thermal Compound

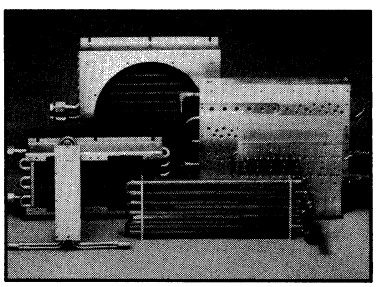
*Other heights and options available. Consult our STANDARD PRODUCTS CATALOG or call for additional products.



Heat Sinks for SCRs, Power Modules, Power Transistors

392-180AG	Standard Extruded Heat Sink for 1-3 Isolated Power Modules (80 mm mounting centers)
401A	Industry-Standard Heat Sink for Cooling TO-3 Power Transistors
132-4.5B	Compression-Pack SCR Heat Sink (may be used with Type 139 Clamp)
133-10B	Compression-Pack SCR Heat Sink (may be used with Type 139 Clamp)
510 Series	High Fin Density Heat Sinks for power components — highest fin aspect ratio available in the industry

Consult our STANDARD PRODUCTS CATALOG for our many additional standard heat sinks and extrusion profiles.



Heat Exchangers, Cold Plates for System Cooling

180 Series	Liquid Cold Plates for efficient, reliable liquid cooling of power transistor arrays, optical components, power modules — in standard configurations available from factory stock
720 Series	Liquid-to-Air Heat Exchangers for computer system cooling, power supply cooling, instruments — in standard configurations available from factory stock

Request our ACTIVE COOLING PRODUCTS CATALOG for information about standard products and for custom design and manufacturing capabilities.

Call our Application Engineering Department today at (617) 245-5900

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There's No Better Place To Turn Than ETRI.

Whether you're building computers, peripherals, medical instrumentation, or other electronic equipment, ETRI gives you the two things you need most. Reliable first-rate air moving devices. And a commitment to work with you in partnership. Our selection includes dozens of models from 40mm to 150mm designed to meet a large range of performance, acoustical and voltage requirements for AC and DC applications. For a brochure or more information, just call us at 704/289-5423 or Fax 704/283-7170. For local help contact your ETRI representative or ETRI distributor. There's no better place to turn.

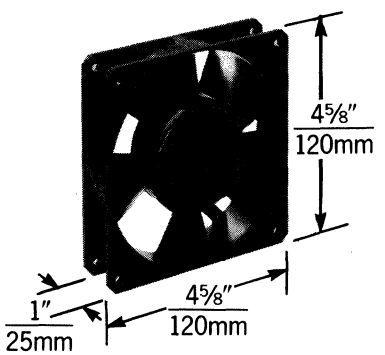
ETRI®

1503 Rocky River Road North
Monroe, N. C. 28110

ETRI® tube

ETRI has long been a leader in the design of air-moving devices, from large mine ventilators to miniature flat axial fans. Today, ETRI® air movers are cooling and protecting the most sophisticated of electronic packages. Throughout this time, our basic commitment to uncompromising quality and high performance standards has not changed. Our history of innovative designs and materials, coupled with precise manufacturing techniques provide you with an efficient, quality product for long maintenance-free operation.

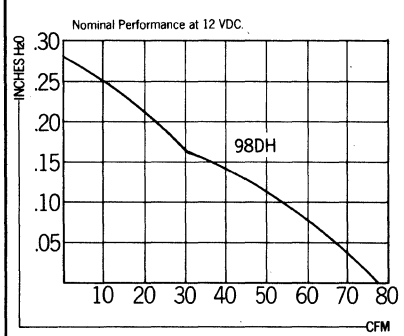
Model 98 BDC



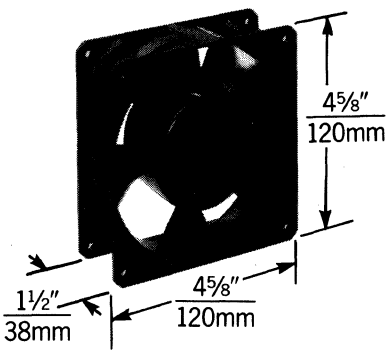
- Polarity and locked rotor protected
- Wide operational voltage/speed range 8-16 volts
- Complies with UL, CSA, VDE and FCC requirements
- Wire leads or terminals
- 12 or 24 volt, ball or sleeve bearing versions
- Operational monitor option
- 94V-O rated plastics

MODEL NUMBER	VDC	INPUT POWER (W)	LINE CURRENT (A)	RPM	NOISE dBSIL	AIR FLOW (CFM/ls)
98DH 1LM 31000	12	4.5	.38	3,000	39	81/38

All fans described above are 12 volt sleeve bearing standard models.



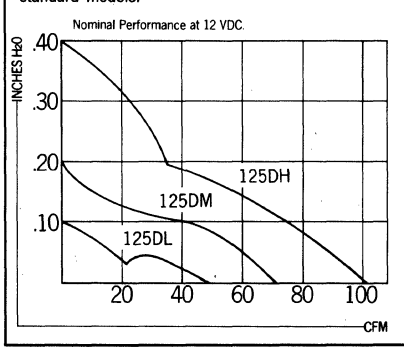
Model 125 BDC



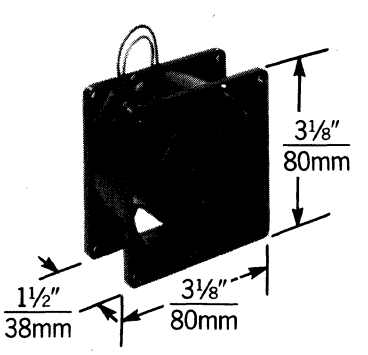
- High volume/pressure or low volume/low noise
- Three speed versions available in 12, 24 or 48 VDC
- Metal or 94V-O plastic housing
- Polarity and locked rotor protected
- Wire leads or standard terminals
- Wide operational voltage/speed range 8-16 volts
- Operational monitor option

MODEL NUMBER	VDC	INPUT POWER (W)	LINE CURRENT (A)	RPM	NOISE dBSIL	AIR FLOW (CFM/ls)
125DL 1TM 21000	12	1.5	.125	1500	21	49/23
125DM 1TM 21000	12	2.6	.22	2200	33	72/34
125DH 1TM 21000	12	6.5	.54	3100	41	105/49

All fans described above are 12 volt, sleeve bearing, standard models.



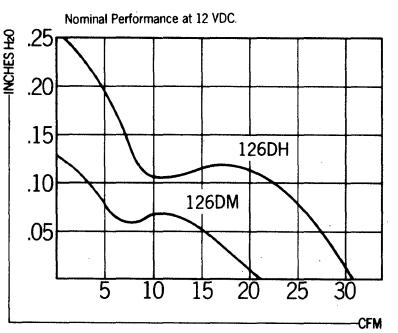
Model 126 BDC



- High performance and low noise
- Polarity and locked rotor protected
- Two speed versions available in 12 and 24 VDC
- 94V-O plastic housing, total weight 7.75 oz.
- Wire leads or terminals
- Wide operational voltage/speed range 8-16 volts
- Operational monitor option
- Complies with UL, CSA, VDE and FCC requirements

MODEL NUMBER	VDC	INPUT POWER (W)	LINE CURRENT (A)	RPM	NOISE dBSIL	AIR FLOW (CFM/ls)
126DH 1LP 31000	12	3.1	.260	3600	30	32/15
126DM 1LP 31000	12	1.5	.125	2500	23	22/10

All fans described above are 12 volt, sleeve bearing standard models.



ETRI®

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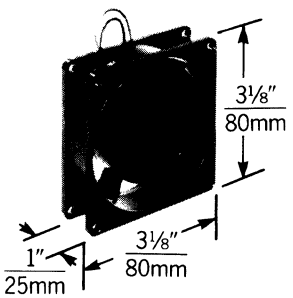
axial fans.

ETRI's new line of Brushless DC fans offers the design engineer a wide range of product. Options in various voltages, speeds, bearing systems and termination configurations allows the engineer to precisely select the performance for his particular application. All ETRI BDC units are designed and manufactured to comply with UL, CSA, VDE and FCC requirements. Whether you select our Brushless DC or AC products (following pages) your assurance of dependable air moving performance is backed up by our 40 years of air moving experience.

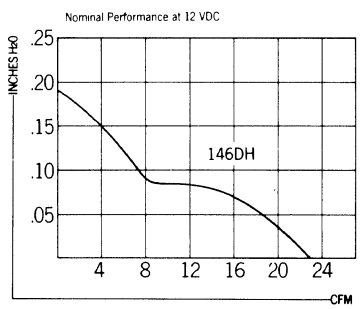
Model 146 BDC



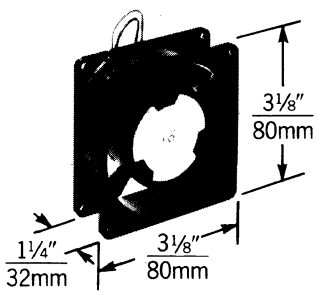
- High performance, low noise
- 94V-O plastic housing, total weight 4.5 oz.
- Sleeve or ball bearing 12 or 24 VDC
- Wire leads or terminals
- Polarity and locked rotor protected
- Complies with UL, CSA, VDE and FCC requirements
- Wide operational voltage/speed range 8-16 volts.

MODEL NUMBER	VDC	INPUT POWER (W)	LINE CURRENT (A)	RPM	NOISE (BSIL	AIR FLOW (CFM/M³/H)
146DH 1LP 31000	12	1.8	.15	3250	25	23/10.6

All fans described above are 12 volt, sleeve bearing standard models.



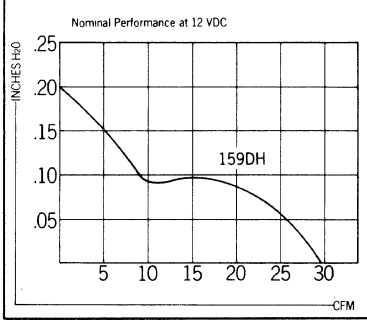
Model 159 BDC



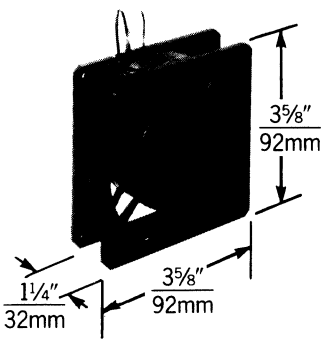
- Unprecedented low noise levels in 80 x 80 x 32mm fan
- Complies with UL, CSA, VDE and FCC requirements
- 94V-O plastic housing total weight 7 oz.
- Wire leads or terminals
- 12 and 24 VDC versions, sleeve or ball bearing
- Wide operational voltage/speed range 8-16 volts

MODEL NUMBER	VDC	INPUT POWER (W)	LINE CURRENT (A)	RPM	NOISE (BSIL	AIR FLOW (CFM/M³/H)
159DH 1LP 31000	12	2.2	.18	3600	23	29/14

All fans described above are 12 volt, sleeve bearing standard models.



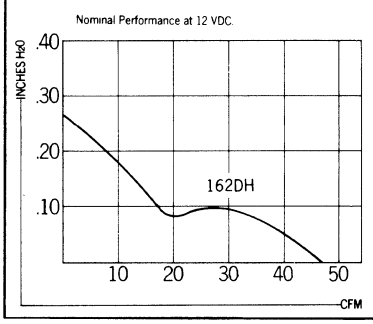
Model 162 BDC



- 92 x 92 x 32mm, 45 CFM, 31dB
- 94V-O plastic housing total weight 7.75 oz.
- Wire leads or terminals
- Polarity and locked rotor protected
- Sleeve or ball bearings
- High performance low noise
- Wide operational voltage/speed range
- Complies with UL, CSA, VDE and FCC requirements

MODEL NUMBER	VDC	INPUT POWER (W)	LINE CURRENT (A)	RPM	NOISE (BSIL	AIR FLOW (CFM/M³/H)
162DH 1LP 31000	12	3.4	.28	3200	31	45/21

All fans described above are 12 volt, sleeve bearing standard models.



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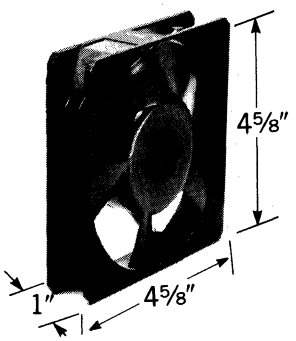
ETRI® tube

ETRI's popular-sized AC fans utilize rugged die cast housings for strength and durability. Glass-filled thermoplastic impellers (94V-O rated) are heat-stable and resistant to breakage. Rotors are lightweight and precision balanced for vibration-free operation. Bearings (either sleeve or ball) are

MODEL 98

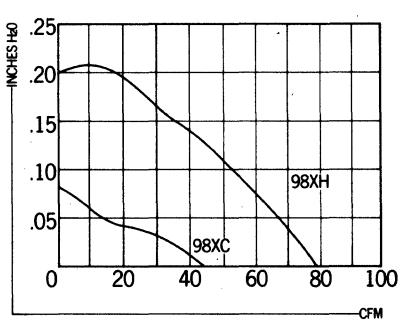


High volume/pressure performance where space is at a premium.

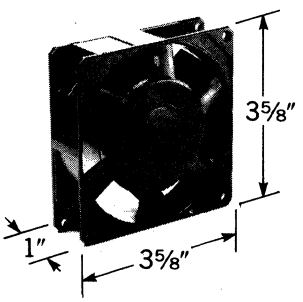
- Unique 1" thin profile on 4⅝" fan.
- Two RPM versions available.
- Available in either sleeve or ball bearing construction.
- Precision engineered blade-to-venturi fit.
- Low input power—as low as 10 watts.
- UL recognized/CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
98XC-2182	115	60	10	110	1700	21	45
98XC-2181	220	60	12	70	1700	21	45
98XH-2182	115	60	11	110	3000	37	79
98XH-2181	220	60	13	65	3000	37	79

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 99

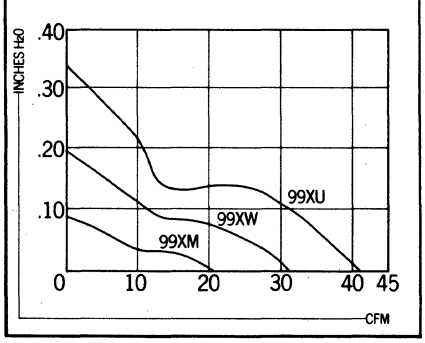


Slim 1" profile takes up less behind-the-panel space.

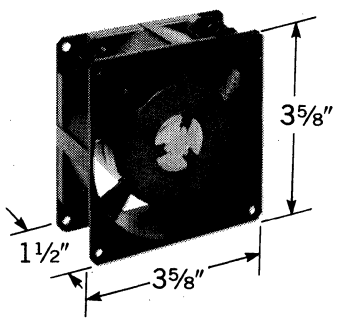
- Three different speed models in two voltage versions.
- Noise levels as low as 23 db (sil).
- True airfoil impeller blades move more air.
- Convenient standard terminals.
- Precision balanced lightweight rotor for longer vibration-free work life.
- UL recognized/CSA approved/VDE listed.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
99XM-2182	115	60	6	65	1700	19	21
99XM-2181	220	60	7	35	1700	19	21
99XW-2182	115	60	6	70	2500	26	32
99XW-2181	220	60	7	40	2500	26	32
99XU-2182	115	60	9	105	3200	33	40
99XU-2181	220	60	11	60	3200	33	40

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 113

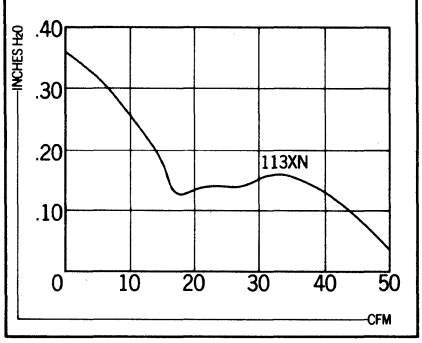


An intermediate size fan. Ideal for power supply applications.

- 3.25" mounting centers.
- Quiet, efficient operation with maximum volume/pressure delivery.
- 94V-O rated glass-filled impeller is heat-stable with high resistance to breakage.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA approved.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
113XN-2182	115	60	11	135	3300	35	53
113XN-2181	220	60	12	80	3300	35	53

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



ETRI®

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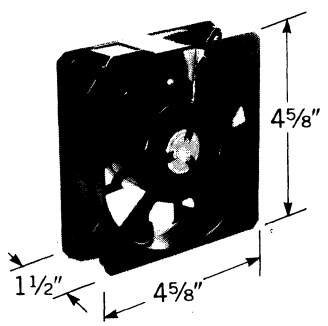
axial fans.

lifetime lubricated. All models operate efficiently at 50Hz or 60Hz and most are available in either 115VAC or 220VAC. Every model is UL Recognized (file E64887) and CSA Certified (file 43861). Many models are VDE approved. For more information call ETRI at 704/289-5423.

MODEL 125

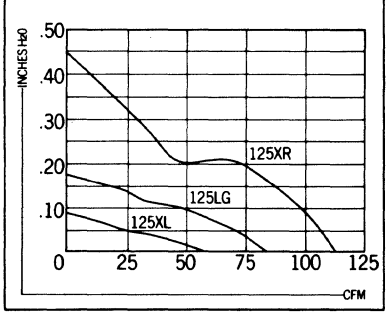


Extremely effective in high density applications where high pressure performance is required.

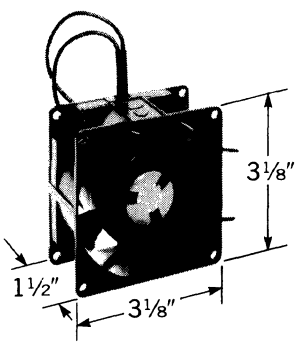
- Develops 90 CFM at .15" H O and 75 CFM at .2" H O.
- Can replace two conventional fans in demanding applications.
- Produces highest volume of air per watt of power of any fan of its type.
- Available in either sleeve or ball bearing construction.
- UL recognized CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (mA)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
125XL-2282	115	60	10	115	1650	29	57
125XL-2281	220	60	10	65	1650	29	57
125LG-2282	115	60	13	160	2400	36	83
125LG-2281	220	60	15	90	2400	36	83
125XR-2282	115	60	15	180	3250	40	112
125XR-2281	220	60	15	105	3250	40	112

Model numbers shown are for sleeve bearing versions. To order full bearing fans, omit the first "2" from the last group of digits



MODEL 126

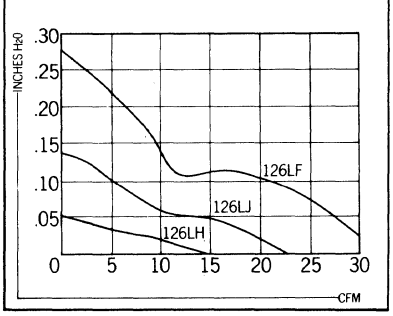


Low input power, low noise, high performance in this fan package.

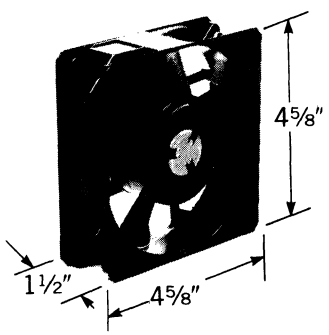
- 2.81" mounting centers.
- Very quiet operation—only 8 db (sil) on Model 126LH.
- Wire leads or terminal version.
- Three different RPM models.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA certified/VDE listed.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (mA)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
126LH-2182	115	60	3	40	1550	9	15
126LJ-2182	115	60	5	60	2400	19	23
126LF-2182	115	60	8	100	3200	26	32
126LF-2181	220	60	8	60	3200	26	32

Model numbers shown are for sleeve bearing versions. To order full bearing fans, omit the first "2" from the last group of digits



MODEL 141

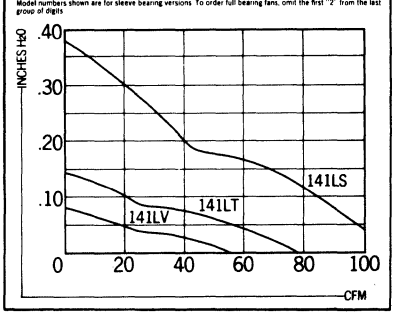


105, 75, and 55 CFM versions are available in this most popular size fan.

- 4.125" mounting centers and standard terminal configuration.
- Low power consumption—only 8 watts on 141LV model.
- Tight blade-to-venturi fit assures optimum performance.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA certified/VDE listed.
- Reverse flow models available.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (mA)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
141LV-2282	115	60	8	100	1700	23	55
141LV-2281	220	60	9	55	1700	23	55
141LT-2282	115	60	9	110	2300	33	75
141LT-2281	220	60	10	65	2400	33	75
141LS-2282	115	60	12	140	3200	41	105
141LS-2281	220	60	12	80	3200	41	105

Model numbers shown are for sleeve bearing versions. To order full bearing fans, omit the first "2" from the last group of digits



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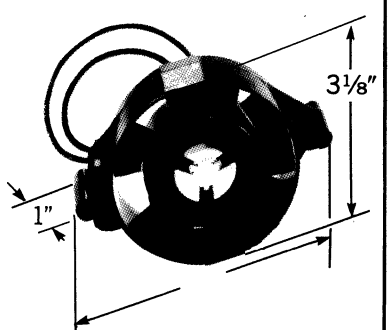
ETRI® fans

ETRI's flat tubeaxial fans are quiet, efficient, cost effective components that are ideal for most electronic cooling applications. For complete technical specifications and delivery information call the ETRI factory at (704) 289-5423.

and accessories.

Accessory items assure correct fit on ETRI fans. Finger Guards will retro fit most existing fans.

MODEL 146

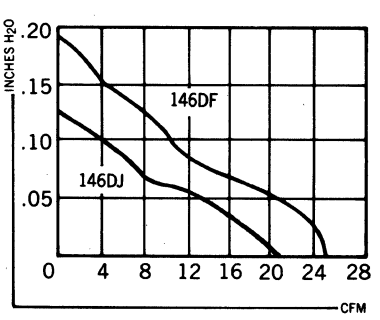


3" x 1" fan specially designed for desk-top electronic applications

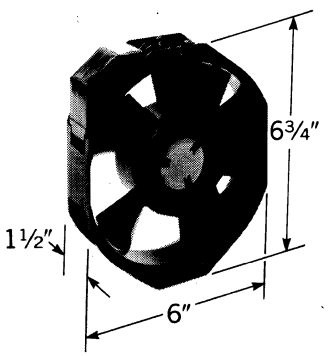
- Low acoustical levels.
- 25 CFM at free air delivery.
- Simplified time saving mounting with bosses and speed nuts provides real economy for high volume installation.
- 115 or 220 volt.
- UL recognized/CSA certified/VDE approved.
- Will fit 3⅛" designs in a 1" profile.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
146DJ-2182	115	60	5	60	2600	23	21
146DF-2182	115	60	5	60	3100	247	25
146DF-2181	220	60	9	50	3100	247	25

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



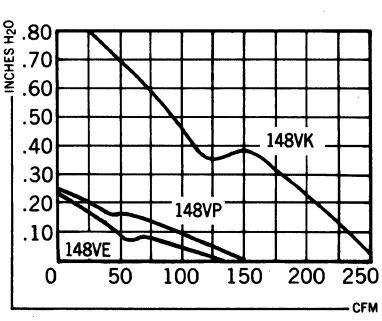
MODEL 148



Ideal for high pressure/high flow applications. Develops 180 CFM at .3" H_2O.

- 1½" thick—less than most 6" fans.
- Efficient, permanent split-capacitor motor, thermally protected.
- Pre-loaded ABEC-3, double-shielded, ball bearing system runs quietly in any position.
- UL recognized/CSA certified.
- Reduced speed versions available.
- Provides wide range cooling with low acoustical disturbances.

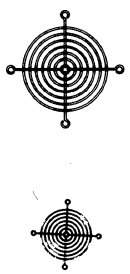
PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
148VE282	115	60	11	90	1650	33	123
148VE281	220	60	14	80	1650	33	123
148VP282	115	60	18	160	2100	39	149
148VP281	220	60	22	100	2350	45	172
148VK282	115	60	32	270	3300	51	255
148VK281	220	60	33	170	3200	50.5	255



FINGER GUARDS

Ensures safe operation in situations that require guarding.

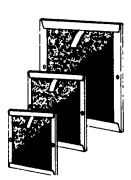
- Standard mounting centers for versatile installation.
- Meets UL Spacing requirements.
- Sturdy .062" steel wire rings welded to .080" ribs.
- Bright zinc-plated finish.



FILTERS

Provides maximum air flow while permitting effective filtering.

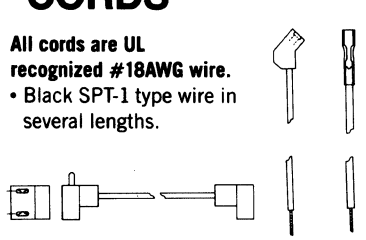
- Expanded/slit aluminum foil traps dust particles.
- Minimum pressure loss.
- Complies with UL requirements.



CORDS

All cords are UL recognized #18AWG wire.

- Black SPT-1 type wire in several lengths.



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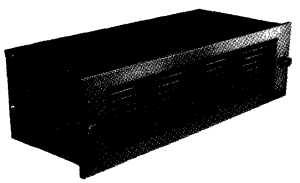
TORIN ENGINEERED BLOWERS

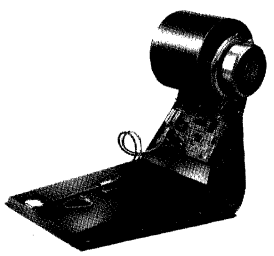
HAWKER SIDDELEY
FASCO
MOTORS AND BLOWERS

Packaged (Cabinet) Blowers— 125 to 540 CFM



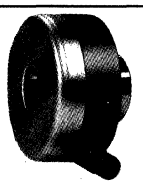
TORIN Packaged Blowers are used in clean environments for equipment that can operate at temperatures above ambient and against moderate static pressures. Each combines a quality blower in a cabinet, with a filter and grille. All units are engineered for top performance and built for reliability. All applicable components are UL/CSA Recognized.

Electronically-Controlled Brushless DC Blowers



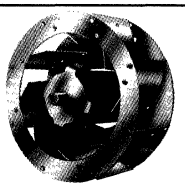
Brushless DC (BLDC) motors offer several benefits over AC or brush-type DC motors. They combine the maintenance-free advantage of AC units with the variable speed capability of conventional DC motors. They also produce less electrical "noise" to potentially interfere with sensitive electronic devices.
When combined with a thermistor-regulated, variable-speed motor control, a BLDC-driven blower produces variable air delivery to match the cooling requirements of the application.

Multi-Stage Blowers— 14 to 280 CFM



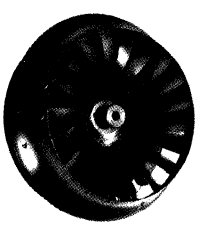
TORIN offers a one, two or three stage line of blowers for applications demanding low noise, high pressure and minimum space utilization. Two types are available: a full symmetrical (5.76" diameter); and the scroll discharge (15.62" and 15.75") configuration.

Backward-Inclined Motorized Impellers—190 to 750 CFM



TORIN Backward-Inclined Motorized Impellers are designed to operate without a conventional blower housing. The units are easily mounted and are more efficient and quieter than standard fans and blowers used in the same type of application.

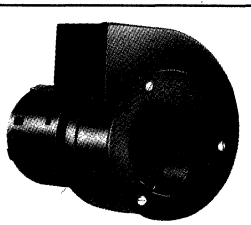
Mixed-Flow Blower Wheels— 540 to 1750 CFM



TORIN Mixed-Flow Blower Wheels are best suited to applications where pressures are too high for axial fans, and too low for conventional centrifugal blowers. These wheels are normally installed in a housing, but can also perform well without a housing.

Standard construction for 9" and 10" diameter wheels is zinc-clad steel and for the 12⅝" diameter wheels aluminum is used. The wheels are built to close tolerances and statically balanced for smooth operation.

High-Performance Centrifugal— 30 to 665 CFM



FASCO "Swirlwind" blowers offer the designer high pressure in a compact package. Utilizing patented design technology, these blowers produce up to four times (20-inches of water) the sealed static pressure of similar sized conventional blowers. Enhanced pressure characteristics are present across the entire range of operation. "Swirlwind" blowers are ideal for applications having significant restrictions to air flow.

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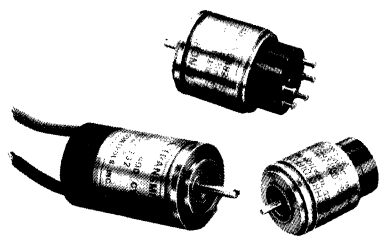
HAROWE SERVO CONTROLS

HAWKER SIDDELEY FASCO HAROWE SERVO CONTROLS

Brushless Resolvers & Synchros

Brushless resolvers are available in a wide variety of electrical and mechanical configurations for all standard synchro applications. The brushless design uses rotary transformers to eliminate the wiping contact normally employed to couple signals to synchro rotors.

Harowe Synchros can function as control and torque transmitters and receivers, control transformers, differentials, induction potentiometers and resolvers. Limited rotation types use hairspring conductors to couple signals to rotors and are capable of 330° rotation with stops.



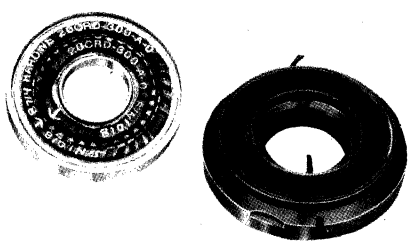
Pancake Synchros & Resolvers

Pancake synchros and resolvers are typically mounted on the gimbals of gyros or stable-platforms. They are furnished as a matched set, consisting of a rotor and stator to be mounted in a customer's equipment.

These components have larger diameter and short length compared to other Servo components.

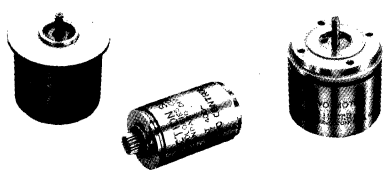
The pancake design allows for greater diversity of mounting configurations and electrical parameters.

Mounting requirements are special for each customer's design. This catalog depicts components representing Harowe's capability which is not restricted to the sizes and types listed.



AC Motors

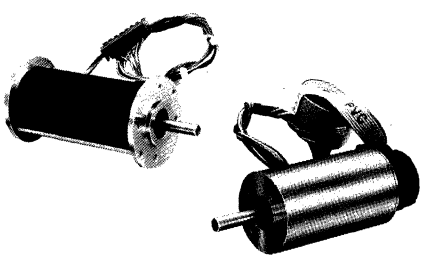
AC Servo Motors are available in a wide variety of torque and speed ratings plus mechanical options and braked, viscous-damped and high acceleration types at 60 and 400 Hz.



Brushless DC Motors

Harowe brushless motors feature high performance magnetics, combined with a variety of winding configurations and mechanical designs to provide customers with a wide selection of performance characteristics. Flexibility of our brushless motor designs enables us to easily respond to the changing and more demanding needs of our customers.

Harowe brushless motors are ideal for use in computers, robotics, machine tools, military and aerospace and many other applications where long life, quiet operation, low inertia and high speeds are required.



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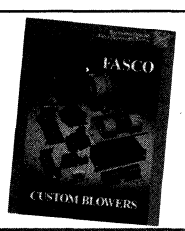
HAROWE CATALOG
Complete line of brushless resolvers, synchros, AC motors and brushless DC motors, specifications, performance charts.

TORIN BLOWER CATALOG
Top of the line blowers for business machines and other cooling applications.



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ELINA is first in diversity, service, dependability and competitiveness.
When you think fan, think ELINA!

AC FANS

SIZE (inches)	Model	Rated Voltage VAC	Frequency Hz	Rated Current mA	Rated Input W	Rated Speed RPM	Max. Airflow m³/min.	Max. Airflow CFM	Max. Static Pressure mmAq	Max. Static Pressure inchAq	Noise Level dB(A)/m	Weight gr	Weight oz
3.15" X 1"	EP082515-LSL	115	60	0.10	8	2300	0.42	15	3.05	0.12	29	270	8.7
		115	50	0.10	9	2100	0.34	12	2.29	0.09	27		
	EP082530-LSL	230	60	0.05	8	2300	0.42	15	3.05	0.12	29		
		220	50	0.05	9	2100	0.34	12	2.29	0.09	27		
	EP082515-HSL	115	60	0.11	10	2800	0.59	21	3.81	0.15	33		
		115	50	0.12	11	2800	0.42	15	2.29	0.09	29		
	EP082530-HSL	230	60	0.06	11	2800	0.59	21	3.81	0.15	33		
		220	50	0.07	12	2350	0.42	15	2.29	0.09	29		
3.15" X 1.5"	EP083815-LSL	115	60	0.11	8	2500	0.65	23	3.56	0.14	32	388	12.5
		115	50	0.11	9	2100	0.51	18	2.79	0.11	29		
	EP083830-LSL	230	60	0.06	9	2500	0.65	23	3.56	0.14	32		
		220	50	0.07	10	2100	0.51	18	2.79	0.11	29		
	EP083815-HSL	115	60	0.12	11	2800	0.85	30	4.32	0.17	35		
		115	50	0.13	12	2300	0.57	20	2.79	0.11	31		
	EP083830-HSL	230	60	0.07	12	2800	0.85	30	4.32	0.17	35		
		220	50	0.08	13	2300	0.57	20	2.79	0.11	31		
3.62" X 1"	EP092515-LST	115	60	0.09	8	2200	0.74	26	3.05	0.12	35	298	9.6
		115	50	0.10	9	1900	0.59	21	2.54	0.10	33		
	EP092530-LST	230	60	0.05	9	2200	0.74	26	3.05	0.12	35		
		220	50	0.5	10	1900	0.59	21	2.54	0.10	33		
	EP092515-HST	115	60	0.11	11	2700	1.02	36	3.81	0.15	39		
		115	50	0.12	12	2300	0.82	29	2.79	0.11	36		
	EP092530-HST	230	60	0.06	12	2700	1.02	36	3.81	0.15	39		
		220	50	0.07	13	2300	0.82	29	2.79	0.11	36		
4.72" X 1.5"	EP123815L-LST	115	60	0.10	13	2150	1.70	60	4.06	0.16	38	550	17.7
		115	50	0.13	13	2000	1.56	55	3.56	0.14	36		
	EP123830L-LST	230	60	0.06	12	2150	1.70	60	4.06	0.16	38		
		220	50	0.07	12	2000	1.56	55	3.56	0.14	36		
	EP123815M-MST	115	60	0.14	16	2500	2.12	75	5.59	0.22	42		
		115	50	0.17	17	2300	1.84	65	5.08	0.20	39		
	EP123830M-MST	230	60	0.08	15	2500	2.12	75	5.59	0.22	42		
		220	50	0.09	16	2300	1.84	65	5.08	0.20	39		
	EP123815H-HST	115	60	0.18	18	3000	2.97	105	8.12	0.32	49		
		115	50	0.21	20	2600	2.27	80	6.35	0.25	43		
	EP123830H-HST	230	60	0.11	19	3000	2.97	105	8.12	0.32	49		
		220	50	0.12	20	2600	2.27	80	6.35	0.25	43		

DC FANS

SIZE (inches)	Model	Rated Voltage VDC	Operate Voltage VDC	Rated Current mA	Rated Input W	Rated Speed RPM	Max. Airflow m³/min.	Max. Airflow CFM	Max. Static Pressure mmAq	Max. Static Pressure inchAq	Noise Level dB(A)/m	Weight gr	Weight oz
1.2" X .8"	HDF3020L-05LLB	5	4.25-5.75	70	0.35	4300	0.039	1.4	1.0	0.04	19	29	1.0
	HDF3020L-05LB	5	4.25-5.75	100	0.5	5300	0.048	1.7	1.6	0.06	21		
	HDF3020L-12LB	12	10.2-13.8	50	0.6								
	HDF3020L-12MB	12	10.2-13.8	110	1.32	7800	0.07	2.5	3.3	0.13	24		
1.57" X .35"	CDF4009L-05LB	5	4.25-5.75	250	1.25	6000	0.085	3	1.2	0.05	27	32	1.13
	CDF4009L-12LB	12	10.2-13.8	110	1.32								
	CDF4009L-24LB	24	20.4-27.6	80	1.92								
	CDF4009L-05MB	5	4.25-5.75	270	1.35	7250	0.1	3.5	1.5	0.06	30		
	CDF4009L-12MB	12	10.2-13.8	110	1.32								
	CDF4009L-24MB	24	20.4-27.6	80	1.92								
1.57" X .5"	HDF4012L-05LB	5	4.25-5.75	120	0.6	5200	0.13	4.6	2.5	0.10	23	20	0.71
	HDF4012L-12LB	12	10.2-13.8	50	0.6								
	HDF4012L-05HB	5	4.25-5.75	240	1.2	7900	0.21	7.4	5.7	0.22	34		
	HDF4012L-12HB	12	10.2-13.8	100	1.2								
1.57" X .8"	HDF4020L-05LLB	5	4.25-5.75	75	0.38	3300	0.1	3.5	1.2	0.05	21	32	1.1
	HDF4020L-05LB	5	4.25-5.75	105	0.53	4200	0.13	4.6	1.8	0.07	23		
	HDF4020L-12LB	12	10.2-13.8	50	0.6								
	HDF4020L-12MB	12	10.2-13.8	130	1.56	5900	0.18	6.4	3.5	0.14	26		

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San Jose, CA 95131

DC FANS

SIZE (inches)	Model	Rated Voltage VDC	Operate Voltage VDC	Rated Current mA	Rated Input W	Rated Speed RPM	Max. Airflow m³/min.	Max. Airflow CFM	Max. Static Pressure mmAq	Max. Static Pressure inchAq	Noise Level dB(A)/m	Weight gr	Weight oz
2" X .63"	HDF5216L-05MB	5	4.25-5.75	190	0.95	3500	0.24	8.5	2.3	0.09	24	35	1.23
	HDF5216L-12MB	12	10.2-13.8	80	0.96								
	HDF5216L-05HB	5	4.25-5.75	330	1.65	4250	0.31	10.9	3.3	0.13	29		
	HDF5216L-12HB	12	10.2-13.8	140	1.68								
2.38" X .63"	HDF6016-05LB	5	4.25-5.75	175	0.88	2800	0.31	11	1.5	0.06	20	50	1.76
	HDF6016L-12LB	12	10.2-13.8	75	0.90								
	HDF6016L-05MB	5	4.25-5.75	270	1.35	3350	0.40	14	2.5	0.10	25		
	HDF6016L-12MB	12	10.2-13.8	110	1.32	3700	0.44	16	3.1	0.12	27		
	HDF6016L-05HB	5	4.25-5.75	360	1.80	4300	0.50	18	3.9	0.15	30		
	HDF6016L-12HB	12	10.2-13.8	135	1.62								
2.38" X 1"	HDF6025L-12LB	12	10.2-13.8	55	0.66	2550	0.3	11	1.7	0.06	21	85	3.0
	HDF6025L-12MB	12	10.2-13.8	70	0.84	3000	0.36	13	2.2	0.09	26		
	HDF6025L-24MB	24	20.4-27.6	45	1.08	3200	0.39	14	2.4	0.09	27		
	HDF6025L-12HB	12	10.2-13.8	140	1.68	4500	0.54	19	4.9	0.19	35		
	HDF6025L-24HB	24	20.4-27.6	70	1.68								
	HDF6025L-12HHB	12	10.2-13.8	220	2.64	5350	0.63	22	6.1	0.24	41		
	HDF6025L-24HHB	24	20.4-27.6	120	2.88								
3.15" X .8"	SDF8020L-12LLB	12	10.2-13.8	80	0.96	1980	0.60	21	1.8	0.07	22	95	3.35
	SDF8020L-12LB	12	10.2-13.8	140	1.68	2350	0.70	25	2.7	0.11	23		
	SDF8020L-24LB	24	20.4-27.6	80	1.92								
	SDF8020L-12MB	12	10.2-13.8	160	1.92	2500	0.80	28	3.0	0.12	24		
	SDF8020L-24MB	24	20.4-27.6	90	2.16								
	SDF8020L-12HB	12	10.2-13.8	180	2.16	2750	0.90	32	3.6	0.14	29		
	SDF8020L-24HB	24	20.4-27.6	100	2.40								
	SDF8020L-12HHB	12	10.2-13.8	290	3.48	3300	1.15	41	5.3	0.21	36		
	SDF8020L-24HHB	24	20.4-27.6	130	3.12								
3.15" X 1"	HDF8025L-12LB	12	10.2-13.8	65	0.78	1850	0.61	22	1.4	0.06	27	100	3.5
	HDF8025L-12MB	12	10.2-13.8	105	1.26	2450	0.81	29	2.4	0.09	32		
	HDF8025L-24MB	24	20.4-27.6	60	1.44	2600	0.86	30	2.7	0.11	33		
	HDF8025L-12HB	12	10.2-13.8	170	2.04	3150	1.04	37	4.0	0.16	37		
	HDF8025L-24HB	24	20.4-27.6	90	2.16								
	HDF8025L-12HHB	12	10.2-13.8	290	3.48	3600	1.19	42	5.2	0.20	41		
	HDF8025L-HHB	24	20.4-27.6	160	3.84								
3.62" X 1"	HDF9225L-12LB	12	10.2-13.8	120	1.44	2300	1.00	35	2.8	0.11	32	140	4.9
	HDF9225L-24LB	24	20.4-27.6	65	1.56								
	HDF9225L-12MB	12	10.2-13.8	160	1.92	2850	1.25	44	4.3	0.17	37		
	HDF9225L-24MB	24	20.4-27.6	90	2.16								
	HDF9225L-12HB	12	10.2-13.8	250	3.00	3300	1.45	51	5.7	0.22	42		
	HDF9225L-24HB	24	20.4-27.6	125	3.00								
4.72" X 1"	HDF1225L-12MB	12	10.2-13.8	135	1.62	1750	1.65	58	2.1	0.08	36	180	6.3
	HDF1225L-24MB	24	20.4-27.6	70	1.68								
	HDF1225L-12HB	12	10.2-13.8	315	3.78	2500	2.35	83	4.3	0.17	45		
	HDF1225L-24HB	24	20.4-27.6	145	3.48								
	HDF1225L-12HHB	12	10.2-13.8	580	6.96	3200	3.00	106	6.0	0.24	52		
	HDF1225L-24HHB	24	20.4-27.6	295	7.08								
2.38" X 1"	MDA120625H	12	10.2-13.8	0.12	1.4	4600	0.48	17	4.5	0.18	34	60	2.1
	MDA120625L	12	10.2-13.8	0.09	1.0	3400	0.36	13	2.8	0.11	28		
	MDB240625H	24	20.4-27.6	0.09	2.2	4570	0.48	17	4.5	0.18	34		
3.15" X 1"	MDA120825H	12	10.2-13.8	0.20	2.4	3050	0.96	34	5.8	0.23	35	103	3.7
	MDB240825H	24	20.4-27.6	0.12	2.9	3100	0.96	34	5.8	0.23	35		
	MDA120825L	12	10.2-13.8	0.12	1.4	2350	0.67	24	3.0	0.12	27		
	MDB240825L	24	20.4-27.6	0.07	1.7	2450	0.67	24	3.0	0.12	27		
3.62" X 1"	MDA120925H	12	10.2-13.8	0.22	2.6	3400	1.41	50	4.6	0.19	33	114	4.0
	MDB240925H	24	20.4-27.6	0.11	2.6	3400	1.41	50	4.6	0.19	33		
	MDA120925L	12	10.2-13.8	0.11	1.3	2500	1.01	36	3.0	0.12	29		
	MDB240925L	24	20.4-27.6	0.07	1.7	2500	1.01	36	3.0	0.12	29		
4.72" X 1.5	MDA121238H	12	10.2-13.8	0.54	6.5	3000	3.07	109	7.3	0.29	46	240	8.6
	MDB241238H	24	20.4-27.6	0.28	6.7	3000	3.07	109	7.3	0.29	46		
	MDA121238L	12	10.2-13.8	0.25	3.0	2300	2.37	84	4.5	0.18	36		
	MDA121238LL	12	10.2-13.8	0.21	2.5	2050	2.06	73	5.3	0.21	31		
	MDB241238L	24	20.4-27.6	0.17	4.1	2300	2.37	84	4.5	0.18	36		

ELINA
YOUR SILENT PARTNERS!

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DC and AC Fans and Blowers

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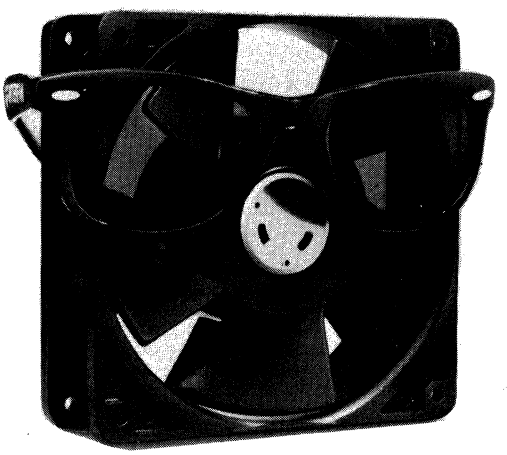
COOLER THAN EVER



INTERFAN OFFERS YOU A FULL FAMILY OF FANS IN POPULAR FRAME SIZES AND VOLTAGES, AND AT POPULAR PRICES.

QUALITY PRODUCTS YOU CAN RELY UPON FOR ALL OF YOUR COOLING REQUIREMENTS.

The word for cool is Interfan! A fine line of leading-edge fans and blowers from the Cooling Devices Group of the William J. Purdy Company. Since 1962, we have earned an enviable reputation for providing unsurpassed technical assistance, service, support, and professional integrity in solving equipment cooling requirements. Plus, we pioneered solid-state DC fan technology.

Now, as Interfan, we provide cooling devices designed and built from the ground up with full utilization of today's state-of-the-art technology, materials, fabrication, and quality control. To design engineers and buyers this means:

- Greater Cooling Efficiency
- Quieter Operation
- Broader Selection (1½" to 6")
- Better Value
- Improved Reliability
- Cost Competitive
- Custom and Semi-Custom Capabilities
- Plus, Fast Delivery

Please contact INTERFAN for specific Safety Agency status.

DC FANS

SPECIFICATIONS

Model	Voltage VDC Nom	Airflow (0 static pressure) cfm Nom.	Input Current mA Nom.	Input Power Watts Nom.	Speed rpm Nom.	Noise Level dB (A) Nom.	Weight ozs.	Frame Size H X W X D Inches (mm)	Construction
PO003-12D-1B-3	12	3.5	100	1.2	5800	30	0.7	1½ × 1½ × ⅜ (40 × 40 × 10)	Plastic housing and impeller, precision ball bearing. Wire leads: 26 AWG, 6.00 ± .5 in. long.
PO005-12D-1B-3	12	5.5	150	1.8	6000	35	1.5	1½ × 1½ × ¾ (40 × 40 × 20)	Plastic housing and impeller, precision ball bearing. Wire leads: 26 AWG, 14.00 ± .5 in. long.
PO005-24D-1B-3	24		100	2.4					
PO012-12D-2B-2	12	12	85	1.1	3200	36	3.5	2½ × 2½ × 1 (60 × 60 × 25)	Polycarbonate housing and impeller, precision ball bearings. Wire leads: 24 AWG, 12.25 ± .5 in. long.
PO012-24D-2B-2	24			1.9	3350				
PO014-12D-2B-3	12	14	200	2.4	3700	30	1.5	2½ × 2½ × ½ (62 × 62 × 15)	Plastic housing and impeller, precision ball bearing. Wire leads: 26 AWG, 13.00 ± .5 in. long.
PO014-24D-2B-3	24		100						
PO020-12D-3B	12	20	90	1.1	2150	33	5.3	3⅛ × 3⅛ × 1¼ (80 × 80 × 32)	Polycarbonate housing and impeller, precision ball bearings. Wire leads: 24 AWG, 14.00 ± .5 in. long.
PO020-24D-3B	24		70	2.0	2250				
PO022-12D-3B-3	12	22	200	2.4	3000	32	4.0	3⅝ × 3⅝ × ⅝ (92 × 92 × 15.5)	Plastic housing and impeller, precision ball bearings. Wire leads: 25 AWG, 13.00 ± .5 in. long.
PO022-24D-3B-3	24		100						
PO025-12D-3B-2	12	25	145	1.9	2850	35	5.3	3⅛ × 3⅛ × 1 (80 × 80 × 25)	Polycarbonate housing and impeller, precision ball bearings. Wire leads: 24 AWG, 14.00 ± .5 in. long.
PO025-24D-3B-2	24		90	2.3					

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SPECIFICATIONS — DC FANS

Model	Voltage VDC Nom	Airflow (0 static pressure) cfm Nom.	Input Current mA Nom.	Input Power Watts Nom.	Speed rpm Nom.	Noise Level dB (A) Nom.	Weight ozs.	Frame Size H X W X D Inches (mm)	Construction
PO035-12D-3B	12	35	275	3.5	3200	39	5.3	3 1/8 × 3 1/8 × 1 1/4 (80 × 80 × 32)	Polycarbonate housing and impeller, precision ball bearings. Wire leads: 24 AWG, 14.00 ± .5 in. long.
PO035-24D-3B	24		130	3.3					
PO040-12D-3B	12	40	180	2.2	3200	38	5.3	3 5/8 × 3 5/8 × 1 (92 × 92 × 25)	Polycarbonate housing and impeller, precision ball bearings. Wire leads: 24 AWG, 14.00 ± .5 in. long.
PO040-24D-3B	24		115	2.9	3350				
PO053-12D-3B-2	12	53	245	2.9	3050	37	5.3	3 5/8 × 3 5/8 × 1 1/4 (92 × 92 × 32)	Plastic housing and impeller, precision ball bearings. Wire leads: 24 AWG, 12.00 ± .5 in. long.
PO053-24D-3B-2	24		140	3.4	3150				
PM082-12D-4B	12	82	560	6.7	3200	45	9.0	4 11/16 × 4 11/16 × 1 (119.5 × 119.5 × 25)	Die cast aluminum housing, polycarbonate impeller, precision ball bearings. Wire leads: 24 AWG, 13.25 ± .5 in. long.
PM082-24D-4B	24		300	7.5	3250				
PM106-12D-4B	12	106	690	8.5	3150	47	13.0	4 11/16 × 4 11/16 × 1 1/2 (119.5 × 119.5 × 38)	Die cast aluminum housing, polycarbonate impeller, precision ball bearings. Wire leads: 24 AWG, 13.25 ± .5 in. long.
PM106-24D-4B	24		360	8.6	3100				
PM106-12D-4BT	12	106	690	8.5	3150	47	13.0	4 11/16 × 4 11/16 × 1 1/2 (119.5 × 119.5 × 38)	Die cast aluminum housing, polycarbonate impeller, precision ball bearings. Terminal block.
PM106-24D-4BT	24		360	8.6	3100				
PM106-48D-4BT	48		190	9.0	3100				
POB23-12D-5B-2	12	23	650	7.8	2600	51	14.2	5 × 5 × 1 5/8 (127 × 127 × 41)	Plastic housing and impeller, precision ball bearings. Wire leads: 24 AWG 10.00 ± .5 in. long.
POB23-24D-5B-2	24		375	9.0					

SPECIFICATIONS — AC FANS AND BLOWERS

Model	Voltage VAC	Airflow cfm	Input Power Watts	Speed rpm	Noise Level dB (A)	Life Expectancy Hours at °C	Weight ozs.	Frame Size H × W × D Inches (mm)	Construction
PM018-115-3B	115	18	8.5	2600	33	20K at 70	7	3 1/8 × 3 1/8 × 3/4 (80 × 80 × 20)	Die cast aluminum housing, plastic impeller, precision ball bearings. Wire leads: 22 AWG, 14.00 ± .5 in. long
PM024-115-3B	115	24	7	3050	36	20K at 70	8	3 1/8 × 3 1/8 × 1 (80 × 80 × 25)	
PM024-230-3B	230			3100					
MM032-115-3B	115	32	10	3300	40	20K at 70	16	3 1/8 × 3 1/8 × 1 1/2 (80 × 80 × 38)	All metal, shaded pole motor, precision ball bearings. Wire leads: 24 AWG, 13.25 ± .5 in. long.
MM032-115-3B-5	115		10						
MM032-230-3B	230		12						
PM032-115-3B	115	32	8	3200	36	20K at 70	9	3 1/8 × 3 1/8 × 1 1/2 (80 × 80 × 38)	Die cast aluminum housing, plastic impeller, precision ball bearings. Terminal block.
PM032-230-3B	230		9						
PM040-115-3B	115	40	9.5	3100	36	20K at 70	10	3 5/8 × 3 5/8 × 1 (92 × 92 × 25)	
PM040-230-3B	230		11						
PM058-115-4B	115	58	11	2350	39	20K at 70	10	4 11/16 × 4 11/16 × 3/4 (119.5 × 119.5 × 20.3)	Die cast aluminum housing, plastic impeller, precision ball bearings. Wire leads: 22 AWG, 13.25 ± .5 in. long.
PM058-230-4B	230		14.5	2500					
MM060-115-4B	115	60	9	2100	38	20K at 70	19	4 11/16 × 4 11/16 × 1 1/2 (119.5 × 119.5 × 38)	All metal, shaded pole motor, precision ball bearings. Terminal block.
MM060-230-4B	230								
PM074-115-4B	115	74	11.5	2900	43	20K at 70	15	4 11/16 × 4 11/16 × 1 (119.5 × 119.5 × 25)	Die cast aluminum housing, plastic impeller, precision ball bearings. Terminal block.
PM074-230-4B	230		12						
MM106-115-4B	115	106	18	3200	44	20K at 70	21	4 11/16 × 4 11/16 × 1 1/2 (119.5 × 119.5 × 38)	All metal, shaded pole motor, precision ball bearings. Terminal block.
MM106-115-4B-5	115								
MM106-230-4B	230								
PM106-115-4B	115	106	14	3200	46	20K at 70	20	4 11/16 × 4 11/16 × 1 1/2 (119.5 × 119.5 × 38)	Die cast aluminum housing, plastic impeller, precision ball bearings. Terminal block.
PM106-230-4B	230		15						
MM235-115-6B	115	235	38	3350	53	20K at 70	43	6 3/4 dia × 2 (172 dia × 55)	All metal, shaded pole motor, precision ball bearings. Wire leads: 20 AWG, 13.25 ± .5 in. long.
MM235-230-6B	230		37.5						
PMB24-115-4B	115	24	20	2300	53	20K at 70	23	4 3/4 × 4 3/4 × 1 1/2 (120.5 × 120.5 × 38)	Polycarbonate housing, plastic wheel, shaded pole motor, precision ball bearings. Wire leads: 20 AWG, 12.00 ± .5 in. long.
PMB24-230-4B	230								

Notes:
All Fans and Blowers are 50/60 Hz. Specifications are at 60 Hz.
Fan Models MM032-115-3B-5 and MM106-115-4B-5 have five year warranties.

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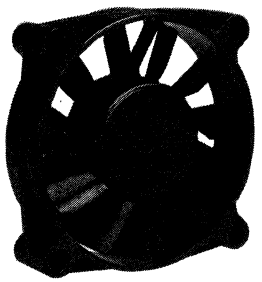
AUTO-COOL Series

Introducing...the fan with a brain.



THERMISTOR BUILT INTO FAN

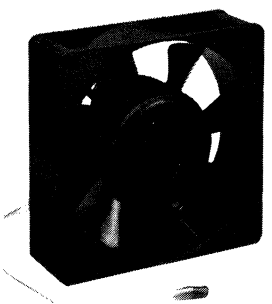
FANS SHOWN ARE EXAMPLE ONLY. ALL SIZES LISTED BELOW ARE AVAILABLE.

INTERFAN'S AUTO-COOL SERIES

With a thermally sensitive solid-state semiconducting device for a brain, this fan actually thinks for itself. The brain (thermistor) reads temperature and controls the cooling output of the fan by creating variance in the speed of the fan impeller rotation *automatically.*

In a typical application: During periods of non-use, the internal temperature tends to drop; the reverse is true when the workstation is in full operation. With automatic speed control, AUTO-COOL, the fan will change speed in direct proportion with the temperature requirements; it works hard when it's hot...and slows down when it's cooler, for lower power consumption and minimum noise, *all automatically!*

The sensor, and electronic circuitry built into the fan, constantly detects internal temperature and makes adjustments in fan speed as even minor changes in temperature are noted.



THERMISTOR ON LEAD

SPECIFICATIONS

Model	Voltage VDC. Nom.	Airflow (0 static pressure) CFM Nom.	Input Current mA Nom.	Input Power Watts Nom.	Speed rpm Nom.	Noise Level dB(a) Nom.	Weight	Frame Size H×W×D inches (mm)	Construction
PO003-12D-1B-3	12	3.5	100	1.2	5800	30	0.7	1.5×1.5×.375 (40×40×10)	Plastic housing and impeller precision ball bearing. Wire leads: 26 AWG, 6.0±0.5 in. long
PO005-12D-1B-3	12	5.5	150	1.8	6000	35	1.5	1.5×1.5×.750 (40×40×20)	Plastic housing and impeller precision ball bearing. Wire leads: 26 AWG, 14±0.5 in. long.
PO005-24D-1B-3	24		100	2.4					
PO012-12D-2B-2	12	12	85	1.1	3200	36	3.5	2.5×2.5×1.00 (60×60×25)	Polycarbonate housing and impeller precision ball bearings. Wire leads: 24 AWG, 12.25±0.5 in. long
PO012-24D-2B-2	24			1.9	3350				
PO014-12D-2B-3	12	14	200	2.4	3700	30	1.5	2.5×2.5×.500 (62×62×15)	Plastic housing and impeller precision ball bearings. Wire leads: 24 AWG, 13.00±0.5 in. long
PO014-24D-2B-3	24		100						
PO022-12D-3B-3	12	22	200	2.4	3000	32	4.0	3.5×3.5×.625 (92×92×15.5)	Plastic housing and impeller, precision ball bearings. Wire leads: 26 AWG, 13.00±0.5 in. long
PO022-24D-3B-3	24		100						
PO025-12D-3B-2	12	25	145	1.9	2850	35	5.3	3.1×3.1×1.00 (80×80×25)	Polycarbonate housing and impeller, precision ball bearings. Wire leads: 24 AWG, 14.0±0.5 in. long.
PO025-24D-3B-2	24		90	2.3					
PO053-12D-3B-2	12	53	245	2.9	3050	37	5.3	3.5×3.5×1.50 (92×92×32)	Plastic housing and impeller, precision ball bearings. Wire leads: 24 AWG, 12.0±0.5 in. long.
PO053-24D-3B-2	24		140	3.4	3150				
PO106-12D-4B-2	12	106	630	7.6	3200	48	12.7	4.6×4.6×1.50 (119.5×119.5×38)	Plastic housing and impeller, precision ball bearings. Wire leads: 24 AWG, 13.0±0.5 in. long.
PO106-24D-4B-2	24		340	8.2					
POB23-12D-5B-2	12	23	650	7.8	2600	51	14.2	5.0×5.0×1.625 (127×127×41)	Plastic housing and impeller, precision ball bearings. Wire leads: 24 AWG, 10.0±0.5 in. long.
POB23-24D-5B-2	24		375	9.0					

NOTES: 1. STANDARD THERMISTOR TEMPERATURE RANGE IS 20°C TO 60°C FOR MODELS PO003, PO005, PO014, AND PO022. STANDARD THERMISTOR TEMPERATURE RANGE IS 10°C TO 40°C FOR MODELS PO012, PO025, PO053, PO106 AND POB23.

2. WHEN ORDERING INTERFAN AUTO-COOL SERIES FANS: THE LETTER "L" (EXAMPLE: PO003-12D-1B-3L) ON THE END OF THE PART NUMBER DESIGNATES THERMISTOR ON LEAD WIRE; THE LETTER "H" (EXAMPLE: PO014-12D-2B-3H) DESIGNATES THERMISTOR BUILT INTO HOUSING OF FAN.

3. THERMISTOR LEAD LENGTH WILL BE SUPPLIED IN ACCORDANCE WITH YOUR REQUIREMENT.

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AUTO-COOL Series

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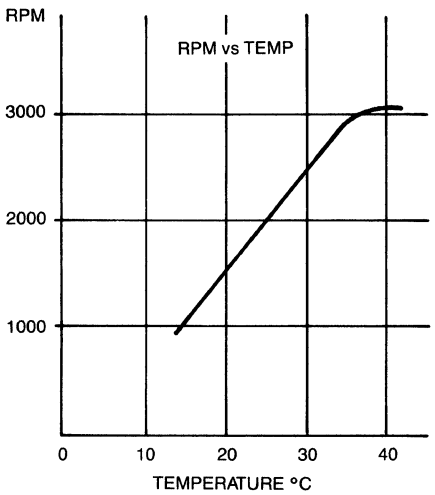
All popular frame sizes and voltages are available with sensor mounted in the fan or on the end of a wire lead. The temperature range of the sensor can be tailored to a specific application.

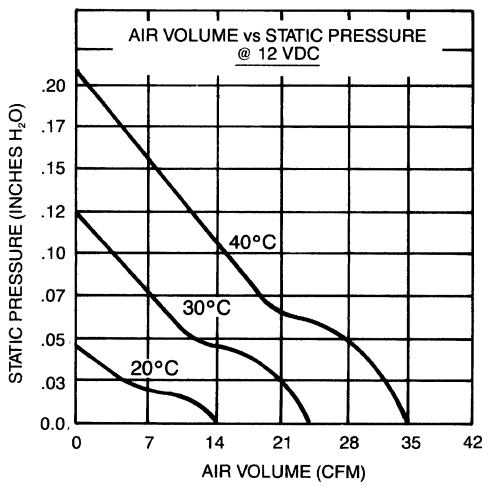
ALL FANS HAVE AUTO RESTART FEATURE

AVAILABLE IN 12 AND 24 VOLTS DC AND IN SIZES 40, 60, 80, 92 & 120mm TO MEET ALL OF YOUR COOLING NEEDS!

TECHNICAL DATA (TYPICAL)

80 mm FAN WITH THERMISTOR RANGE
10°C-40°C





ELECTRICAL CHARACTERISTICS

T = 40°C

Free Air			Locked		Noise dB(A)	
Amps	Watts	Revs	Amps	Watts	Front	Side
(mA)	(W)	(RPM)	(mA)	(W)		
170	2.1	3249	442	5.2	38.2	37.4

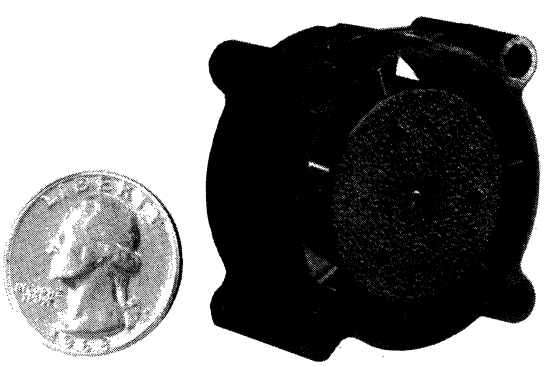
T = 30°C

Free Air			Locked		Noise dB(A)	
Amps	Watts	Revs	Amps	Watts	Front	Side
(mA)	(W)	(RPM)	(mA)	(W)		
114	1.4	2617	448	5.3	32.0	31.7

T = 20°C

Free Air			Locked		Noise dB(A)	
Amps	Watts	Revs	Amps	Watts	Front	Side
(mA)	(W)	(RPM)	(mA)	(W)		
77	0.9	1500	436	5.2	22.0	21.3

Small. Smaller. Smallest.



When space is a premium, keep your cool with the new DYNA-MITE Series of miniature DC fans from INTERFAN. Our smallest model measures only 1½"H × 1½"W × ⅜"D. If space isn't a major problem, you can choose from the broadest lines of DC and AC fans and blowers around. *And in stock.*

To place your order or for more information, contact us today.

INTERFAN DYNA-MITE SERIES DC FANS

Model	VDC Nom.	Airflow cfm Nom.	Input Power Watts Nom.	Frame H×W×D Inches (mm)
P0003-12D-1B-3	12	3.5	1.2	1½×1½×⅜ (40×40×10)
P0005-12D-1B-3	12	5.5	1.8	1½×1½×¾ (40×40×20)
P0005-24D-1B-3	24		2.4	
P0014-12D-2B-3	12	14.0		2½×2½×½ (62×62×15)
P0014-24D-2B-3	24		2.4	

marlow industries, inc.

Thermoelectric Innovation Through Research

10451 VISTA PARK ROAD, DALLAS, TEXAS 75238-1645 / TEL: 214-340-4900 / FAX: 214-341-5212

THERMOELECTRIC COOLERS

WHAT IS A THERMOELECTRIC COOLER?

Thermoelectric coolers (TECs) are solid-state, vibration-free, noise-free heat pumps. They are modular devices and are simple to install and operate. Since they consist primarily of thermoelectric material sandwiched between ceramic plates with no moving parts, they are inherently reliable.

A single-stage thermoelectric cooler is composed of a matrix of thermoelectric couples, connected electrically in series and thermally in parallel. The thermoelectric couple consists of a p- and n-type semiconductor material.

A TEC can be fabricated with as few as one couple to as many as several hundred couples sandwiched between two ceramic plates. These plates form the top and base of the cooler and provide structural integrity as well as electrical insulation from, and thermal conduction to, the heat sink and the device being cooled.

HOW IT WORKS

Regulating the direction and amount of current—with the use of a feedback loop and temperature controller—allows TECs to cool, heat, or stabilize temperature. Reversing the direction of the current reverses the direction of heat pumping. The figure opposite illustrates the operation of a thermoelectric couple in the cooling mode.

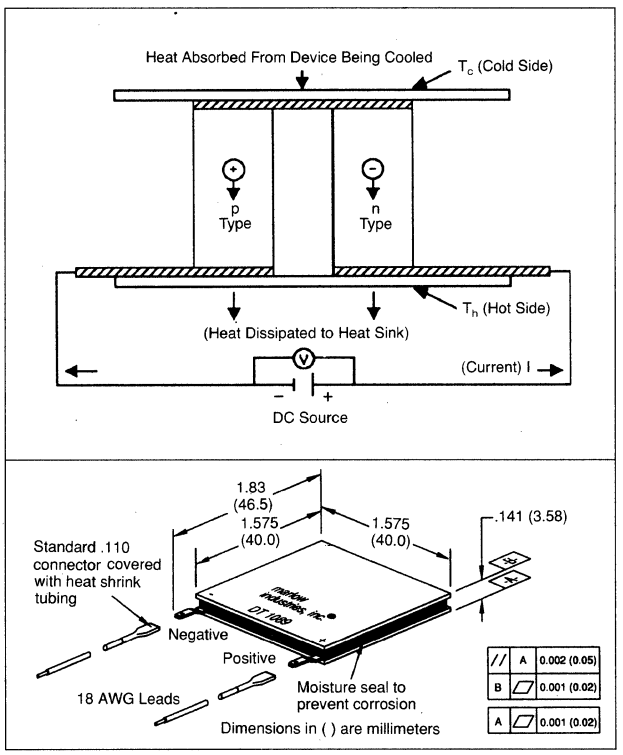
TYPICAL APPLICATIONS

Thermoelectric coolers are ideally suited to a wide variety of applications due to their small size, wide operating temperature range, low power requirements, and high reliability. Applications can be found in military, aerospace, and commercial products, laboratory and scientific equipment, medical instruments, and test equipment.

Electro-optic cooling applications include stabilizing the temperature of solid-state lasers, and cooling infrared detectors and charge coupled devices (CCDs).

Volume cooling includes small volumes of air or liquid, and cold plates.

Miscellaneous Electronic Components such as high speed integrated circuits, parametric amplifiers, avalanche photo diodes, and vidicon tubes can be spot cooled using thermoelectric coolers.



SELECTED STANDARD THERMOELECTRIC COOLERS*

Model Number	ΔT in Vacuum	ΔT in Dry N2	Qmax (Watts)	Imax (Amps)	Vmax (Volts)	Base Ceramic Width in. (mm)	Top Ceramic Length in. (mm)	Top Ceramic Width in. (mm)	Top Ceramic Length in. (mm)	Height in. (mm)
MI1010T	67	61	0.47	1.00	0.80	0.156 (4.0)	0.156 (4.0)	0.156 (4.0)	0.156 (4.0)	0.095 (2.4)
MI1011T	67	61	1.00	1.00	2.00	0.260 (6.6)	0.260 (6.6)	0.260 (6.6)	0.260 (6.6)	0.095 (2.4)
MI1012T	67	61	2.10	1.00	3.70	0.346 (8.8)	0.346 (8.8)	0.346 (8.8)	0.346 (8.8)	0.095 (2.4)
MI1013T	67	61	4.80	1.00	8.50	0.518 (13.2)	0.518 (13.2)	0.518 (13.2)	0.518 (13.2)	0.095 (2.4)
MI1020T	67	64	0.90	1.80	0.80	0.156 (4.0)	0.156 (4.0)	0.156 (4.0)	0.156 (4.0)	0.085 (2.2)
MI1021T	67	64	2.20	1.80	1.90	0.260 (6.6)	0.260 (6.6)	0.260 (6.6)	0.260 (6.6)	0.085 (2.2)
MI1022T	67	64	4.00	1.80	3.50	0.346 (8.8)	0.346 (8.8)	0.346 (8.8)	0.346 (8.8)	0.085 (2.2)
MI1023T	67	64	9.20	1.80	8.00	0.518 (13.2)	0.518 (13.2)	0.518 (13.2)	0.518 (13.2)	0.085 (2.2)
MI1025T	67	64	5.00	1.80	4.40	0.346 (8.8)	0.432 (11.0)	0.346 (8.8)	0.346 (8.8)	0.084 (2.1)
MI2021T	91	83	0.92	1.40	2.00	0.260 (6.6)	0.260 (6.6)	0.156 (4.0)	0.156 (4.0)	0.149 (3.8)
MI2012T	86	77	2.40	1.20	5.40	0.432 (11.0)	0.389 (9.9)	0.346 (8.8)	0.260 (6.6)	0.147 (3.7)
MI3026T	109	93	0.62	1.30	3.40	0.346 (8.8)	0.346 (8.8)	0.160 (4.1)	0.174 (4.4)	0.234 (5.9)
MI3040	109	98	5.60	4.50	7.30	0.855 (21.7)	1.113 (28.3)	0.339 (8.6)	0.511 (13.0)	0.430 (10.9)
MI4012T	114	—	0.76	1.00	6.70	0.520 (13.2)	0.678 (17.2)	0.160 (4.1)	0.314 (8.0)	0.345 (8.8)
MI4040	120	—	2.70	4.00	6.80	0.855 (21.7)	1.113 (28.2)	0.253 (6.4)	0.425 (10.8)	0.561 (14.3)
MI6030	133	—	0.58	3.60	6.30	0.855 (21.7)	1.113 (28.3)	0.205 (5.2)	0.205 (5.2)	0.809 (20.5)

Introducing Marlow Industries' new line of competitively priced DuraTEC™ thermoelectric coolers for high heat pumping applications. The DuraTEC™ line features: sealing to improve reliability in condensing environments, high effeciency thermoelectric material, connectorized lead wires for quick and reliable connections, dual Nickel diffusion barriers for improved operational life, and inventory for quick delivery.

DuraTEC™ THERMOELECTRIC COOLERS

DT1039	67	64	27.8	3.0	15.1	1.181 (30)	1.181 (30)	1.181 (30)	1.181 (30)	0.144 (3.66)
DT1049	67	64	33.3	3.6	14.8	1.181 (30)	1.181 (30)	1.181 (30)	1.181 (30)	0.144 (3.66)
DT1069	67	64	51.5	5.5	15.1	1.575 (40)	1.575 (40)	1.575 (40)	1.575 (40)	0.159 (4.04)
DT1089	67	64	66.0	7.5	14.8	1.575 (40)	1.575 (40)	1.575 (40)	1.575 (40)	0.141 (3.58)
DT1033	67	64	15.5	3.0	8.2	0.906 (23)	0.906 (23)	0.906 (23)	0.906 (23)	0.144 (3.66)
DT1043	67	64	18.6	3.6	8.2	0.906 (23)	0.906 (23)	0.906 (23)	0.906 (23)	0.144 (3.66)
DT1063	67	64	28.6	5.5	8.2	1.181 (30)	1.181 (30)	1.181 (30)	1.181 (30)	0.159 (4.04)
DT1083	67	64	39.2	7.5	8.2	1.181 (30)	1.181 (30)	1.181 (30)	1.181 (30)	0.141 (3.58)
DT1133	67	64	68.0	13.0	8.2	1.732 (44)	1.732 (44)	1.732 (44)	1.732 (44)	0.164 (4.17)
DT1062	67	64	12.5	5.5	3.6	0.787 (20)	0.787 (20)	0.787 (20)	0.787 (20)	0.159 (4.04)
DT1082	67	64	17.0	7.5	3.6	0.787 (20)	0.787 (20)	0.787 (20)	0.787 (20)	0.141 (3.58)
DT1132	67	64	29.7	13.0	3.6	1.181 (30)	1.181 (30)	1.181 (30)	1.181 (30)	0.164 (4.17)

marlow industries, inc.

Thermoelectric Innovation Through Research

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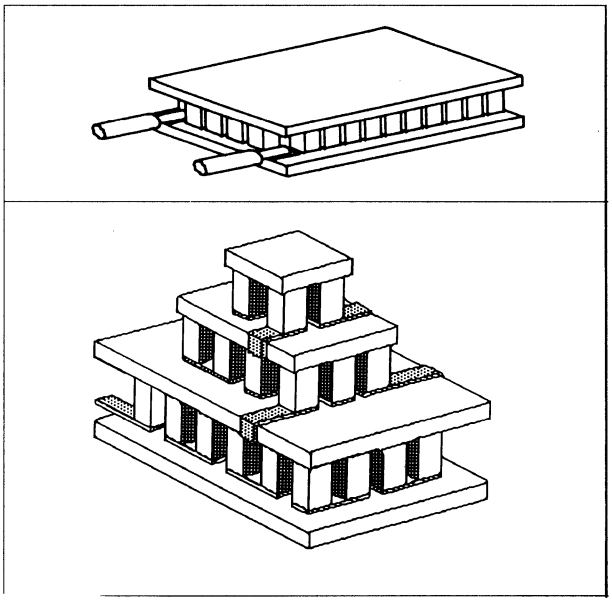
ADVANTAGES OF USING THERMOELECTRIC COOLING

- ☐ Localized Cooling
- ☐ Solid State Reliability
- ☐ Temperature Control Above or Below Ambient
- ☐ DC Powered
- ☐ No Gases or Refrigerant Required
- ☐ Small, Lightweight Package
- ☐ Operation in Any Orientation
- ☐ High Resistance to Shock and Vibration
- ☐ Operation in Zero Gravity
- ☐ No Moving Parts
- ☐ Operation in High-G Levels
- ☐ No Acoustical Noise
- ☐ Heating or Cooling—Depending on Current Direction
- ☐ No Electrical Noise
- ☐ Precision Temperature Control to less than .05°C
- ☐ Maintenance Free

TEMPERATURE CONTROLLER/POWER SUPPLIES

MI's new SE5000 Series of three Temperature Controller/Power Supplies (TC/PS) is designed for temperature control of TECs used with laser diodes, infrared detectors, charge-coupled devices, high-gain amplifiers, and cold plates. This full-featured, linear bipolar power supply offers one of the widest precision temperature control ranges on the market—from -99.9°C to 150°C. Features include: Adjustable bipolar DC output current; programmable PID control/ramp-to-setpoint control; high, low, and deviation limit alarms; digital readout of output voltage and current; simultaneous display of temperature and setpoint; availability with four thermistor types or thermocouple; automatic and manual operating modes; 115/230 VAC at 60/50 Hz for worldwide use; bench/rack model. For applications requiring lower capacity cooling only, Marlow Industries, Inc., offers the bench-rack model SE1032 Temperature Controller/Power Supply.

SE5000 Output: 9 volts @ 2 amps to 12 volts @ 1 amp
SE5010 Output: 16 volts @ 6 amps to 21 volts @ 1 amp
SE5020 Output: 16 volts @ 12 amps to 21 volts @ 1 amp
SE1032 Output: 3.5 volts @ 2 amps to 4 volts @ .14 amps



ASSEMBLIES AND RELATED PRODUCTS

COLD PLATES

Liquid Cooled. ST2018. ΔTmax = 49°C; Vmax = 12.4 volts; Imax = 9.5 amps; Qmax = 70 watts; 3.5″ × 4.25″ (89 × 109) Cold Plate

Fan Cooled. ST2033. ΔTmax = 38°C; Vmax = 12.5 volts; Imax = 8.5 amps; Qmax = 60 watts; 3.25″ × 3.25″ (83 × 83) Cold Plate

VACUUM ENCLOSURE. ST1018. 3.6″ (91) ID; 1.5″ (38) dia. Quartz window; O-Ring seal; 42 Feed-throughs

HEAT SINKS

Fan Cooled. ST2032. Fan power required: 115 VAC, 60HZ; Heat sink resistance = 0.15°C/watt

Liquid Cooled. ST1050. Water inlet required; Heat sink resistance = 0.05°C/watt @ 0.4 Gal/min.

ORDERING INFORMATION

Our Customer Service Department will be pleased to provide our full catalog as well as product data sheets on the TECs which best meet your needs. Please direct your call to our Customer Service department at 214-340-4900, or send a FAX to 214-341-5212. Marlow Industries can also provide support through local representatives in most international locations.

HOW TO SPECIFY THERMOELECTRIC COOLERS

The standard TECs on the previous page are a representative sample of our product line and are grouped according to the number of stages indicated by the first digit following the "MI." They are listed in increasing order according to heat pumping capacity (Qmax); the net heat load to completely suppress ΔT at the maximum applied power (Imax @ Vmax). For example, the MI3026T is a three-stage TEC which produces 109°C ΔT in a vacuum at I.3 amps @ 3.4 volts. It will take .62 watts to completely suppress that ΔT to zero. This suppression is linear, so that 10% of Qmax (0.072 watts) applied to the cold plate would suppress ΔT 10%, thereby producing 98.1°C ΔT for that heat load condition. Because of the non-linear behavior of TECs and the number of variables involved in analyzing them, they can be designed and modeled more accurately by our experienced engineers using Marlow Industries' proprietary computer software.

For selection of TECs with more than two stages, or if more precision is required, please consult one of our applications engineers.

ORDERING TECs

After you have chosen the TEC which meets your performance requirements, you will need to specify the complete model number. This consists of the base model number followed by the type of metallization (which varies depending on method of installation) and type of ceramic (following model number in table at left).

—01 = both sides are metallized • AC = aluminum oxide ceramics
—02 = hot side only is metallized • BC = beryllium oxide ceramics
—03 = no metallization • AB = combination of AB & BC

For example, an MI1021T with both sides metallized is specified as MI1021T-01AC followed by any of these special options:

- Pretinning w/96°C or 117°C solder on metallized ceramic surface(s).
- Thermistor mounted on edge of cold-side ceramic. (Calibration available.)
- Lapped to ±.001 inch (.025 mm) cf a nominal height. (Available on some TECs. All DuraTEC's may be lapped to ±0.001".
- Elevated temperature burn-in. (Standard on some TECs, available on others.
- DuraTEC™ greater than 0.75" x 0.75" are available in —03 only.

Unlimited Cooling Solutions!

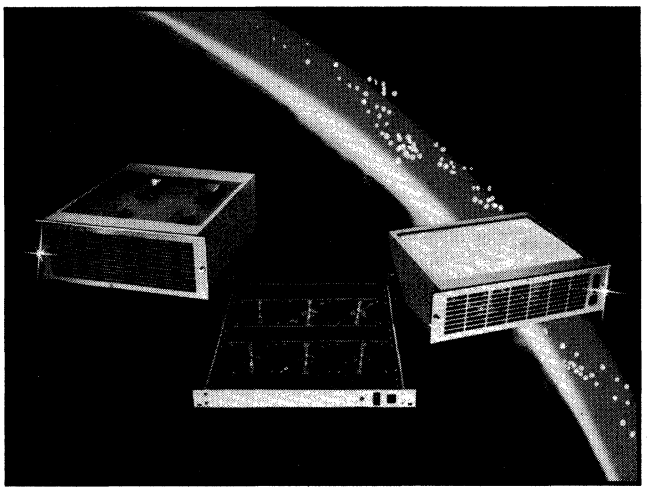
Standard, Modified, and Custom Cooling Capabilities From the Industry's Pioneer...

McLEAN CARD COOLERS

—Single and Variable Speed Cooling for VME Multi-Bus II Card Cages

- **Cooling on Demand**
- **Performance Monitoring**
- **150 to 1300 CFM, 0-1.4" Static Pressure**

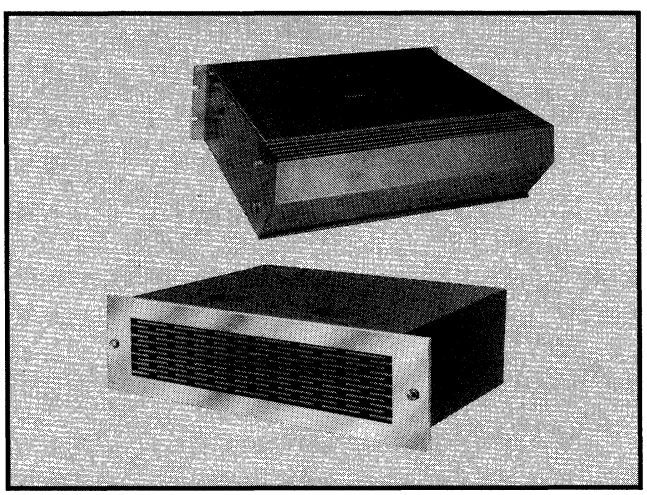
McLean's new "smart" CARD COOLERS combine maximum efficiency with maximum reliability, resulting in reduced downtime for your entire system. The CARD COOLERS' ability to sense heat levels and match motor speeds to cooling requirements means ultra quiet operation with lower power usage and less wear and tear on the system components. Available in fan tray, packaged fan and packaged blower versions, single or variable speeds.



McLEAN PACKAGED BLOWERS

- **Broad Range of Models**
- **Designed-In Dependability**
- **60-2,500 CFM, 0.0" to 9.0" Static Pressure**
- **115-230VAC, 12, 24, 48VDC**

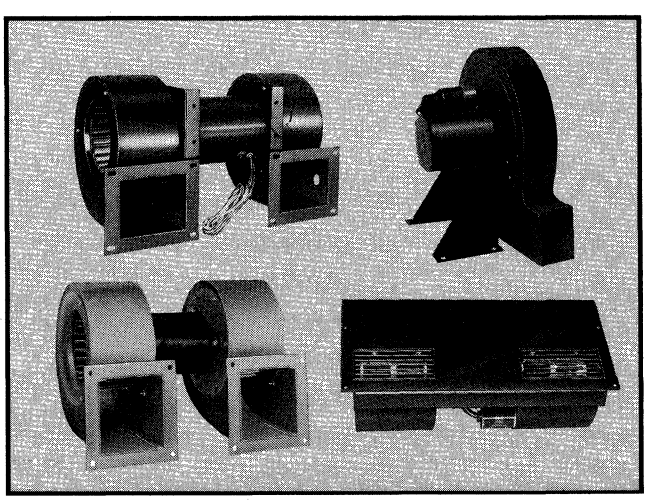
McLean was the pioneer in developing compact, high performance forced-air cooling units designed to protect heat-sensitive rack-mounted electronics. We're still the leaders, and can offer a wide range of configurations, CFMs, static pressures, shielding, and more. And, our vertically-integrated manufacturing processes mean that you can off-load much of your subassembly work to McLean for lower cost, and faster delivery of units that are ready to "plug and play".



McLEAN CENTRIFUGAL BLOWERS

- **Single, Dual, Radial**
- **Thousands of Configurations**
- **0-2,500 CFM, 0.0" to 9.0" Static Pressure**
- **115-230VAC, 12, 24, 48VDC**

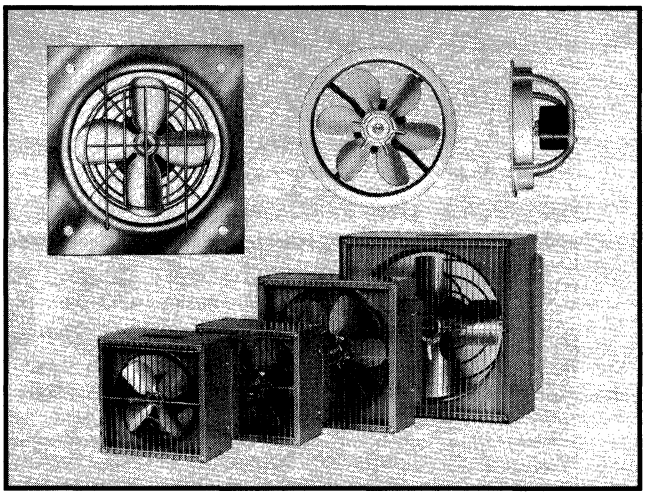
Applications limited only by your imagination! These McLean centrifugals are working full time worldwide cooling a full spectrum of electronic systems. Units are available with a range of wheel diameters, available with AC or DC power, and highly reliable heavy duty motors UL recognized and CSA approved. Standard, modified and custom housings, and mounting make short work of your cooling design problems.



McLEAN FANS

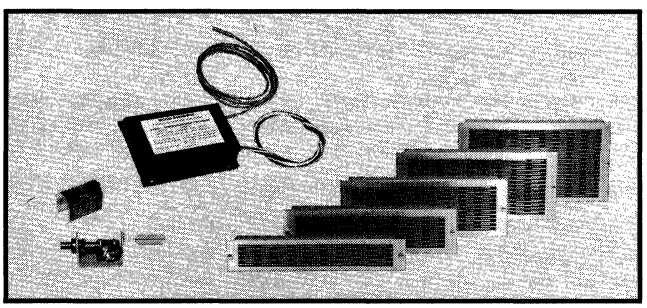
- **Filter Box, Orifice, Panel**
- **Rugged, Adaptable, Economical**
- **275 to 1,200 CFM, 0.0" to 2.5" Static Pressure**

Our range of prefiltered sizes, performance and configurations were designed with flexibility in mind. Units can pressurize or evacuate any enclosure, with vertical or horizontal mounting. Narrow depth dimensions allow flush, close-wall mounting where space is limited. Units are precisely balanced for quiet, vibration-free operation.



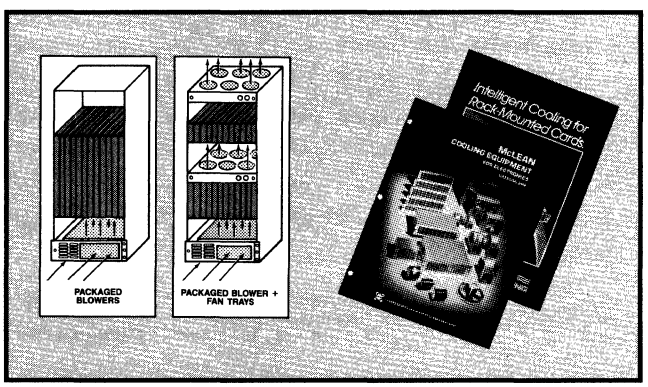
McLEAN ACCESSORIES

McLean offers a wide range of cooling product accessories, ranging from Filter Grille Panels, inlet or exhaust guards, airflow switches and controllers, and more. Accessories can be supplied mounted on order, or retrofitted to existing applications. Custom accessories, too.



DESIGN ASSISTANCE

McLean's design engineers have been winning the battle against electronically-generated heat for decades, and are ready and willing to apply that expertise to your cooling project. For custom and modified applications, our computer-aided design systems and testing laboratories are the industry's best. For standard applications, our print files contain thousands of proven cooling solutions ready to go to work for you right now. Call or write for our comprehensive literature!



72 HOUR SHIPMENT

Just three days—that's all it takes to put one of the McLean 72 hour units on the dock ready to ship to you, with overnight delivery if necessary. McLean has hundreds of units ready to manufacture from inventoried parts that can keep your supply surprises from turning into downtime.

72 HOURS

AND MORE...

- **Over 5,000 active designs** including MIL-SPEC
- **Shielded Cooling**
- **Heat Exchangers**
- **McLean Motors**

Call Us!

ZERO McLEAN ENGINEERING

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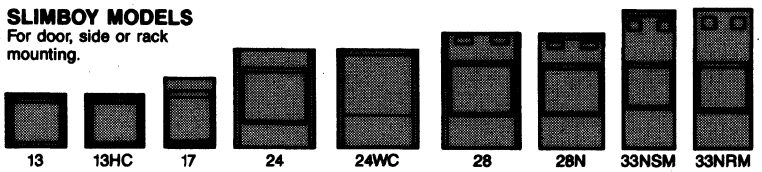
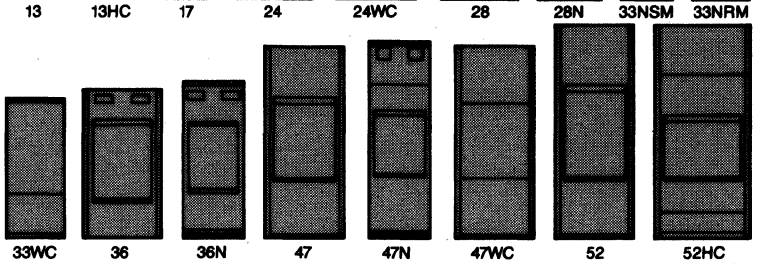
YOUR SINGLE SOURCE AIR FORCE

COOLING ELECTRICAL & ELECTRONIC ENCLOSURES

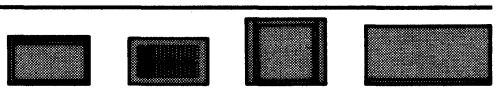
CLOSED-LOOP AIR CONDITIONERS

SLIMBOY MODELS
For door, side or rack mounting.

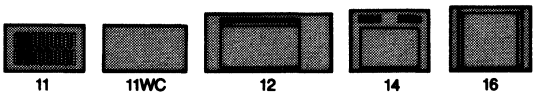




HIBOY MODELS
For top, side and rack mounting. Cool air blows down.



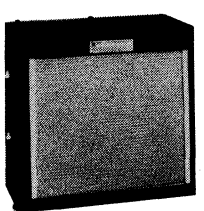
LOBOY MODELS
For side or rack mounting. Cool air blows up.



MODEL	BTU/HR CAPACITY	DIMENSIONS
Slimboy 13	1,2	$12^{7}/_{8}$ x $6^{1}/_{4}$ x $14^{1}/_{8}$
Slimboy 13HC	1,4	$12^{7}/_{8}$ x $6^{1}/_{4}$ x $14^{1}/_{8}$
Slimboy 17	2	17 x $7^{1}/_{4}$ x 12
Slimboy 24	1,4,2,3	24 x $9^{1}/_{8}$ x 19
Slimboy 24WC	2,4	24 x $9^{9}/_{16}$ x 19
Slimboy 28	2,3,4,5,6	$28^{1}/_{2}$ x $9^{1}/_{8}$ x 19
Slimboy 28N	2,3,4	30 x $9^{1}/_{8}$ x 17
Slimboy 33NSM	2,4	$34^{1}/_{8}$ x $8^{13}/_{16}$ x $12^{3}/_{8}$
Slimboy 33NRM	2,4	$34^{1}/_{4}$ x $8^{7}/_{8}$ x $13^{3}/_{4}$
Slimboy 33WC	2,4	$34^{1}/_{8}$ x $8^{3}/_{4}$ x $12^{3}/_{8}$
Slimboy 36	4,5,6,8	$36^{11}/_{16}$ x 10 x 19
Slimboy 36N	4,5,6	$38^{11}/_{16}$ x 10 x 15
Slimboy 47	4,5,6	$47^{1}/_{4}$ x 10 x 19
Slimboy 47N	7,8,9,10	$49^{1}/_{8}$ x 10 x 15
Slimboy 47WC	4,6,8,12	$47^{1}/_{4}$ x 10 x 19
Slimboy 52	5,6,7,8,9,10,12	$52^{9}/_{8}$ x $9^{1}/_{2}$ x 19
Slimboy 52HC	14,16,19	$52^{1}/_{2}$ x $12^{7}/_{8}$ x 23
Hiboy 11TSM	2,3,4	$10^{1}/_{4}$ x 20 x 17
Hiboy 11RM	2,3,4	$10^{15}/_{32}$ x $19^{9}/_{8}$ x 19
Hiboy 16	5,6,7,8,9	$15^{23}/_{32}$ x $25^{5}/_{16}$ x 19
Hiboy 30TSM	4,5,6	14 x $31^{3}/_{8}$ x $16^{3}/_{8}$
Loboy 11	2,3,4	$10^{15}/_{32}$ x $19^{9}/_{8}$ x 19
Loboy 11WC	2,4	$10^{15}/_{32}$ x $19^{9}/_{8}$ x 19
Loboy 12	2,4	$11^{1}/_{8}$ x $14^{7}/_{8}$ x $24^{1}/_{2}$
Loboy 14	4,5,6,7	$14^{3}/_{4}$ x $23^{9}/_{8}$ x 19
Loboy 16	5,6,7,8,9,10	$15^{23}/_{32}$ x 24 x 19

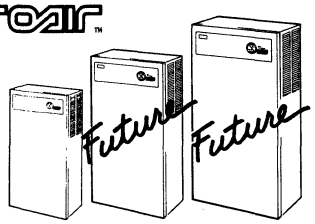
Condensate Evaporator — Mounts to underside of Slimboy when floor drain not available.

Use a McLean Midwest air conditioner when temperatures inside the enclosure must be at or below the ambient air temperature, or when humidity must be removed. Many popular models are *now in stock* and ready for immediate shipment.

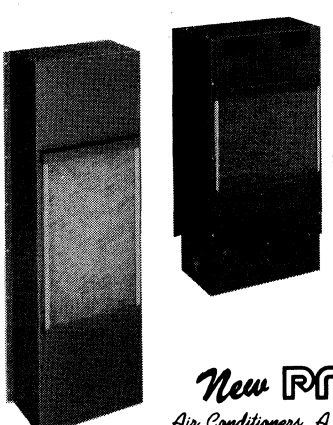


SLIMBOY 13HC

ProAir™

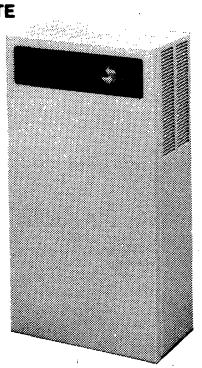


More ProAir CR Series to come – Contact McLean Midwest



SLIMBOY 52

SLIMBOY 28 WITH CONDENSATE EVAPORATOR



New ProAir™

Air Conditioners. A Revolution in Cooling Technology. Side Mount & Rack Mount Air Conditioners from 2,000 BTU/Hr to 11,000 BTU/Hr

Call today for a free ProAir Brochure.

Closed-loop cooling systems for electronic and electrical enclosures from the industry leader

High quality cooling systems from McLean Midwest protect sensitive electrical/electronic systems from harmful heat build-up and costly shutdowns. Find the perfect solution to your enclosure cooling challenges in the industry's most extensive line of air conditioners and heat exchangers.

Dependable

- Designed and manufactured by the industry leader and specialist in cooling for electronics.
- Delivered on time.
- Popular units are now in stock and ready for immediate shipment.

Rapid Payback

- Prevent costly shutdowns caused by heat build-up.
- Prolong the useful life of sensitive electronic components.
- Reduce the frequency of scheduled shutdowns for cleaning.
- Can pay for themselves by preventing a *single* shutdown.

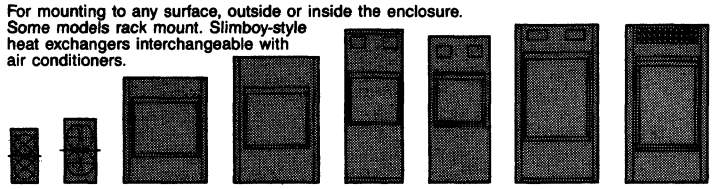
Our experienced applications engineers, in the field and at the factory, are eager to discuss your application and help you select the best solution to your cooling needs. The following listing represents our most popular units. Other units, options and accessories are readily available. If we don't have the exact model for your specifications, our skilled engineers can design one for you. Call us for more details.

CLOSED-LOOP HEAT EXCHANGERS

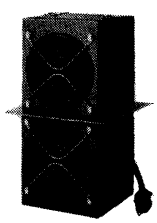
Use a McLean Midwest heat exchanger when the enclosure air temperature can be slightly higher than the ambient. Heat exchangers provide efficient, low-cost cooling. Many popular models are *now in stock* and ready for immediate shipment.

MODELS WITH MODIFIED HEAT PIPE CORE

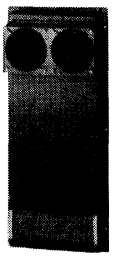
For mounting to any surface, outside or inside the enclosure. Some models rack mount. Slimboy-style heat exchangers interchangeable with air conditioners.



HE-11 HE-15 HE-24 HE-28 HE-33NSM HE-33NRM HE-36 HE-36HC



HE-11



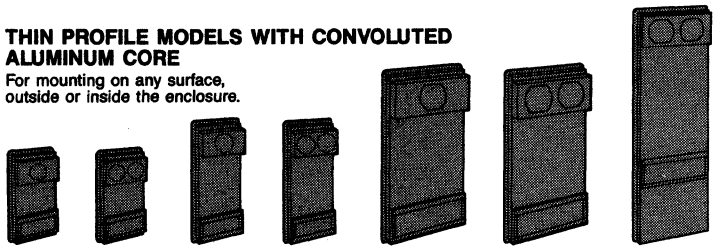
HX-26DF

HE-36

XR 20-4

THIN PROFILE MODELS WITH CONVOLUTED ALUMINUM CORE

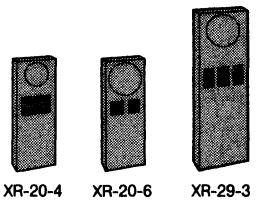
For mounting on any surface, outside or inside the enclosure.



HX-20SF HX-20DF HX-26SF HX-26DF HX-38SF HX-38DF HX-60DF

ProAir™ XR SERIES HEAT EXCHANGERS

NEW



XR-20-4 XR-20-6 XR-29-3

New ProAir™ XR series heat exchangers incorporate a sleek, louvered appearance and efficient, maintenance-free operation.

MODEL	W/°F EFFICIENCY RATING Air Out	Avg.	Air In	DIMENSIONS (L. High x Deep x Wide)
XR 20-4	6.6	6.0	5.2	20 x 3 x 7½
XR 20-6	7.2	6.1	5.2	20 x 3 x 7½
XR 29-3	34	21	14	29 x 3 x 10
HE-11	13	7	5	11 9/16 x 5 1/4 x 5 1/8
HE-15	36	27	21	15 x 7 7/8 x 7 1/8
HE-24	54	38	28	24 x 9 1/8 x 19
HE-28	57	39	28	28 1/2 x 8 11/16 x 19
HE-33NSM	61	38	26	34 1/8 x 8 13/16 x 12 3/8
HE-33NRM	61	38	26	34 1/4 x 8 7/8 x 13 3/4
HE-36	57	37	25	36 11/16 x 8 11/36 x 19
HE-36HC	93	52	34	36 11/16 x 12 9/16 x 19
HX-20SF Single Fan	13	10	7	20 3/16 x 2 1/16 x 11 3/16
HX-20DF Double Fan	15	10	7	20 3/16 x 2 1/16 x 11 3/16
HX-26SF Single Fan	16	11	8	26 3/16 x 2 1/16 x 11 3/16
HX-26DF Double Fan	16	11	8	26 3/16 x 2 1/16 x 11 3/16
HX-38SF Single Fan	74	33	18	38 1/4 x 2 1/16 x 20
HX-38DF Double Fan	69	37	22	38 1/4 x 2 1/16 x 20
HX-60DF Double Fan	57	35	23	59 7/8 x 2 1/16 x 19 27/32

CLIMATE CONTROLLERS
McLEAN MIDWEST

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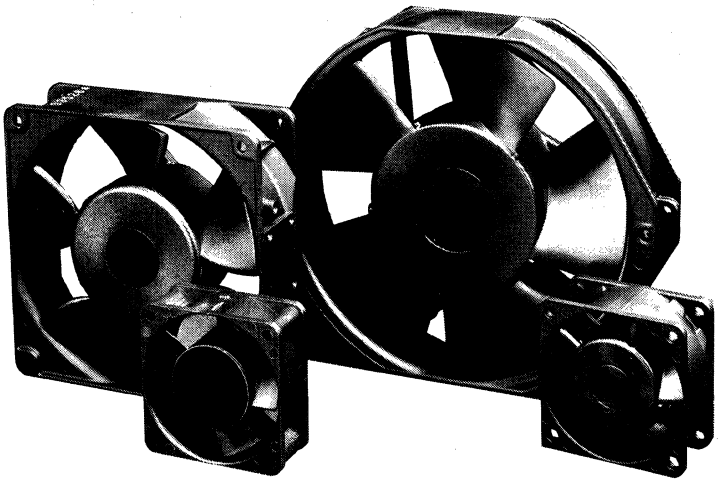
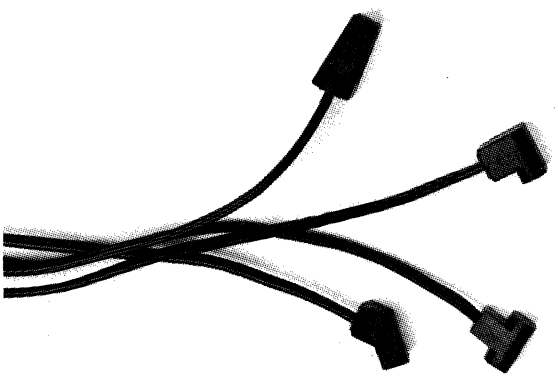
SUBSIDIARY OF ZERO CORPORATION

MECHATRONICS®

AC AND DC COOLING FANS

- Ball Bearing Construction, 50,000 hours minimum life
- Ultra Quiet
- Multiple Speeds
- Huge Inventory—over 150,000 fans
- Same day shipment
- UL/CSA/VDE Certifications
- Speed Sensing on DC Fans
- Low Power Consumption
- Over 100 Models





FAN POWER CORDS

Model #	Plug Style	Cord Length (In.)
07100	Straight	12, 24, 36 thru 80
07145	45°	12, 24, 36 thru 80
07190	90°	12, 24, 36 thru 80
07199	"T"	12, 24, 36 thru 80

Special lengths and Daisy Chain/multiple fan connections available upon request.

UL listed, CSA approved

Extensive Stock, Same Day Service

FINGER GUARDS

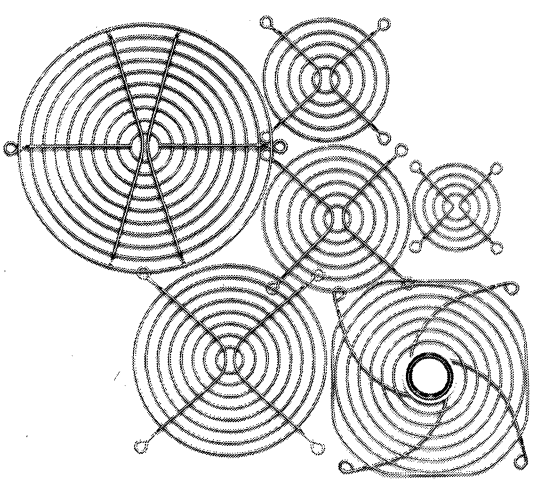
Basic Model #	Fan O.D.	Centerline Dim. of Mounting Holes
SG-14	1.4 in./40mm	1.26 in./32mm
SG-24	2.4 in./60mm	1.97 in./50mm
SG-31	3.1 in./80mm	2.8 in./71mm
SG-36	3.6 in./92mm	3.25 in./82mm
SG-47	4.7 in./120mm	4.13 in./105mm
SG-59	5.9 in./150mm	6.38 in./162mm

Finish-nickel chrome or black upon request

Meets UL spacing requirements

Plastic guards available in most frame sizes

Extensive Stock, Same Day Service



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MECHATRONICS®

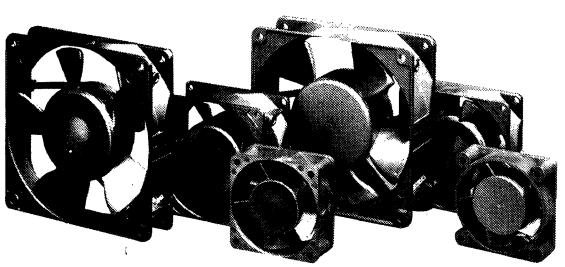
NMB TECHNOLOGIES INCORPORATED

DC-SERIES FANS

Model #	Volts	Voltage Range	Watts	mAMPS	Speed	Noise dB(A)	CFM	Dim. In./mm
2408PL-04W-B30	12	6-18.8	1.8	150	3100	28	9	2.36 (60)
-B40	12	6-13.8	2.3	190	4200	35	12	All Models
2408PL-05W-B30	24	12-27.6	1.9	80	3100	28	9	
-B40	24	12-27.6	2.9	120	4200	35	12	
2410NL-04W-B10	12	6-13.8	1.0	80	3000	24	12	2.36 (60)
-B20	12	6-13.8	1.1	90	3300	26	13	All Models
-B30	12	6-13.8	1.2	100	4000	29	17	
-B40	12	6-13.8	1.7	140	4600	33	19	
-B50	12	6-13.8	2.5	210	5300	38	23	
2410NL-05W-B10	24	12-27.6	1.0	40	3000	24	12	
-B20	24	12-27.6	1.2	50	3300	26	13	
-B30	24	12-27.6	1.4	60	4000	29	17	
-B40	24	12-27.6	1.9	80	4600	33	19	
-B50	24	12-27.6	2.2	90	5300	38	23	
2410PL-04W-B20	12	6-13.8	1.0	80	2300	25	9	2.36 (60)
-B30	12	6-13.8	1.4	120	3150	30	14	All Models
-B40	12	6-13.8	2.4	200	3900	37	18	
2410PL-05W-B20	24	12-27.6	1.7	70	2200	25	9	
-B30	24	12-27.6	1.9	80	3150	30	14	
-B40	24	12-27.6	2.6	110	3900	37	18	
3110NL-04W-B10	12	6-13.8	0.8	70	1950	20	23	3.15 (80)
-B20	12	6-13.8	1.0	80	2150	23	27	All Models
-B30	12	6-13.8	1.2	100	2450	26	30	
-B40	12	6-13.8	1.8	150	2950	32	35	
-B50	12	6-13.8	2.6	220	3400	36	42	
3110NL-05W-B10	24	10-27.6	1.4	60	1950	21	23	
-B20	24	10-27.6	1.7	70	2150	23	27	
-B30	24	10-27.6	1.9	80	2450	26	30	
-B40	24	10-27.6	2.2	90	2950	32	35	
-B50	24	10-27.6	2.9	120	3400	36	42	
3110PL-04W-B20	12	6-13.8	1.1	90	2250	27	21	3.15 (80)
-B30	12	6-13.8	1.8	150	2900	34	27	All Models
-B40	12	6-13.8	2.5	210	3500	38	32	
3110PL-05W-B20	24	10-27.6	1.9	80	2250	27	21	
-B30	24	10-27.6	2.2	110	2900	34	27	
-B40	24	10-27.6	3.4	140	3500	38	32	
3610NL-04W-B10	12	6-13.8	1.2	100	2000	24	31	3.62 (92)
-B20	12	6-13.8	1.6	130	2300	27	35	All Models
-B30	12	6-13.8	2.2	180	2700	32	42	
-B40	12	6-13.8	3.2	270	3100	36	51	
3610NL-05W-B10	24	10-27.6	1.2	60	2000	24	31	
-B20	24	10-27.6	1.7	70	2300	27	35	
-B30	24	10-27.6	2.4	100	2700	32	42	
-B40	24	10-27.6	3.1	130	3100	36	51	
3610PL-04W-B20	12	7-13.8	1.9	180	2200	33	35	3.62 (92)
-B30	12	7-13.8	3.2	270	2900	39	47	All Models
3610PL-05W-B20	24	10-27.6	2.2	90	2200	33	35	
-B30	24	10-27.6	3.6	150	2900	39	47	
4710PL-04W-B20	12	7-13.8	2.4	200	2000	33	53	4.69 (119)
-B30	12	7-13.8	4.2	350	2700	38	71	All Models
4710PL-05W-B20	24	10-27.6	3.1	130	2000	33	53	
-B30	24	10-27.6	5.3	220	2700	38	71	
4715ML-04W-B10	12	6-13.8	2.4	200	1850	30	65	4.69 (119)
-B30	12	6-13.8	6	500	2800	41	100	All Models
4715ML-05W-B30	24	10-27.6	7.2	300	2800	41	100	
4715PL-04W-B20	12	6-13.8	3.6	300	2500	38	75	4.72 (120)
-B30	12	6-13.8	5.9	540	3000	42	95	All Models
4715PL-05W-B20	24	10-27.6	4.3	210	2500	38	80	
-B30	24	10-27.6	5.9	245	3100	43	95	

AC-SERIES FANS

Model #	Volts	Watts	mAMPS	Speed	Noise dB(A)	CFM	Dim. In./mm
2412PS-12W-B30	115	4	44	3000	29	11	2.36 (60)
3110PS-12W-B30	115	5	76	3100	33	20	3.15 (80)
3115FS-12T-B00	115	4	45	1850	31	18	3.15 (80)
-B10-A00	115	6	87	2100	38	21.5	All Models
-B20	115	7	90	2700	40	27	
-B30	115	8.5	100	3250	44	32	
3115FS-23T-B10	230	.5	50	2050	35	20	
-B20	230	7.5	60	2750	40	28	
-B30	230	8.0	85	3250	44	33	
3115PS-12T-B10	115	4.2	58	2500	25	28	3.15 (80)
-B20	115	4.5	58	2750	31	29	All Models
-B30	115	6.9	100	3300	38	34	
3115PS-23T-B10	230	4.6	44	2550	26	26	
-B20	230	4.7	44	2900	34	29	
-B30	230	6.6	58	3300	38	34	
3610PS-12T-B10	115	5.5	73	2200	25	20	3.62 (92)
-B20	115	6	74	2800	36	28	All Models
-B30	115	9	110	3200	38	35	
3610PS-23T-B10	230	5	43	2300	28	20	
-B20	230	5	44	2600	35	28	
-B30	230	9	68	3200	39	35	
4710PS-12T-B20	115	8	90	2300	30	57	4.59 (119)
-B30	115	11	136	3100	38	77	All Models
4710PS-23T-B20	230	7	34	2200	30	56	
-B30	230	10	68	2900	38	75	
4715FS-12T-B00	115	9	97	1950	40	80	4.72 (120)
-B10	115	9.5	110	2200	41	70	All Models
-B20	115	10	120	2350	42.6	80	
-B30	115	14.5	180	2650	53.5	90	
-B40	115	15	195	3000	55	100	
-B50	115	17	205	3300	58	110	
4715FS-23T-B00	230	8	45	1950	40	60	
-B10	230	10	55	2200	41	70	
-B20	230	8	65	2350	42.6	80	
-B30	230	10.5	90	2650	53.5	90	
-B40	230	13	100	3000	55	100	
-B50	230	14	110	3300	56	110	
4715MS-12T-B10	115	5.5	80	1450	28	49	4.72 (120)
-B20	115	7.0	100	1950	30	67	All Models
-B30	115	10.0	140	2600	37	88	
-B40	115	13.0	190	2750	39	95	
-B50	115	13.0	210	2900	41	102	
4715MS-23T-B10	230	6.0	45	1450	28	49	
-B20	230	7.5	60	1950	30	87	
-B30	230	11.0	80	2600	37	88	
-B40	230	13.0	100	2750	39	95	
-B50	230	14.0	100	2900	41	102	
4715PS-12T-B10	115	6.5	82	1950	28	65	4.72 (120)
-B20	115	10	129	2900	43	98	All Models
-B30	115	14	180	3200	46	106	
4715PS-23T-B10	230	6.5	33	1720	26	58	
-B20	230	10	61	2900	43	97	
-B30	230	13	93	3200	46	106	
5915PC-12T-B10	115	18	190	1650	38	102	6.77 (172)
-B20	115	22	210	2600	50	170	All Models
-B30	115	32	360	3200	58	212	
5915PC-23T-B10	230	18	110	1650	36	102	
-B20	230	26	140	2600	50	170	
-B30	230	35	180	3200	56	212	



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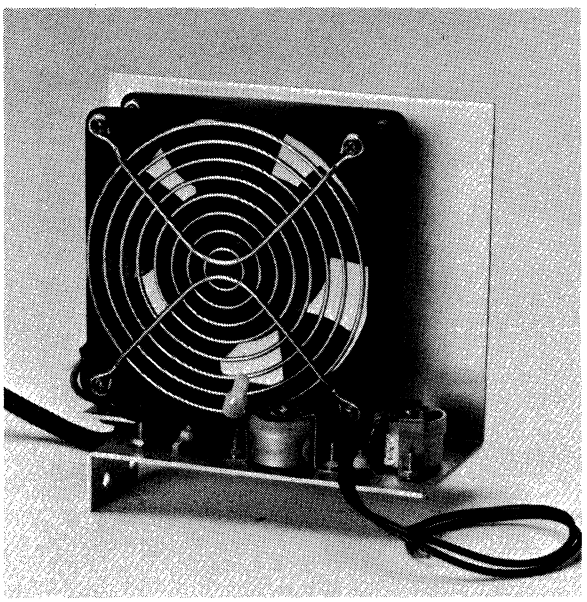
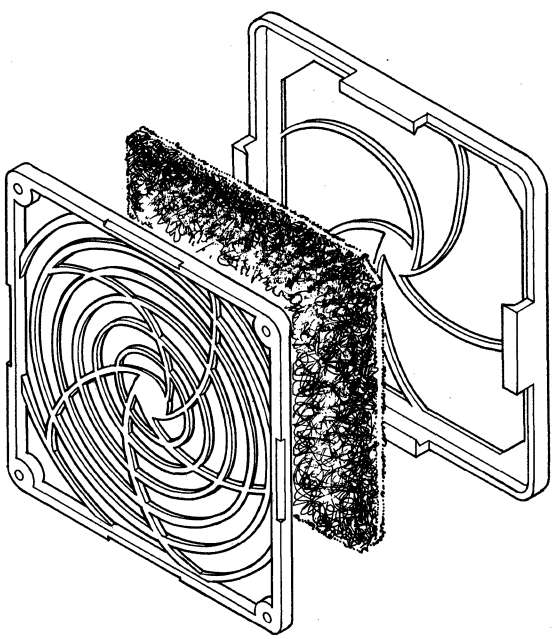
MECHATRONICS®

SPECIAL CUSTOMER DESIGNED ASSEMBLIES (VALUE ADDED)

- Wire Harnesses and Connectors
- Custom fabricated sheet metal parts
- Fans assembled with finger guards
- Customer specified component assemblies
- Power cord sub assemblies





FILTER ASSEMBLIES

Basic Model #	Fan O.D.	Media Porosity
09325	3.1 in./80mm	30 thru 100 PP
09362	3.6 in./92mm	30 thru 100 PP
09450	4.7 in./120mm	30 thru 100 PP

Retainer and guard UL 94 VO material
Media easily cleaned

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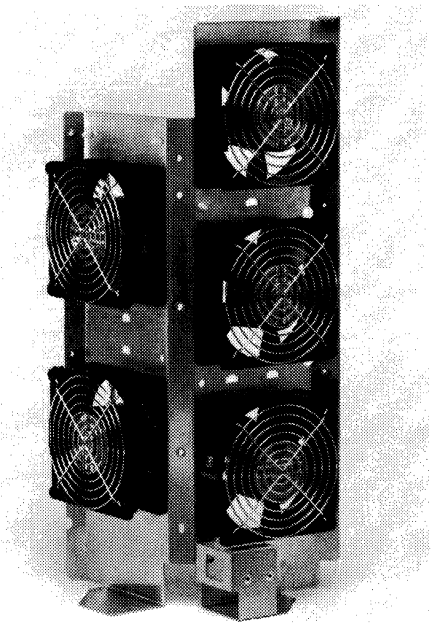
MECHATRONICS®

CUSTOM AND STANDARD SHEET METAL COOLING MODULES

- Customer specified sheet metal fan assemblies
- Extremely competitive pricing
- Huge inventory of standard fans and accessories
- Special wire harness capability
- 100% functional testing on all assemblies
- Cost reduction / redesign capability

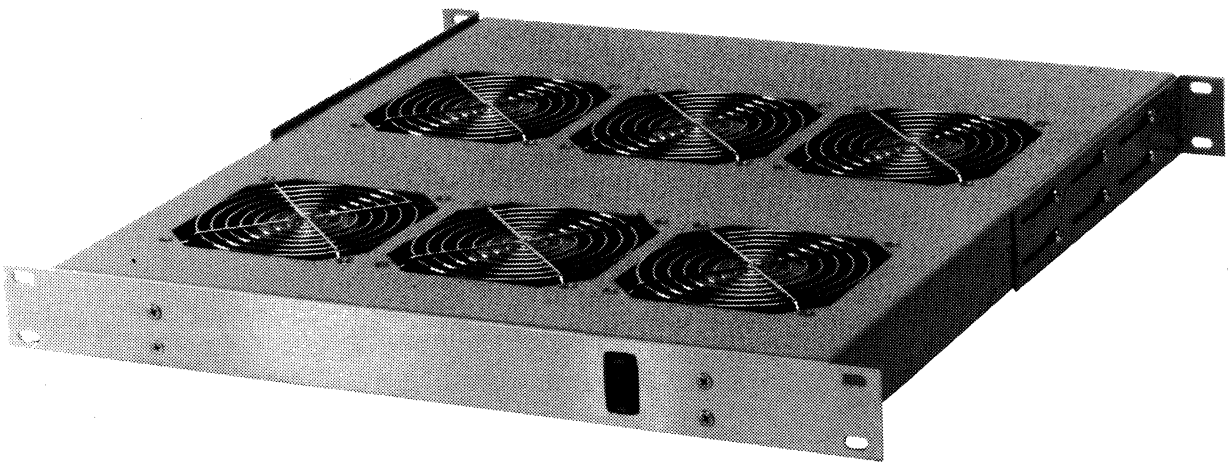


BUILD TO PRINT CUSTOM COOLING MODULES

- Cost reduction / redesign capability
- AC or DC power with sensor option

STANDARD E.I.A. RACK MOUNT COOLING TRAYS

- Module capacity from one to nine fans
- Custom face plate per customer specification
- AC or DC power with sensor option



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MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

Abbreviations/Acronyms **A**•1114, **B**•1037, **C**•1116, **D**•1068
AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
Fiber Optics, Miniglossary **B**•1224
Fiber Optics, Product Selection Guide **B**•1214
Filters, Power, Product Selection Guide **A**•1609
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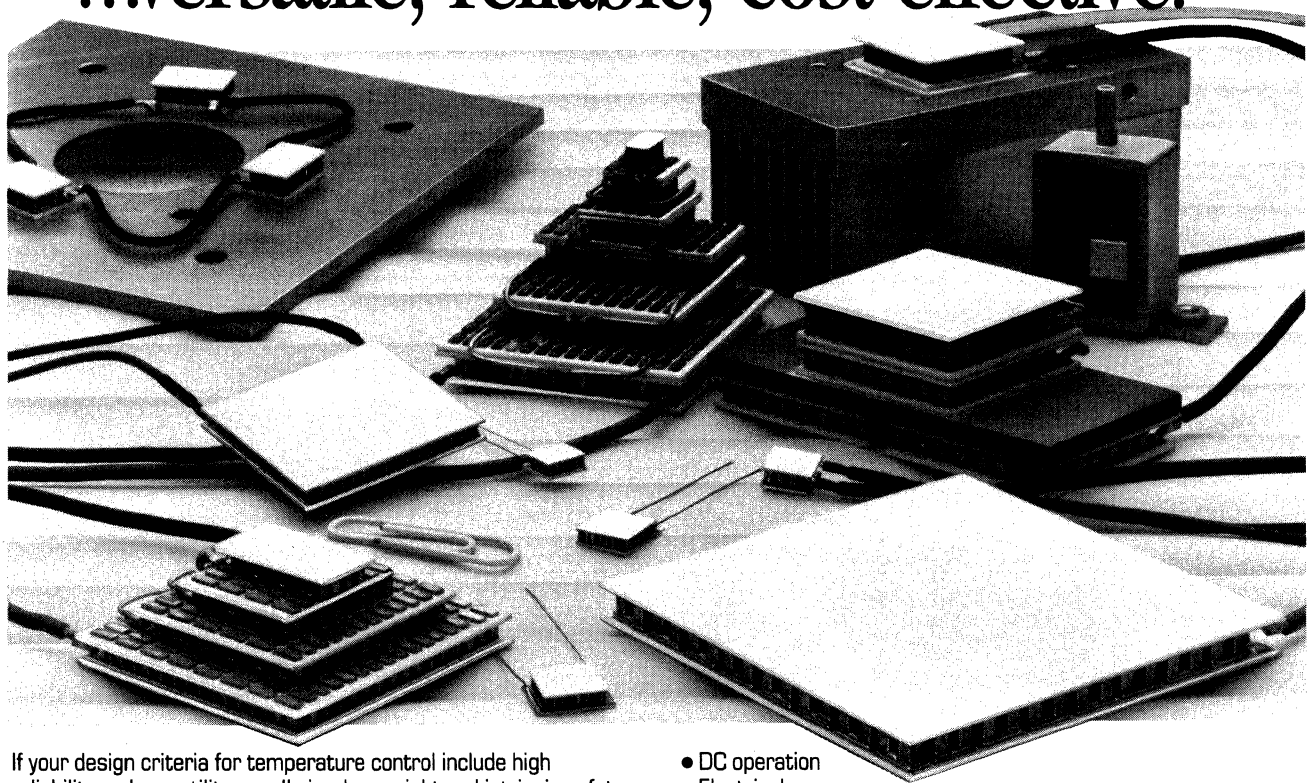
Thermoelectric Cooling from MELCOR ...versatile, reliable, cost-effective.



If your design criteria for temperature control include high reliability and versatility, small size, low weight and intrinsic safety, you owe it to yourself to investigate Frigichip™—the miniaturized heat pump from MELCOR.

Frigichips are solid state, thermoelectric heat pumps that utilize the Peltier effect to perform the same cooling functions as freon-based compression or absorption refrigerators...but in miniature!! Use them for space cooling of cabinet enclosures, cooling of special shapes, plates, castings or spot cooling of small individual devices. Use for precise temperature control by cycling from cooling to heating.

Broad Spectrum of Applications

MELCOR Frigichips have been proven for three decades in a wide range of thermal management applications, including:

- Fiber optic & other electro-optic cooling applications
- Food service refrigeration & other commercial/institutional applications
- Appliances: portable 12 volt refrigerators, water & beverage coolers, etc.
- Instruments for physical, chemical, optical & electronic analysis
- Laboratory & scientific instruments, computers, cameras
- Medical & pharmaceutical equipment
- Military/aerospace applications
- And countless others

Only Frigichip Combines All These Benefits

- Quick cooling to below ambient—economically
- Reduced space/size/weight
- Reliable solid state operation—no sound or vibration (lifetimes of > 200,000 hours!)
- Precision temperature control capability
- Minimum, if any, electrical noise
- DC operation
- Electrical power generation from waste heat
- More than 100 standard single stage types available, from sub-miniature, low capacity to compact, high-capacity
- Multi-stage cascades to −95°C, designed to specifications

Wide Choice of Standard and Custom Modules

MELCOR offers you more than 100 standard Frigichip modules ranging in size from 2 x 3 mm to 62 x 62 mm and cooling capacities from 0.2 to 125 watts. The tables and graphs on the following three pages provide module specifications and a method for choosing the module that's ideal for your application. In addition, MELCOR can provide custom asemblies and multi-stage cascades, with or without heat exchangers.

From the World Leader in Thermoelectrics

More than 30 years ago, MELCOR was the first to provide industry with practical thermoelectric devices. Today, we continue to advance this remarkable technology...and provide most of the world's thermoelectric modules! For more details or immediate assistance, just call our applications group.

MELCOR

Materials Electronic Products Corporation

990 Spruce Street, Trenton, NJ 08648
(609) 393-4178 FAX: (609) 393-9461
Telex: 843314 (MELCOR TRN)

MELCOR
Materials Electronic Products Corp.
994 Spruce St., Trenton, NJ 08648 USA
Telephone (609) 393-4178/TELEX 843314
FAX (609) 393-9461

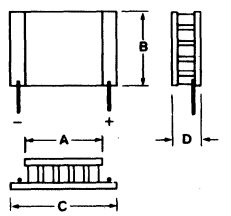
SOLID STATE COOLING WITH THERMOELECTRICS

Thermoelectric (Peltier) Heat Pump Module Specifications—FC Series

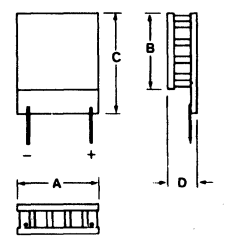
FC SERIES

	Catalog Number	Imax Amps	Hot Face Th = 25°C Qmax[1] (watts)	Vmax (volts)	ΔTmax (°C)	Universal Multipliers N No. of Couples	G Geometry Factor	GxN	Dimensions, mm A	B	C[2]	D[3]
STANDARD AND OPTION 2	FC 0.45-4-05	0.80	0.22	0.48	67	4	.016	0.06	1.8	3.4	3.4	2.4
	FC 0.45-8-05	0.80	0.43	0.97	67	8	.016	0.13	3.4	3.4	5.0	2.4
	FC 0.45-12-05	0.80	0.65	1.45	67	12	.016	0.19	3.4	5.0	5.0	2.4
	FC 0.45-18-05	0.80	0.97	2.18	67	18	.016	0.29	5.0	5.0	6.6	2.4
	FC 0.45-32-05	0.80	1.72	3.87	67	32	.016	0.51	6.6	6.6	8.3	2.4
	FC 0.45-66-05	0.80	3.56	7.98	67	66	.016	1.06	9.9	9.1	11.5	2.4
	FC 0.6-4-06	1.20	0.32	0.48	67	4	.024	0.10	2.2	4.2	4.2	2.7
	FC 0.6-8-06	1.20	0.65	0.97	67	8	.024	0.19	4.2	4.2	6.2	2.7
	FC 0.6-12-06	1.20	0.97	1.45	67	12	.024	0.29	4.2	6.2	6.2	2.7
	FC 0.6-18-06	1.20	1.46	2.18	67	18	.024	0.43	6.2	6.2	8.3	2.7
	FC 0.6-32-06	1.20	2.59	3.87	67	32	.024	0.77	8.3	8.3	10.3	2.7
	FC 0.6-66-06	1.20	5.34	7.98	67	66	.024	1.58	12.3	11.3	14.4	2.7
	FC 0.6-4-05	1.50	0.40	0.48	67	4	.030	0.12	2.2	4.2	4.2	2.4
	FC 0.6-8-05	1.50	0.81	0.87	67	8	.030	0.24	4.2	4.2	6.2	2.4
	FC 0.6-12-05	1.50	1.21	1.45	67	12	.030	0.36	4.2	6.2	6.2	2.4
	FC 0.6-18-05	1.50	1.82	2.18	67	18	.030	0.54	6.2	6.2	8.3	2.4
	FC 0.6-32-05	1.50	3.23	3.87	67	32	.030	0.96	8.3	8.3	10.3	2.4
	FC 0.6-66-05	1.50	6.67	7.98	67	66	.030	1.98	12.3	11.3	14.4	2.4
	FC 0.7-4-05	2.00	0.54	0.48	67	4	.040	0.16	2.4	4.7	4.7	2.4
	FC 0.7-8-05	2.00	1.08	0.97	67	8	.040	0.32	4.7	4.7	7.0	2.4
	FC 0.7-12-05	2.00	1.62	1.45	67	12	.040	0.48	4.7	7.0	7.0	2.4
	FC 0.7-18-05	2.00	2.43	2.18	67	18	.040	0.72	7.0	7.0	9.3	2.4
	FC 0.7-32-05	2.00	4.31	3.87	67	32	.040	1.28	9.3	9.3	11.6	2.4
OPTION 1	FC 0.45-7-05-1	0.80	0.38	0.85	67	7	.016	0.11	3.4	3.4	3.4	2.4
	FC 0.45-11-05-1	0.80	0.60	1.33	67	11	.016	0.18	3.4	5.0	3.4	2.4
	FC 0.45-17-05-1	0.80	0.92	2.06	67	17	.016	0.27	5.0	5.0	5.0	2.4
	FC 0.45-31-05-1	0.80	1.67	3.75	67	31	.016	0.50	6.6	6.6	6.6	2.4
	FC 0.45-65-05-1	0.80	3.51	7.85	67	65	.016	1.04	9.9	9.1	9.9	2.4
	FC 0.6-7-06-1	1.20	0.57	0.85	67	7	.024	0.17	4.2	4.2	4.2	2.7
	FC 0.6-11-06-1	1.20	0.89	1.33	67	11	.024	0.26	4.2	6.2	4.2	2.7
	FC 0.6-17-06-1	1.20	1.38	2.06	67	17	.024	0.41	6.2	6.2	6.2	2.7
	FC 0.6-31-06-1	1.20	2.51	3.75	67	31	.024	0.74	8.3	8.3	8.3	2.7
	FC 0.6-65-06-1	1.20	5.26	7.86	67	65	.024	1.56	12.3	11.3	12.3	2.7
	FC 0.6-7-05-1	1.50	0.71	0.85	67	7	.030	0.21	4.2	4.2	4.2	2.4
	FC 0.6-11-05-1	1.50	1.11	1.33	67	11	.030	0.33	4.2	6.2	4.2	2.4
	FC 0.6-17-05-1	1.50	1.72	2.08	67	17	.030	0.51	6.2	6.2	6.2	2.4
	FC 0.6-31-05-1	1.50	3.13	3.75	67	31	.030	0.93	8.3	8.3	8.3	2.4
	FC 0.6-65-05-1	1.50	6.57	7.86	67	65	.030	1.95	12.3	11.3	12.3	2.4
	FC 0.7-7-05-1	2.00	0.95	0.85	67	7	.040	0.28	4.2	4.2	4.2	2.4
	FC 0.7-11-05-1	2.00	1.49	1.33	67	11	.040	0.44	4.2	6.2	4.2	2.4
	FC 0.7-17-05-1	2.00	2.30	2.06	67	17	.040	0.68	6.2	6.2	6.2	2.4
	FC 0.7-31-05-1	2.00	4.18	3.75	67	31	.040	1.24	8.3	8.3	8.3	2.4

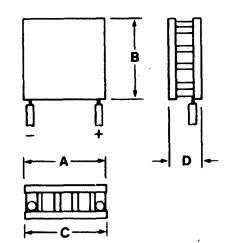
DIMENSIONS



FC Series — Standard



FC Series — Option Two[1]



FC Series — Option One

WIRE STANDARDS

Module Type	Wire Gauge (AWG)	Length (mm/in.)	Insulation
FC 0.45-ALL	32 (SOLID)	50/2.0	None
FC 0.6-ALL	30 (SOLID)	50/2.0	None
FC 0.7-ALL	30 (SOLID)	50/2.0	None

Notes:
(1) Q max rated value at ΔT = 0°, I max and V max, T_h = 25°c
(2) Option 2, Dim. C = Dim. B + :
1.7 mm (FC 0.45)
2.1 mm (FC 0.6 and FC 0.7)
(3) Thickness (D,mm) for Type L only.

Interfacing: Both hot and cold faces lapped flat, TYPE L. Both faces metallized and tinned, TYPE TT. Hybrid, hot face tinned, cold face lapped, TYPE TL. Hot face lapped, cold face tinned, TYPE LT.

See last page of Melcor section for performance graphs, examples, and construction specifications.

MELCOR
Materials Electronic Products Corp.
994 Spruce St., Trenton, NJ 08648 USA
Telephone (609) 393-4178/TELEX 843314
FAX (609) 393-9461

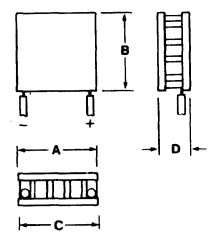
SOLID STATE COOLING WITH THERMOELECTRICS

Thermoelectric (Peltier) Heat Pump Module Specifications—CP Series

CP SERIES

Catalog Number	Imax Amps	Hot Face Th = 25°C Qmax[1] (watts)	Vmax (volts)	ΔTmax (°C)	Universal Multipliers N No. of Couples	G Geometry Factor	GxN	Dimensions, mm A	B	C	D[2]
CP 1.0-7-08L	2.5	1.2	0.85	67	7	0.05	0.35	8	8	8	4.0
CP 1.0-17-08L	2.5	2.9	2.06	67	17	0.05	0.85	12	12	12	4.0
CP 1.0-31-08L	2.5	5.3	3.75	67	31	0.05	1.55	15	15	15	4.0
CP 1.0-63-08L	2.5	10.6	7.62	67	63	0.05	3.15	15	30	15	4.0
CP 1.0-71-08L	2.5	12.0	8.60	67	71	0.05	3.55	23	23	23	4.0
CP 1.0-127-08L	2.5	21.4	15.4	67	127	0.05	6.35	30	30	30	4.0
CP 1.0-7-06L	3.0	1.4	0.85	67	7	0.06	0.42	8	8	8	3.6
CP 1.0-17-06L	3.0	3.4	2.06	67	17	0.06	1.02	12	12	12	3.6
CP 1.0-31-06L	3.0	6.3	3.75	67	31	0.06	1.86	15	15	15	3.6
CP 1.0-63-06L	3.0	12.7	7.62	67	63	0.06	3.78	15	30	15	3.6
CP 1.0-71-06L	3.0	14.4	8.60	67	71	0.06	4.26	23	23	23	3.6
CP 1.0-127-06L	3.0	25.7	15.4	67	127	0.06	7.62	30	30	30	3.6
CP 1.0-7-05L	3.9	1.8	0.85	67	7	0.078	0.55	8	8	8	3.2
CP 1.0-17-05L	3.9	4.5	2.06	67	17	0.078	1.33	12	12	12	3.2
CP 1.0-31-05L	3.9	8.2	3.75	67	31	0.078	2.42	15	15	15	3.2
CP 1.0-63-05L	3.9	16.6	7.62	67	63	0.078	4.91	15	30	15	3.2
CP 1.0-71-05L	3.9	18.7	8.60	67	71	0.078	5.54	23	23	23	3.2
CP 1.0-127-05L	3.9	33.4	15.4	67	127	0.078	9.90	30	30	30	3.2
CP 1.4-3-10L	3.9	0.8	0.36	70	3	0.078	0.23	5	10	5	4.7
CP 1.4-7-10L	3.9	1.8	0.85	70	7	0.078	1.33	10	10	10	4.7
CP 1.4-11-10L	3.9	2.9	1.33	70	11	0.078	0.86	10	15	10	4.7
CP 1.4-17-10L	3.9	4.5	2.06	70	17	0.078	1.33	15	15	15	4.7
CP 1.4-31-10L	3.9	8.2	3.75	70	31	0.078	2.42	20	20	20	4.7
CP 1.4-35-10L	3.9	9.2	4.24	70	35	0.078	2.73	15	30	15	4.7
CP 1.4-71-10L	3.9	18.7	8.60	70	71	0.078	5.54	30	30	30	4.7
CP 1.4-127-10L	3.9	33.4	15.4	70	127	0.078	9.90	40	40	40	4.7
CP 1.4-3-06L	6.0	1.2	0.36	67	3	0.12	0.36	5	10	5	3.8
CP 1.4-7-06L	6.0	2.8	0.85	67	7	0.12	0.84	10	10	10	3.8
CP 1.4-11-06L	6.0	4.4	1.33	67	11	0.12	1.32	10	15	10	3.8
CP 1.4-17-06L	6.0	6.9	2.06	67	17	0.12	2.04	15	15	15	3.8
CP 1.4-31-06L	6.0	12.5	3.75	67	31	0.12	3.72	20	20	20	3.8
CP 1.4-35-06L	6.0	14.2	4.24	67	35	0.12	4.20	15	30	15	3.8
CP 1.4-71-06L	6.0	28.7	8.60	67	71	0.12	8.52	30	30	30	3.8
CP 1.4-127-06L	6.0	51.4	15.4	67	127	0.12	15.24	40	40	40	3.8
CP 1.4-3-045L	8.5	1.6	0.36	67	3	0.17	0.51	5	10	5	3.3
CP 1.4-7-045L	8.5	3.8	0.85	67	7	0.17	1.19	10	10	10	3.3
CP 1.4-11-045L	8.5	*6.0	1.33	67	11	0.17	1.87	10	15	10	3.3
CP 1.4-17-045L	8.5	9.2	2.06	67	17	0.17	2.89	15	15	15	3.3
CP 1.4-31-045L	8.5	16.8	3.75	67	31	0.17	5.27	20	20	20	3.3
CP 1.4-35-045L	8.5	19.0	4.24	67	35	0.17	5.95	15	30	15	3.3
CP 1.4-71-045L	8.5	38.5	8.60	67	71	0.17	12.07	30	30	30	3.3
CP 1.4-127-045L	8.5	68.8	15.4	67	127	0.17	21.60	40	40	40	3.3
CP 2-7-10L	9.0	4.2	0.85	70	7	0.18	1.26	15	15	15	5.6
CP 2-15-10L	9.0	9.1	1.82	70	15	0.18	2.70	15	30	15	5.6
CP 2-17-10L	9.0	10.3	2.06	70	17	0.18	3.06	22	22	22	5.6
CP 2-31-10L	9.0	18.8	3.75	70	31	0.18	5.58	30	30	30	5.6
CP 2-49-10L	9.0	29.7	5.93	70	49	0.18	8.82	36	36	36	5.6
CP 2-71-10L	9.0	43.1	8.60	70	71	0.18	12.78	44	44	44	5.6
CP 2-127-10L	9.0	77.1	15.4	70	127	0.18	22.86	62	62	62	5.6
CP 2-7-06L	14.0	6.6	0.85	67	7	0.28	1.96	15	15	15	4.6
CP 2-15-06L	14.0	14.2	1.82	67	15	0.28	4.20	15	30	15	4.6
CP 2-17-06L	14.0	16.0	2.06	67	17	0.28	4.76	22	22	22	4.6
CP 2-31-06L	14.0	29.3	3.75	67	31	0.28	6.86	30	30	30	4.6
CP 2-49-06L	14.0	46.2	5.93	67	49	0.28	13.72	36	36	36	4.6
CP 2-71-06L	14.0	67.0	8.60	67	71	0.28	19.88	44	44	44	4.6
CP 2-127-06L	14.0	120.0	15.4	67	127	0.28	35.56	62	62	62	4.6
CP 2.8-32-06L	24.0	51.8	3.87	67	32	0.48	15.36	40	40	40	5.0
CP 5-31-10L	39.0	81.5	3.75	70	31	0.78	24.18	55	55	55	5.8
CP 5-31-06L	60.0	125.0	3.75	67	31	1.20	37.20	55	55	55	4.9

DIMENSIONS



CP Series

Notes:
(1) Q max rated value at ΔT = 0°, I max and V max, T_h = 25°C
(2) Thickness (D,mm) for Type L only.

Interfacing: Both hot and cold faces lapped flat, TYPE L. Both faces metallized and tinned, TYPE TT. Hybrid, hot face tinned, cold face lapped, TYPE TL. Hot face lapped, cold face tinned, TYPE LT. Two face soldering (TYPE TT) in sizes larger than 12 x 12 mm is not recommended. Consult Melcor for details.

WIRE STANDARDS

Module Type	Wire Gauge (AWG)	Length (mm/in.)	Insulation
CP 1.0-ALL	24 (STRANDED)	114/4.5	PVC
CP 1.4-ALL	18 (STRANDED)	114/4.5	PVC
CP 2-ALL	18 (STRANDED)	114/4.5	PVC
CP 2.8-ALL	16 (STRANDED)	114/4.5	PVC
CP 5-XX-10	14 (STRANDED)	114/4.5	PVC
CP 5-XX-06	12 (STRANDED)	114/4.5	PVC

See last page of Melcor section for performance graphs, examples, and construction specifications.

Materials Electronic Products Corp.
994 Spruce St., Trenton, NJ 08648 USA
Telephone (609) 393-4178/TELEX 843314
FAX (609) 393-9461

SOLID STATE COOLING WITH THERMOELECTRICS

How To Use Universal Performance Graphs:

APPROACH #1: Convert universal scale values to those of specific module selected:

1. Convert Q_c/GxN (scale values) to Q_c (watts heat pumped): Multiply Q_c/GxN values by module GxN (from table in module specifications chart).
2. Convert V/N values to V (volts input): Multiply V/N values by module N from table.
3. Convert 50 G, 40 G, etc. to I (amps input) values: Multiply 50 by module G, etc.

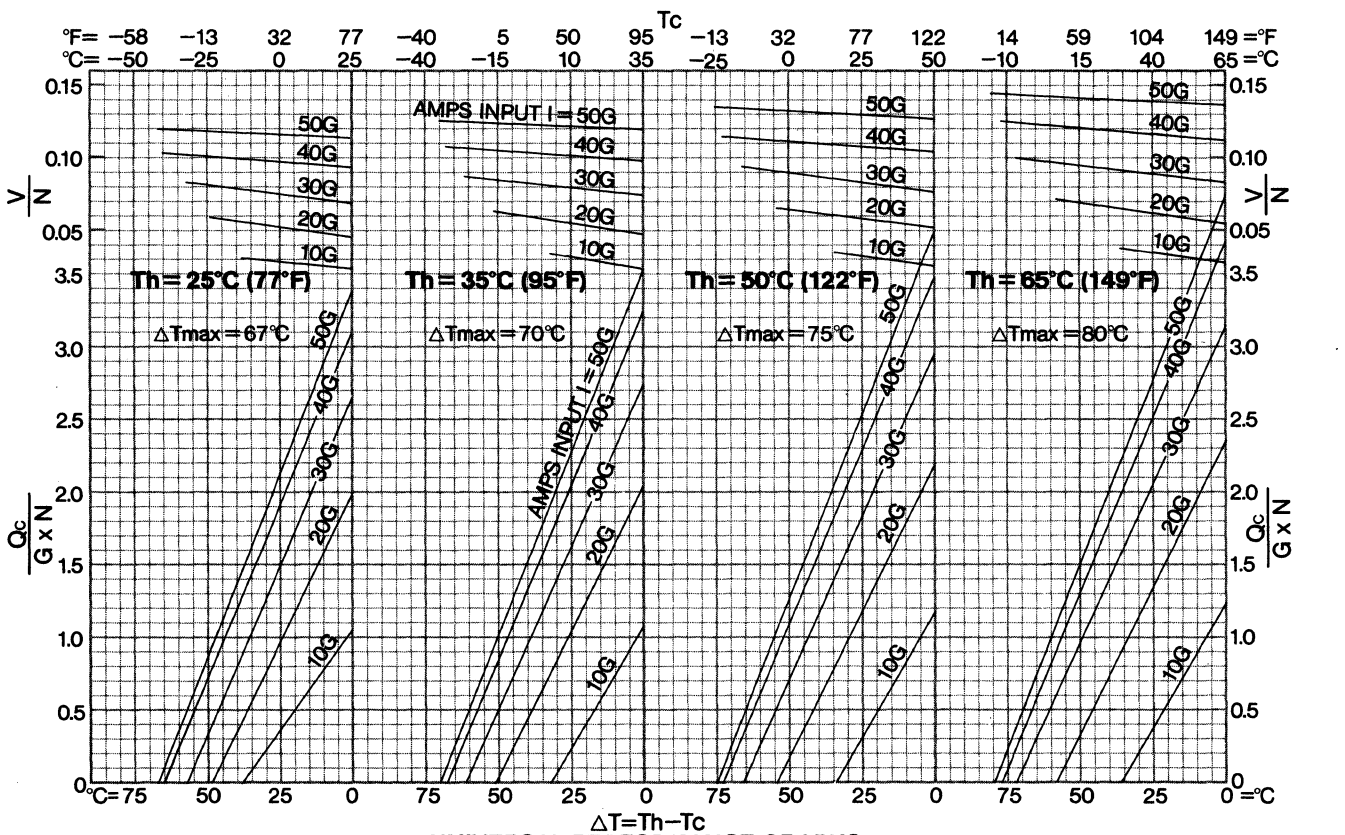
APPROACH #2: From application, knowing required Q_c, T_c and T_h, select appropriate module:

1. Calculate $\triangle T = T_h - T_c$; select operating current I (I max = 50 G).
2. From universals, obtain Q_c/GxN. Calculate GxN.
3. Select appropriate module from GxN table in module specifications chart.

EXAMPLE: Required Q_c = 31 Watts, T_c = +5°C, T_h = +35°C
1. $\triangle T$ = 35° − 5° = 30°C. Choose operating current (typically from 30 G to 40 G) at 35 G (equals 35/50 = 70% of I max.)
2. From T_h = 35°C graph ($\triangle T$ = 30°, I = 35 G), obtain Q_c/GxN = 1.65; Then GxN = $Q_c/1.65$ = 31/1.65 = 18.8.
3. Choose module with GxN ≥ 18.8; choose CP1.4-127-045 (GxN = 21.6) or CP2-71-06 (GxN = 19.9).

If desired, approach #1 may now be followed for module selected.

Model CP1.4—127—06L
CP Series, Type L
1.4 x 1.4mm Thermoelement Cross Section
127 Thermocouples
.06" Thermoelement Height



UNIVERSAL PERFORMANCE GRAPHS

T_c = Cold Face Temperature; T_h = Hot Face Temperature; I = Module Current, Amps; V = Module Voltage, Volts; Q_c = Watts Heat Pumped; N = Number of Thermocouples; G = Thermoelement Geometry Factor

Thermoelectric (Peltier) Heat Pump Module Construction

Thermocouples constructed of N & P elements of highest grade bismuth telluride in form of oriented polycrystalline ingots. Ingot ends soldered to copper bus bars interfaced with ceramic plates, affording good mechanical integrity, high dielectric strength and thermal conduction. Temperature range, −150°C to +80°C. Solid state construction. Both hot and cold faces lapped flat, TYPE L. Both faces metallized and tinned, TYPE TT. Hybrid, hot face tinned, cold face lapped, TYPE TL. Hot face lapped, cold face tinned, TYPE LT.

Hearst Engineering Software

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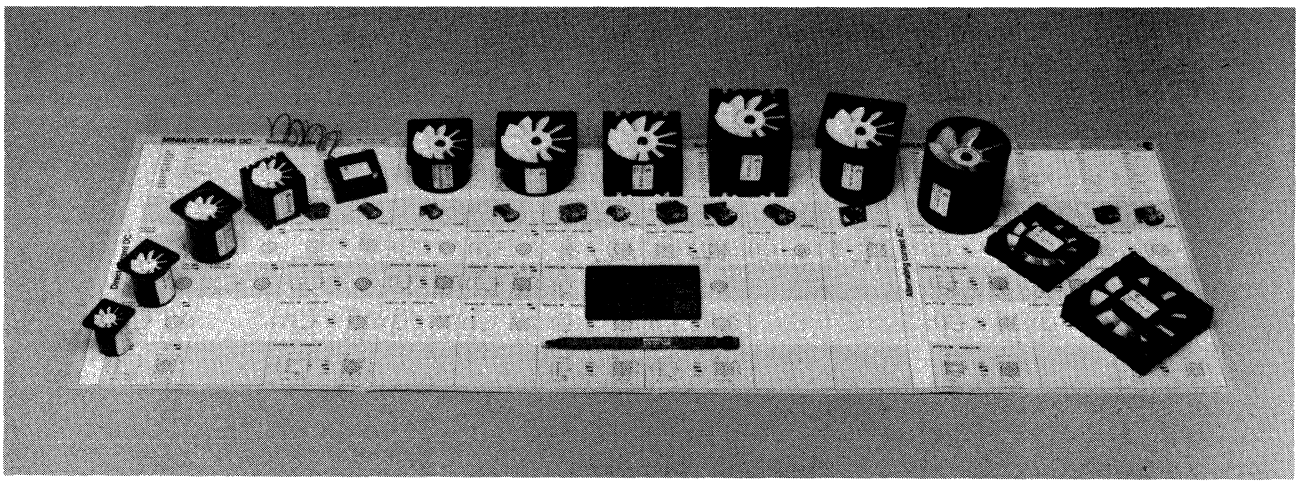
D.C. ULTRA-MINIATURE FANS
D.C. ULTRA-EFFICIENT FANS
D.C. BRUSHLESS-ULTRA SLIM FANS



RANGE OF PERFORMANCE

Micronel's ultra miniature fans range in diameter from 0.95 inches to 3.15 inches. **Fan lengths** range from 0.47 inches to 2.36 inches. **Air delivery,** at zero back pressure, is from 1 CFM to 52 CFM. **D.C. operational voltages** range from 1.5V to 48 VDC. Power input range from 0.01 to 0.2 watts per CFM.

D.C. FANS TYPE	AIR FLOW CFM	RATED VOLTAGE VOLTS	MAX SPEED RPM	MAX NOISE DBA	MAX POWER WATTS	SIZE ∅ = DIA. INCHES ☐ = SQ. INCHES
V240	3.2	6/12	14,500	43	0.3	0.95 ∅ X 1.18
V300	5.6	6/12/24	14,000	41	0.84	1.18 ∅ X 1.42
L34/39	5.6	5/12/24	5,400	28	1.4	1.61 ☐ X 0.47
V340	12.6	6/12/24	13,000	45	1.1	1.42 ∅ X 1.42
V350	12.6	6/12/24	13,000	52	1.2	1.5 ☐ X 1.42
V360	12.6	6/12/24	13,000	45	1.2	1.42 ∅ X 1.77
V460	12.6	6/12	4,200	28	0.24	1.89 ∅ X 1.42
V570	19.0	6/12	3,700	27	0.42	2.44 ☐ X 1.42
V580	19.0	6/12	3,700	27	0.42	2.36 ∅ X 1.42
V591	52.0	6/12/24	10,200	56	8.4	2.44 ☐ X 2.36
V600	52.0	6/12/24	10,200	56	8.4	2.36 ∅ X 2.36
VD65	50.0	6/12/24	8,800	53	9.2	2.56 ∅ X 2.56
F52/57/62	9/12/14	5/12/24	4,250	22/32/38	1.3	2.44 ☐ X 0.55
F70/75/80	14/21/28	5/12/24/48	3,600	23/32/42	4.0	3.15 ☐ X 0.71

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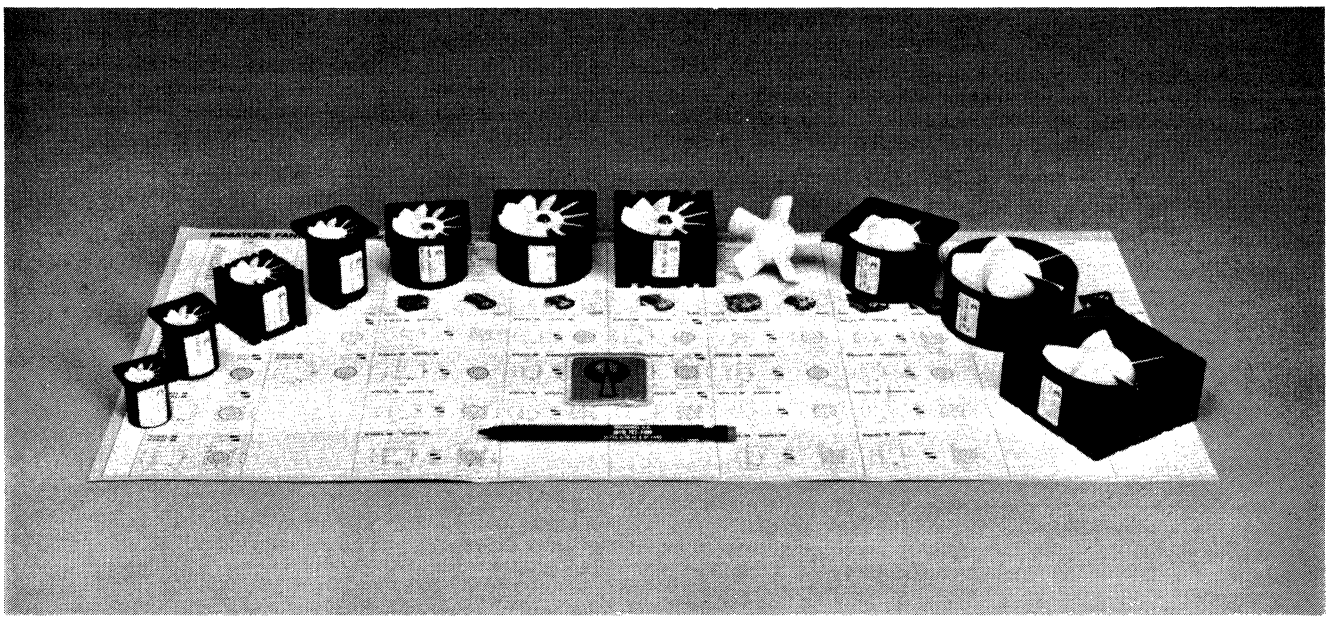
A.C. ULTRA-MINIATURE FANS
A.C. ULTRA-EFFICIENT FANS
A.C. BRUSHLESS-ULTRA SLIM FANS



RANGE OF PERFORMANCE

Micronel's line of high efficiency two phase AC fans are U.L. and CSA approved. Size range from 1.2 inches to 3.15 inches in diameter. **Fan lengths** range from .71 to 1.5 inches. **Air delivery,** at zero back pressure, range from 2.3 CFM to 36 CFM. **AC operational voltages** of 12, 24, and 115 volts, 50/60 hertz are standard. Non-standard voltages are available on special order.

A.C. FANS TYPE	AIR FLOW CFM	RATED VOLTAGE VOLTS	MAX SPEED RPM	MAX NOISE DBA	MAX POWER V.A.	SIZE ∅ = DIA. INCHES ☐ = SQ. INCHES
V300	2.3	12/24/115	3,600	14	3.	1.42 ∅ X 1.42
V460	5.0	12/24/115	3,500	19	3.4	2.05 ∅ X 1.42
V570	15.0	12/24/115	3,500	29	3.4	2.44 ☐ X 1.42
V580	15.0	12/24/115	3,500	29	3.4	2.36 ∅ X 1.42
V600	17.0	12/24/115	3,500	28	7.5	2.36 ∅ X 1.42
V60	17.	12/24/115	2,800	16	3.2	2.36 ∅ X 1.26 +
V72CL/TL/JM	13.6	12/24/115	3,000	26	6.9	2.84 ∅ X 1.42 +
V72AB	36.	12/24/115	2,900	32	6.9	3.15 ☐ X 1.50
F80	28.	12/24/115	3,600	42	4.0	3.15 ☐ X 0.71

+ Frameless units.

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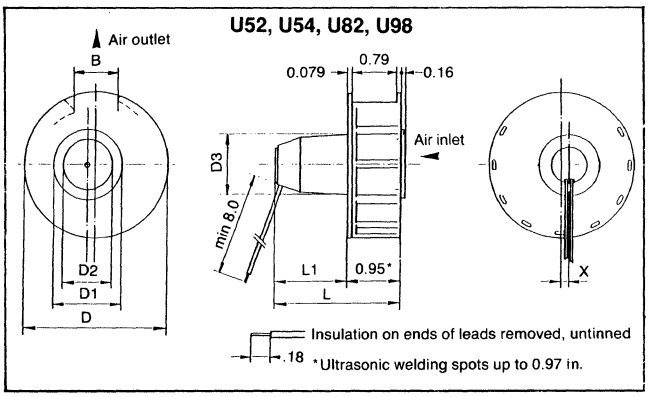
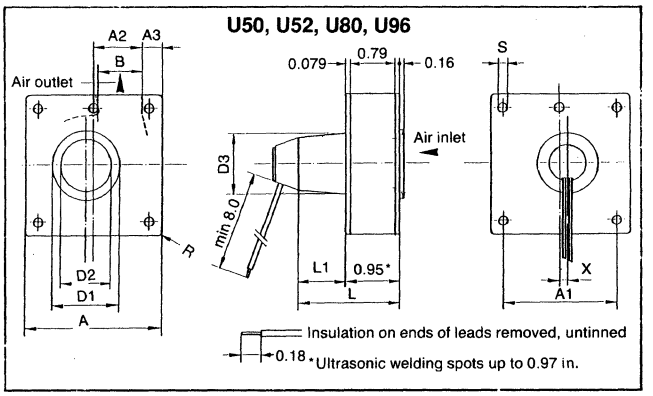
D.C. ULTRA-EFFICIENT— HIGH PRESSURE BLOWERS





	PARAMETER	–1	–2	–3	UNITS	SIZE	U–50	U–52
MODEL U50/U52	VOLTAGE	4.8	6.0	7.2	VOLTS	D2	0.71	0.71
	CURRENT	208	165	140	MA	B	0.59	0.59
	FLOW *	6.3	6.6	7.2	C.F.M.	A or D	1.97	2.05
	PRESSURE * *	3.0	3.3	3.6	mbar	D3	0.95	0.95
	NOISE	44	46	48	dB(A)	L	1.89	1.89
	WEIGHT	2.7	2.7	2.7	OZ	L1	0.95	0.95
	PARAMETER	–1	–2	–3	UNITS	SIZE	U-62	U-64
MODEL U62/U64	VOLTAGE	4.8	6.0	7.2	VOLTS	D2	0.866	0.866
	CURRENT	365	290	240	MA	B	0.787	0.787
	FLOW *	6.5	7.0	7.4	C.F.M.	A or D	A 2.44	D 2.5
	PRESSURE * *	3.5	3.8	4.0	mbar	D3	1.024	1.024
	NOISE	48	50	52	dB(A)	L	2.24	2.24
	WEIGHT	2.9	2.9	2.9	OZ	L1	1.3	1.3
	PARAMETER	–1	–2	–3	UNITS	SIZE	U-80	U-82
MODEL U80/U82	VOLTAGE	4.8	6.0	7.2	VOLTS	D2	1.024	1.024
	CURRENT	625	500	425	MA	B	0.98	0.98
	FLOW *	11.2	11.6	12.1	C.F.M.	A or D	A 3.1	D 3.23
	PRESSURE * *	6.5	6.8	7.2	mbar	D3	1.1	1.1
	NOISE	52	54	56	dB(A)	L	2.4	2.4
	WEIGHT	4.5	4.5	4.5	OZ	L1	1.42	1.42
	PARAMETER	–1	–2	–3	UNITS	SIZE	U-96	U-98
MODEL U96/U98	VOLTAGE	4.8	6.0	7.2	VOLTS	D2	1.18	1.18
	CURRENT	1400	1150	975	MA	B	1.18	1.18
	FLOW *	18.2	18.6	19.0	C.F.M.	A or D	A 3.78	D 3.86
	PRESSURE * *	8.5	8.7	9.0	mbar	D3	1.18	1.18
	NOISE	54	56	58	dB(A)	L	2.4	2.4
	WEIGHT	5.5	5.1	5.1	OZ	L1	1.42	1.42

* – ZERO PRESSURE FLOW
* * – ZERO FLOW PRESSURE

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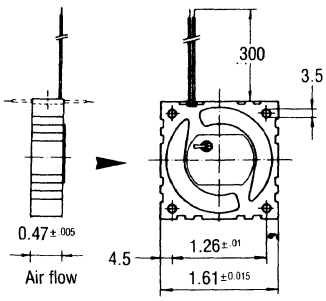
ULTRA-QUIET BRUSHLESS FANS
ULTRA SLIM BRUSHLESS FANS

SERIES L 34 JM, L 39 JM—ULTRA-SLIM

- Housing of black glass-fibre reinforced plastic
- Impeller of black glass-fibre reinforced plastic
- Mounting with M3 screws
- Mounting possible in any orientation
- Electrical connection with red and black leads AWG 26, 0.13 mm², min. 11.8 inches long

DIMENSIONS



Dimensions 1.61 x 1.61 x 0.47
Types:
L34JM (low)
L39JM (medium)
no radio frequency interference

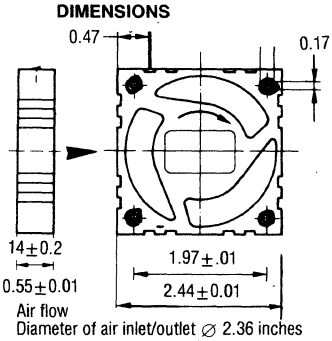
TECHNICAL DATA

Type		L34JM	L39JM	L34JM	L39JM	
Nominal voltage	U_N	12		24		V=
Voltage range	U	10,2 ~ 13,8		20,4 ~ 27,6		V=
Nominal current max.	I_N	60	90	40	55	mA
Stall current	I_H	60	90	40	55	mA
Nominal power	P_N	0,72	1,08	0,96	1,32	W
Speed typical	n	4200	5400	4200	5400	min^{-1}
Flow rate	V	110	160	110	160	l/min
Static pressure difference	△p	17	30	17	30	Pa
Acoustic emission level	LpA	22	28	22	28	dB(A)
Expected life	t	30 000				h
Ambient temperature range	T	−10 ~ +60				°C
Weight	m	20				g
Bearings		1 ball bearing/1 sleeve bearing				
Electrical connection		Leads AWG 26, UL 3265, min. 300 mm long				
Mounting		M3 screws, mounting possible in any orientation				
Material		plastic				

SERIES F 62—ULTRA-QUIET

- Housing of black glass-fibre reinforced plastic
- Impeller of black glass-fibre reinforced plastic
- Mounting with 6/32 screws or self adhesive gasket
- Mounting possible in any orientation
- Electrical connection with red and black leads AWG 24, 0.21mm², min. 11.8 inches long

DIMENSIONS



Diameter of air inlet/outlet ∅ 2.36 inches

Dimensions 2.44 x 2.44 x 0.55
Types:
F62LM (medium)
F62 M (high)
no radio frequency interference

TECHNICAL DATA

Voltage			5V		12V		24V	
Types			F62LM	F62MM	F62LM	F62MM	F62LM	F62MM
Nominal voltage	U_N	V	5	5	12	12	24	24
Voltage range	U	V	4.5–5.5		10.8–13.2		21.6–26.4	
Nominal current max.	I_N	mA	88	165	58	52	33	48
Nominal power	P_N	W	0.44	0.83	0.7	1.1	0.8	1.15
Stall current	I_H	mA						
Speed typically ±10%	n	min^{-1}	2700	3400	2700	3400	2700	3400
Flow rate	V	CFM	12	15	12	15	12	15
Static pressure difference	△p	mbar	0.15	0.25	0.15	0.25	0.15	0.25
Acoustic emission level	LpA	dB(A)	20	26	20	26	20	26
Expected life	t	h	30 000					
Ambient temperature range	T	°C	−20...+65					
Weight	m	g	45					
Bearings			Sleeve bearings					

SERIES F 80—ULTRA-QUIET

- Housing of black glass-fibre reinforced plastic
- Impeller of black glass-fibre reinforced plastic
- Mounting with 6/32 screws or self adhesive gasket
- Mounting possible in any orientation
- Electrical connection with red and black leads AWG 24, 0.13 mm², min. 11.8 inches long
- F70, F75, F80, 12 and 24 volts are suitable for AC and DC operation.

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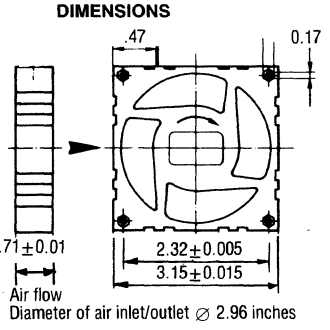


Diameter of air inlet/outlet ∅ 2.96 inches

Dimensions
Types:
F80LM (medium)
F80MM (high)
no radio frequency interference

TECHNICAL DATA

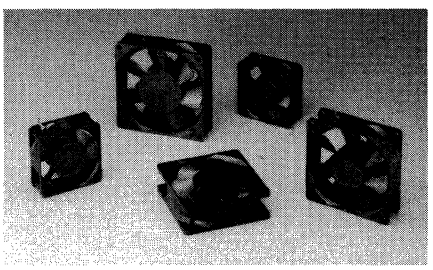
Voltage			5V		12V		24V	
Types			F80LM	F80MM	F80LM	F80MM	F80LM	F80MM
Nominal voltage	U_N	V	5	5	12	12	24	24
Voltage range	U	V	4.5–5.5		10.8–13.2		21.6–26.4	
Nominal current max.	I_N	mA	480	720	200	300	100	150
Nominal power	P_N	W	2.4	3.6	2.4	3.6	2.4	3.6
Stall current	I_H	mA	—	—				
Speed typically ±10%	n	min^{-1}	2400	3000	2400	3000	2400	3000
Flow rate	V	CFM	26	35	26	35	26	35
Static pressure difference	△p	Pa						
Acoustic emission level	LpA	dB(A)	25	32	25	32	25	32
Expected life	t	h	30 000					
Ambient temperature range	T	°C	−20...+65					
Weight	m	g	75					
Bearings			Sleeve bearings					

NMB TECHNOLOGIES

LOW NOISE DC COOLING FANS

NMB Technologies is now producing Boxer™ axial flow DC fans that are quieter by up to 10 dBA than competitive products.

FEATURES



Low noise DC cooling fans feature lightweight engineered plastic frames, aerodynamically designed seven-bladed impellers, brushless DC motors, precision ball bearings, −40° to +70°C temperature range, Class A insulation and a complete line of accessories.

BENEFITS

- Frame Sizes — 2.4, 3.1 and 3.6 inches
- Air Flow — 12 to 51 cfm
- Low Noise, Lightweight — ideal for computers, copiers, word processors, facsimile machines, printers and power supplies
- All units designed to meet UL and CSA
- Auto-restart is standard
- Speed Sensor or Locked Rotor Alarm option
- 30,000 Hour Life with NMB precision ball bearings
- Modern automated factories — High volume production — competitive pricing

NL SERIES FANS

2408 NL SERIES 2.36 (60) × .79 (20)	RATED VOLTAGE VDC	OPERATING VOLTAGE VDC	INPUT POWER W	RATED CURRENT A	MAXIMUM AIR FLOW CFM (m³/min)	MAX. AIR PRESSURE In H₂O (mmAq)	SPEED rpm	NOISE LEVEL dB-A
2408NL-04W-B10	12	6-13.8	0.6	0.05	10.6 (0.30)	0.06 (1.5)	2600	18.5
2408NL-04W-B20	12	6-13.8	0.84	0.07	12.4 (0.35)	0.08 (2.0)	3000	20
2408NL-04W-B30	12	6-13.8	0.96	0.08	14.2 (0.40)	0.10 (2.5)	3400	22
2408NL-04W-B40	12	6-13.8	1.08	0.09	16.0 (0.45)	0.12 (3.0)	3800	24
2408NL-04W-B50	12	6-13.8	1.32	0.10	17.7 (0.50)	0.16 (4.0)	4200	26
2410NL SERIES 2.36 (60) × .95 (25)								
2410NL-04W-B10	12	6-13.8	0.96	0.08	12 (0.33)	0.79 (2.0)	3000	24
2410NL-04W-B20	12	6-13.8	1.08	0.09	13 (0.38)	0.98 (2.5)	3300	26
2410NL-04W-B30	12	6-13.8	1.20	0.10	17 (0.47)	1.46 (3.7)	4000	29
2410NL-04W-B40	12	6-13.8	1.68	0.14	19 (0.55)	1.85 (4.7)	4600	33
2410NL-04W-B50	12	6-13.8	2.52	0.21	23 (0.65)	2.40 (6.2)	5300	38
3110NL SERIES 3.15 (80) × 1.0 (25.4)								
3110NL-04W-B10	12	6-13.8	0.84	0.07	23 (0.65)	0.63 (1.60)	1950	20
3110NL-04W-B20	12	6-13.8	0.96	0.08	27 (0.75)	0.73 (1.85)	2150	23
3110NL-04W-B30	12	6-13.8	1.20	0.10	30 (0.85)	0.87 (2.20)	2450	25
3110NL-04W-B40	12	6-13.8	1.80	0.15	39 (1.00)	1.38 (3.50)	2950	32
3110NL-04W-B50	12	6-13.8	2.64	0.22	44 (1.20)	1.89 (4.80)	3400	36
3610NL SERIES 3.62 (92) × 1.02 (25.8)								
3610NL-04W-B10	12	6-13.8	1.20	0.10	31 (0.90)	0.91 (2.3)	2000	24
3610NL-04W-B20	12	6-13.8	1.56	0.13	35 (1.00)	1.18 (3.0)	2300	27
3610NL-04W-B30	12	6-13.8	2.16	0.18	42 (1.20)	1.50 (4.0)	2700	32
3610NL-04W-B40	12	6-13.8	3.24	0.27	51 (1.45)	2.16 (5.5)	3100	36

OPTIONS
1. Most DC fans available at either 12VDC (±15%) or 24 VDC (±15%).
2. Models are available with either terminals or lead wires.

NMB TECHNOLOGIES INCORPORATED
BOXER FAN DIVISION

For complete specifications and pricing, contact
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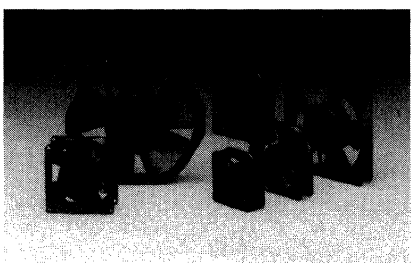
9730 Independence Ave., Chatsworth, CA 91311 • **(800) 662-8321**
Telephone: (818) 341-3355 • FAX: (818) 341-8207

NMB TECHNOLOGIES

BOXER™ AXIAL COOLING FANS

NMB Technologies is a major producer of axial flow fans featuring high quality, long life.

FEATURES



Boxer cooling fans feature aluminum alloy or plastic frames, UL 94 V-O flammable rated impellers, Class A insulation, precision ball bearings, −40° to +70° temperature range and a complete line of accessories. Low power and current consumption.

BENEFITS

- Reliable Quality — All components made in-house
- More than 100 Models — All popular sizes, 9 to 215 CFM
- Low Noise, Light Weight — Ideal for power supplies, copiers, computers and medical equipment
- 50,000 Hour Life (Min) utilizing NMB Precision Bearings
- All units designed to meet UL, CSA, and VDE
- Speed Sensing Option on DC fans
- Modern Automated Factories — High volume production capabilities
- Auto-restart is standard on all DC fans

DC FANS AND AC FANS

OPTIONS FOR DC FANS AND AC FANS

1. Most DC fans available at either 12 VDC (±15%) or 24 VDC (±15%).
2. Standard voltages for AC fans are 115 VAC or 230 V.
3. Models are available with either terminals or lead wires.
4. Speed sensing available on selected DC models.
5. Ultra quiet DC version available. (Approximately 4 dBA — 10 dBA lower noise level). See NL Series.
6. SmartFan® DC version available. (Built in temperature/speed controller.) See SmartFan series.

MODEL NUMBER	CFM	NOISE	SIZE (IN.)
DC-SERIES FANS			
4710NL-04W-B10	50	25	4.69 × 1.0
-B20	60	29	4.69 × 1.0
-B30	70	34	4.69 × 1.0
-B40	80	36	4.69 × 1.0
-B50	90	39	4.69 × 1.0
4715ML-04W-B10	80	35	4.69 × 1.5
-B20	90	38	4.69 × 1.5
-B30	100	41	4.69 × 1.5
-B40	110	44	4.69 × 1.5
4715PL-04W-B20	75	38	4.69 × 1.5
-B30	95	42	4.69 × 1.5
5920PL-04W-B10	170	45.0	6.8 × 2.0
-B20	190	47.5	6.8 × 2.0
-B30	210	51.0	6.8 × 2.0
-B40	230	54.0	6.8 × 2.0
6820PL-04W-B10	170	42.0	6.8 × 2.0
-B20	190	45.0	6.8 × 2.0
-B30	210	49.0	6.8 × 2.0
-B40	230	52.0	6.8 × 2.0

MODEL NUMBER 50/60 Hz	CFM	NOISE	SIZE (IN.)
AC-SERIES FANS			
2412PS-12W-B30	10	29	2.36 × 1.18
3110PS-12W-B30	20	33	3.15 × 0.98
3115FS-12T-B00	18	31	3.15 × 1.50
-B10	21.5	36	3.15 × 1.50

MODEL NUMBER 50/60 Hz	CFM	NOISE	SIZE (IN.)
AC SERIES FANS (Cont'd)			
3115FS-12T-B20	27	40	3.15 × 1.50
-B30	32	44	3.15 × 1.50
3115PS-12T-B10	26	25	3.15 × 1.50
-B20	28	31	3.15 × 1.50
-B30	34	38	3.15 × 1.50
3610PS-12T-B10	22	25	3.62 × 1.02
-B20	30	35	3.62 × 1.02
-B30	35	38	3.62 × 1.02
4710PS-12T-B20	57	30	4.69 × 1.00
-B30	77	38	4.69 × 1.00
4715FS-12T-B00	60	40	4.72 × 1.51
-B10	70	41	4.72 × 1.51
-B20	80	43	4.72 × 1.51
-B30	90	53	4.72 × 1.51
-B40	100	55	4.72 × 1.51
-B50	110	56	4.72 × 1.51
4715MS-12T-B10	50	28	4.72 × 1.51
-B20	71	30	4.72 × 1.51
-B30	88	37	4.72 × 1.51
-B40	95	39	4.72 × 1.51
-B50	102	41	4.72 × 1.51
4715PS-12T-B10	65	28	4.69 × 1.50
-B20	98	43	4.69 × 1.50
-B30	106	46	4.69 × 1.50
5915PC-12T-B10	110	38	6.77 × 1.50
-B20	170	50	6.77 × 1.50
-B30	220	56	6.77 × 1.50

NMB TECHNOLOGIES INCORPORATED

BOXER FAN DIVISION

For complete specifications and pricing, contact

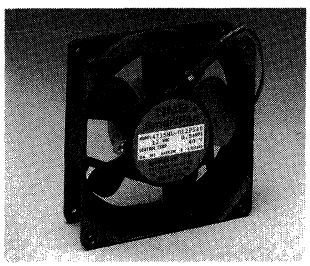
NMB TECHNOLOGIES INCORPORATED
9730 Independence Ave., Chatsworth, CA 91311 • **(800) 662-8321**
Telephone: (818) 341-3355 • FAX: (818) 341-8207

NMB TECHNOLOGIES

NMB SmartFans®

Now in high volume production by NMB Technologies, the SmartFan series was developed in a joint venture with Control Resources, Inc.

FEATURES



SmartFans, as well as having the latest features of Boxer low noise DC brushless fans, have a built-in SmartFan speed controller. This automatically sets the fan speed to regulate exhaust air at a specific control temperature.

BENEFITS

- Frame Size — 3.15, 3.62 and 4.88 inches; Air Flow — 44 to 100.
- Sensor built-in — no external wiring.
- SmartFan will idle under typical conditions — extending life and reducing noise up to 15 dBA.
- Designed to meet UL/CSA.
- Easy installation — interchangeable with current fan frame sizes.
- Senses and regulates cabinet temperature (closed-loop control).

DC SmartFans®

PART NO.	SUPPLY VOLTAGE RANGE	POWER AT NORMAL VOLTAGE	SPEED RANGE FULL/IDLE	CFM	CONTROL TEMP.	NOISE* FULL/IDLE
3110NL-012P340 3110NL-012P345	12 (11.5-14.0)	2.6 watts	3400/1900 RPM	44	40°C 45°	36/22 dB(A)
3110NL-024P340 3110NL-024P345	24 (20.0-27.8)	2.9 watts	3400/1900 RPM	44	40° 45°	36/22 dB(A)
3110NL-012P335P 3110NL-024P335P	12 (11.5-14.0) 24 (20.0-27.8)	2.6 watts 2.9 watts	3400/1900 RPM	44	— —	36/22 dB(A)
3610NL-012P440 3610NL-012P445	12 (11.5-14.0)	4.4 watts	3400/1900 RPM	56	40°C 45°	38/24 dB(A)
3610NL-024P440 3610NL-024P445	24 (20.0-27.8)	4.4 watts	3400/1900 RPM	56	40° 45°	38/24 dB(A)
3610NL-012P435P 3610NL-024P435P	12 (11.5-14.0) 24 (20.0-27.8)	4.4 watts	3400/1900 RPM	56	—	38/24 dB(A)
4710NL-012P540 4710NL-012P545	12 (11.5-14.0)	6.8 watts	2400/1450 RPM	90	40°C 45°	39/25 dB(A)
4710NL-024P540 4710NL-024P545	24 (20.0-27.8)	5.8 watts	2400/1450 RPM	90	40° 45°	39/25 dB(A)
4710NL-012P535P 4710NL-024P535P	12 (11.5-14.0) 24 (20.0-27.8)	6.8 watts 5.8 watts	2400/1450 RPM	90	—	39/25 dB(A)
4715ML-012P540 4715ML-012P545	12 (11.5-14.0)	6 watts	2800/1600 RPM	100	40°C 45°	45/31 dB(A)
4715ML-024P540 4715ML-024P545	24 (20.0-27.8)	6 watts	2800/1600 RPM	100	40° 45°	45/31 dB(A)
4715ML-012P535P 4715ML-024P535P	12 (11.5-14.0) 24 (20.0-27.8)	6 watts	2800/1600 RPM	100	— —	45/31 dB(A)

OPTIONS/NOTES

1. SmartFans available at either 12 (11.5-14.0) VDC or 24 (20.0-27.8) VDC.
2. Closed-Loop type SmartFans (do not have "P" suffix) are installed at or near equipment exhaust.
3. Units with part numbers ending with "P" are Open-Loop type and are installed at the equipment inlet. Full/idle temp. — 35°C/23°C.

* In free field (anechoic space) with nominal static pressure, average sound pressure level at distance of 1 meter.

SmartFan® Control Resources, Inc.

NMB TECHNOLOGIES INCORPORATED
BOXER FAN DIVISION

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eem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
A/D acrylonitrile butadiene-styrene
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AFC audio frequency control
AFT automatic filter test
ALGOL algorithmic language
AM a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
ASIC application specific IC
ATE automatic test equipment
ATG automatic test generation
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility syste

C
CAD computer-aided design
CAE computer-aided engineering
CAM computer-aided manufacture
CAMAC computer-automated measurement and control
CAPP computer-aided process planning
CAT computer-aided test
CATV cable television or community antenna television
CCC (leaded) ceramic chip carriers
CCD computer-controlled display
CERMET ceramic metal element
CIE computer-integrated engineering
CIM computer-integrated manufacturing
CLCC ceramic leadless chip carriers
CMOS complementary metal-oxide semiconductor
Comm. communications
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DBMS data base management system
DC direct current
DFT design for testability
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DRAM dynamic RAM
DTL diode transistor logic

E
EDA electronic design automation
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EIA Electronic Industries Association
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM erasable programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide FET
CMIP commn management information protocol
GPIB general purpose interface bus
GPS global positioning system

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement, and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IAB Internet Activities Board
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared
ISDN integrated services digital network
ISO International Standards Organization

J
JEDEC Joint Electronic Device Engineering Council
JFET junction FET
JMOS junction MOS

K
kHz kilohertz (10^3 hertz)
KSR keyboard send /receive

L
LAN local area network
LC (filters) inductance/capacitance
LCC leaded chip carrier
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
µF microfarad
MHz megahertz
MIC microwave IC
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor FET
MOSIGT metal oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM national instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator
OSI open systems interconnection

P
PAL programmable array logic
PC printed circuit
PCB printed circuit board
PCM pulse code modulation
PCS plastic clad silica
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLCC plastic leaded chip carrier
PLL phased lock loop
PPI plan position indicator
PROM programmable ROM
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon-controlled switch
SDA source & detector assemblies
SGMP simple gateway monitoring protocol
SIDAC bidirectional voltage-triggered switch
SIMM single in-line memory module
SIP single in-line package
SMD surface mount device
SMT surface mount technology
SNMP simpole network management protocol
SO small outline
SOIC small outline IC
SOT small outline transistor
SSI small scale integration
SSR solid-state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCE thermal coefficient of expansion
TXCO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V
VAC volts (of) alternating current
VAN value-added network
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency (30 kHz to 300 MHz)
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W
WPS word processing software

Y
YIG yttrium iron garnet

Z
ZIF zero insertion force

Fans & Blowers

PAPST

PAPST MECHATRONIC CORPORATION

PAPST MECHATRONIC CORPORATION, Aquidneck Industrial Park, Newport, Rhode Island 02840 ● Tel. (401) 849-8810 ● Fax (401) 849-4640

NOW YOU CAN SPECIFY AN INCH WITHOUT GIVING AN INCH

You can now specify a PAPST MULTIFAN with an installation depth of just one inch.

Now you can specify the world's best quality fan even in your tightest design. Because PAPST's high-performance brushless DC MULTIFAN now comes with an installation depth as narrow as one inch.

It's thinner. It's quieter. It uses less power.

This narrowest-of-all MULTIFAN positively coasts through the toughest noise test with whisper-quiet ease. It needs very little power, operating on a super-efficient DC brushless motor that provides exceptionally soft commutation.

And like all PAPST MULTIFANS, it lets you customize your application: you'll be able to control speed by varying voltage to get the absolute optimum airflow with minimum noise.

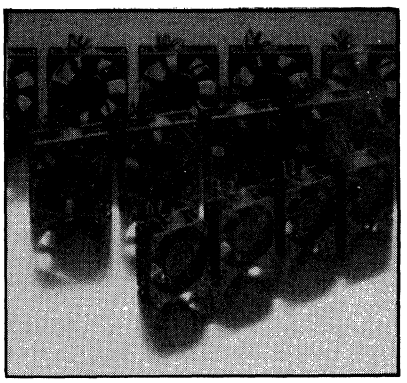
It will even cause Purchasing to smile!

Despite its high engineering quality, you'll find this fan fits your budget.

So specifying it means you win two ways. You'll keep component costs down. And at the same time, you won't compromise on your design's engineering integrity. Not even an inch.

PAPST's new DC VARIOFAN never makes more noise than necessary to maintain your specified cooling requirements. It succeeds where other fans fail by using a proprietary ASIC technology to vary its speed with changes in temperature.

The trouble with most fans is that they operate constantly at full speed to compensate for the "Worst Case Condition." But such conditions often occur only 5% of the time or less. This means excess power (read: *noise*) occurs 95% of the time!



With PAPST's new DC VARIOFAN, you only use the exact power/speed needed to achieve your specified cooling conditions. Less power/speed means you use less energy. Less power/speed means less noise. Less power/speed means less wear and tear and longer life performance.

Technical Data
Fans for DC Operation

Dimensions	Max. Air Flow free air	Noise in free air	Bearing System ○ sleeve ● ball	Speed	Perm. Temperature Range	Service Life at ambient temperature	L_{10}	Power Input	Nominal Voltage	Voltage Range	Approvals	Models
MM	CFM	dB (A)		RPM	°C	h/°C	h/°C	W	VDC	VDC		
Axial Fans for 12 V DC												
MULTIFAN												
60 x 60 x 25	12.4	26	●	3000	– 20... + 65	25000/ + 65	50000/ + 45	0.7	12	6...15	CSA, UL, VDE	**612L**
	17.7	33	●	4100	– 20... + 65	25000/ + 65	50000/ + 45	1.3	12	6...15	CSA, UL, VDE	**612M**
	23.5	40	●	5300	– 20... + 65	25000/ + 65	50000/ + 45	2.5	12	6...15	CSA, UL, VDE	**612**
MULTIFAN												
80 x 80 x 25	20.5	21	●	2000	– 20... + 75	25000/ + 75	50000/ + 55	0.8	12	7...15	CSA, UL, VDE	**8412L**
	26.5	29	●	2600	– 20... + 75	25000/ + 75	50000/ + 55	1.4	12	7...15	CSA, UL, VDE	**8412M**
	33.0	35	●	3150	– 20... + 75	25000/ + 75	50000/ + 55	2.4	12	7...15	CSA, UL, VDE	**8412**
VARIOFAN												
80 x 80 x 25	20.5-10.0	20-11	○	3150-1600	– 20... + 65	25000/ + 65	50000/ + 45	1.1-0.7	12	8...14	CSA°, UL°, VDE°	**8412GLV**
	26.5-13.0	29-11	○	2600-1300	– 20... + 65	25000/ + 65	50000/ + 45	1.6-0.9	12	8...14	CSA°, UL°, VDE°	**8421 GMU**
	33.0-15.9	35-13	○	2000-1000	– 20... + 65	25000/ + 65	50000/ + 45	2.2-1.0	12	8...14	CSA°, UL°, VDE°	**8412 GV**
MULTIFAN												
92 x 92 x 25	49.4	36	●	3050	– 20... + 75	25000/ + 75	50000/ + 55	2.4	12	7...15	CSA°, UL°, VDE°	**3412**
VARIOFAN												
92 x 92 x 25	43.0-22.0	33-16	○	2650-1350	– 20... + 65	25000/ + 65	50000/ + 45	2.3-1.1	12	8...14	CSA°, UL°, VDE°	**3412GMV**
Axial Fans for 24 V DC												
MULTIFAN												
60 x 60 x 25	23.5	40	●	5300	– 20... + 65	25000/ + 65	50000/ + 45	2.5	24	12...30	CSA, UL, VDE	**614**
MULTIFAN												
80 x 80 x 25	20.5	21	●	2000	– 20... + 75	25000/ + 75	50000/ + 55	0.8	24	14...28	CSA°, UL, VDE°	**8414L**
	26.5	29	●	2600	– 20... + 75	25000/ + 75	50000/ + 55	1.4	24	14...28	CSA°, UL, VDE°	**8414M**
	33.0	35	●	3150	– 20... + 75	25000/ + 75	50000/ + 55	2.4	24	14...28	CSA°, UL, VDE°	**8414**
MULTIFAN												
92 x 92 x 25	49.4	36	●	3050	– 20... + 75	25000/ + 75	50000/ + 55	2.4	24	12...28	CSA°, UL°, VDE°	**3414**

° = APPLIED FOR

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Fans & Blowers

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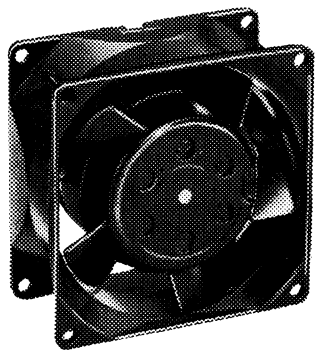
PAPST SOLID STATE BRUSHLESS DC FANS

THE ONLY COMPANY OFFERING YOU A FULL FAMILY OF SOLID STATE, BRUSHLESS DC FANS IN POPULAR FRAME SIZES & VOLTAGES, & AT POPULAR PRICES.



PAPST has a full line of self-contained, solid state, brushless DC fans for you to choose from. Through their design, these fans have been engineered to tackle those specialized applications which require highly reliable DC performance. Common uses include mobile radio equipment, medical electronics, shipboard computers, airborne applications, communications systems, automotive applications, marine use and telecommunications; wherever DC voltage is normally available. They are also finding wide acceptance for use in power stand-by modes to prevent memory loss in the event of AC power failure.

These fans are especially efficient and will outperform similar sized fans at normal operating back pressure. Typically, they offer greater air volume (cfm), reduced noise levels and reduced power drain. For example, the power drain at maximum back pressure is approximately 25% of that required in conventional AC units. These fans also achieve a new low in magnetic radiation and RF noise, thereby assuring the pure signals necessary for cirtical airborne or shipboard use.

These fans work well at all rated voltages, and are extremely quiet. They can be adjusted for performance and noise level by altering the voltage within the voltage range for your particular application. They feature a brushless motor with all electronics mounted on a PC card within the motor frame. Drive amplifiers for the motor are controlled by a patented Hall-effect generator circuit which is coupled by small pole pieces to the motor's field magnet (Patent No. 3-873-897). Available voltages include 5 VDC nominal, 12 VDC nominal, 24 VDC nominal and 48 VDC nominal.

The brushless DC motor is polarity protected* to avoid accidental damage and costly down time. If the input polarity is accidentally reversed, integral diodes block all circuits and the motor simply stops. Even in a locked rotor condition,* the motor goes into a neutral state to avoid damage. Precision bearings and lubricants help to achieve a life expectancy of 35,000 hours (sleeve bearing) and 60,000 hours (ball bearing) at maximum permissible ambient temperature. Note: If the ambient temperature in which the fan operates is at 20°C below the above levels the life expectancy increases by 10,000 hours.

These fans do not require an external voltage inverter. This means that you save valuable mounting space and weight because the only consideration in mounting is the fan itself. This new concept has eliminated many of the inherent reliability and RF noise problems generally associated with using AC motors in a DC environment.

*Except for 5 Volt models.

Technical Data
Fans for DC Operation

Dimensions in.	Max. Air Flow free air CFM ×(10⁻³m³/s)	Noise in free air dB (A)	Bearing System ○ sleeve ● ball	Speed RPM	Perm. Temperature Range** °C	Service Life at ambient temperature h/°C	L_{10} h/°C	Power Input W	Nominal Voltage VDC	Voltage Range VDC	Approvals	Models
Axial Fans for 12 V DC												
MULTIFAN												
2.44 × 2.44 × 10	**12.4** (5.8)	26	●	3000	– 20... + 65	25000/ + 65	50000/ + 45	0.7	12	6...15	CSA, UL, VDE	**812L**
	17.7 (8.3)	33	●	4100	– 20... + 65	25000/ + 65	50000/ + 45	1.3	12	6...15	CSA, UL, VDE	**812M**
	23.5 (11.0)	40	●	5300	– 20... + 65	25000/ + 65	50000/ + 45	2.5	12	6...15	CSA, UL, VDE	**812**
MULTIFAN												
3.13 × 3.13 × 1.0	**20.5** (9.5)	21	●	2000	– 20... + 75	25000/ + 75	50000/ + 55	0.8	12	7...15	CSA, UL, VDE	**8412L**
	26.5 (12.5)	39	●	2600	– 20... + 75	25000/ + 75	50000/ + 55	1.4	12	7...15	CSA, UL, VDE	**8412M**
	33.0 (15.5)	35	●	3150	– 20... + 75	25000/ + 75	50000/ + 55	2.2	12	7...15	CSA, UL, VDE	**8412**
MULTIFAN												
3.13 × 3.13 × 1.26	**18.6** (8.8)	26	●	2000	– 20... + 75	25000/ + 75	50000/ + 55	1.0	12	6...15	CSA, UL, VDE	**8312L**
	28.3 (13.3)	34	●	3000	– 20... + 75	25000/ + 75	50000/ + 55	1.8	12	6...15	CSA, UL, VDE	**8312M**
	31.8 (15.0)	36	●	3300	– 20... + 75	25000/ + 75	50000/ + 55	2.2	12	6...15	CSA, UL, VDE	**8312**
VARIOFAN												
3.13 × 3.13 × 1.26	**28.0-14**	34-18	●	3000-1500	– 20... + 65	25000/ + 65	50000/ + 45	1.7-0.8	12	8...14	CSA°, UL°, VDE°	**8312MV**
MULTIFAN												
3.13 × 3.13 × 1.5	**35.3** (16.7)	38	●	3300	– 30... + 72	50000/ + 72	60000/ + 52	3.0	12	9.5...14	CSA, UL, VDE°	**8112**
	35.3 (16.7)	38	○	3450	– 10... + 72	30000/ + 72	45000/ + 52	3.0	12	8...16	UL, VDE	**8112G**
MULTIFAN												
3.62 × 3.62 × 1.0	**49.4** (23.3)	36	●	3050	– 20... + 75	25000/ + 75	50000/ + 55	2.6	12	7...15	CSA°, UL, VDE°	**3412**
MULTIFAN												
3.62 × 3.62 × 1.26	**33.0** (15.5)	29	●	2150	– 20... + 75	25000/ + 75	50000/ + 55	1.4	12	6...15	CSA, UL, VDE	**3312L**
	40.0 (18.8)	34	●	2600	– 20... + 75	25000/ + 75	50000/ + 55	1.7	12	6...15	CSA, UL, VDE	**3312M**
	47.1 (22.2)	37	●	3000	– 20... + 75	25000/ + 75	50000/ + 55	2.4	12	6...15	CSA, UL, VDE	**3312**
VARIOFAN												
3.62 × 3.62 × 1.26	**47.0-23.5**	37-24	●	3000-1500	– 20... + 65	25000/ + 65	50000/ + 45	2.7-1.5	12	8...12.6	CSA°, UL°, VDE°	**3312V**

° = APPLIED FOR

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Fans & Blowers

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Technical Data Fans for DC Operation

Dimensions in.	Max. Air Flow free air CFM × ($10^{-3}m^3/s$)	Noise in free air dB (A)	Bearing System ○ sleeve ● ball	Speed RPM	Perm. Temperature Range** °C	Service Life at ambient temperature h/°C	L_{10} h/°C	Power Input W	Nominal Voltage VDC	Voltage Range VDC	Approvals	Models
Axial Fans for 12 V DC (cont.)												
MULTIFAN												
4.68 × 4.68 × 1.26	**55.9** (26.4)	30	●	1550	– 20... + 75	25000/ + 75	50000/ + 55	1.2	12	6...15	CSA,UL,VDE	**4312L**
	82.4 (38.9)	40	●	2300	– 20... + 75	25000/ + 75	50000/ + 55	2.6	12	6...15	CSA,UL,VDE	**4312M**
	100.0 (47.2)	45	●	2800	– 20... + 75	25000/ + 75	50000/ + 55	4.5	12	6...15	CSA,UL,VDE	**4312**
	100.0 (47.2)	45	●	2800	– 20... + 75	25000/ + 75	50000/ + 55	4.5	12	6...15	CSA,UL,VDE	**4392**
VARIOFAN												
4.68 × 4.68 × 1.26	**82.5-43.5**	40-22	●	2300-1150	– 20... + 65	25000/ + 65	50000/ + 45	3.4-1.4	12	8...12.6	CSA°, UL°, VDE°	**4312MV**
4.68 × 4.68 × 1.5	**50.0** (23.6)	25	○	1450	– 10... + 72	35000/ + 72	50000/ + 52	1.3	12	8...16	CSA,UL,VDE	**4112GXL**
MULTIFAN												
4.68 × 4.68 × 1.5	**94.2** (44.4)	41	●	2300	– 20... + 75	25000/ + 75	50000/ + 55	4.2	12	7...14.5	CSA°,UL°,VDE°	**4412**
4.68 × 4.68 × 1.5	**94.2** (44.4)	44	○	2800	– 10... + 72	30000/ + 72	45000/ + 52	4.5	12	8...16	CSA°,UL,VDE	**4112 GX**
	94.2 (44.4)	47	●	2800	– 30... + 72	50000/ + 72	60000/ + 52	4.5	12	9.5...14	CSA,UL,VDE°	**4112X**
	105.9 (50.0)	49	●	3200	– 20... + 65	30000/ + 65	60000/ + 45	6.0	12	8...14.5	CSA,UL,VDE	**4112KX**
Radial Blowers for 12 V DC												
4.75 × 4.75 × 1.45	**23.5** (11.1)	49	●	2500	– 30... + 72	50000/ + 72	60000/ + 52	4.5	12	9.5...14	CSA,UL,VDE	**RL90-18/12**
Axial Fans for 24 V DC												
MULTIFAN												
2.44 × 2.44 × 1.0	**23.5** (11.0)	40	●	5300	– 20... + 65	25000/ + 65	50000/ + 45	2.5	24	12...30	CSA,UL,VDE	**814**
MULTIFAN												
3.13 × 3.13 × 1.0	**20.5** (9.5)	21	●	2000	– 20... + 75	25000/ + 75	50000/ + 55	0.8	24	12...29	CSA,UL,VDE	**8414L**
	26.5 (12.5)	29	●	2600	– 20... + 75	25000/ + 75	50000/ + 55	1.4	24	12...28	CSA,UL,VDE	**8414M**
	33.0 (15.5)	35	●	3150	– 20... + 75	25000/ + 75	50000/ + 55	2.0	24	12...28	CSA,UL,VDE	**8414**
MULTIFAN												
3.13 × 3.13 × 1.26	**31.8** (15.0)	36	●	3300	– 20... + 75	25000/ + 75	50000/ + 55	2.2	24	12...28	CSA,UL,VDE	**8314**
3.13 × 3.13 × 1.5	**35.3** (16.7)	38	●	3300	– 30... + 72	50000/ + 72	60000/ + 52	3.0	24	19...28	CSA,UL,VDE	**8124**
	35.3 (16.7)	38	○	3450	– 10... + 72	30000/ + 72	45000/ + 52	3.0	24	18...30	UL,VDE	**8124G**
MULTIFAN												
3.62 × 3.62 × 10	**49.4** (23.3)	36	●	3050	– 20... + 75	25000/ + 75	50000/ + 55	2.6	24	12...28	CSA°,UL,VDE	**3414**
MULTIFAN												
3.62 × 3.62 × 1.26	**47.1** (22.2)	37	●	3000	– 20... + 75	25000/ + 75	50000/ + 55	2.4	24	12...28	CSA,UL,VDE	**3314**
MULTIFAN												
4.68 × 4.68 × 1.26	**100.0** (47.2)	45	●	2800	– 20... + 75	25000/ + 75	50000/ + 55	4.5	24	12...28	CSA,UL,VDE	**4314**
	100.0 (47.2)	45	●	2800	– 20... + 75	25000/ + 75	50000/ + 55	4.5	24	12...28	CSA,UL,VDE	**4394**
MULTIFAN												
4.68 × 4.68 × 1.5	**94.2** (44.4)	41	●	2300	– 20... + 75	25000/ + 75	50000/ + 55	4.2	24	12...28	CSA°,UL°,VDE°	**4414**
4.68 × 4.68 × 1.5	**94.2** (44.4)	44	○	2800	– 10... + 72	30000/ + 72	45000/ + 52	4.5	24	18...30	CSA,UL,VDE	**4124GX**
	94.2 (44.4)	47	●	2800	– 30... + 72	50000/ + 72	60000/ + 72	4.5	24	19...28	CSA,UL,VDE°	**4124X**
	105.9 (50.0)	49	●	3200	– 20... + 65	30000/ + 65	60000/ + 45	6.0	24	18...29	CSA,UL,VDE	**4124KX**
6.75DIA. × 2.16	**206.0** (97.2)	50	●	2850	– 20... + 72	30000/ + 72	60000/ + 52	12.0	24	12...32	CSA,UL,VDE	**6224M**
	241.3 (113.9)	55	●	3400	– 20... + 72	30000/ + 72	60000/ + 52	17.0	24	12...28	CSA,UL,VDE	**6224**
Axial Fans for 48 V DC												
MULTIFAN												
3.13 × 3.13 × 1.26	**31.8** (15.0)	36	●	3300	– 20... + 75	25000/ + 75	50000/ + 55	2.6	48	36...56	CSA°,UL,VDE	**8318**
3.13 × 3.13 × 1.5	**35.3** (16.7)	38	●	3300	– 30... + 72	50000/ + 72	6000/ + 52	3.0	48	38...56	CAS,UL,VDE°	**8148**
MULTIFAN												
4.68 × 4.68 × 1.26	**100.0** (47.2)	45	●	2800	– 20... + 75	25000/ + 75	50000/ + 55	5.0	48	36...53	CSA°,UL,VDE	**4318**
4.68 × 4.68 × 1.5	**94.2** (44.4)	44	●	2800	– 30... + 72	50000/ + 72	60000/ + 52	3.6	48	38...56	CSA,UL,VDE	**4148XP**
6.75DIA. × 2.16	**206.0** (97.2)	50	●	2850	– 20... + 72	30000/ + 72	60000/ + 52	12.0	24	12...32	CSA°,UL,VDE	**6248M**
	241.3 (113.9)	55	●	3400	– 20... + 72	30000/ + 72	60000/ + 52	17.0	24	12...28	CSA°,UL,VDE	**6248**
Radial Blowers for 24 V DC												
4.75 × 4.75 × 1.45	**23.5** (11.1)	49	●	2500	– 30... + 72	50000/ + 72	60000/ + 52	4.5	24	19...28	CSA,UL,VDE*	**RL 90-18/24**

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Fans & Blowers

PAPST

PAPST MECHATRONIC CORPORATION

PAPST MECHATRONIC CORPORATION, Aquidneck Industrial Park, Newport, Rhode Island 02840 ● Tel. (401) 849-8810 ● Fax (401) 849-4640

PAPST AC FANS

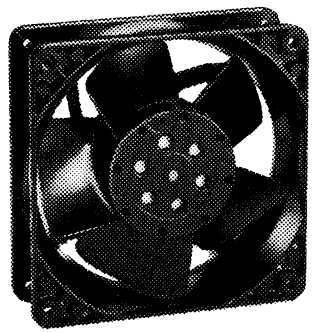
Field proven, quality products you can rely upon for all of your cooling requirements.

PAPST offers a wide variety of fans for your selection. Each model combines the features of extended life with high airflow delivery at low noise levels.

Lightweight all-metal construction is typical of PAPST AC fans. This all-metal construction eliminates breakage and warping often found in conventional plastic fans. This all-metal feature also permits the entire fan to function as a natural heat sink, assuring cooler operation by effectively transferring heat from the rotor into the air stream via the impeller blades. Potential injurious heat is also transferred from the stator to the die-cast venturi by way of the metal struts. Life expectancy: (1) AC fans with sleeve bearings—20,000 hours at maximum permissible ambient temperatures. (2) AC fans with ball bearings—20,000 hours at 72° C or at the maximum permissible temperature if this is less than 72° C. Note: If the ambient temperature in which the fan operates is at 20° C below the above levels the life expectancy increases by 10,000 hours.

The PAPST exclusive bearing lubrication system incorporates hand-fitted broached sintered iron sleeve bearings on most fans, with precision high-temperature ball bearing versions also available. The dual sleeve bearings are separated by a large oil felt reservoir, which provides continuous fault free circulation of a special lubricant to the shaft and bearing surface.

An efficient, powerful inside-out motor, housed entirely within the impeller hub to conserve axial depth, has higher torque capabilities and a lower internal heat rise than the contemporary fixed shaft designs.



The impeller blades are computer designed and impulse welded to the precision hub and dynamically balanced to within .0001 inches in each end plane to minimize acoustical and mechanical vibrations.

PAPST also offers a super premium grade fan; (5 year warranty).

Perhaps the two most important fields of application for premium grade fans are: (1) in limited-production deluxe equipment, in professional-grade instrumentation, in few-of-a-kind, custom-designed and permanently-installed systems requiring optimum performance and absolute dependability for many years; and (2) as field replacements for retrofit units for original-equipment fans that have proven to be unreliable, are too noisy, or do not produce sufficient cooling airflow.

PAPST fans are Underwriters' Laboratories, Inc. recognized and have their Yellow Card Component Recognition Number E41168. Most are CSA certified and VDE approved.

Technical Data

Fans for AC Operation

Dimensions in.	Max. Air Flow free air CFM ($10^3 m^3/s$)	Noise in free air dB (A)	Bearing System ○ sleeve ● ball	Speed RPM	Perm. Temperature Range** °C	Service Life at ambient temperature h/°C	L_{10} h/°C	Power Input W	Nominal Voltage V/Hz	Approvals	Model
Axial Fans for 115/60Hz may also be operated at 115V/50Hz.											
3.13 x 3.13 x 1.0	**16.0** (7.5)	25	●	2000	– 30... + 70	30000/ + 60	40000/ + 40	4	115/60	CSA, UL, VDE	**8908 L**
	24.5 (11.5)	35	●	3000	– 30... + 70	30000/ + 60	40000/ + 40	6	115/60	CSA, UL, VDE	**8908**
3.13 x 3.13 x 1.5	**21.2** (10.0)	21	○	1900	– 10... + 70	20000/ + 70	30000/ + 50	7.5	115/60	CSA, UL, VDE	**8830 N**
	27.7 (13.0)	28	○	2550	– 10... + 70	20000/ + 70	30000/ + 50	10.5	115/60	CSA, UL, VDE	**8800 N**
	35.9 (17.0)	34	○	3150	– 10... + 70	20000/ + 70	30000/ + 50	10.5	115/60	CSA, UL, VDE	**8500 N**
	35.9 (17.0)	35	●	3300	– 40... + 90	15000/ + 90	25000/ + 70	10	115/60	CSA, UL, VDE	**8506 N**
	35.9 (17.0)	34	○	3150	– 10... + 70	20000/ + 70	30000/ + 50	10.5	115/60	UL	**8500 DP**
3.62 x 3.62 x 1.0	**31.0** (14.5)	33	●	2300	– 30... + 70	30000/ + 60	40000/ + 40	6	115/60	CSA, UL, VDE	**3908 L**
	41.5 (19.5)	41	●	3100	– 30... + 70	30000/ + 60	40000/ + 40	9	115/60	CSA, UL, VDE	**3908**
4.45 x 4.45 x 2.0	**100.0** (47.0)	59	○	3250	– 10... + 55	20000/ + 55	30000/ + 35	28	115/60	CSA, UL, VDE	**2500 S**
4.68 x 4.68 x 1.0	**58.5** (27.7)	36.5	●	2100	– 30... + 70	30000/ + 60	40000/ + 40	9	115/60	CSA, UL, VDE	**4908 L**
	79.5 (37.5)	44.5	●	2850	– 30... + 70	30000/ + 60	40000/ + 40	12	115/60	CSA, UL, VDE	**4908**
4.68 x 4.68 x 1.5	**58.5** (27.7)	32	○	1800	– 10... + 80	20000/ + 80	30000/ + 60	9	115/60	CSA, UL, VDE	**4800 N**
	58.5 (27.7)	32	○	1800	– 10... + 80	20000/ + 80	30000/ + 60	9	115/60	CSA, UL, VDE	**4800 X**
	88.9 (42.0)	44	○	2700	– 10... + 70	20000/ + 70	30000/ + 50	15	115/60	CSA, UL, VDE	**4530 N**
	99.5 (47.0)	48	○	3000	– 10... + 70	20000/ + 70	30000/ + 50	15	115/60	CSA, UL, VDE	**4500 N**
	105.9 (50.0)	50	○	3100	– 10... + 65	20000/ + 65	30000/ + 45	18	115/60	CSA, UL, VDE	**4600 N**
	105.9 (50.0)	51	●	3100	– 40... + 85	20000/ + 85	30000/ + 65	18	115/60	CSA, UL, VDE	**4606 N**
	105.9 (50.0)	50	○	3100	– 10... + 65	20000/ + 65	30000/ + 45	18	115/60	CSA, UL, VDE	**4600 X**
	105.9 (50.0)	51	●	3100	– 40... + 85	20000/ + 85	30000/ + 65	18	115/60	CSA, UL, VDE	**4606 X**
	105.9 (50.0)	50	○	3100	– 10... + 65	20000/ + 65	30000/ + 45	18	115/60	CSA, UL	**4600 XP**
5.9DIA. x 2.16	**235.4**(111.0)	60	○	3350	– 10... + 55	20000/ + 55	30000/ + 35	39	115/60	UL, VDE	**7600 S**
	235.4(111.0)	60	●	3350	– 40... + 85	15000/ + 85	25000/ + 65	39	115/60	UL, VDE	**7606**
	247.2(116.7)	55	●	3350	– 40... + 55	30000/ + 55	40000/ + 35	39	115/60		**7805 SN**
6.75DIA. x 2.16	**246.6**(116.4)	54	●	3400	– 40... + 80	20000/ + 80	30000/ + 60	29	115/60	CSA, UL, VDE*	**6008 S**
	294.3(138.9)	57	●	3300	– 40... + 80	20000/ + 80	30000/ + 60	31	115/60	CSA, UL	**6028 S**

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PAPST MECHATRONIC CORPORATION, Aquidneck Industrial Park, Newport, Rhode Island 02840 ● Tel. (401) 849-8810 ● Fax (401) 849-4640

Technical Data
Fans for AC Operation

Dimensions in.	Max. Air Flow free air CFM ($10^3 m^3/s$)	Noise in free air dB (A)	Bearing System ○ sleeve • ball	Speed RPM	Perm. Temperature Range** °C	Service Life at ambient temperature h/°C	L_{10} h/°C	Power Input W	Nominal Voltage V/Hz	Approvals	Model
Axial Fans for Low Voltage 12 V/60 Hz, 24 V/60 Hz											
3.10DIA. x 1.41	40.0 (19.0)	35	○	3550	– 10... + 70	10000/ + 70	25000/ + 50	7.0	24/60	CSA*, UL, VDE	950
3.13DIA. x 1.45	18.8 (8.9)	20	○	1800	– 10... + 85	10000/ + 85	20000/ + 65	2.5	24/60	CSA*, UL, VDE	900
	27.1 (12.8)	29		2550	– 10... + 55	10000/ + 55	25000/ + 35	7.5	42/60		
Axial Fans for Low Voltage 12 V/60 Hz, 24 V/60 Hz, without External Housing											
2.44DIA. x 1.38	15.3 (7.2)	< 20	○	2400	– 10... + 70	10000/ + 70	25000/ + 50	7	12/60	UL, VDE	971 TR
Axial Fans for 115 V/60 Hz and 230 V/60 Hz may also be operated at 115 V/50 Hz and 220 V/50Hz.											
3.13 x 3.13 x 1.5	35.9 (17.0)	34	○	3150	– 10... + 70	20000/ + 70	30000/ + 50	10.5	230-115/60	CSA, UL, VDE	8560 N
4.68 x 4.68 x 1.5	58.9 (27.8)	32	○	1800	– 10... + 80	20000/ + 80	30000/ + 60	10	230-115/60	CSA, UL, VDE	4860 N
	105.9 (50.0)	50		3100	– 10... + 65	20000/ + 65	30000/ + 45	18	230-115/60	CSA, UL, VDE	4660 N
Radial Blowers for 115 V/60 Hz may also be operated at 115 V/50 Hz.											
4.75 x 4.75 x 1.45	23.5 (11.5)	51	○	2600	– 10... + 55	20000/ + 55	30000/ + 35	20	115/60	CSA, UL, VDE	RL 90-18/00
Axial Fans for 230 V/60Hz may also be operated at 220 V/60Hz.											
3.13 x 3.13 x 1.0	16.0 (7.5)	25	●	2000	– 30... + 70	30000/ + 60	40000/ + 40	4	230/60	CSA*, UL, VDE	8958 L
	24.5 (11.5)	35	●	3000	– 30... + 70	30000/ + 60	40000/ + 40	6	230/60	CSA*, UL, VDE	8958
3.13 x 3.13 x 1.5	21.2 (10.0)	21	○	1900	– 10... + 70	20000/ + 70	30000/ + 50	7.5	230/60	CSA, UL, VDE	8880 N
	27.7 (13.0)	28	○	2550	– 10... + 70	20000/ + 70	30000/ + 50	10.5	230/60	CSA, UL, VDE	8850 N
	35.9 (17.0)	34	○	3150	– 10... + 70	20000/ + 70	30000/ + 50	10.5	230/60	CSA, UL, VDE	8550 N
	35.9 (17.0)	35	●	3300	– 40... + 90	15000/ + 90	25000/ + 70	10	230/60	CSA, UL, VDE	8556 N
3.62 x 3.62 x 1.0	31.0 (14.5)	33	●	2300	– 30... + 70	30000/ + 60	40000/ + 40	6	230/60	CSA*, UL, VDE	3958 L
	41.5 (19.5)	41	●	3100	– 30... + 70	30000/ + 60	40000/ + 40	9	230/60	CSA*, UL, VDE	3958
4.68 x 4.68 x 1.0	58.5 (27.7)	36.5	●	2100	– 30... + 70	30000/ + 60	40000/ + 40	9	230/60	CSA*, UL, VDE	4958 L
	79.5 (37.5)	44.5	●	2850	– 30... + 70	30000/ + 60	40000/ + 40	12	230/60	CSA*, UL, VDE	4958
4.68 x 4.68 x 1.5	58.5 (27.7)	32	○	1800	– 10... + 80	20000/ + 80	30000/ + 60	9	230/60	CSA, UL, VDE	4850 N
	58.5 (27.7)	32	○	1800	– 10... + 80	20000/ + 80	30000/ + 60	9	230/60	CSA, UL, VDE	4850 X
	88.9 (42.0)	44	○	2700	– 10... + 70	20000/ + 70	30000/ + 50	15	230/60	CSA, UL, VDE	4580 N
	99.5 (47.0)	48	○	3000	– 10... + 70	20000/ + 70	30000/ + 50	15	230/60	CSA, UL, VDE	4550 N
	105.9 (50.0)	50	○	3100	– 10... + 65	20000/ + 65	30000/ + 45	18	230/60	CSA, UL, VDE	4650 N
	105.9 (50.0)	51	●	3100	– 40... + 85	20000/ + 85	30000/ + 65	18	230/60	CSA, UL, VDE	4656 N
	105.9 (50.0)	50	○	3100	– 10... + 65	20000/ + 65	30000/ + 45	18	230/60	CSA, UL, VDE	4650 X
	105.9 (50.0)	51	●	3100	– 40... + 85	20000/ + 85	30000/ + 65	18	230/60	CSA, UL, VDE	4656 X
5.9DIA. x 2.16	235.4(111.0)	60	○	3350	– 10... + 55	20000/ + 55	30000/ + 35	39	230/60	UL, VDE	7650 S
	235.4(111.0)	60	●	3350	– 40... + 85	15000/ + 85	25000/ + 65	39	230/60	UL, VDE	7656
	247.2(116.7)	55	●	3350	– 40... + 55	30000/ + 55	40000/ + 35	39	230/60		7855 SN
6.75DIA. x 2.16	246.6(116.4)	54	●	3400	– 40... + 80	20000/ + 80	30000/ + 60	29	230/60	CSA, UL, VDE*	6058 S
	294.3(138.9)	57	●	3300	– 40... + 80	20000/ + 80	30000/ + 60	31	230/60	CSA, UL	6078 S
Radial Blowers for 230 V/60 Hz may also be operated at 220 V/60 Hz.											
4.75 x 4.75 x 1.45	23.5 (11.5)	51	○	2600	– 10... + 55	20000/ + 55	30000/ + 35	20	220/60	CSA, UL, VDE	RL 90-18/50

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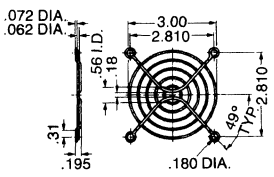
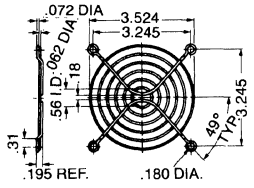
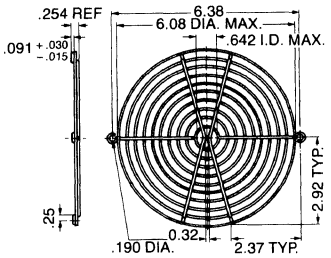


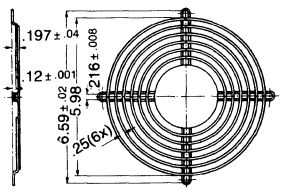
LZ 22 N FINGER GUARD
Welded, nickel chrome-plated steel wire, .062 in. (1.6 mm) diameter. For series 8000.



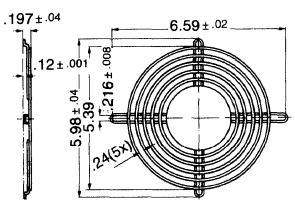
LZ 23 FINGER GUARD
Welded, nickel chrome-plated steel wire, .062 in. (1.6 mm) diameter. For series 3000.



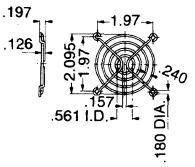
LZ 24 FINGER GUARD
Welded, nickel-plated steel wire, 1.5 mm (.06 in.) diameter. For series 8000.



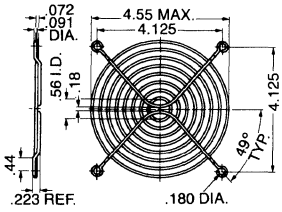
LZ 26 FINGER GUARD
Welded, zinc-plated steel wire, .055 in. (1.4 mm) diameter. For series 6000.



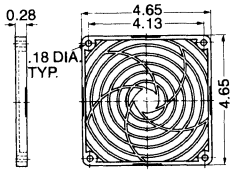
LZ 27 FINGER GUARD
Welded, nickel-plated steel wire, .055 in. (1.4 mm) diameter. For series 7000.



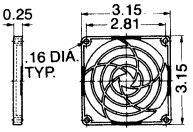
LZ 28 FINGER GUARD
Welded, chrome-plated steel wire, 1.6 mm (.063 in.) diameter. For 800 MULTIFAN.



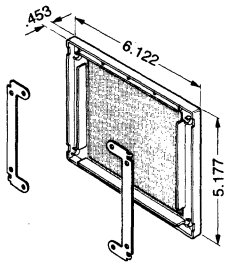
LZ 30 FINGER GUARD
Welded, nickel chrome-plated steel wire, .072 in. (1.8 mm) diameter. For series 2500 S and 4000.



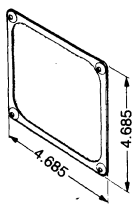
LZ 30 P FINGER GUARD
Fiberglass reinforced plastic (PPO). For series 2500 S and 4000.



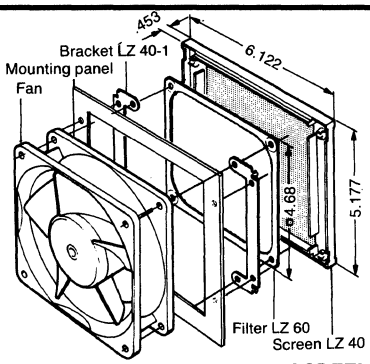
LZ 32 P FINGER GUARD
Fiberglass reinforced plastic (PPO). For series 8000.



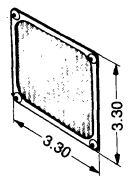
LZ 40 N SCREEN
Frame of black fiberglass reinforced plastic (PPO), fitted with stainless steel wire mesh. LZ 40-1 included for mounting. For series 2500 S and 4000.



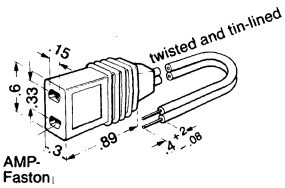
LZ 60 FILTER
Light metal frame with crimped-on aluminum mesh. Mesh size .003 in. (0.7 mm), wire dia. .012 in. (0.3 mm). For series 2500 S and 4000.



LZ 40/60 SCREEN
For series 2500 S and 4000.

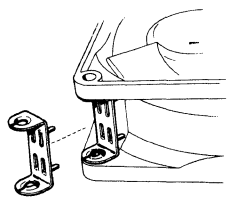


LZ 60-8 FILTER
Light metal frame with crimped-on aluminium mesh. Mesh size .003 in. (0.7 mm), wire dia. .012 in. (0.3 mm). For series 8000.

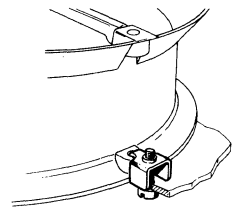


PLUG AND CORD SET
LZ 120: 24 in. (610 mm) long
LZ 126: 39 in. (1000 mm) long
LZ 130-1: 24 in. (610 mm) long, UL-approved.
Connecting cable with moulded plug. PVC, black.
For series 3000, 4000, 6000.

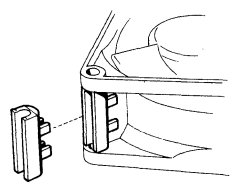
LZ 210 SCREW CLIP
For mounting fans with self-tapping screw 6-32 UNC or 3.5 DIN 7970. Made of hardened and tempered steel, deburred; surface lightly oiled. For series 2500 S, 4000 and 7000. (Not for MULTIFAN series 4300 and 4400!)



LZ 212 SCREW CLIP
For mounting MULTIFAN series 8300, 3300 and 4300 with self-tapping screw 3.5 DIN 7970. Spring steel, rust resistant.



LZ 215 MOUNTING CLIP
For mounting series 6000 fans to circular panel cutouts.
Zinc-plated sheet steel with M 4 screw thread.



LZ 260 SPACER BUSHING
For fans of the MULTIFAN series 8300, 3300 and 4300. Fiberglass reinforced plastic (PBTP). For screw mounting over both fan mounting flanges.

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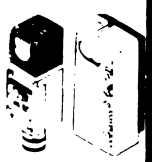
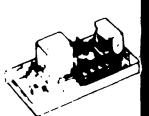
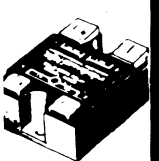
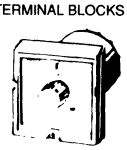

PHOTOELECTRICS

RELAYS


LIQUID LEVEL CONTROLS


SOLID STATE RELAYS

TERMINAL BLOCKS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CIRCUIT BREAKERS FUSES & FUSEHOLDERS

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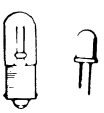
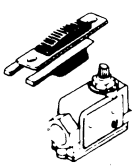

LAMPS & LEDS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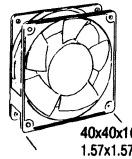

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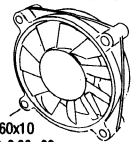

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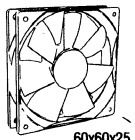
2.36x2.36x.79



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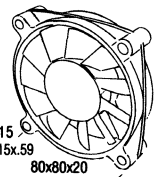

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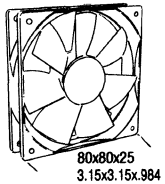

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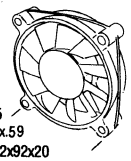

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92x92x20
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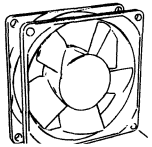


92x92x25
3.62x3.62x.984

DCPTI

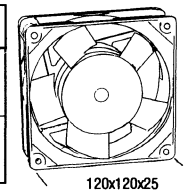
PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE DC	WATTS	LINE AMPS	STATIC PRESSURE	RPM	WEIGHT grs.
D041012HB	3.53 *	29	12	1.2	0.1	2.6 *	5800	18 g
D042012HB	4.60 *	33	12	1.8	0.15	3.7 *	6000	33 g
D042024HB	4.60 *	33	24	2.4	0.1	3.7 *	6000	33 g
D04205HS	6 *	30	5	1.6	0.32	0.17 *	7000	35 g
D042012HS	6 *	30	12	1.4	0.12	0.17 *	7000	35 g
D042024HS	6 *	30	24	1.9	0.08	0.17 *	7000	35 g

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE DC	WATTS	LINE AMPS	STATIC PRESSURE	RPM	WEIGHT grs.
D061012HB	12.36 *	28	12	1.2	0.1	1.9 *	6000	27 g
D061512GB	10.6 *	33	12	2.4	0.2	1.8 *	3800	45 g
D061512HB	10.6 *	29	12	2.4	0.2	1.8 *	3700	42 g
D061524GB	10.6 *	33	24	2.4	0.1	1.8 *	3800	42 g
D061524HB	10.6 *	29	24	2.4	0.1	1.8 *	3700	42 g
D062012HB	13.1 *	31	12	2.4	0.2	3.0 *	4500	50 g
D062024HB	13.1 *	31	24	2.4	0.1	3.0 *	4500	50 g
D06255HS	17 *	34 *	5	1.6 *	0.31 *	.18 *	4600	58 g
D06255LS	13 *	28 *	5	1.1 *	0.21 *	.11 *	3400	58 g
D062512HS	17 *	34 *	12	1.4 *	0.12 *	.18 *	4600	58 g
DO62512MB	.20 *	34	12	2.3 *	0.12 *	4.2 *	4200	58 g
D062512HB	.20 *	34	12	2.3 *	0.19 *	4.2 *	4200	58 g
D062512LS	13 *	28 *	12	1.0 *	0.09 *	.11 *	3400	58 g
D062524HS	17 *	34 *	24	2.2 *	0.09 *	.18 *	4600	58 g

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE DC	WATTS	LINE AMPS	STATIC PRESSURE	RPM	WEIGHT grs.
D081512HB	0.20 *	31	12	2.4	0.2	3.1 *	3000	75 g
D081524HB	0.20 *	31	24	2.4	0.1	3.1 *	3000	75 g
D082012HB	0.29 *	29	12	2.52	0.21	.3 *	3000	84 g
D082024HB	0.29 *	29	24	3.12	0.13	.3 *	3000	84 g
D082512HS	34 *	35 *	12	2.4 *	0.20 *	.23 *	3100	95 g
D082512HB	35 *	36 *	12	2.4 *	0.20 *	.24 *	3200	95 g
D082512LS	24 *	27 *	12	1.4 *	0.12 *	.12 *	2350	95 g
D082512LB	25 *	28 *	12	1.4 *	0.12 *	.135 *	2450	95 g
D082524HS	34 *	35 *	24	2.9 *	0.12 *	.23 *	3100	95 g
D082524HB	35 *	36 *	24	2.9 *	0.12 *	.24 *	3200	95 g
D082524LS	24 *	27 *	24	1.7 *	0.07 *	.12 *	2350	95 g
D082524LB	25 *	28 *	24	1.7 *	0.07 *	.135 *	2450	95 g
D082512XB	40 *	38	12	2.5	0.21 *	4.8	3900	95 g
D082524XB	40 *	38	24	2.5	0.12 *	4.8	3900	95 g

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE DC	WATTS	LINE AMPS	STATIC PRESSURE	RPM	WEIGHT grs.
D091512HB	25 *	31	12	2.4	0.2	3.3 *	3000	85 g
D091524HB	25 *	31	24	2.4	0.1	3.3 *	3000	85 g
D092012HB	36 *	29	12	2.64	0.22	2.0 *	2200	93 g
D092024HB	36 *	29	24	2.4	0.1	2.0 *	2200	93 g
D092512HS	50 *	33 *	12	2.6 *	0.22 *	.19	3400	105 g
D092512HB	51 *	34 *	12	2.6 *	0.22 *	.195	3500	105 g
D092512LS	36*	29 *	12	1.3 *	0.11 *	.12	2500	105 g
D092512LB	36 *	30 *	12	1.3 *	0.11 *	.12	2500	105 g
D092524HS	50 *	33 *	24	2.6 *	0.11 *	.19	3400	105 g
D092524HB	51 *	34 *	24	2.6 *	0.11 *	.195	3500	105 g
D092524LS	36 *	29 *	24	1.7 *	0.07 *	.12	2500	105 g
D092524LB	36 *	30 *	24	1.7 *	0.07 *	.12	2500	105 g

dimensions in millimeters
dimensions in inches

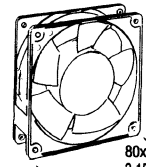


120x120x25
4.72x4.72x.984

120x120x38
4.72x4.72x1.5

DCPTI

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE DC	WATTS	LINE AMPS	STATIC PRESSURE	RPM	WEIGHT grs.
D122512HS	80 *	45 *	12	4.9 *	0.41 *	0.30	3100	250 g
D122512MS	55 *	38 *	12	3.0 *	0.25 *	0.19	2400	250 g
D122524HS	80 *	45 *	24	5.5 *	0.23 *	0.30	3100	250 g
D122524LS	55 *	38 *	24	4.3 *	0.18 *	0.19	2400	250 g
D123812HS	106 *	49 *	12	6.4 *	0.53 *	.32	3000	550 g
D123812HB	112 *	50 *	12	6.4 *	0.53 *	.35	3150	550 g
D123812MS	80 *	38 *	12	3.4 *	0.28 *	.19	2350	550 g
D123812MB	85 *	39 *	12	3.4 *	0.28 *	.20	2450	550 g
D123824HS	106 *	49 *	24	6.5 *	0.27 *	.32	3000	550 g
D123824HB	112 *	50 *	24	6.5 *	0.27 *	.35	3150	550 g
D123824MS	80 *	38 *	24	4.6 *	0.19 *	.19	2350	550 g
D123824MB	85 *	39 *	24	4.6 *	0.19 *	.19	2450	550 g



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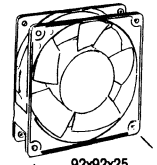
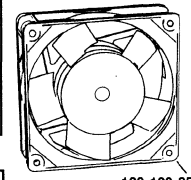
80x80x25
3.15x3.15x.98



92x92x25
3.62x3.62x.984



120x120x38
4.72x4.72x1.5

120x120x25
4.72x4.72x.984

ACPTI

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE vac	FREQ. Hz	WATTS	LINE AMPS	RPM	WEIGHT ozs.
A082515HBL	21 *	33	115	50/60	11	0.11	2800	7.8 ozs
A082515HSL	17 *	33	115	50/60	11	0.11	2800	7.8 ozs
A082523HBL	21 *	33	230	50/60	13.5	0.07	2800	7.8 ozs
A082523HSL	17 *	33	220	50/60	13.5	0.07	2800	7.8 ozs
A083815HBL	30 *	39	115	50/60	12	0.13	2750	7.8 ozs
A083815HSL	30 *	39	115	50/60	12	0.15	2750	7.8 ozs
A083823HBL	30 *	39	230	50/60	13.5	.0.13	2750	7.8 ozs
A083823HSL	30 *	39	220	50/60	13.5	0.07	2750	7.8 ozs

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE vac	FREQ. Hz	WATTS	LINE AMPS	RPM	WEIGHT ozs.
A092515HBT	39 *	39	115	50/60	12	0.11	2700	10.6 ozs
A092515HST	39 *	39	115	50/60	12	0.11	2700	10.6 ozs
A092523HBT	39 *	39	230	50/60	14	0.06	2700	10.6 ozs
A092523HST	39 *	39	220	50/60	14	0.06	2700	10.6 ozs

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE vac	FREQ. Hz	WATTS	LINE AMPS	RPM	WEIGHT ozs.
A122515HST	77 *	39	115	50/60	19	0.19	2500	12.8 ozs
A122523HST	77 *	39	230	50/60	17	0.09	2500	12.8 ozs

PART NUMBER	AIR FLOW CFM	NOISE dBA	VOLTAGE vac	FREQ. Hz	WATTS	LINE AMPS	RPM	WEIGHT ozs.
A123815HBT	105 *	48	115	50/60	18	0.18	2900	19.4 ozs
A123815HST	105 *	48	115	50/60	18	0.18	2900	19.4 ozs
A123815LBT	76 *	38	115	50/60	11	0.11	2200	19.4 ozs
A123815LST	76 *	38	115	50/60	11	0.11	2200	19.4 ozs
A123815XBT	115 *	49	115	50/60	20	0.24	3100	19.4 ozs
A123815XST	115 *	49	115	50/60	20	0.24	3100	19.4 ozs
A123823HBT	105 *	49	230	50/60	19	0,11	3100	19.4 ozs
A123823HST	105 *	48	220	50/60	19	0.11	3100	19.4 ozs
A123823LBT	76 *	38	230	50/60	10	0.06	2200	19.4 ozs
A123823LST	76 *	38	220	50/60	10	0.06	2200	19.4 ozs
A123823XBT	115 *	49	230	50/60	19	0.12	3100	19.4 ozs
A123823XST	115 *	49	220	50/60	19	0.12	3100	19.4 ozs

* Maximum ** Call PTI for agency approval number for appropriate part number.

PRODUCT TECHNOLOGY INC.
2811-B McGAW AVE., IRVINE, CA 92714
PHONE: (714) 474-8998 FAX: (714) 474-1340

"SERVICE IS OUR SPECIALTY"

2600

RODALE Technical Sales Inc.

Technical Sales Inc.
577 Main Street, Islip, New York 11751
516-277-5454 Telex: 5106007812 FAX: 516-277-8375

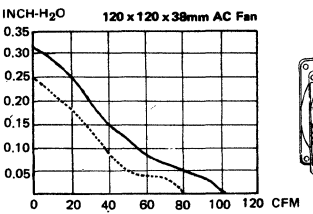
ac axial-tube fans

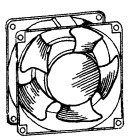
SPECIAL FEATURES FOR ALL MODELS

- ☐ Aluminum die cast frame
- ☐ Thermoplastic impeller—UL rated 94V0
- ☐ Impedance protection
- ☐ Lubricated sleeve or ball bearing construction
- ☐ 12" 24AWG or terminal
- ☐ UL Recognized
- ☐ CSA Certified
- ☐ VDE Pending
- ☐ Low speed is available on request.

120×120×38mm

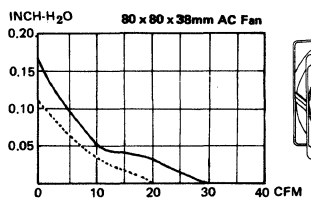
Model	Bearing	Operating (VAC)	Nominal (VAC)	Freq. (Hz)	Air Flow (CFM)	Current (mA)	Power (W)	Locked Rotor (A)	Speed (RPM)	Noise (dBA)
A12M15HTS	Sleeve	85–125	115	50/60	80/105	210/180	20/18	0.23/0.21	2600/3000	43/49
A12M15HTB	Ball									
A12M30HTS	Sleeve	185–245	220/230	50/60	80/105	120/110	20/19	0.14/0.12	2600/3000	43/49
A12M30HTB	Ball									

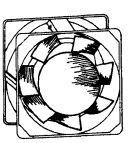




80×80×38mm

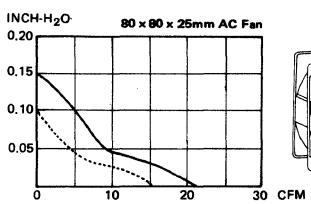
Model	Bearing	Operating (VAC)	Nominal (VAC)	Freq. (Hz)	Air Flow (CFM)	Current (mA)	Power (W)	Locked Rotor (A)	Speed (RPM)	Noise (dBA)
A08M15HWS	Sleeve	85–125	115	50/60	20/30	130/120	12/11	0.15/0.14	2300/2800	31/35
A08M30HWS	Sleeve	185–245	220/230	50/60	20/30	80/70	13/12	0.11/0.10	2300/2800	31/35

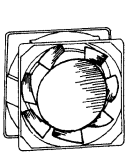




80×80×25mm

Model	Bearing	Operating (VAC)	Nominal (VAC)	Freq. (Hz)	Air Flow (CFM)	Current (mA)	Power (W)	Locked Rotor (A)	Speed (RPM)	Noise (dBA)
A08T15HWS	Sleeve	85–125	115	50/60	15/21	120/110	11/10	0.14/0.13	2350/2800	29/33
A08T30HWS	Sleeve	185–245	220/230	50/60	15/21	70/60	12/11	0.10/0.09	2350/2800	29/33

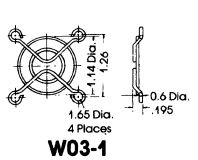




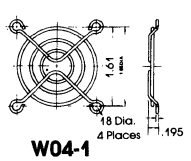
fan accessories

FINGER GUARD—WIRE FORM

Quality wire formed guards fit all standard 3-1/8", 3-5/8", 4-1/2", and 2-1/2" fans. All guards are designed to ensure safe operation and comply with U.L., CSA and VDE requirements. Nickel chrome plating is standard finish for all wire formed guards; color is available.
Tolerance .XX = ±.03 .XXX = ±.015



W03-1



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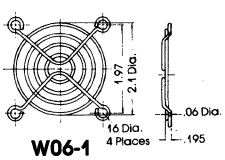

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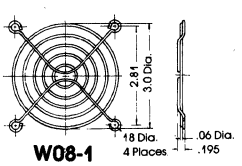

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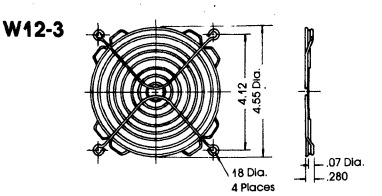
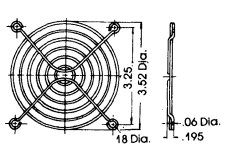


W12-3



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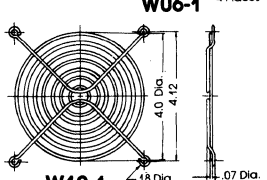
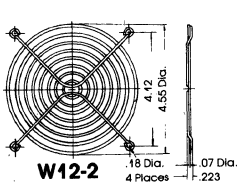
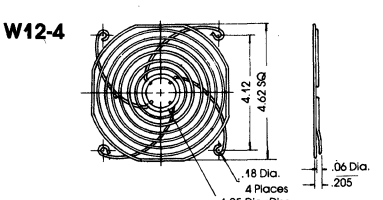


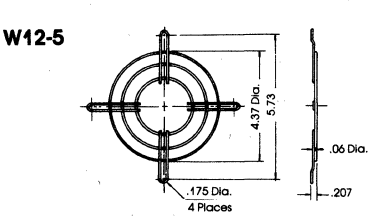
W12-1



W12-2



W12-4



W12-5

Part no.	For use with fan size	Mounting hole centers	No. of rings	Ring dia	Finish
	Inch	Inch		Inch	
W03-1	1-1/2	1.24	2	0.16	Nickel-Chrome
W04-1	2	1.67	3	0.16	"
W06-1	2-3/8	1.90	4	0.16	"
W08-1	3-1/8	2.81	5	0.18	"
W09-1	3-5/8	3.25	6	0.18	"
W12-1	4-1/2	4.12	7	0.18	"
W12-2	4-1/2	4.12	8	0.18	"
W12-3	4-1/2	4.12	8	0.18	"
W12-4	4-1/2	4.12	7	0.18	"
W12-5	4-1/2	4.37	3	0.175	"

RODALE
Technical Sales Inc.

Technical Sales Inc.
577 Main Street, Islip, New York 11751
516-277-5454 Telex: 5106007812 FAX: 516-277-8375

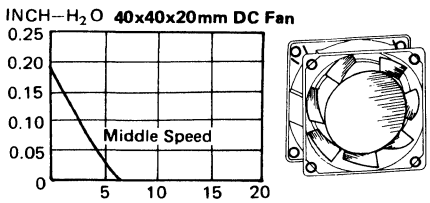
dc brushless fans

SPECIAL FEATURES FOR ALL MODELS

- ☐ Aluminum die cast frame
- ☐ Thermoplastic impeller—UL rated 94V0
- ☐ Electronic commutation circuit polarity protected
- ☐ Sintered bronze sleeve bearing construction
- ☐ 12 VDC or 24VDC ±25%
- ☐ Low EMI/RFI interference
- ☐ Meet UL, CSA & VDE requirement.

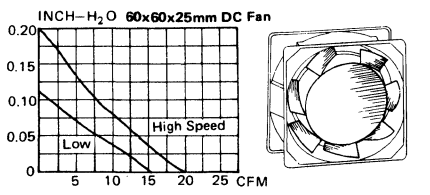
40×40×20mm

Model	Bearing	Operating (VDC)	Nominal (VDC)	Air Flow (CFM)	Current (mA)	Power (W)	Speed (RPM)	Inch/H_2O	Noise (dBA)
D04T12MWS	Sleeve	10.2—13.8	12	6	120	1.4	7000	0.13	31



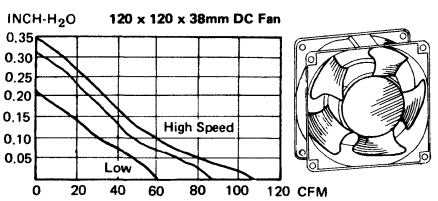
60×60×25mm

Model	Bearing	Operating (VDC)	Nominal (VDC)	Air Flow (CFM)	Current (mA)	Power (W)	Speed (RPM)	Inch/H_2O	Noise (dBA)
D06T12HWS	Sleeve	10.2—13.8	12	19	120	1.5	4600	0.20	20
D06T12LWS	Sleeve	10.2—13.8	12	15	90	1.0	3500	0.11	23



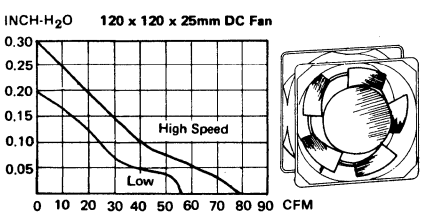
120×120×38mm

Model	Bearing	Operating (VDC)	Nominal (VDC)	Air Flow (CFM)	Current (mA)	Power (W)	Speed (RPM)	Inch/H_2O	Noise (dBA)
D12M12HWS	Sleeve	10.2—13.8	12	105	550	6.6	3000	0.34	48
D12M12MWS	Sleeve	10.2—13.8	12	85	400	4.8	2700	0.32	41
D12M12LWS	Sleeve	10.2—13.8	12	60	280	3.4	2300	0.21	38



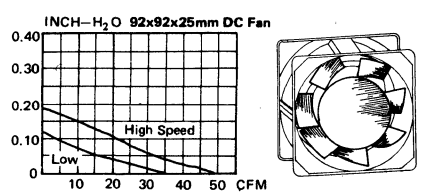
120×120×25mm

Model	Bearing	Operating (VDC)	Nominal (VDC)	Air Flow (CFM)	Current (mA)	Power (W)	Speed (RPM)	Inch/H_2O	Noise (dBA)
D12T12HWS	Sleeve	10.2—13.8	12	80	410	4.9	3100	0.30	45
D12T12LWS	Sleeve	10.2—13.8	12	55	250	3.0	2400	0.19	38



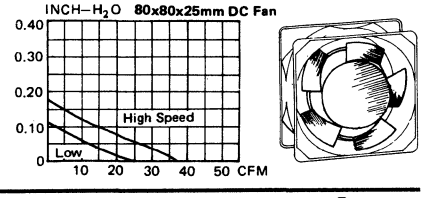
92×92×25mm

Model	Bearing	Operating (VDC)	Nominal (VDC)	Air Flow (CFM)	Current (mA)	Power (W)	Speed (RPM)	Inch/H_2O	Noise (dBA)
D09T12HWS	Sleeve	10.2—13.8	12	50	220	2.6	3400	0.19	32
D09T12LWS	Sleeve	10.2—13.8	12	36	120	1.4	2500	0.11	27



80×80×25mm

Model	Bearing	Operating (VDC)	Nominal (VDC)	Air Flow (CFM)	Current (mA)	Power (W)	Speed (RPM)	Inch/H_2O	Noise (dBA)
D08T12HWS	Sleeve	10.2—13.8	12	36	220	2.6	3200	0.18	29
D08T12LWS	Sleeve	10.2—13.8	12	26	130	1.6	2300	0.10	24



MODEL CODE A 1 2 M 1 5 H W S

- A :AC FAN / D :DC FAN — CURRENT
- 12: 120MM / 09: 92MM / 08: 80MM / 06: 60MM / 04: 40MM — DIMENSION
- M :38MM OR 32MM / T :20MM OR 25MM — THICKNESS
- S :SLEEVE / B :BALL — BEARING
- T :TERMINAL / W :LEAD WIRE — CONNECTOR
- H :HIGH / L :LOW — SPEED
- 15: 115V / 30: 230V / 12: 12V / 24: 24V — VOLTAGE

AIR CONDITIONERS

Temperature Control...

Solid State Cooling For Electronic Enclosures

• Environmentally Safe (No CFC's!)

- Designed to excel in high ambients
- New European Models 230 VAC, 50 Hz

Thermoelectric Air Conditioners are a solid state method of refrigeration, which eliminates the need for a compressor, refrigerant fluids or piping. The only moving parts are highly reliable fans used to dissipate output heat to the ambient air. These air conditioners can be applied in computers, machine tool controls, instrumentation & electronics for hostile environment protection. They offer design flexibility in a wide range of industrial and consumer applications where compactness and reliability are key.

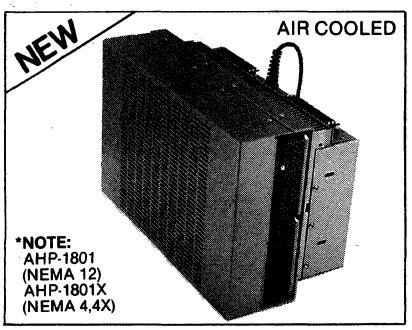
Features:

- *No load cooling to −5°F (−20°C) at room temperature*
- *Lightweight, compact designs*
- *No compressor, no fluids, no coils*
- *Closed system protection from dust, chips, & moisture*
- *No moving parts except fans, means high reliability*
- *Low vibration, noise & maintenance*
- *Metal finishes resist corrosion*
- *Operates in any orientation - horizontal, vertical, etc.*
- *All models available from stock*

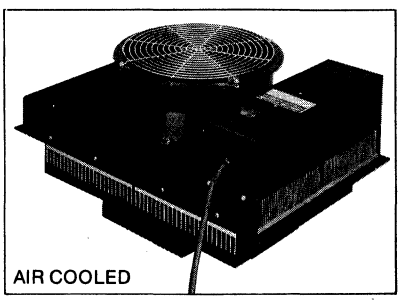
Other Products:

- Liquid cooled air conditioners rated to 5000 BTUH
- Thermoelectric cooling modules
- Temperature controllers
- Standard DC power supplies
- Solid State Liquid Chillers

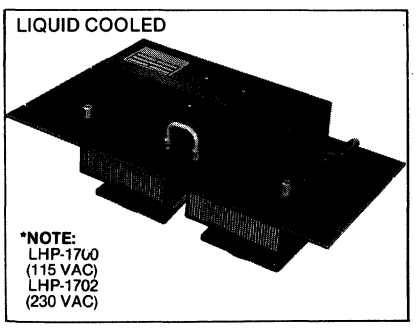
One Year Warranty on Parts and Labor
24 Hour Shipment on In-Stock Items



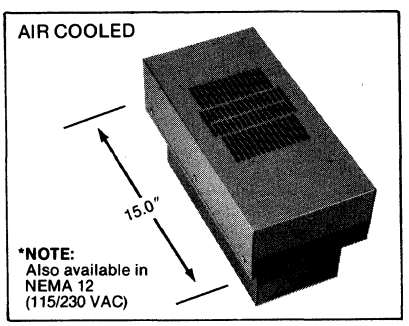
AHP-1801
AHP-1801X
(NEMA 12, 4, 4X)
1500 BTUH Cooling
Input: 115/230 VAC, 50/60 Hz
Temperature control included



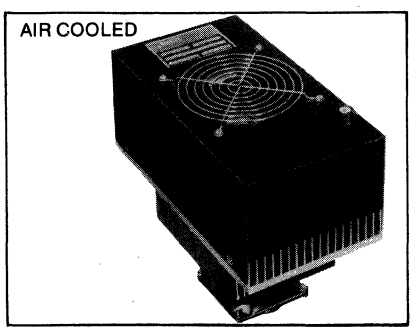
AHP-1700
(NEMA 12)
1100 BTUH Cooling
19" Rack Mount
Input: 115 VAC



LHP-1700
LHP-1702
(NEMA 12)
1500 BTUH Cooling
Adaptable to explosion proof and NEMA 4, 4X Applications.
(Consult Factory)

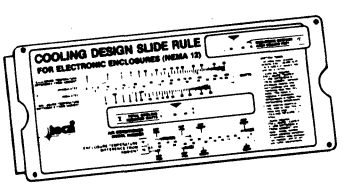


AHP-1200X
Industrially Hardened NEMA 4X
Withstands corrosion, shock and vibration.
600 BTUH Cooling
Input: 115 VAC
Max. Ambient 80°C
Gasket and Mounting Hardware Included



AHP-301
Compact
Input: 115/230 VAC
200 BTU/HR Cooling
Gasket and Mounting Hardware Included
"Our Smallest Air Conditioner Designed for AC Input"

Ask for our Free Cooling Design Slide Rule



teca™ ***the experts in solid state cooling*** **(312) 666-1600**

All Products Made in U.S.A.

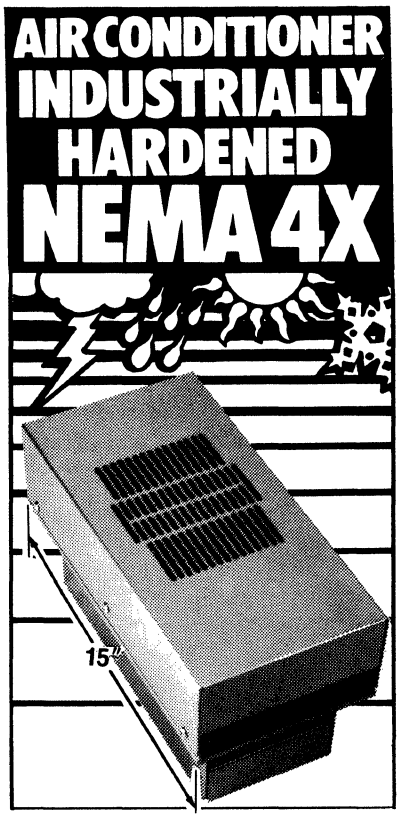
ThermoElectric Cooling America Corporation
448 North Halsted Street • Chicago, Illinois 60622 • 312/666-1600 • FAX: 312/666-3964

New Cooling Products...

Designed and Built for NEMA 12, 13 & 4X

Designed and built for effective, dependable cooling in NEMA 12 applications where size limitation is a problem. It contains no compressor, refrigerant, or piping; the highly reliable fans are its only moving parts.

- For computers, machine tools, electronics, instrumentation
- No load cooling to −5°C at room temperature; 1100 BTU/HR
- Closed system protects from dust, metal chips, moisture
- Operates in any position—horizontal, vertical, etc.
- Low vibration and noise; minimal maintenance
- Weighs less than 50 pounds; mounts on standard 19″ rack
- Requires only 110 VAC, 6 amp power

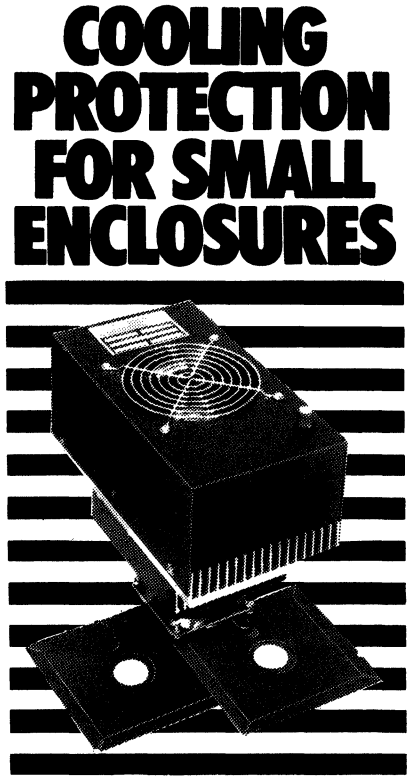


AHP-1200X

SOLID STATE AIR CONDITIONER PROVIDES TOTAL PROTECTION FROM HEAT BUILD-UP IN ELECTRONIC ENCLOSURES

AHP-1200X is the most rugged fractional ton air conditioner for electronic enclosure cooling. Ideal in NEMA-4X environments. Withstands high temperature and humidity, harsh factory environments, shock and vibration. Weather resistant from corrosive salt, water and ice. Entirely sealed and gasketed. Anodized aluminum cabinet is lightweight and durable. Highly reliable fans are the only moving parts. The AHP-1200X thrives in temperatures of —20°F to +175°F.

- Nominal heat removal 500 BTUH. (Enclosure air temperature equal to ambient)
- Requires only 115 VAC, 2.5 amp
- No fluorocarbons, compressor, or piping
- Compact—Only 15.0" x7.4"x8.0"
- No moving parts except fans (Military grade (MIL-901) fan on exterior side)
- Unloaded enclosure air cooling to 60°F below ambient
- Neoprene gasket included for pressurized seal



AHP-301FF

Solid State Air Conditioner

Dependable Cooling To Prevent Overheating

Built to provide powerful, reliable cooling for computers, instrumentation and sensitive electronic systems. Electronics will stay cool and clean, free from dust, dirt and moisture. Maintains efficient operating temperatures and clean air within the electronic enclosure.

- **Requires 115 VAC or 230 VAC, 50/60Hz**
- Nominal heat removal 200 BTUH.
- Compact - Only 10.0″x5.63″x8.47″
- No moving parts except highly reliable fans
- Mounting hardware included
- Gasket for dust tight seal included
- Operates in any orientation – horizontal, vertical, etc.

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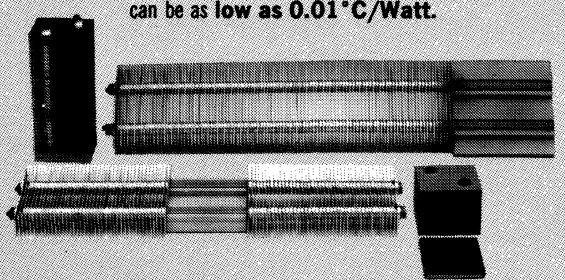
Efficient Cooling for Electronic Components

Thermacore has been developing and manufacturing heat transfer equipment since 1970. Their engineering of heat pipes and heat transfer devices is recognized worldwide as representing the leading technology.

HEAT PIPE HEAT SINKS

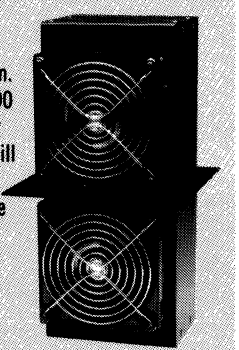
Highly efficient cooling is provided to semiconductors, circuit boards and electronic components with Thermacore's Heat Pipe Heat Sinks. By using heat pipes for heat transfer, the thermal resistance of these devices can be as **low as 0.01°C/Watt.**



Thermacore's technical engineering capabilities and specialized manufacturing equipment permit the custom design and production of Heat Pipe Heat Sinks for any specific requirements. Heat Pipes in a wide range of lengths, diameters, configurations and thermal transfer capacities can also be ordered from Thermacore.

AIR to AIR SEALED ENCLOSURE COOLER

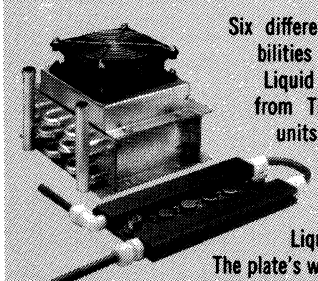
Using a heat pipe core for heat transfer, Thermacore's Air to Air Exchangers provide effective cooling with low power consumption. In a 24" × 30" × 10" enclosure, the HX-400 requires only 30 watts of power to transfer 400 watts at 20°C rise, while the HX-800 will transfer 800 watts at 20°C rise using only 64 watts of power. Both models maintain the integrity of NEMA 4 and 12 enclosures and can be top, side, back or door mounted.



SEALED ENCLOSURE AIR CONDITIONERS

Air Conditioners with BTU/hr of 1500, 3000, 6000 or 7500 are available from Thermacore. Each unit cools and recirculates the enclosure's clean interior air while maintaining the integrity of NEMA 12 enclosures. They are thermostatically controlled and are U.L. Listed. Easily installed by your company's maintenance department, the units are suited for use with both new or existing enclosures.

LIQUID to AIR HEAT EXCHANGERS



Six different sizes, with heat rejection capabilities from 1.5 kilowatt to 15 kilowatts, of Liquid to Air Heat Exchangers are available from Thermacore. Three are single fan units and three have double fans. Where high power dissipation levels preclude the use of natural or forced air cooling, Thermacore's Liquid Cooled Plate is recommended. The plate's water passage is an integral part of the extrusion thereby eliminating one interface.

DEVELOPMENT & MANUFACTURING for GOVERNMENT and INDUSTRY

The expertise of Thermacore's multi-disciplined engineering staff allows Governments and Industry to present Thermacore with either a thermal problem to solve or a set of performance specifications for a new heat transfer device. Thermacore solves the problem, verifies the design with operating prototypes and then produces the final product. They offer just-in-time delivery and routinely operate under MIL-1-45208A and comparable quality disciplines.

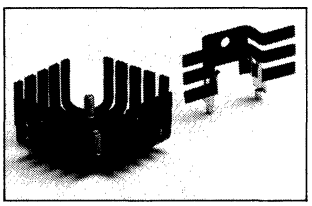
Specialist in the Engineering and Manufacturing of Heat Transfer Equipment.

THERMACORE
INCORPORATED
780 Eden Road Lancaster, PA 17601
PH: 717/569-6551 FAX: 717/569-4797

A DTX Company

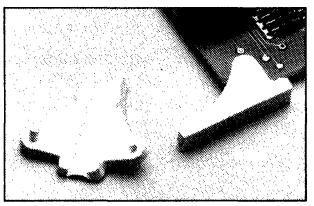
Thermalloy Inc.

The Innovator in semiconductor accessories.



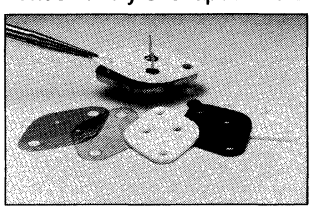
Heat Sinks

- Labor saving.
- Wave solderable using solderable studs, solderable nuts or solderable mounting tabs.
- Vertical and horizontal mount.
- Wide variety of shapes and sizes.



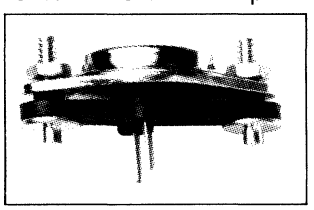
Card Guides, Ejectors and Pullers

- Variety of sizes and shapes.
- A choice of labor saving press-fit card guides or hardware mounted for secure mounting.
- Ejectors and pullers available in one piece snap-on or conventional with roll pin.



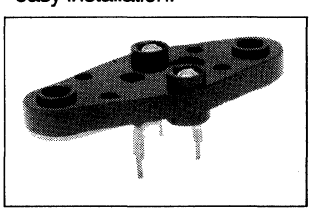
Insulators

- Mica
- Thermalfilm™ (polyimide plastic film)
- Thermalsil™ (silicone rubber)
- Hard Anodized Aluminum
- Aluminum Oxide
- Beryllium Oxide
- Insul-Cote™ — packaged, pre-coated insulators for easy installation.



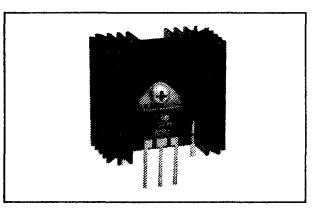
Solderable Transistor Mounts

- Cuts assembly steps by 50%.
- Eliminates hand soldering.
- Tin plated posts offer excellent solderability for mechanical and electrical integrity.
- All work is done from one side of board.
- Reduces hardware requirements.
- Elevates device for cleaning.



Power Sockets

- Tin plated.
- For TO-3 case styles.
- Inexpensive laminated power sockets also available.
- Metric and English mounting plate threads.
- Available with complete mounting kits.



Extruded Heat Sinks

- Over 250 standard, tooled shapes immediately available.
- Custom design — call on our engineers for your custom design needs.

Offering the widest variety of semiconductor accessories in the industry. For a free catalog, contact your nearest Thermalloy representative or distributor.

Thermalloy Inc.

The Innovator in semiconductor accessories.

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U.S. TOYO FAN CORPORATION

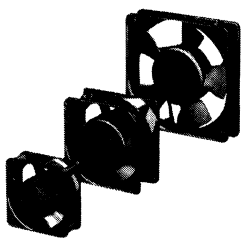
4915 Walnut Grove Avenue
San Gabriel, California 91776
(818) 287-5297
FAX (818) 287-7350

NEW ECONOMY LINE

USTF SERIES

AC / BALL BEARING FANS

MODEL	SIZE	AIRFLOW	NOISE
USTF12038	4.70" sq. x 1.5" thk.	112 CFM	41 dB(A)
USTF12025	4.70" sq. x 1.0" thk.	77 CFM	38 dB(A)
USTF9225	3.62" sq. x 1.0" thk.	38 CFM	39 dB(A)
USTF8038	3.15" sq. x 1.5" thk.	34 CFM	38 dB(A)
USTF8025	3.15" sq. x 1.0" thk.	20 CFM	33 dB(A)



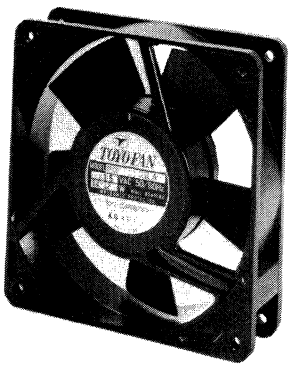
FEATURES:

- Low cost.
- Choice of airflow - 112 to 20 CFM.
- Choice of standard AC voltages.
- Choice of terminals or lead wires.
- Long life ball bearings.
- Durable die cast aluminum frame.
- Impedance protected.
- UL & CSA approved.
- TUV & VDE approvals pending.

ADDED VALUE OPTIONS ON REQUEST:
Connector termination, special wire leads & harnessing, captive mounting hardware, finger guards & air filters assembled — in addition to many more other options.

TF120 Series - AC

4.70" (120mm) sq. × 1.50" (38mm) thk.
× .98" (25mm) thk.
× .79" (20mm) thk.



FEATURES:

- Choice of three thicknesses.
- Choice of airflow — 57 to 109 CFM.
- Acoustical noise level as low as 35 dB(A) @ 1m.
- Choice of standard voltages, plus 100, 200 & dual VAC.
- Choice of terminals or wire leads.
- Precision ball bearings.
- Durable die cast aluminum frame.
- Impedance protected.
- U.L. & CSA approved.

TF92 Series - AC

3.62" (92mm) sq. × .98" (25mm) thk.
× .79" (20mm) thk.

FEATURES:

- Choice of two thicknesses.
- Choice of airflow — 27 to 34 CFM.
- Acoustical noise level as low as 36 dB(A) @ 1m.
- Choice of standard voltages, plus 100, 200 & dual VAC.
- Choice of terminals or lead wires.
- Precision ball bearings.
- Durable die cast aluminum frame.
- Impedance protected.
- U.L. & CSA approved.

TF80 Series - AC

3.15" (80mm) sq. × 1.50" (38mm) thk.
× .98" (25mm) thk.
× .79" (20mm) thk.

FEATURES:

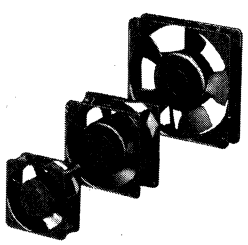
- Choice of three thicknesses.
- Choice of airflow — 16 to 32 CFM.
- Acoustical noise level as low as 32 dB(A) @ 1m.
- Choice of standard voltages, plus 100, 200 & dual VAC.
- Choice of terminals or lead wires.
- Precision ball bearings.
- Durable die cast aluminum frame.
- Impedance protected.
- U.L. & CSA approved.

NEW ECONOMY LINE

USTF SERIES

DC BRUSHLESS / BALL BEARING FANS

MODEL	SIZE	AIRFLOW	NOISE
USTF12025	4.72" sq. x 1.0" thk.	74 CFM	41 dB(A)
USTF9225	3.62" sq. x 1.0" thk.	50 CFM	35 dB(A)
USTF8025	3.15" sq. x 1.0" thk.	38 CFM	32 dB(A)
USTF6020	2.36" sq. x .79" thk.	18 CFM	30 dB(A)
USTF4020	1.58" sq. x .79" thk.	7 CFM	28 dB(A)



FEATURES:

- Low cost.
- Choice of airflow - 74 to 7 CFM.
- Long life ball bearings.
- Impedance protected.
- Polarity protected.
- UL & CSA approved.

OPTIONAL FEATURES:

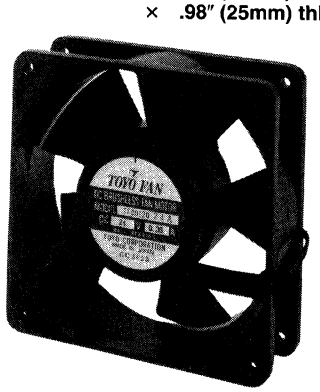
- Rotational sensing Failure Detector.
- Heat sensing Speed Controller.

Added Value options on request:
connector termination, special wire leads & harnessing, captive mounting hardware, finger guards & air filters assembled — in addition to many other options.

TFDD120 Series

DC BRUSHLESS

4.70" (120mm) sq. × 1.50" (38mm) thk.
× .98" (25mm) thk.



FEATURES:

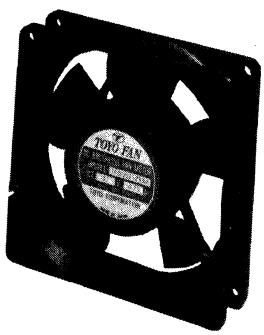
- Choice of two thicknesses.
- Choice of airflow — 53 to 106 CFM.
- Acoustical noise level as low as 39 dB(A) @ 1m.
- Choice of 12, 24 & 48 VDC.
- All precision ball bearings.
- Solid state design.
- Low power draw.
- Minimum EMI/RFI emission.
- Impedance & polarity protected.
- U.L. & CSA approved.
- Available with failure sensor.

U.S. TOYO FAN CORPORATION

4915 Walnut Grove Avenue
San Gabriel, California 91776
(818) 287-5297
FAX (818) 287-7350

TFDD92 Series
DC BRUSHLESS

3.62" (92mm) sq. × .98" (25mm) thk.



FEATURES:

- Choice of airflow — 36 to 49 CFM.
- Acoustical noise level as low as 28 dB(A) @ 1m.
- Choice of 12 & 24 VDC.
- All precision ball bearings.
- Solid state design.
- Low power draw.
- Minimum EMI/RFI emission.
- Impedance & polarity protected.
- U.L. & CSA approved.

TFDD80 Series
DC BRUSHLESS

3.15" (80mm) sq. × .90" (23mm) thk.

FEATURES:

- Choice of airflow — 26 to 33 CFM.
- Acoustical noise level as low as 30 dB(A) @ 1m.
- Choice of 12 & 24 VDC.
- Precision ball bearings.
- Solid state design.
- Low power draw.
- Minimum EMI/RFI emission.
- Impedance & polarity protected.
- U.L. & CSA approved.
- Available with failure sensor.

TFDD60 Series
DC BRUSHLESS

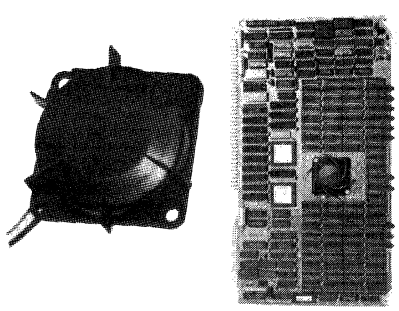
2.36" (60mm) sq. × .90" (23mm) thk.

FEATURES:

- Compact size.
- Choice of airflow — 13 to 18 CFM.
- Acoustical noise level as low as 25 dB(A) @ 1m.
- Choice of 5, 12 & 24 VDC.
- Precision ball bearings.
- Solid state design.
- Low power draw.
- Minimum EMI/RFI emission.
- Impedance & polarity protected.

TFDD50BM Series
DC BRUSHLESS
PC Board Mountable Fan

1.85" (47mm) sq. × .47" (12mm) thk.

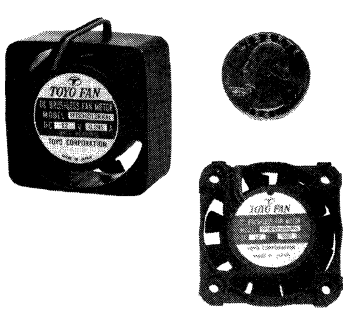


FEATURES:

- PC board mounting design.
- Miniature size.
- Contains failure sensor.
- Choice of airflow — 2.6 to 4.2 CFM.
- Acoustical noise level as low as 26.5 db(A) @ 1m.
- Choice of 5, 12 & 24 VDC.
- Solid state design.
- Low power draw.
- Minimum EMI/RFI emission.
- Impedance & polarity protected.

TFDD40 & 41 Series
DC BRUSHLESS
Ultra Miniature Fan

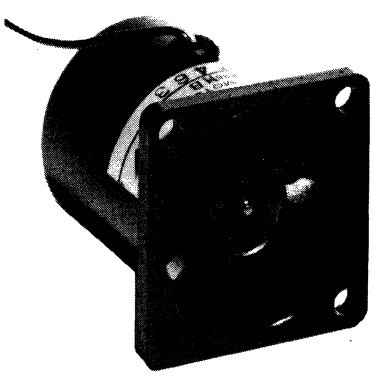
1.50" (40mm) sq. × .70" (20mm) thk.
× .39" (10mm) thk.



FEATURES:

- Ultra miniature size.
- Choice of two thicknesses.
- Choice of airflow — 4.6 to 6 CFM.
- Acoustical noise level as low as 28 dB(A) @ 1m.
- Choice of 5, 12 & 24 VDC (TFDD40).
- Precision ball bearings.
- Solid state design.
- Low power draw.
- Minimum EMI/RFI emission.
- TFDD40 Series U.L. & CSA approved.

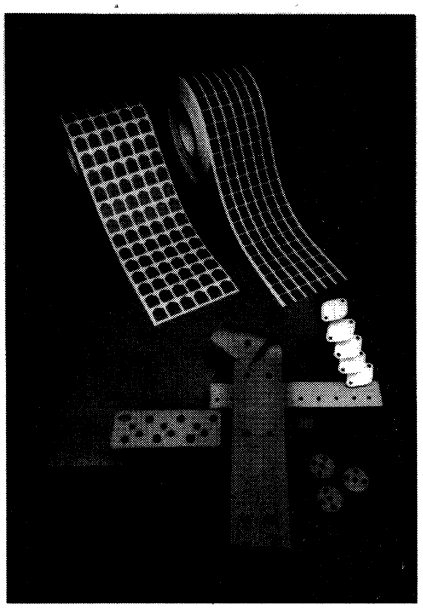
SMF1836 Series
DC MICRO FAN



FEATURES:

- Provides cooling in extremely confined areas
- Compact-miniature size — 1.42" diameter x 1.77" long
- High performance
- Choice of 5, 10, 12, and 24VDC
- Choice of optional mounting flanges

SIL-PAD THERMALLY CONDUCTIVE INSULATORS



The Bergquist Company established the standard for elastomeric thermally conductive insulation materials with the development of Sil-Pads over 20 years ago. *Sil-Pads were developed as a clean grease-free alternative to mica and grease.* Now, a complete family of materials are available to meet the diverse and changing requirements of today's design engineer.

Sil-Pads replace a variety of materials used for thermally conductive insulation including mica insulators. Mica and grease have been in use for over 30 years and are still commonly used as insulators. Mica and grease have good thermal and electrical properties but mica is easily cracked or broken and grease is messy to work with and contaminates assemblies.

Sil-Pads also replace ceramic insulators in high performance applications. These ceramic wafers are expensive and crack easily. Polyimide films are also used as insulators and are usually combined with wax or grease to achieve a low thermal impedance.

CONSTRUCTION

Most Sil-Pad thermally conductive insulators are constructed with a silicone rubber binder and a woven fiberglass carrier or Kapton substrate. The fiberglass carrier provides reinforcement and contributes to dielectric strength. Silicone rubber has a low dielectric constant, high dielectric strength, good chemical resistance and high thermal stability.

THERMAL PROPERTIES

Discrete semiconductors under normal operating conditions, dissipate waste power which raises the junction temperature of the device. Unless sufficient heat is conducted out of the device, its electrical performance and parameters are changed. *A 10° C rise in junction temperature reduces the mean-time-to-failure of a device by a factor of two. Also, above 25° C, the semiconductors total power handling capability will be reduced by a derating factor inherent to the device.*

SUMMARY OF THERMAL PROPERTIES OF SIL-PADS®

Interface Material	Thermal Conductivity W/m-K	Thickness (mils)	Thermal Impedance (°C-in²/w)	TO-3 w/spacer °C/w	TO-220 °C/w*
SP400	0.9	7	0.4	0.4	4 - 6
SP600	1.0	7	0.3	0.3	3 - 5
SP1000	1.2	9	0.3	0.3	3 - 5
SP2000	3.5	15	0.2	0.2	2 - 3
QII	2.5	6	0.1	0.1	1 - 3
K-4	0.9	6	0.3	0.4	3-5
K-6	1.1	6	0.25	0.3	2-4
K-10	1.3	6	0.2	0.2	1-3

* Variation due to mounting method and pressure

SIL-PAD 400®

Thermal Resistance .50 °C/watt
Breakdown Voltage, 5000 Volts min.

Sil-Pad 400 is the original Sil-Pad material. Sil-Pad 400 is a composite of silicone rubber and fiberglass. It is flame retardant and specially formulated for use as a thermally conductive insulator. Primary use is to electrically isolate power sources from heat sinks. Sil-Pad 400 is non-toxic and resists damage from cleaning agents.

Sil-Pad 400 has excellent mechanical and physical characteristics. Surfaces are pliable and allow complete surface contact with excellent heat dissipation. It will not chip or fracture under high compressive stress and actually improves its thermal resistance with age. The reinforcing fiberglass gives excellent cut-through resistance. It contains no organic materials and will not support fungus growth. Expect immediate delivery of all standard configurations.

SIL-PAD 1000®

Thermal Resistance, .3 °C/watt
Breakdown Voltage, 4500 Volts min.

Sil-Pad 1000 is a composite of silicone rubber and fiberglass. It is boron nitride filled and offers low thermal resistance. Sil-Pad 1000 is non-toxic and resists damage from cleaning agents. It is flame retardant and specially formulated for use as a thermally conductive insulator.

Sil-Pad 1000 has the same excellent mechanical and physical characteristics of our Sil-Pad 400 material while offering a 35% reduction in thermal resistance.

SIL-PAD 2000®

Thermal Resistance, 0.2 °C/watt
Breakdown Voltage, 4000 Volts min.

Sil-Pad 2000 is Bergquist's high performance, high reliability thermally conductive insulator. Sil-Pad 2000 is designed for demanding military/aerospace and commercial applications. In these applications Sil-Pad 2000 complies with military standards.

This boron nitride loaded silicone elastomer is formulated to maximize the thermal and dielectric performance of the filler/binder matrix. The result is a "grease-free", conformable material capable of meeting or exceeding the thermal and electrical requirements of high reliability electronic packaging applications.

Call Bergquist Today for a free copy of the Sil-Pad Design Guide.

BERGQUIST
5300 Edina Industrial Boulevard
Minneapolis, Minnesota, 55439
Tel: (612) 835-2322
Fax: (612) 835-4156
Toll Free: 1-800-347-4572

BERGQUIST THERMAL MANAGEMENT PRODUCTS

Q-PAD II®

Thermal Resistance, 0.1 ° C/watt

Q-Pad II is a composite of .001" aluminum foil coated both sides with .0025" thermally/electrically conductive Sil-Pad rubber. It is designed for those applications where maximum heat transfer is needed and *electrical insulation is not required.* Q-Pad II eliminates problems associated with grease such as contamination of reflow solder or cleaning operations. Q-Pad II can be used prior to these operations whereas grease must be used after. Q-Pad II also eliminates dust collection which can cause possible surface shorting or heat build-up.

SIL-PAD K-4®

Thermal Resistance, .40 °C/watt
Breakdown Voltage, 5000 Volts min.

Bergquist's Sil-Pad K-4 is designed and developed in conjunction with DuPont. Sil-Pad K-4 combines the thermal transfer properties of well-known Sil-Pad rubber with high dielectric, physically tough DuPont Kapton MT® film. Kapton MT® is a specially developed film which has high thermal conductivity. The result is a durable insulator that withstands high voltages, requires no thermal grease to transfer heat, is available in customized shapes and sizes, and saves time and costs while increasing productivity.

SIL-PAD K-6®

Thermal Resistance, .3 °C/Watt
Breakdown Voltage, 5000 Volts min.

Sil-Pad® K-6 is a medium performance Kapton based thermally conductive insulator. Thermally conductive Kapton® MT film is coated with an aluminum oxide/boron nitride filled silicone elastomer to deliver " boron nitride" performance. Kapton film provides a continuous physically tough dielectric barrier against "cut through" and resultant assembly failures.

SIL-PAD K-10®

Thermal Resistance, 0.2 °C/watt
Breakdown Voltage, 5000 Volts min.

Bergquist Sil-Pad K-10 is the new high performance insulator developed in conjunction with DuPont. K-10 combines special Kapton® MT Polyimide film with boron nitride filled silicone rubber. The result is a product with good cut-through properties and excellent thermal performance.

K-10 is designed to replace ceramic insulators such as Beryllium Oxide, Boron Nitride and Alumina. These insulators are expensive and they break easily. K-10 eliminates breakage and costs much less than ceramics.

POLY-PAD.....FOR SILICONE SENSITIVE APPLICATIONS

Polyester based, thermally conductive insulators from Bergquist provide a complete family of materials for silicone-sensitive applications. Poly-Pads are ideally suited for applications requiring conformal coatings or applications where silicone outgassing is a concern (telecommunications and certain aerospace applications.) Poly-Pads are constructed with ceramic filled polyester resins coating either side of a fiberglass carrier or a Kapton® carrier. The Poly-Pad family offers a complete range of performance characteristics to match individual applications.

POLY-PAD 400®

Thermal resistance, 0.4 °C/Watt
Breakdown Voltage, 4500 Volts min.

Poly-Pad 400 is a fiberglass based insulator coated with an alumina-filled polyester resin. Poly-Pad 400 is economical and designed for most standard applications.

POLY-PAD 1000®

Thermal Resistance, 0.3 °C/Watt
Breakdown Voltage, 2500 Volts min.

Poly-Pad 1000 is also a fiberglass based insulator coated with a boron nitride-filled polyester resin. Poly-Pad 1000 offers superior thermal resistance for high performance applications.

POLY-PAD K4®

Thermal Resistance, 0.3 °C/Watt
Breakdown Voltage, 6000 Volts min.

Poly-Pad K4 is a composite of DuPont Kapton® film coated with an alumina-filled polyester resin. PPK4 is an economical insulator and the Kapton carrier provides excellent dielectric and physical strength.

POLY-PAD K10®

Thermal Resistance, 0.2 °C/Watt
Breakdown Voltage, 6000 Volts min.

Poly-Pad K10 is a composite of DuPont Kapton® film coated with a boron nitride-filled polyester resin. PPK10 offers superior thermal performance for your most critical applications with thermal resistance of 0.2 °C/Watt as well as excellent dielectric strength.

SIL-PAD TUBE®

Sil-Pad Tube provides thermally conductive insulation for clip mounted plastic power packages. Sil-Pad Tube is made of the same high thermal conductivity silicone rubber as that of standard Sil-Pad materials. Sil-Pad Tube 1000 is best suited for higher thermal performance and Sil-Pad tube 400 is ideal for applications requiring average thermal performance and economy.

ORDERING INFORMATION

See the standard configurations for common part numbers. Contact the factory for additional standard configurations.

Ordering Procedure:
The last two digits define the part number selected.

For example: to order K-10 material; use K10-(part number)

SAMPLE PART NUMBER

K10 -02

Represents K10 mat.
Represents the part #
(see standard configurations)

SPECIAL SHAPES:

We produce thousands of specials. Tooling charges are about $100 to $150 for simple parts. Increased complexity or tighter tolerances increase tooling charges.

TOLERANCES:

.015 inches are held on width, length and hole location.

SHEETS:

6" x 6", 6" x 12", 8" x 8", 10" x 10", or 12" x 12" sheets in stock.

ROLLS:

All Sil-Pad materials are available in roll form. Contact the factory.

Kapton® is a registered trademark of DuPont for its polyimide film.

Sil-Pad 400, Sil-Pad 1000 and Sil-Pad 2000 are covered by Mil spec. numbers:

Mil-M-38527/8A
Mil-I-49456
Mil-M-87111
Mil-I-49466 & 49466
U.L. File Number E59150

Call Bergquist today for your free copy of the Sil-Pad Design Guide.

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5300 Edina Industrial Boulevard
Minneapolis, Minnesota, 55439
Tel: (612) 835-2322
Fax: (612) 835-4156
Toll Free: 1-800-347-4572

SIL-PAD®, Q-PAD® AND POLY-PAD® SPECIFICATIONS

	Sil-Pad 400 9mi	Sil-Pad 400 7mil	Sil-Pad 1000	Sil-Pad 1500	Sil-Pad 2000	Sil-Pad K4	Sil-Pad K6	Sil-Pad K10	Q-Pad	Poly-Pad 400	Poly-Pad 1000	Poly-Pad K4	Poly-Pad K10
Color	Gray	Gray	Pink	Green	White	Gray	Blue / Green	Beige	Black	Mauve	Yellow	Mauve	Yellow
Thermal Resistance °C/watt	.50	.45	.3	.18	0.2	.40	.30	0.2	0.1	0.4	0.3	0.3	0.2
Dielectric Constant 1000 (Hz)	5.5	5.5	4.5	4	4.0	5.0	4.0	3.7		5.5	4.0	5.0	3.9
Continuous Use Temp. °C	-60 to +180	-60 to +180	-60 to +180	-60 to +180	-60 to +180	-60 to +180	-60 to +180	-60 to +180	-60 to +160	-20 to +150	-20 to +150	-20 to +150	-20 to +150
Thermal Conductivity W/m-k nominal	0.9	0.9	1.2	2.0	3.5	0.9	1.1	1.3	2.5	0.9	1.2	.9	1.3
Thickness Inches (mm)	.009 $^{+.002}_{-.001}$ .229 $^{+.050}_{-.025}$	.007 $\pm.001$ .0178 ±0.025	.009 $^{+.002}_{-.001}$ 0.229 $^{+.050}_{-.025}$	.010 $\pm.001$	.015 $\pm.001$ .381 $\pm.025$	.006 $\pm.001$ .152 $\pm.025$	.006 $\pm.001$ .152 $\pm.025$	.006 $\pm.001$ .152 $\pm.025$	.006 $\pm.001$ .152 $\pm.025$	.009 $\pm.001$ .229 $\pm.025$	.009 $\pm.001$ .229 $\pm.025$	.006 $\pm.001$ .152 $\pm.025$	.006 $\pm.001$ .152 $\pm.025$
Volume Resistivity, Ohm Metre Min. Normal	$1.0x10^{11}$	$1.0x10^{11}$	$1.0x10^{11}$	$1.0x10^{11}$	$1.0x10^{12}$	$1.0x10^{12}$	$1.0x10^{12}$	$1.0x10^{12}$	$1.0x10^{11}$	$1.0x10^{11}$	$1.0x10^{11}$	$1.0x10^{12}$	$1.0x10^{12}$
Moist	$1.5x10^{8}$	$1.5x10^{8}$	$1.5x10^{8}$										
Breakdown Voltage (min)	5000	4500	4500	4000	4000	5000	5000	5000		4500	2500	5000	5000
Hardness Shore A	85	85	85	90	90±5	90	90	90		90	90	90	90
Specific Gravity	2.0-2.1	2.0-2.1	1.5		1.5					2.0-2.1	1.5		
Tensile Strength, Typical (MPa)	11.1 (76)	14.3 (98)	11.1 (76)	6.5 (42)	4.3 (30)	18.6 (128)	18.6 (128)	18.6 (128)		11.1 (76)	14.1 (76)	18.6 (128)	18.6 (128)
Breaking Strength, Lbs/Inch (N/m)	100 17,500	100 17,500	100 17,500	65 11,400	65 11,400	110 19,300	110 19,300	110 19,300		100 17,500	100 17,500	110 19,300	110 19,300
Elongation % nominal	4	4	4	4	4					4	4		
Construction	Silicone/ Fibrglss	Silicone/ Fibrglss	Silicone/ Fibrglss	Silicone/ Fibrglss	Silicone/ Fibrglss	Silicone/ Kapton	Silicone/ Kapton	Silicone/ Kapton	Silicone/ Al Foil	Polyest/ Fibrglss	Polyest/ Fibrglss	Polyest/ Kapton	Polyest/ Kapton
Thermal Vacuum Weight Loss % (TML) max. as mfg.	.40	.40	.22		.26	.28		.36					
Post Cure 24 hrs, 400°F	.25	.25			.07								
Volatile Condensable Material Percent max. CVCM as manufactured	.11	.11	.08			.08		.09					
Post Cure 24 hrs, 400°F	.07	.07											

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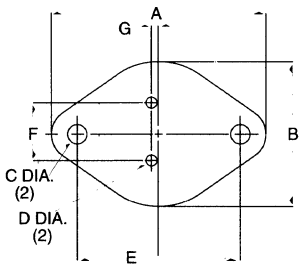
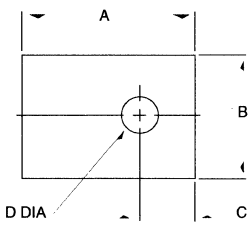
BERGQUIST SIL-PAD® STANDARD CONFIGURATIONS



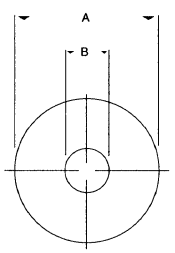
T0-3 STYLE

PART NUMBER SUFFIX	DIMENSIONS "A"	"B"	"C"	"D"	"E"	"F"	"G"
-03	1.563	1.050	.140	.080	1.187	.430	.072
-18	1.563	1.050	.140	.140	1.187	.430	.072
-23	1.593	1.100	.156	.062	1.187	.430	.072
-29	1.650	1.065	.140	.046	1.187	.430	.072
-04	1.650	1.140	.122	.062	1.187	.430	.072
-05	1.650	1.140	.140	.093	1.187	.430	.072
-06	1.650	1.140	.165	.062	1.187	.430	.072
-17	1.650	1.140	.140	.046	1.187	.430	.072
-59 Leadless	1.650	1.140	.165		1.187		
-24	1.700	1.187	.156	.062	1.187	.430	.072
-02	1.780	1.250	.140	.093	1.187	.430	.072
-07	1.780	1.250	.165	.094	1.187	.430	.072
-15	1.780	1.250	.140	.046	1.187	.430	.072
-16	2.070	1.560	.122	.062	1.187	.430	.072



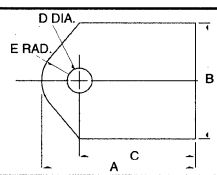
PLASTIC POWER

	PART NUMBER SUFFIX	DIMENSION "A"	"B"	"C"	"D		PART NUMBER SUFFIX	DIMENSIONS "A"	"B"	"C"	"D"
TO-126	-50	.437	.312	.140	.093	Various	-62	.750	.600	.240	.150
TO-126	-60	.437	.312	.140	.122	Various	-63	.750	.600	.240	.115
Various	-64	.500	.385	.170	.100	Various	-56	.855	.562	.218	.125
TO-220	-55	.610	.560	.245	.125	Various	-52	.855	.630	.230	.093
Various	-51	.687	.562	.218	.125	TO-218	-90	.860	.740	.200	.160
Various	-35	.710	.500	.160	.141	Various	-68	1.125	.625	.200	.145
Various	-61	.750	.410	.225	.156	Various	-70	1.140	.810	.355	.147
TO-220 (clip Mount)	-43	.750	.500			Various	-102	.866	.650	.217	.142
TO-220	-54	.750	.500	.187	.147	Various	-103	.750	.800	.300	.140
TO-220	-58	.750	.500	.187	.125	TO-3P	-104	1.000	.750	.300	.140



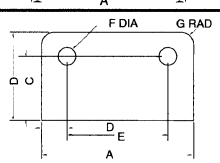
DIODE WASHER

	PART NUMBER SUFFIX	DIMENSIONS "A"	"B"		PART NUMBER SUFFIX	DIMENSIONS "A"	"B"
Various	-75	.360	.260	Various	-27	.812	.115
Various	-19	.510	.140	Various	-26	.812	.145
DO-4	-20	.510	.200	DO-8	-78	.875	.313
Various	-82	.512	.161	Various	-28	1.000	.140
DO-4 (oversized)	-22	.625	.200	DO-5 (oversized)	-25	1.000	.260
Various	-76	.750	.125	Various	-79	1.180	.515
Various	-77	.800	.190	Various	-80	1.250	.380
DO-5	-21	.800	.260	Various	-81	1.500	.200
				Various	-32	1.500	.500



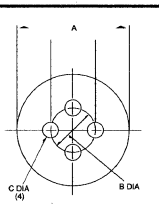
TIP PACKAGES

	PART NUMBER SUFFIX	DIMENSIONS "A"	"B"	"C"	"D"	"E"
TIP-36 Plastic Tip	-53	.865	.650	.650	.140	.205
Clip Mount	-42	.984	.787			.205
Platic Clip	-73	.984	.787	.708	.142	.205
TO-3P	-65	1.260	.787	.984	.142	.205



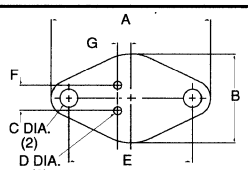
SIP PACKAGE

PART NUMBER SUFFIX	DIMENSIONS "A"	"B"	"C"	"D"	"E"	"F"	"G"
-105	1.450	.838	.612	.245	.960	.170	.120



SMALL POWER DEVICES

	PART NUMBER SUFFIX	"A"	"B"	"C"
TO-18, 3 Holes	-12	.250	.100	.036
TO-18, 4 Holes	-13	.250	.100	.036
TO-5, 3 Holes	-09	.360	.200	.040
TO-5, 4 Holes	-33	.360	.200	.040
TO-5, 3 Holes	-44	.390	.200	.040
TO-5, 4 Holes	-45	.390	.200	.040



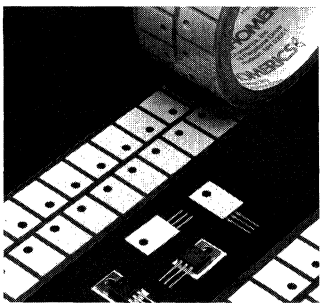
TO-66 STYLE

PART NUMBER SUFFIX	DIMENSIONS "A"	"B"	"C"	"D"	"E"	"F"	"G"
-30	1.250	.700	.140	.062	.960	.200	.100
-11	1.312	.762	.140	.062	.960	.200	.100
-31	1.375	.825	.140	.062	.960	.200	.100
-10	1.440	1.000	.140	.075	.960	.200	.100

BERGQUIST For All the Standard Configurations Please Contact the Factory (Toll Free 1-800-347-4572)

Chomerics CHO-THERM® Thermal Management Materials

Products for Every Need ☐ CHO-THERM® thermally conductive interface materials are designed to transfer heat from electronic components to heat sinks while providing electrical isolation at the interface sites. One-component CHO-THERM materials are based on silicone or urethane binders, and contain boron nitride, aluminum oxide or magnesium oxide thermally conductive fillers. Unlike mica, beryllium oxide, or other insulators, CHO-THERM does not require grease. This means there is no mica cracking, silicone migration or drying out. ☐



Fiberglass Reinforced Silicone Materials
This family of CHO-THERM products gives superior thermal and dielectric performance. Their silicone binder makes them effective in temperatures ranging from −60°C to 200°C. Glass cloth reinforcement makes them resistant to tear, cut through and punctures. ☐

Film Reinforced Urethane Materials
The urethane binder in this family of CHO-THERM materials allows conformal coating without dewetting problems. These products use boron nitride or magnesium oxide as their thermally conductive filler. Excellent dielectric strength and exceptional durability are provided by a polyimide or polyester layer. ☐

Film Reinforced Silicone Materials
The silicone binder in these materials makes them the right choice for applications where use temperatures reach the 150° to 200°C range. Fillers of boron nitride or magnesium oxide provide effective thermal conductivity. Superior dielectric strength and durability are obtained from polyimide film reinforcement. ☐

Special Performance Thermal Interface Materials

CHO-THERM 1680 ☐ CHO-THERM 1680 thermal interface elastomers are ideally suited for surface mount applications. They have high tack, pressure-sensitive adhesive on both sides to hold hybrid, ceramic, and flat packages in place, without the use of mechanical fasteners. Their boron nitride-filled silicone layer provides excellent thermal performance, and their polyimide film layer offers good cut-through resistance. ☐

CHO-THERM 1646 ☐ In applications where no dielectric properties are required, CHO-THERM 1646 material offers the best available thermal performance, without the use of grease. This material is a boron nitride-filled silicone coated on one side of 2 mil aluminum. The aluminum layer has acrylic pressure-sensitive adhesive on the other side. ☐

CHO-THERM T274 ☐ CHO-THERM T274 thermally conductive elastomer features high conformability and material thickness to fill air gaps up to 200 mils. Its aluminum oxide-filled silicone provides a thermal path 25 times more conductive than air. Its thin, high durometer fiberglass layer resists tear and facilitates handling. CHO-THERM T274 material has an extremely tacky surface and a Shore A durometer of less than 3. ☐

Thermally Conductive Silicone Compounds
CHO-THERM 1641 and 1642 are thermally conductive and electrically isolating RTV adhesive/sealant compounds. They cure in place without migration and offer a choice of temporary or permanent bonding. CHO-THERM 1641 is a one-component compound. CHO-THERM 1642 is a two-component material recommended for very thick applications and low humidity conditions. ☐

Availability
CHO-THERM materials are available in sheet form or die-cut. Most are available with optional pressure-sensitive adhesive on one or both sides. All may be used with degreasing solutions after wave soldering in preparation for conformal coatings. ☐

Let CHO-THERM Cool A Hot Product For Longer Life.

L Low
M Moderate
H High

CHO-THERM®	PROPERTIES: Thermal Impedance Low Moderate	PROPERTIES: Dielectric Strength High Moderate	PROPERTIES: Fiberglass Reinforced	PROPERTIES: Polyimide Reinforced	PROPERTIES: Polyester Reinforced	PROPERTIES: Aluminum Reinforced	FEATURES: No Mounting Pressure Required	FEATURES: No Silicone Contained	FEATURES: Continuous Rolls for Automation	FEATURES: Custom Molded Pads	FEATURES: Thermal Adhesive	FEATURES: Resists Petrochemicals and Hydrocarbons	FEATURES: NASA Outgassing Approved
1679 Boron Nitride, Silicone	L	M	●										●
1671 Boron Nitride, Silicone	L	M	●										●
1661 Boron Nitride, Silicone	L	M											●
1678 Boron Nitride, Silicone	L	M	●										
1674 Aluminum Oxide, Silicone	M	M	●						●				
1677 Boron Nitride, Fluorosilicone	M	M	●									●	●
1682 Magnesium Oxide, Urethane	M	M			●			●	●				
1684 Magnesium Oxide, Urethane	M	H		●				●	●				
1688 Boron Nitride, Urethane	L	H		●				●	●				
1694 Magnesium Oxide, Silicone	M	H		●					●				
1698 Boron Nitride, Silicone	L	H		●					●				
1680 Boron Nitride, Kapton*, Silicone	M	H		●			●		●				
1646 Boron Nitride, Silicone	L	NO DI-ELECTRIC STRENGTH				●			●				
T274 Aluminum Oxide, Silicone	M	H	●							●			
1641 Aluminum Oxide, Silicone	M	M									●		
1642 Aluminum Oxide, Silicone	M	M									●		

*Tradename of Du Pont

CHOMERICS® a GRACE company

Chomerics, Inc., 16 Flagstone Drive, Hudson, NH 03051
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CUT CRAFT, INC. . . . ON THE CUTTING EDGE

CUSTOM DIE CUT COMPONENTS FOR THE ELECTRONICS INDUSTRY

REDUCE MATERIAL COSTS • REDUCE ASSEMBLY TIME
SOLVE DESIGN PROBLEMS

INSULATORS • GASKETS • SHIELDING
DISPLAY LENSES • RUBBER FEET

Materials Include:

- ☐ Bergquist Sil-Pad®
- ☐ Chomerics Cho-Therm®
- ☐ DuPont Kapton®
- ☐ DuPont Nomex®
- ☐ DuPont Mylar® Polyester
- ☐ Fishpaper
- ☐ Foams-Neoprene, Vinyl, Urethane, Polyethylene, Silicone
- ☐ General Electric Lexan® (FR-60)
- ☐ General Electric Ultem®
- ☐ General Electric Valox®
- ☐ G10/FR4 Epoxy Fiberglass
- ☐ ITW Formex/Statex Polypropylene
- ☐ Lydall S-350
- ☐ Lydall Duroid D-100 FR/D-225 FR/ D-800 FR
- ☐ Lydall Voltex 450
- ☐ Rigid PVC
- ☐ Windsor-Stevens FRP
- ☐ Impregnated Wire Mesh
- ☐ Rubber-Silicone, Neoprene
- ☐ 3M Pressure Sensitive Adhesives, Tapes, and Urethane Rollstock

Options:

- ☐ Die Cut • Sheared
- ☐ Scored • Perforated • Creased
- ☐ Punched • Formed • Folded
- ☐ Printed
- ☐ Laminated—Full or Selective Coverage
- ☐ Pressure Sensitive Adhesive Coated

RFI Shielding:

The above materials laminated with copper or aluminum foil. Wire mesh and conductive gaskets.

EMI Shielding:

The above materials laminated with nickel foil. Wire mesh and conductive gaskets.

PARTS MADE WITH UL® RECOGNIZED MATERIALS
CERTIFICATE OF CONFORMANCE PROVIDED UPON REQUEST

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RECEIVE ACTUAL SAMPLE MATERIALS LISTING
TYPICAL PROPERTIES, OPTIONS, AND APPLICATIONS

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SARCON® THERMAL-CONDUCTIVE AND FLAME RETARDANT SILICONE RUBBER

SARCON® Products are Vital Electronic Components

A unique new product range developed on the basis of our proprietary technology—SARCON is a completely novel type of silicone rubber combining high thermal conductivity and superior flame-retardancy with the inherent properties of silicone rubber such as heat resistance and electrical insulating properties.

In recent years, the fast rate at which electronics and computer technology have spread through day-to-day life, has led to the need for more powerful semiconductor devices and more compact and lightweight products. Our Fujipoly silicone rubber, developed to meet these needs, has already earned itself a high reputation among many users, praising it as a revolutionary rubber-type electrical insulatant.

Its applications span a constantly growing range as thermal conductive insulators for semiconductor devices, compression jointing materials for thermistors and temperature sensors, and as a thermal conductive material for all types of heaters.

SARCON is the most outstanding product from our state-of-the-art production facilities, with micro-unit accuracy standards and a molding technology of the highest level that has taken us years to perfect. Apart from sheet, SARCON is also available in tape, tube and cap form and can be supplied with an adhesive. To let the user choose the best suited product for his purpose, application, and conditions, it comes in two grades with or without adhesive, and in four types: TR, HR, GTR, and GHR.

Tailor-Made for a Perfect Fit with Users' Needs

• General Type—SARCON TR
Press and extrusion molding permit the manufacture of any type of intricate shape, whether cap, sheet, tape, or tube-shaped, to precisely meet practical needs.

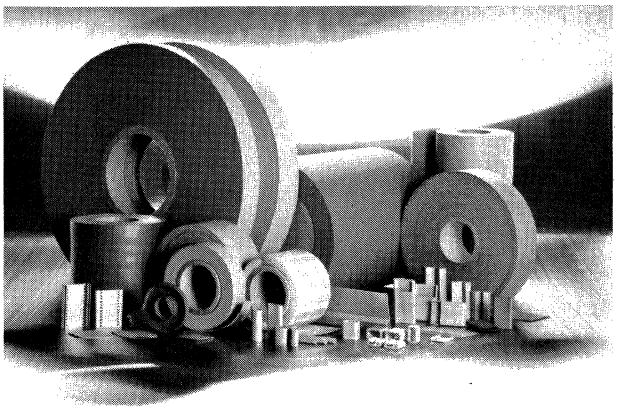
• High-Heat Conductive Type—SARCON HR
Thanks to the inclusion of a special fine ceramic ingredient, this high-grade type of SARCON offers remarkably improved thermal conductivity.

• Reinforced type—SARCON GTR • SARCON GHR
These particular reinforced grades have a 0.05mm thick glass cloth layer laminated onto TR and HR to provide a dramatic increase in physical strength characteristics such as tensile and tear strength.

For improved ease of handling, we also offer our SARCON AD series which corresponds to the SARCON GTR and GHR but with the application of an adhesive coating.

Wide Range of Applications

- Especially for use as electrically insulating heat-dissipating spacers in power transistors and semiconductors such as ICs and LSIs
- For use as electrically insulating heat-dissipating spacers in thermistors and posistors.
- Ideal for electronic jars, panel heaters, etc.
- For use as an electrical insulator in temperature fuses and temperature sensors, or as a high/low temperature heat transfer medium.
- Ideal for microwave ovens, panel heaters, ceramic heaters, etc.
- As a replacement for molded silicone-rubber parts in applications with a heat gradient. Ideal for insulating plates around microwave ovens and magnetrons, transformers, etc.
- Ideal for TV, video, stereo, Compact-Disc players, stabilized power supplies, computers, brushless motors, etc.

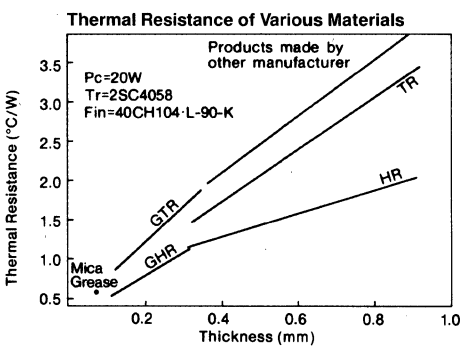


SARCON® Offers Superior Properties with a Host of User Benefits

• High Heat Conductivity
SARCON has a thermal conductivity eight times that of conventional silicone rubber, three times that of mica, and twelve times that of polyester.

Product Description	Thermal Conductivity ($\times 10^{-4}$ cal/cm•Sec•°C)
SARCON HR	41
SARCON TR	29
SARCON GHR	34
SARCON GTR	22
General silicone rubber (manufactured by Fujipoly)	3.7 ~ 5.4
Mica	14
Polyester	3.4
Polyethylene	6.0

• Low Thermal Resistance and Stable Thermal Resistance Variation
SARCON is elastic, providing a perfect tight fit on uneven surfaces. Therefore, there is no need to use conventional gap-sealing and filling agents such as grease to bring out the superb high heat conductivity and outstandingly low thermal resistance and stable thermal resistance variation that are the hallmark of our SARCON.

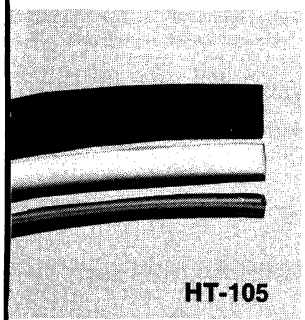


• Usable over a Wide Temperature Range (−60°C ~ 180°C)
Thanks to its superior resistance to heat and cold, SARCON is ideal for use in a wide temperature range, throughout which it maintains its outstanding electrical properties, such as the excellent electrical insulating properties characteristic of silicone. Nor does it present any significant variation in its physical properties. SARCON is distinguished by a whole range of other outstanding properties, such as excellent resistance to weather, arc, corona discharge, ozone and chemicals.

fujipoly® inc
750 Walnut Avenue • Cranford, NJ 07016 • 908/272-3850 • FAX: 908/272-2241

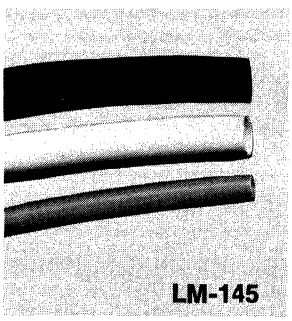
Markel CORPORATION

FLEXITE SHRINKDOWN



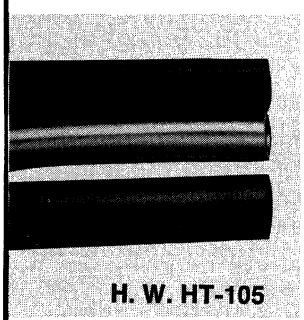
FLEXIBLE PVC SHRINK TUBING

- Outstanding dielectric and mechanical properties.
- Oil and chemical resistant.
- Shrink temperature 150°C.
- Covering and insulating cables, components and terminals.
- Standard colors—black, white and clear.



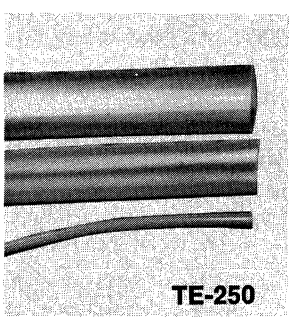
VERY FLEXIBLE POLYOLEFIN SHRINK TUBING

- Maximum flexibility and high dielectric strength.
- Shrink temperature 150°C.
- Available in both flame retardant and non flame retardant classes.
- Standard colors—black, white and clear.



HEAVY WALL PVC SHRINK TUBING

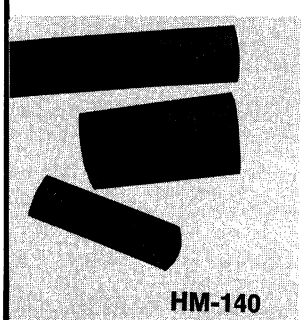
- Maximum abrasion resistance and high dielectric strength.
- Shrink temperature 150°C.
- Standard colors—black, and clear.



TEFLON™* (POLYTETRA-FLUOROETHYLENE) SHRINK TUBING

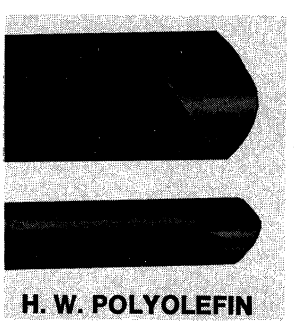
- Used in extreme electrical, thermal and chemical environments.
- Shrink temperature 350°C.
- Available in thin, standard and extra thin walls.
- Standard color natural.

*** DUPONT REG. TRADEMARK**



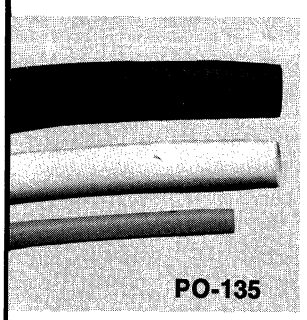
SEMI-RIGID POLYOLEFIN SHRINK TUBING

- Excellent mechanical strength/abrasion resistance.
- Shrink temperature 200°C.
- Resistant to flexing, acids, alkalis and hydraulic fluids.
- Available on spools or cut pieces for use on automatic termination machines.
- Standard colors—black, and clear.



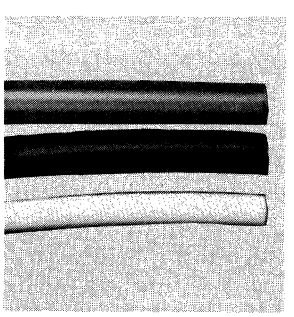
HEAVY WALL POLY-OLEFIN SHRINK TUBING WITH AN ADHESIVE LINER

- Insulates and encapsulates to form a weather-proof seal.
- Shrink temperature 200°C.
- Used on connections exposed to the elements.
- Standard color—black.



FLEXIBLE POLYOLEFIN SHRINK TUBING

- Tough, smooth, oil and chemical resistant.
- Available in a variety of flame retardant grades.
- Shrink temperature 200°C.
- Excellent for use over irregular shapes.
- Standard colors—black, white and clear.



Markel also manufactures a variety of other flexible and semi-rigid heat shrink tubings to be used in various abrasion resistant and strain relief applications. These and all of our shrink tubings can be made in various shrink ratios and colors. Contact us the next time you have a special requirement or difficult application.

Markel CORPORATION

P.O. BOX 752
NORRISTOWN, PA 19404
TEL. (215) 272-8960
TWX: 510-660-0929
FAX: (215) 270-3138

BACKPANELS

Manufacturer	Starting EEM Page No.	Model/ Series	Plug-in	Interface Computer/ Peripheral	Spacing in Inches	Power BUS	Pattern
Product Technology, Inc.	C•1684	¤	¤	√	¤	¤	DIN/Eurocard, VME, Multibus

BOARDS, PLUG-IN

Manufacturer	EEM Page No.	Extender	Interface	Memory	Processor	Prototype
EMS	C•1682	√	√			√

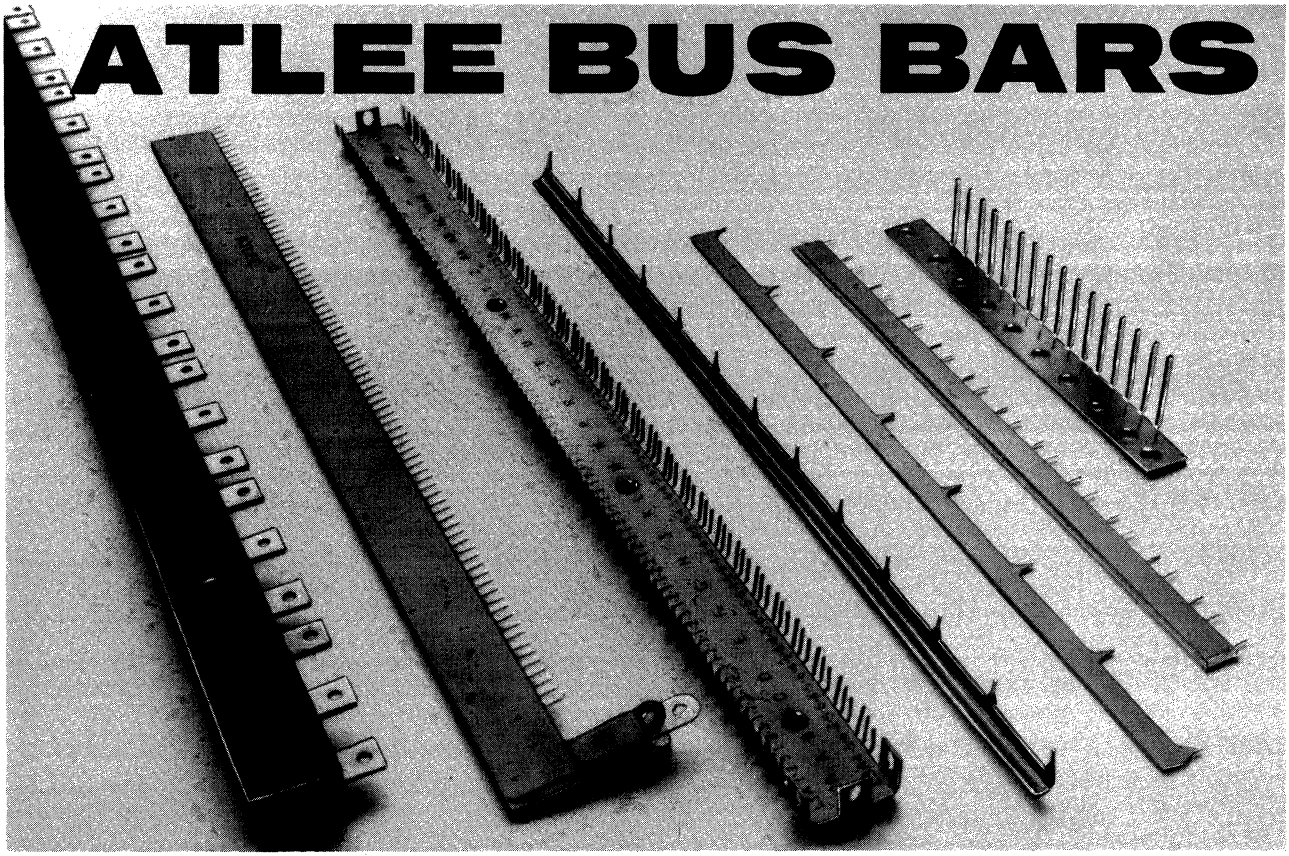
PROGRAMMING BOARDS/SYSTEMS/SWITCHING MATRICES

Manufacturer	EEM Page No.	Model/ Series	Type of Connections	No. of Connections	Fixed	Contact Spacing
Electro Films	C•1680	Standard, Custom, Semi-Custom	¤	¤	¤	¤
EMS	C•1682	¤	Wire Wrap	¤	¤	¤
Product Technology, Inc.	C•1684	Custom	¤	¤	¤	¤

BUS BARS & SYSTEMS

Manufacturer	EEM Page No.
Atlee	C•1679
LCT Electronics	C•1683

ATLEE BUS BARS



Atlee is a full line manufacturer of bus bars, serving the computer industry, avionics, military contractors and various high tech manufacturers. We have available design and engineering services as well as prototype department. In addition, Atlee has sales representatives nationwide to service our customers. Please contact Atlee to service your bus bar requirements.

TO SPECIFY AN ATLEE BUS BAR

Please contact the factory for a bus bar catalog and any questions you may have.

TO SPECIFY A CUSTOM BUS BAR

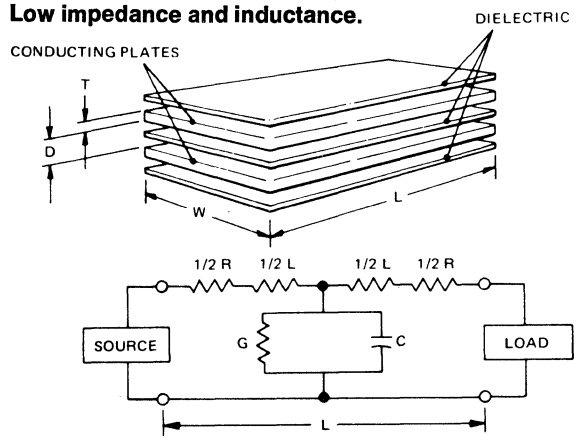
If your requirements do not permit the use of an Atlee Standard Bus Bar, send a drawing print or even a rough sketch of the Bus Bar that would meet your specifications and let Atlee's Engineering & Sales Department work out the details and give you a quotation. Atlee will manufacture any type bus bar to your specifications. In general the information required includes:

1. Application
2. Space available
3. Current paths required
4. Type of terminations
5. Number and location of terminations
6. Current requirements
7. Voltage drop requirements
8. Tab to tab spacing on each conductor
9. Type of mounting
10. Dielectric strength
11. Environmental requirements
12. Type finish on conductors
13. Marking

DESIGNER'S NOTES

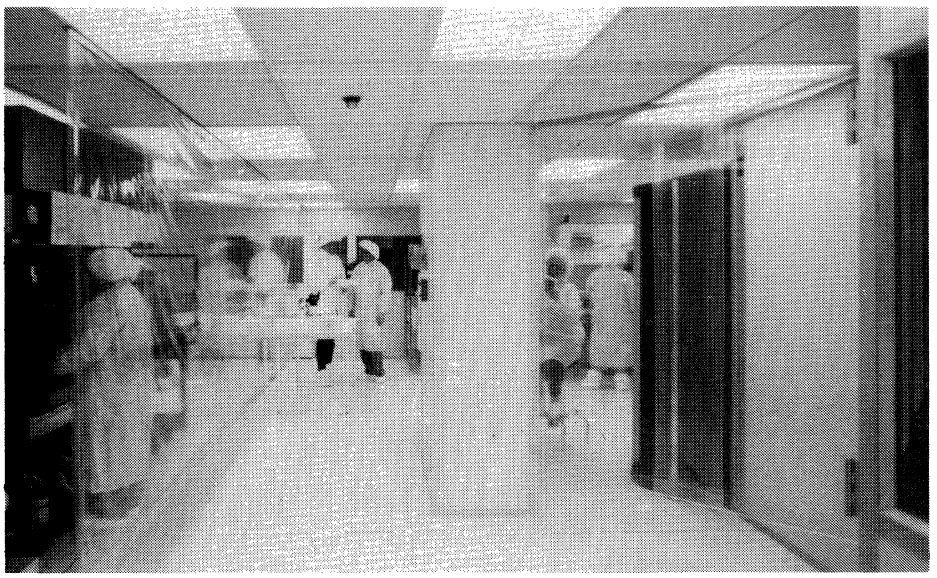
Atlee laminated bus bars consist of flat conductor layers stacked on one another and separated by appropriate dielectrics. Typically such an assembly is laminated and edge-sealed or encapsulated so that the final product becomes a rigid unit with high reliability and stable electrical and mechanical properties. These properties provide uniform capacity, low impedance, and high-speed transmissions of signal and current. Atlee bus bars are an economical alternative to multi-layer printed circuit boards and wire harnesses. They offer:

- **Lowered production costs,** because assembly is simple and fast.
- **Reduced volume** which permits higher density packaging than possible with wire harnesses.
- **Reduced noise** with ideally distributed capacitance and isolation of conductors.
- **High current-carrying capacity.**
- **Low impedance and inductance.**



ATLEE 10 BAYFIELD DRIVE, NORTH ANDOVER BUSINESS PARK, NORTH ANDOVER, MA 01845
(508) 681-1003 • **FAX: (508) 686-2934**

High Density Interconnect



Electro-Films High Density Interconnect Products Group manufactures low cost semiconductor packages and interconnect devices. The company is market leader in the development of polymer interconnect devices, in particular advanced packages for electronic components (APECs). The company also manufactures chip-on-board, pin grid arrays and MCM-L products.

Electro-Films has four facilities world wide all involved with High Density Interconnect. The Ashford, Middlesex, England site has a 4500 sq ft clean room with full air filtration and air conditioning including humidity control. This area is used for the Dry film laminating, Yellow room exposure and Film developing which are critical in obtaining reliable fine line geometries.

APECs

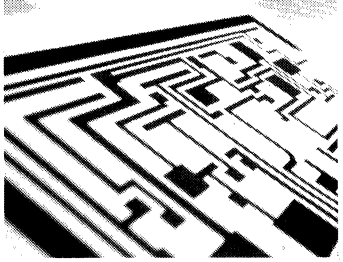
Advanced Packages for Electronic Components

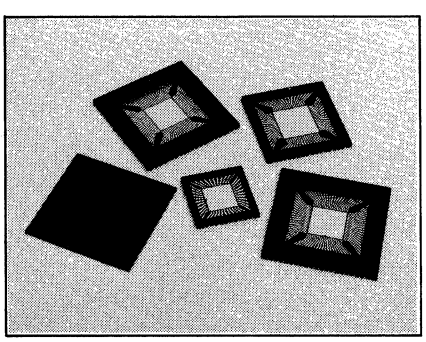
APECs have significant technological advantages over ceramic products including major benefits in packaging such as reduced weight, decreased size, higher interconnection density and lower cost.

Developed as a non-hermetic cavity package, APECs are manufactured using printed circuit board techniques and are the latest development in surface mount packaging of integrated circuits. The APEC carrier has a wide range of applications:

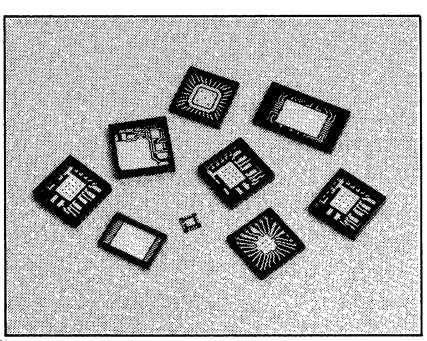
- industrial, custom military, commercial and telecommunications
- VLSI chips
- MMICS
- custom IC packaging

APECs have almost perfect thermal match to ordinary PCBs and glass epoxy substrates and their superior electrical characteristics give faster rise times and lower

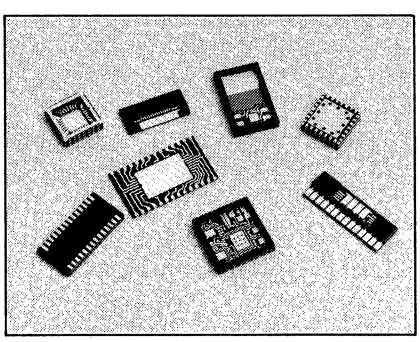




Standard APECs



Semi Customised APECs



Fully Customised APECs

Electro-Films Incorporated

111 Gilbane Street,
Warwick Central
Industrial Park,
Warwick, RI 02886

Tel. (401) 738-9150
TWX-EFI WRWK
710-382-0405
Fax. (401) 738-4389

Electro-Films (Europe) Ltd
16 Shield Road,
Ashford Industrial Estate,
Ashford, Middlesex TW15 1AV, U.K.
Tel: 0784 246273.
Fax: 0784 248750.
Int. dialling: 011 44 784 + number.

Products

propagation delay, ie as low as 25ps. Accelerated life tests (108°C, 90% RH), which have been undertaken indicate high reliability. Glass epoxy APECs allow larger configurations without fear of breakage. Users have a choice of thermal resistance from 92° c/w for standard packages down to two, 30° c/w and 4° c/w for the low thermal packages.

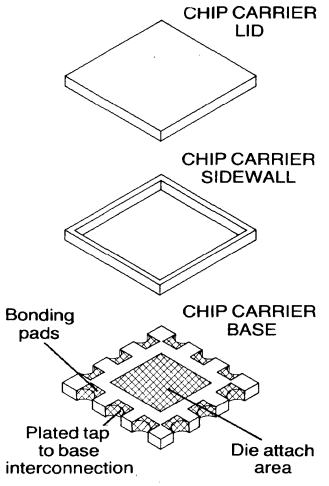
APECs offered:

Standard
a full range of stocked products

Semi-custom
where customers specify interconnection within a standard package

Full custom
where customers specify both the interconnection and package shape

Principle of APEC chip carrier construction



Custom Specific

Electro-Films also offer a service for customer specific packages where the company will undertake the full development project from design concepts, through prototype development and test, to full manufacturing production runs.

Electro-Films High Density Interconnect Products group continues its development programs of APEC devices including manufacture using high temperature materials such as polyimide and other high performance resins. Multilayer versions including advanced heat sinking, cavity-down and PGA format APECs are also in development.

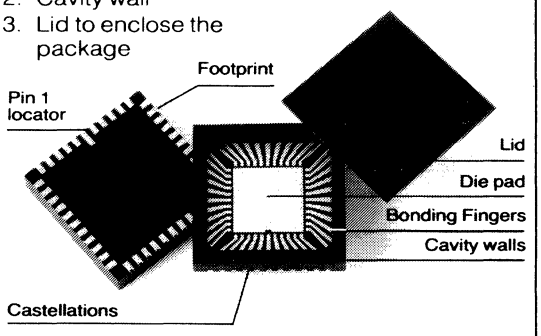
Chip-on-Board (COB)

Chip-on-Board substrates are probably one of the most cost effective ways to package and interconnect silicon chips especially ASICs. One can consider the substrate as being the package for the chip as well as the interconnect media for other components such as SMDs.

With the Electro-Films multilayer process up to 400 cm per sq cm (1000 in per sq in) of interconnect can be obtained. As well as there being various laminates to suit most purposes, COB offers very good design flexibility in that most shapes and sizes can be accommodated.

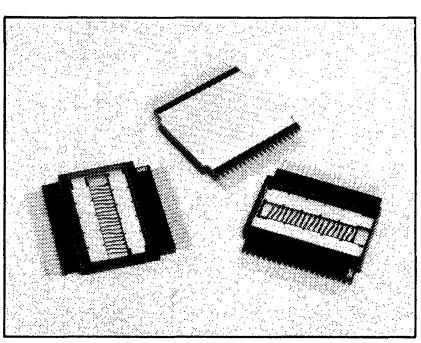
APEC consists of 3 parts:

1. Metallised base
2. Cavity wall
3. Lid to enclose the package

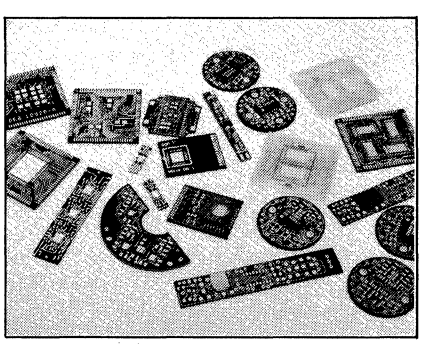


Pin Grid Arrays (PGA)

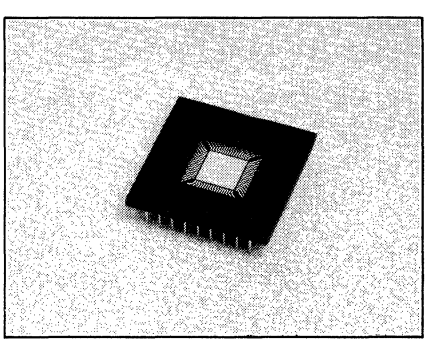
Electro-Films produce patented designs as well as standard PGAs. These can be single layer or multilayer according to price and reliability requirements. In some designs the chips are mounted direct to a copper heat sink which forms an integral part of the PGA.



Customer Specific APECs



Chip-on-Board



Pin Grid Arrays

Electro-Films Incorporated
111 Gilbane Street,
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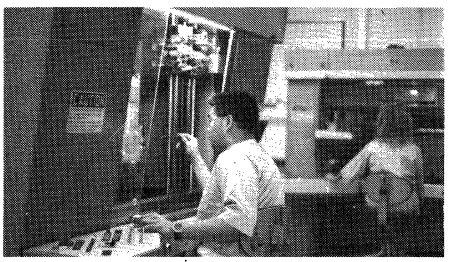
Industrial Park,
Warwick, RI 02886
Tel. (401) 738-9150
TWX-EFI WRWK
710-382-0405
Fax. (401) 738-4389

Electro-Films (Europe) Ltd
16 Shield Road,
Ashford Industrial Estate,
Ashford, Middlesex TW15 1AV, U.K.
Tel: 0784 246273.
Fax: 0784 248750.
Int. dialling: 011 44 784 + number.

EMS AUTOMATED WIRING AND PACKAGING SYSTEMS

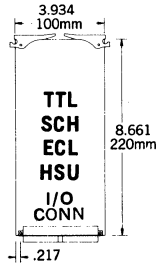
WIRE WRAPPING AND STITCH WIRING SERVICES

Wire wrapping is 100% inspected to MIL-STD-1130 and EIA STD RS-280-A. Zero wiring error guarantee on tested panels. Stitch wiring is an excellent discrete wiring system for use with high speed circuits and low-profile applications. Bonds are tested to U.S. Navy Specification WS14783.

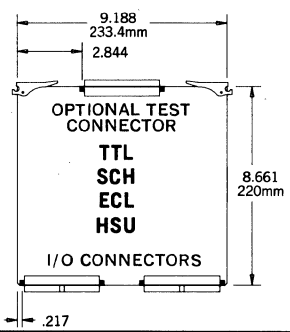


24 Socket Pin PC Boards

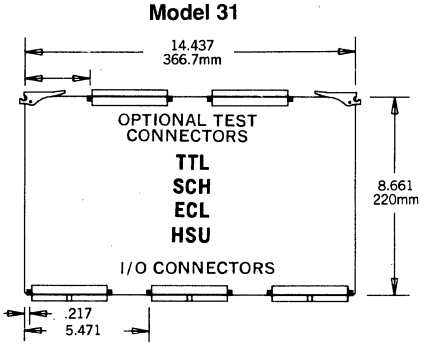
Model 11



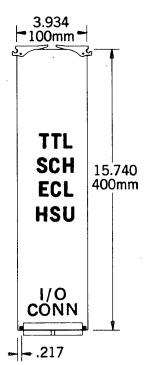
Model 21



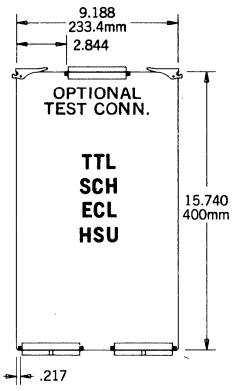
Model 31



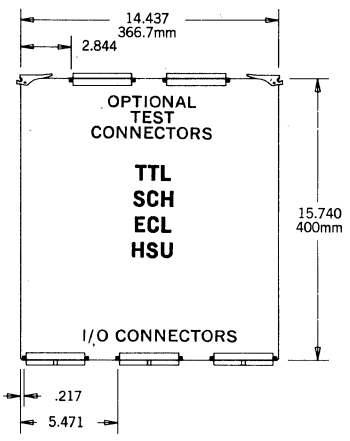
Model 12



Model 22



Model 32



Two Pin Technologies

Stitch-Wire

MIL-approved wiring technique providing optimum performance for ECL and fast Schottky devices. Fast, easy and low cost changeability with the highest reliability of difusion bonding.

Wire-Wrap

Tin or gold plated 1 to 3 level wrap pins. Suitable for TTL and some Schottky applications.

24 Extender Cards

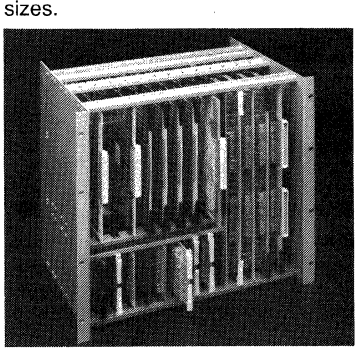
Ruggedly framed and supported extender card with 96 pin Reverse DIN connectors, 5-layers, 96 patched test points for each board size and logic option.

12 Backplanes

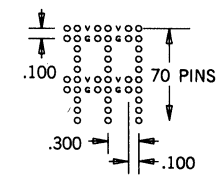
For .800" or 1.200" card centers. 96 pin Reverse DIN connectors, press-fit V&G wrap-pins. Massive power and ground planes. Wire wrap interconnections. TTL, Schottky, ECL and High-Speed Universal.

16 Card Racks

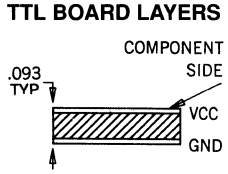
6 free standing and 6 Retma mount vertical racks for each size board .800" and 1.200" card spacing. 2 horizontal (free standing or Retma mount) racks for Model 32 boards, and mixer racks for different board sizes.



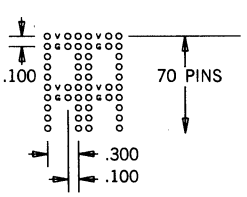
TTL 2-Layer Board
Typical TTL Pin Pattern



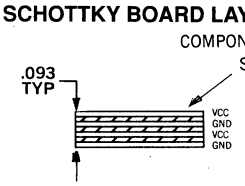
TTL BOARD LAYERS



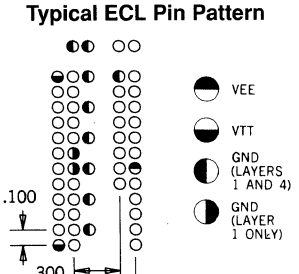
Schottky 4-Layer Board
Typical Schottky Pin Pattern



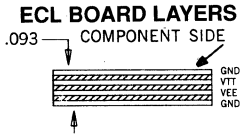
SCHOTTKY BOARD LAYERS



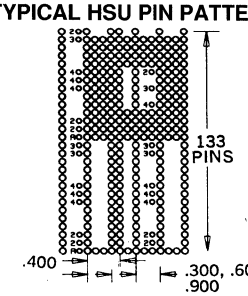
ECL 4-Layer Board
Typical ECL Pin Pattern



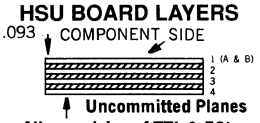
ECL BOARD LAYERS



High-Speed Universal
HSU 4-Layer Board
TYPICAL HSU PIN PATTERN



HSU BOARD LAYERS



Uncommitted Planes
Allows mixing of TTL & ECL

EMS
14251 CHAMBERS RD., TUSTIN, CA 92680 • (714) 669-9473 • FAX (714) 838-2967
BERKSHIRE INDUSTRIAL PARK, BETHEL, CT 06801 • (203) 797-9711
SANDBERG INDUSTRIES, INC.

LCT ELECTRONICS CORPORATION

700 N. VALLEY ST., SUITE K • ANAHEIM, CALIFORNIA 92801
PHONE: (714) 991-7317 • FAX (714) 991-3661

Pin Bar®

Pin Bar is a precision solderless "gas tight" bus bar that replaces wire wrapping, termi point or solder connections on chassis with common spaced connectors and common function pins. Pin Bar's performance, reliability and low cost virtually eliminate most engineering and production assembly problems associated with pin-to-pin busing.

Pin Bar performance is superior to wire busing in every electrical and mechanical parameter.

- **Lower Contact Resistance**—two times larger gas tight contact area.
- **Uniform Contact Resistance**—"Spec" contact pressure means ultimate uniformity, reduces noise, gives excellent high frequency response.
- **Lower IR Losses**—larger conductive area, constant cross-sectional area and no material removed means higher capacity and less heat.
- **Less Space Required**—greater pin exposure both vertically and horizontally.

What this means to you is your bus manufactured to exact specifications (one orifice to each pin) providing "mistake-proof" terminations at higher production rates using non-skilled assemblers while eliminating continuity checks. No wire prep, no tool maintenance, no capital equipment or bulky stock.

Higher reliability with better performance at less cost per termination. **PIN US DOWN** and we'll be privileged to prove it.

MIL SPEC TESTS

LSI Pin Bar meets or exceeds the following MIL-STD-202 "D" tests (full report available).

- **Thermal Shock**—Method 107, Condition A.
- **Mechanical Shock**—Method 213, Condition H.
- **Vibration**—Method 201.
- **Corrosion Resistance**—Method 101, Condition B, 48 hour exposure to salt spray.
- **Contact Voltage Drop**—0.533 Millivolts maximum per amp.
- **Gas Tight Contact**—Tested 10 minutes with 1:1 hydrochloric/nitric acid followed by 10 minutes of ammonium sulfide fumes.

SPECIFICATIONS

MATERIALS:

- **Berylco 10**—Copper Alloy No. 175, per QQ-C-533.
- **Berylco 25**—Copper Alloy No. 172, per QQ-C-533.
- **Alloy No. 110**—Full hard copper, per QQ-C-576 (Special Order).

STANDARD FINISHES:

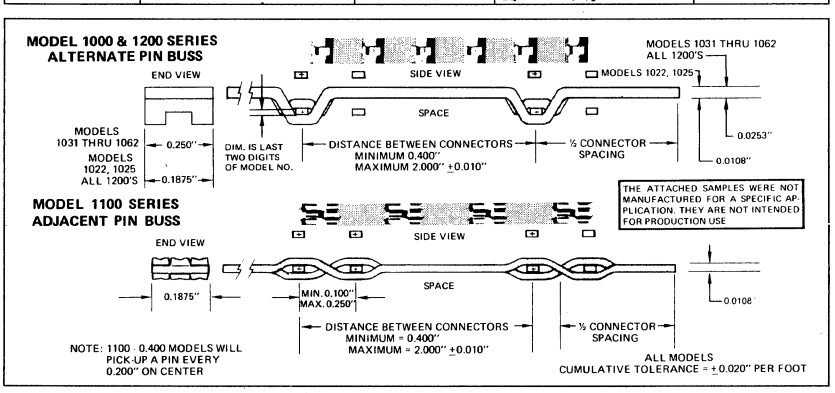
- **Tin**—Electro-tin plate, fused per MIL-T-10727, Type I, 0.0003" thickness.
- **Gold**—Gold plate per MIL-G-45204, Type II, 0.000050" minimum thickness over nickel plate per QQ-N-290, 0.000050" minimum thickness.

INSULATION:

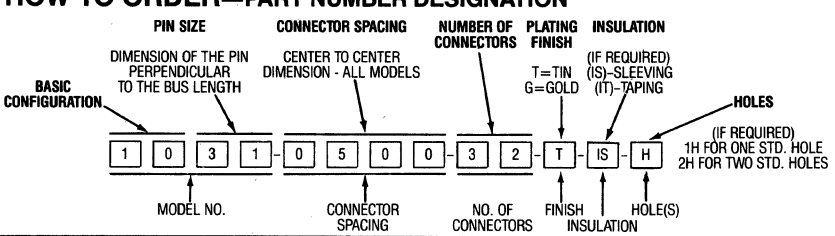
- **Shrink Sleeving (IS)**—Irradiated polyolefin, dielectric strength 20,000V, total insulation class 135°C, self-extinguishing, color - black.
- **Taping Method (IT)**—Kapton, 0.001" thickness, dielectric strength 6000V, total insulation class 180°C.

BASIC CONFIGURATIONS

1000 SERIES		STANDARD CONNECTOR PIN SIZES	1100 SERIES	
MATERIAL	MODEL NUMBER		MODEL NUMBER	MATERIAL
BERYLCO 25	1022	.022 x .036	1122	BERYLCO 10
BERYLCO 25	1025	.025 x .025	1125	
BERYLCO 25	1031 1231	.031 x .062	1131	
BERYLCO 25	1035 1235	.035 x .050	1135	
BERYLCO 25	1045 1245	.045 x .045	1145	
BERYLCO 25	1050 1250	.050 x .035	1150	
BERYLCO 25	1062 1262	.062 x .031	(2)1062 1162	BERYLCO 25

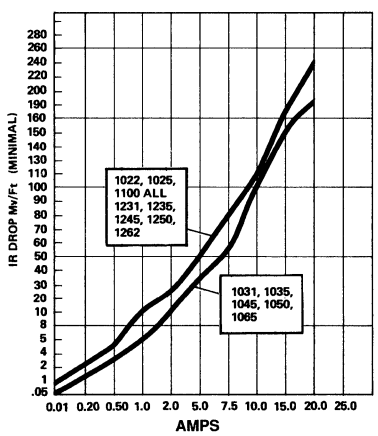


HOW TO ORDER—PART NUMBER DESIGNATION

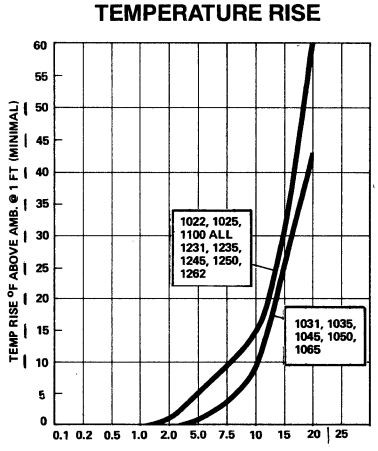


PERFORMANCE DATA

IR DROP



TEMPERATURE RISE



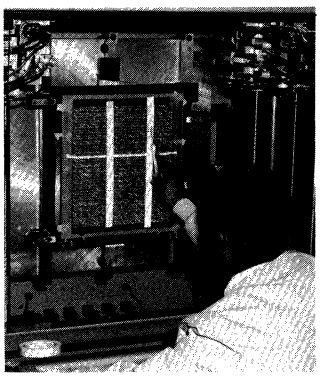
PTI PRODUCT TECHNOLOGY INC.

"SERVICE IS OUR SPECIALTY"

2811-B McGAW AVE., IRVINE, CA 92714 • PHONE: (714) 474-8998 • FAX: (714) 474-1340

DISCRETE WIRING SERVICES

Automatic and semiautomatic wire wrapping — point-to-point, XY and special routing.

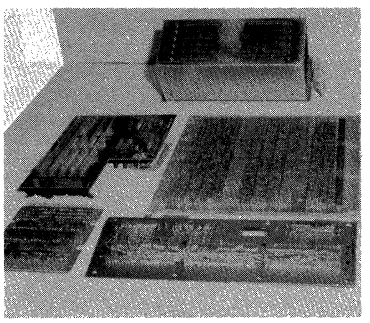


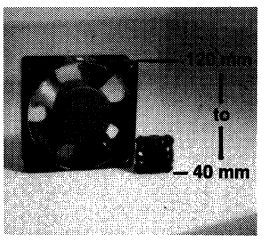
20 Automated Wiring Machines

ELECTRONIC PACKAGING PRODUCTS

(See for Fan Products Info)

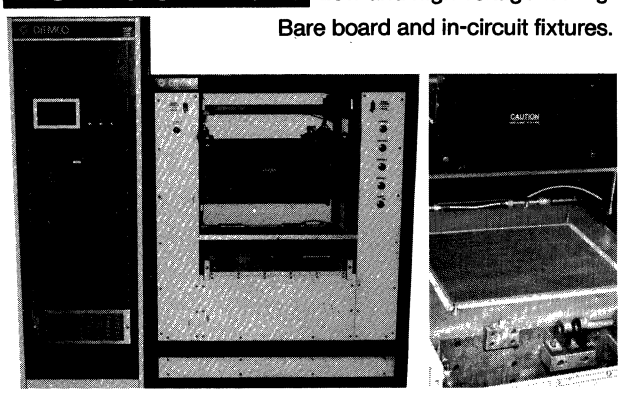
Logic cards, backplanes, wire wrapped extender cards, racks — DIN/EUROCARD, VME, Multibus, custom PC boards, hardware and wire (cut and stripped).





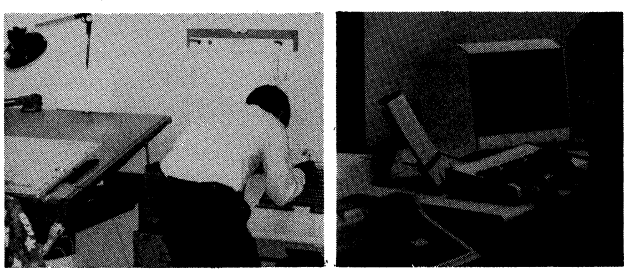
TESTING SERVICES

Low and high voltage testing. Bare board and in-circuit fixtures.

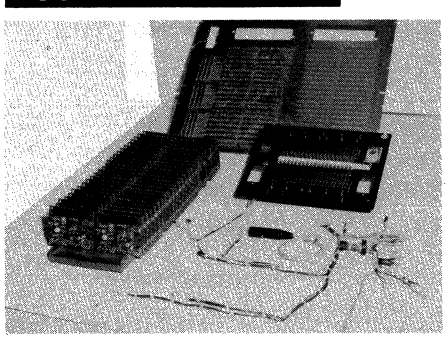


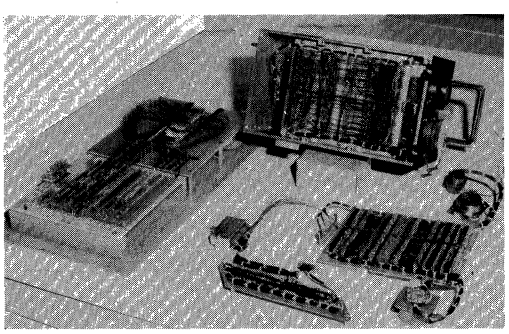
ENGINEERING SERVICES

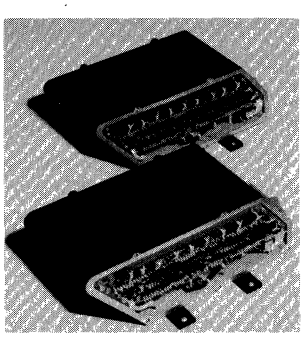
PC board design (CAD), digitizing, photoplotting, data conversion, design analysis and documentation packages. PC boards, cables, harnesses and complete electronic systems.



ASSEMBLY SERVICES







QUALIFICATIONS

MIL-I-45208	QUALITY
MIL-S-45743	SOLDER
WS 6536	SOLDER
MIL-STD-1130B	WIRE WRAPPING
DOD-HDBK-263	ELECTROSTATIC DISCH. CONTR.
MIL-STD-454	ELECTRONIC ASSEMBLY
MIL-STD-2000	ELECTRONIC ASSEMBLY

"SERVICE IS OUR SPECIALTY"

Product Technology supplies the highest quality products consistent with our customers' workmanship standards and cost requirements.

SERVICES AVAILABLE

- AUTOMATED WIREWRAPPING SERVICES
- OFFSHORE & TURNKEY SERVICES
- ELECTRO/MECHANICAL ASSEMBLY SERVICES CHASSIS-POWER SUPPLIES, PRINTED CIRCUIT BOARDS
- CABLES & HARNESSES
- TESTING SERVICES IN-CIRCUIT ANALOG, HI-VOLTAGE CONTINUITY AND DISCONTINUITY

Product Technology would welcome the opportunity to conduct you on a tour of our facilities to demonstrate that our equipment, controls and capabilities are second to none.

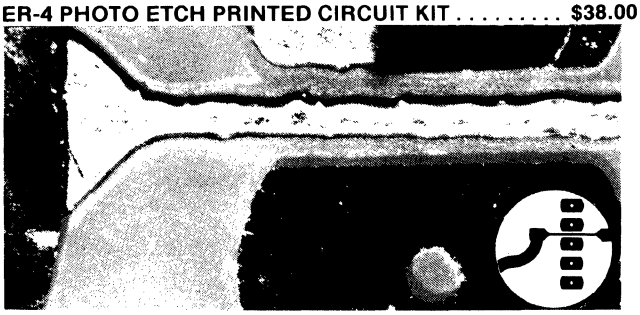
DATAK-PRINTED CIRCUIT KITS

THE DATAK CORPORATION 55 Freeport Blvd., #23, Sparks, NV 89431 (702) 359-7474 Fax: 702-359-7494

PHOTO ETCH™ Printed Circuit Kit

Photograph original 1:1 master art or PC patterns directly from a magazine page using remarkable POS-NEG™ system (patented). No darkroom or camera needed. Set has all materials to make original artwork masters, film negatives and positives. Use the 5"x6" print frame, copper clad boards, negative photoresist and chemicals to sensitize, expose, develop and etch printed circuit boards. 12 page instruction book covers the theory and practical instructions. Photoflood bulb must be purchased separately at any camera store.

ER-4 PHOTO ETCH PRINTED CIRCUIT KIT $38.00



Dry Transfer DIRECT ETCH™ Resist in Action

OTHER PRINTED CIRCUIT PRODUCTS

TINNIT™ Electroless Bright Tin Plate

TINNIT is supplied as a dry powder. Dissolved in a pint of water, it will plate about 700 sq. ins. of clean copper with a bright tin plating. No electricity is needed. Use to enhance solderability and conductivity on edge card connector patterns.

ER-18 TINNIT™ BRIGHT TIN PLATE $4.95

Etch Resist Pen

Felt pen has lacquer ink that is impervious to PC etchants.

ER-15 ETCH RESIST PEN $1.95

Dry Concentrated Etchant

¼ pound anhydrous ferric chloride in vapor tight pack makes 1 pint etchant, enough for 200 sq. in. of copper board. Cost less than liquids.

ER-3 DRY CONCENTRATED ETCHANT $3.50

Power Etch Pump Kit

Circulates etchant with air to speed etch rate. Kit has pump, coupling hose, perforated distributor tube.

ER-12 POWER ETCH PUMP $7.90

POS-NEG™ Photocopy Film and Accessories

Makes negatives or positives from opaque or translucent original art in one step without a camera. No darkroom needed but use subdued light. Use with yellow filter (ER–17) and EAL photoflood lamp. Read ER-16 Photo Etch Manual before opening this film.

ER-5 SIX SHEETS 5" x 6" POS–NEG FILM $7.90
ER-9 TWO SHEETS 8" x 11" POS-NEG FILM 7.90
ER-16 PHOTO ETCH MANUAL 2.00
ER-17 8½" x 11½" YELLOW FILTER 3.00

Contact Printing Frame

A solidly made plated steel and glass exposure frame. Spring back adjusts for film or circuit board exposure. Kit includes ER-17 yellow filter and ER-16 Photo Etch Manual. 9"x 12" size.

ER-10 CONTACT PRINTING FRAME, 9" x 12" $13.95

Film Process Chemicals

Three packets make 1 pint lithographic film developer and 1 pint acid fixer. Handles 15 sheets 5" x 6" Pos-Neg film.

ER-6 FILM PROCESS CHEMICALS $4.75

Negative Photo Resist Liquid and Developer

Spray on PC board and expose through negative. Unexposed areas are dissolved by developer. Exposed areas harden and are etch resistant. Four ounce bottle with pump spray coats over 1700 sq. in. Develop ONLY with ER-8 or Kodak KPR developer.

ER-71 PHOTO RESIST LIQUID, 4 ounce $8.00
ER-8 NEGATIVE RESIST DEVELOPER, 16 ounce 4.95

DIRECT ETCH™ Printed Circuit Kit

This one step kit uses a unique dry transfer resist that makes razor-sharp patterns on copper clad boards. Lay out circuits right on the copper with these etch resistant dry transfers. Connect with dry transfer lines or the special tape, then etch in ferric chloride or in any commercial PC etchant. Results are equal to or better than commercial boards. Kit includes PC boards, dry transfer resist patterns, resist tapes, ferric chloride etchant, etch tray and instructions.

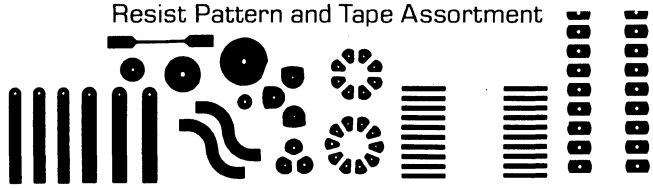
ER-1 DIRECT ETCH PRINTED CIRCUIT KIT $10.95

DRY TRANSFER ETCH RESIST PATTERNS

DATAK prints a broad range of dry transfer resist patterns with an ink that is impervious to all commercial etchants. This ink is identical to that used in printing the JotDraft and Microseries range of donuts and connector patterns. See our full line catalog for additional etch resist patterns.

17.6X BLOWUP shows .015" line between .100" spaced DIP pads. Resist pattern is from DATAK ER-2 set. Circuit board is 2 ounce copper etched in a still bath of ferric chloride for 30 minutes at 125°F. Measured undercut is less than .0015".

Resist Pattern and Tape Assortment



Our best selling set includes 8 sheets of donuts, .125" and .156" connector fingers, transistors, round IC's, DIPs of any size, dry transfer traces and 2 rolls of resist tape. This set is in the ER-1 and ER-4 kits.

ER-2 DRY TRANSFER ETCH RESIST ASSORTMENT .. $7.95

Resist Donut Pad Assortment

Set contains 4 sheets of donuts 1/16" through ¼" dia. with .025" center holes.

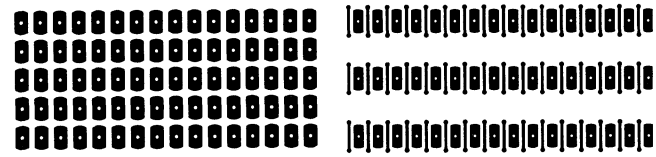
ER-13 DONUT PAD ASSORTMENT $3.95

Resist DIP Pattern Assortment

Set has 4 sheets of continuous .100" x .300" DIP patterns and .050" spaced flatpack fingers. Rub down the length you need. See also JD-171, JD-174.

ER-14 DIP PATTERN ASSORTMENT $3.95

Continuous Resist DIP Pads



From JD-171 **From JD-174**

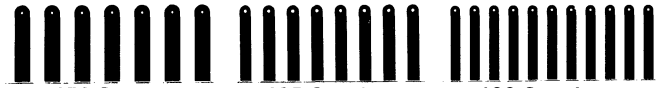
JD-171 set contains 24 sheets of continuous .125"D x .070" cut pads spaced on .100" x .150" centers. Transfer pads on any multiple of .150" or .100". Do any size DIP pattern accurately and fast.

JD-171 RESIST DIP PADS $14.20

JD-174 has 24 sheets of continuous .125"D x .053" cut pads spaced on .100" x .150" centers with a trace between adjacent pads. Pads transfer alone or with traces on any multiple of .100" or .150". Do a large ROM or a ½ DIP with equal ease.

JD-174 RESIST DIP PADS WITH TRACES $14.20

Edge Card Connector Fingers

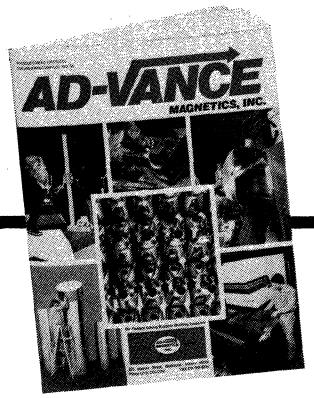


.156 Spacing **.125 Spacing** **.100 Spacing**

Sets contain 24 strips of spaced connector fingers. Each strip of fingers is 8" long. Butt strips for any connector length.

JD–122R ASST. CONNECTOR FINGERS: .156" & .125" $14.20
JD-168 CONNECTOR FINGERS: .100" 14.20

SEE SECTION 2400 FOR DATAK PANEL MARKING SETS AND WIRE MARKERS



YOUR MAGNETIC SHIELDING PROBLEMS END HERE!

Request AD-VANCE Magnetics' new 84-Page Procurement Catalog/Engineering Manual; offers magnetic shielding users the major technical guideline data needed to design or choose the optimum magnetic shielding solution for a given application.

CUSTOM FABRICATED SHIELDS FOR COMPONENTS AND SYSTEMS

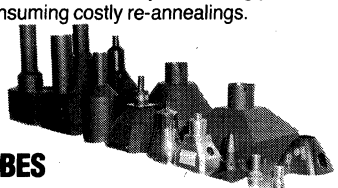
Any Specified Configuration or Shielding Requirement

From the simplest component to the most complex system, Ad-Vance Magnetics can design and fabricate an AD-MU shield incorporating your magnetic shielding performance requirements.

These include magnetic isolation chambers, shields for low field research, magnetic shielding components required in systems (such as CRT's), transformers, motors, tachometers, reed relays and computers, dewars for cryogenic research, various test chambers, video cameras, scan converter tubes, photomultiplier tubes, storage tubes, aircraft weather radar display tubes, etc.

Lasting shielding protection is provided because AD-MU alloys do not saturate when properly used, will not suffer excessive permeability loss from shock, and display minimum retentivity. Accordingly, there is no need for repeated time consuming costly re-annealings.

AD-MU CUSTOM FABRICATED SHIELDS FOR CATHODE RAY TUBES



Enhance CRT performance by eliminating effects of external magnetic fields on the electron beam.

Ad-Vance already owns tooling for many types of magnetic shields used during the past quarter century, making tooling savings possible. Or, our Engineering Dept. will gladly help design and produce the optimum shield for your application.

AD-MU TAPE DATA PROTECTORS ASSURE FIDELITY OF VALUABLE TAPES

1 Assure fidelity of vital recorded information by keeping data on magnetic tapes free from distortions caused by unforeseen external magnetic fields.
2 Minimize erasure accidents during safekeeping or transport.
3 Discourage and deter the covert saboteur or vandal.
4 Excellent insurance against possible expensive, or irreplaceable losses.

8 ROUND SIZES

Part No.	A Inches	A Centi-meters	B Inches	B Centi-meters
TDP 72R07	7-1/4	18.42	3/4	1.91
TDP 72R15	7-1/4	18.42	1-1/2	3.81
TDP 86R07	8-5/8/	21.91	3/4	1.91
TDP 96R13	9-5/8	24.45	1-3/8	3.49
TDP 106R08	10-5/8	26.99	7/8	2.22
TDP 106R15	10-5/8	26.99	1-1/2	3.81
TDP 116R15	11-5/8	29.53	1-1/2	3.81
TDP 116R15P				

Made of AD-MU-00 .031" thick with protective .125" polyurethane foam liner in both top and bottom.

10 SQUARE/RECTANGULAR SIZES

Part No.	A Inches	A Centi-meters	B Inches	B Centi-meters	C Inches	C Centi-meters
CTDP 25S40 (Cassette)	5/8	1.588	5/8	10.48	2-5/8	6.67
TDP 2	12	30.48	12	30.48	3-1/4	8.55
TDP 5	12	30.48	12	30.48	7-3/4	19.685
TDP 75S50	7-1/2	19.05	7-1/2	19.05	5	12.7
TDP 97S30	9-3/4	24.76	9-3/4	24.76	3	7.62
TDP 97S70	9-3/4	24.76	9-3/4	24.76	7	17.78
TDP 117S17	11-3/4	29.845	11-3/4	29.845	1-3/4	4.445
TDP 117S32	11-3/4	29.845	11-3/4	29.845	3-1/4	8.55
TDP 117S77	11-3/4	29.845	11-3/4	29.845	7-3/4	19.685
TDP 117S150	11-3/4	29.845	11-3/4	29.845	15	38.1

Made of AD-MU-00 .050" thick. Finished in durable textured enamel.

INEXPENSIVE INSURANCE IN THESE UNCERTAIN TIMES

Proven AD-MU Tape Data Protectors and Cassette Tape Data Protectors provide inexpensive insurance against such hidden hazards.

Satisfied customers include all branches of the armed forces, NASA, and numerous private firms as well as other governmental organizations.

There is not a single reported instance in which tapes enjoying such secure protection have ever been affected by stray magnetic fields. The investments in such tapes have remained uniformly safe from harm.

"WHY TAKE MY MAGNETIC SHIELDING PROBLEMS TO AD-VANCE MAGNETICS?"

Over 90% past and present magnetic shield designs have been created and fabricated by engineers and production personnel with Ad-Vance. With such a record of experience, it seems likely that Ad-Vance people are the logical ones to solve your particular problem.

"What facilities does Ad-Vance have?"

Two modern, fully equipped plants in Rochester, Indiana, are across the street from each other. They contain up-to-date equipment for:

All types of metal forming
heliarc and spot welding
complete in-house tool room
deep drawing
CNC equipment
processing control of heat
treating and finishing
in-house quality control

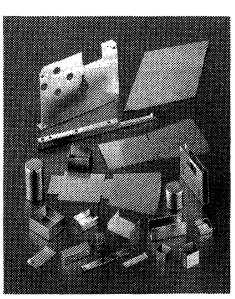
"What's Ad-Vance's industry and market position?"

Ad-Vance is the industry's largest, oldest and most experienced firm exclusively manufacturing magnetic shielding. Products from its factory are used off-planet in spacecraft and satellites as well as world-wide in exacting industrial, military, laboratory and consumer applications.

AD-MU SHEET STOCK — DELIVERY FROM STOCK

- For your in-house designing and manufacturing convenience.
- Easy to work, bend, stamp, draw, finish, etc. on ordinary sheet metal working equipment. SHIELDS MUST BE HEAT TREATED before end use or further finishing by plating, painting, etc.

JUST CUT AD-MU FOILS TO THE EXACT SHAPE YOU NEED



These Time-Saving High and Low Permeability Foils offer convenient, economical magnetic shielding. In many applications, their use can eliminate the costs of designing and manufacturing pre-fabricated shields. Foil shielding is also useful in hard-to-get-at-places. In addition, it permits more compact assemblies, accomplished by placing magnetically reacting components closer together with no performance degradation.

The foils exhibit useful ductility, so are readily hand trimmed to your desired outline on an ordinary cutting board, or with shears. They are then easily hand formed around the structure or component to be shielded. Simple adhesive tape can be used to hold them in place. They have already been properly heat treated so are ready for immediate use.

AD-VANCE MAGNETICS, INC.

625 MONROE STREET, ROCHESTER, INDIANA 46975
(219) 223-ADMU / (810) 290-0294 / FAX (219) 223-2524
The Problem Solving Magnetic Shielding Specialists—4 Decades of Magnetic Shielding Leadership

If we'd been there, maybe the Pterodactyl wouldn't have crashed...

...at least not the radio-controlled mechanical replica built for the Smithsonian Institution. While it flew successfully twenty-one times over the deserts of California, on its first flight near Washington, D.C., the pterodactyl lost control and crashed.

It was determined that an electromagnetic device on the ground had interfered with the model's electronic control components. Appropriate magnetic shielding might have saved this pterodactyl from extinction.

For over twenty-five years, Amuneal has provided electromagnetic interference solutions for military, medical, scientific, industrial and commercial applications. You'll find our products in CRT displays and defibrillators, in computers and spacecraft, in scientific instrumentation across every frequency and spectrum, and in hundreds of specialized applications. Working with our customers, the list grows daily.

If you need magnetic shielding, we can supply you with a single prototype unit or a large production run—and we do it on time and competitively priced.

Give us a drawing of the device you want shielded and we'll select the proper alloy and suggest the most cost-effective way to design, fabricate, hydrogen anneal, and test your shield. All Amuneal products are manufactured, annealed in-house and inspected to MIL standards.

Amuneal scientists also conduct on-site magnetic surveys and can recommend the best solution to your shielding problem.

We provide immediate delivery from stock on Amumetal (80% Ni) and Amunickel (49% Ni) in both sheet and foil, sheared to your size requirements. Sheet is available in thicknesses from .014″ to .062″. Foil, in thicknesses from .002″ to .010″. All material can be delivered hydrogen-annealed for maximum permeability and attenuation.

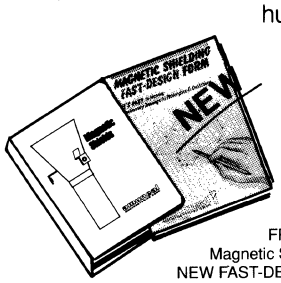
For your next component, enclosure or room shielding requirement, call or write Amuneal.

We're liable to keep your project from crashing.

MAGNETIC SHIELDING DEVELOPMENT AND EXPERIMENTAL KIT

This kit provides design engineers with various sizes and shapes of amumetal shielding alloy. All nine components are fully hydrogen-annealed to provide optimum EMI shielding properties.

$125.00



Ask for our FREE Guide to Magnetic Shielding and NEW FAST-DESIGN FORM that makes it easy to prepare drawings for prototypes or quotations.

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GROUND STRAPS • GROUND PLANES
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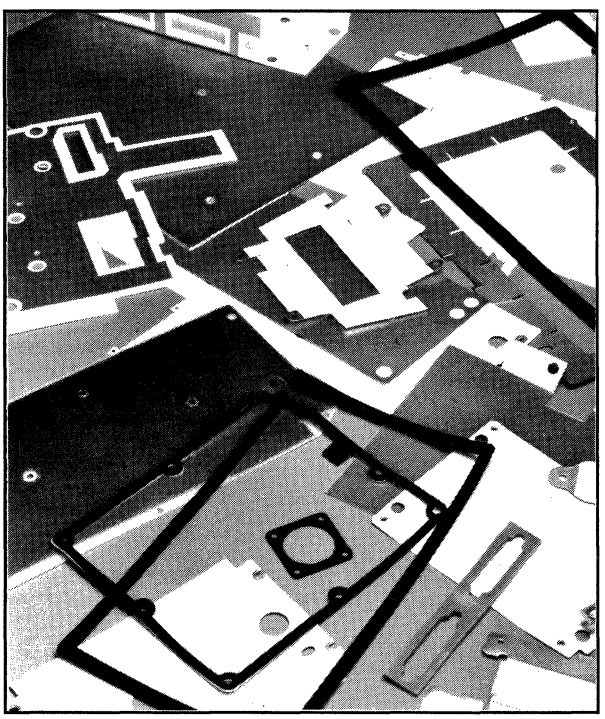
RFI: COPPER OR ALUMINUM FOIL LAMINATE
ESD: COPPER OR ALUMINUM FOIL LAMINATE
EMI: NICKEL FOIL LAMINATE OR IRON FOIL LAMINATE



Substrates Include:

- ☐ Bergquist Sil-Pad®
- ☐ Chomerics Cho-Therm®
- ☐ DuPont Kapton®
- ☐ DuPont Nomex®
- ☐ DuPont Mylar® Polyester
- ☐ Fishpaper
- ☐ Foams-Neoprene, PVC, Urethane, Polyethylene
- ☐ General Electric Lexan® (FR-60)
- ☐ General Electric Ultem®
- ☐ General Electric Valox®
- ☐ G10/FR4 Epoxy Fiberglass
- ☐ ITW Formex/Statex Polypropylene
- ☐ Lydall S-350
- ☐ Lydall Duroid D-100 FR/D-225 FR/ D-800 FR
- ☐ Lydall Voltex 450
- ☐ Rigid PVC
- ☐ Windsor-Stevens FRP
- ☐ Impregnated Wire Mesh
- ☐ Rubber-Silicone, Neoprene
- ☐ 3M Pressure Sensitive Adhesives and Tapes

Options:

- ☐ Die Cut • Sheared
- ☐ Scored • Punched • Formed
- ☐ Perforated • Creased • Folded
- ☐ Printed
- ☐ Laminated—Full or Selective Coverage
- ☐ Pressure Sensitive Adhesive Coated

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Eagle can help improve your product, and lower costs, by designing the right shield for you. Take advantage of Eagle's vast background in shield design and production.

Choose from a wide selection of sheet and foil, so you can form your own shields. For helpful design and cost data, write or call. Offices worldwide.

EAGLE MAGNETIC COMPANY, INC.

P.O. BOX 24283 • INDIANAPOLIS, INDIANA 46224 • PHONE (317) 297-1030

SARCON® THERMAL-CONDUCTIVE AND FLAME RETARDANT SILICONE RUBBER

SARCON® Products are Vital Electronic Components

A unique new product range developed on the basis of our proprietary technology—SARCON is a completely novel type of silicone rubber combining high thermal conductivity and superior flame-retardancy with the inherent properties of silicone rubber such as heat resistance and electrical insulating properties.

In recent years, the fast rate at which electronics and computer technology have spread through day-to-day life, has led to the need for more powerful semiconductor devices and more compact and lightweight products. Our Fujipoly silicone rubber, developed to meet these needs, has already earned itself a high reputation among many users, praising it as a revolutionary rubber-type electrical insulatant.

Its applications span a constantly growing range as thermal conductive insulators for semiconductor devices, compression jointing materials for thermistors and temperature sensors, and as a thermal conductive material for all types of heaters.

SARCON is the most outstanding product from our state-of-the-art production facilities, with micro-unit accuracy standards and a molding technology of the highest level that has taken us years to perfect. Apart from sheet, SARCON is also available in tape, tube and cap form and can be supplied with an adhesive. To let the user choose the best suited product for his purpose, application, and conditions, it comes in two grades with or without adhesive, and in four types: TR, HR, GTR, and GHR.

Tailor-Made for a Perfect Fit with Users' Needs

• General Type—SARCON TR
Press and extrusion molding permit the manufacture of any type of intricate shape, whether cap, sheet, tape, or tube-shaped, to precisely meet practical needs.

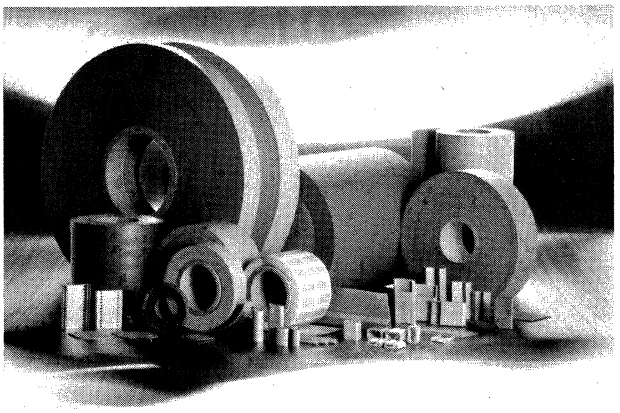
• High-Heat Conductive Type—SARCON HR
Thanks to the inclusion of a special fine ceramic ingredient, this high-grade type of SARCON offers remarkably improved thermal conductivity.

• Reinforced type—SARCON GTR • SARCON GHR
These particular reinforced grades have a 0.05mm thick glass cloth layer laminated onto TR and HR to provide a dramatic increase in physical strength characteristics such as tensile and tear strength.

For improved ease of handling, we also offer our SARCON AD series which corresponds to the SARCON GTR and GHR but with the application of an adhesive coating.

Wide Range of Applications

- Especially for use as electrically insulating heat-dissipating spacers in power transistors and semiconductors such as ICs and LSIs
- For use as electrically insulating heat-dissipating spacers in thermistors and posistors.
- Ideal for electronic jars, panel heaters, etc.
- For use as an electrical insulator in temperature fuses and temperature sensors, or as a high/low temperature heat transfer medium.
- Ideal for microwave ovens, panel heaters, ceramic heaters, etc.
- As a replacement for molded silicone-rubber parts in applications with a heat gradient. Ideal for insulating plates around microwave ovens and magnetrons, transformers, etc.
- Ideal for TV, video, stereo, Compact-Disc players, stabilized power supplies, computers, brushless motors, etc.

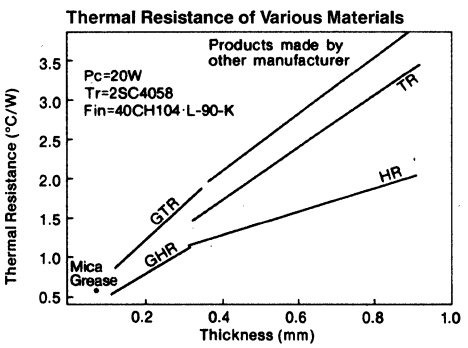


SARCON® Offers Superior Properties with a Host of User Benefits

• High Heat Conductivity
SARCON has a thermal conductivity eight times that of conventional silicone rubber, three times that of mica, and twelve times that of polyester.

Product Description	Thermal Conductivity ($\times 10^{-4}$ cal/cm·Sec·°C)
SARCON HR	41
SARCON TR	29
SARCON GHR	34
SARCON GTR	22
General silicone rubber (manufactured by Fujipoly)	3.7 ~ 5.4
Mica	14
Polyester	3.4
Polyethylene	6.0

• Low Thermal Resistance and Stable Thermal Resistance Variation
SARCON is elastic, providing a perfect tight fit on uneven surfaces. Therefore, there is no need to use conventional gap-sealing and filling agents such as grease to bring out the superb high heat conductivity and outstandingly low thermal resistance and stable thermal resistance variation that are the hallmark of our SARCON.



• Usable over a Wide Temperature Range (– 60°C ~ 180°C)
Thanks to its superior resistance to heat and cold, SARCON is ideal for use in a wide temperature range, throughout which it maintains its outstanding electrical properties, such as the excellent electrical insulating properties characteristic of silicone. Nor does it present any significant variation in its physical properties. SARCON is distinguished by a whole range of other outstanding properties, such as excellent resistance to weather, arc, corona discharge, ozone and chemicals.

fujipoly® inc
750 Walnut Avenue • Cranford, NJ 07016 • 908/272-3850 • FAX: 908/272-2241

Shielding

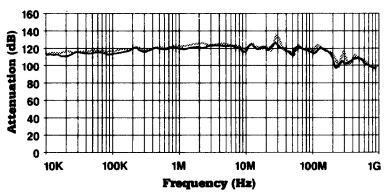
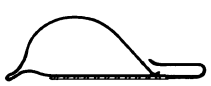
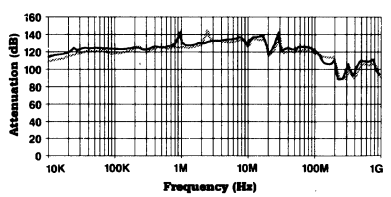
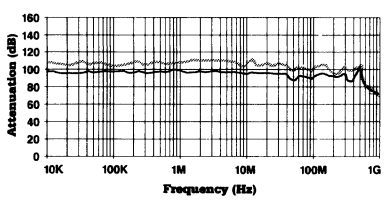
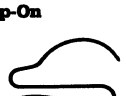
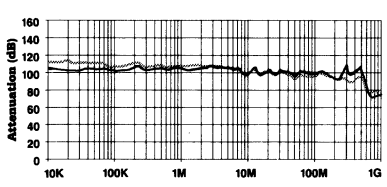
UltraSoft™ Series

Announcing *UltraSoft*™ fingers... new low force shielding gaskets in a full range of standard configurations.

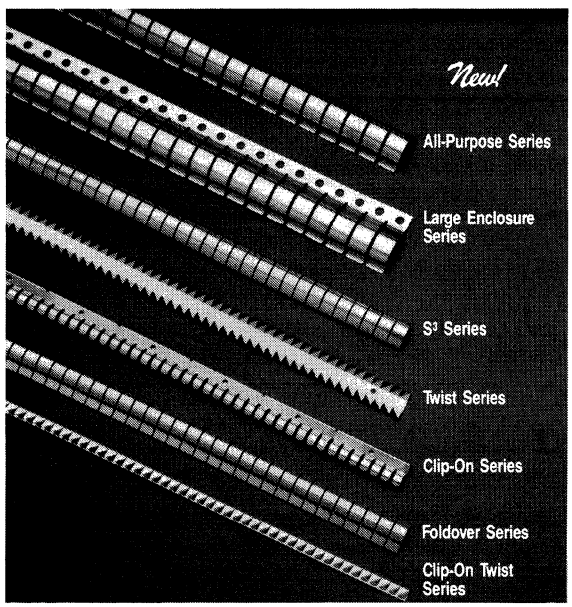
New UltraSoft™ fingers from Instrument Specialties offer the communications, computer, and electronics system designer concerned with lighter construction materials and FCC EMI compliance, greater flexibility and versatility than ever before. UltraSoft fingers permit wider use of lighter, thinner construction materials, to help cut costs and/or enhance system performance.

- Lowest compression forces in the industry
- Increased cycle life
- Shielding effectiveness comparable to standard shielding line
- Wide selection of sizes and configurations. Low force version available for virtually every standard shielding product.

Following are several examples comparing Instrument Specialties' UltraSoft fingers to the Standard Shielding line.

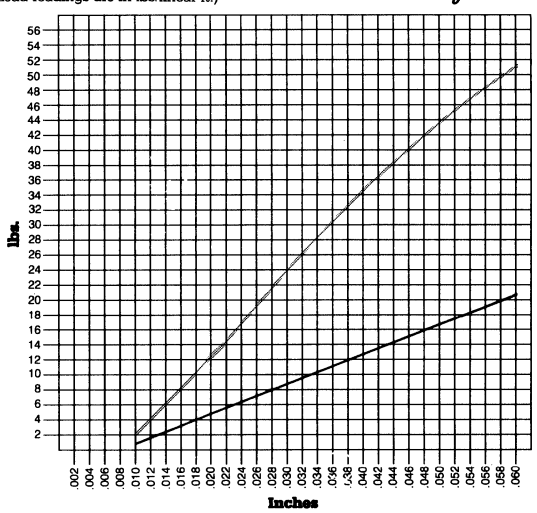
Description	Shielding Effectiveness
All-Purpose Gaskets **Standard No.** 97-500 *UltraSoft* **No.** 98-500	
Foldover  **Standard No.** 97-541 *UltraSoft* **No.** 98-541	
Symmetrical **Standard No.** 97-954 *UltraSoft* **No.** 98-954	
Clip-On  **Standard No.** 97-606 *UltraSoft* **No.** 98-606	

Please see our Environmental Shielding products in the Military Components and Equipment Section, Vol. B, Section 2440.



Compression Force Comparison
(Load readings are in lbs/linear ft.)

Standard No. 97-541
UltraSoft **No.** 98-541



Compression force data on all other UltraSoft Series are available upon request.

For further information, or for product samples, please contact your Instrument Specialties representative.

Where shielding is a science.

Instrument Specialties

Headquarters
Delaware Water Gap, PA 18327-0136
TEL: 717-424-8510 FAX: 717-424-6213

Western Division
505 Porter Way, Placentia, CA 92670
TEL: 714-579-7100 FAX: 714-579-7105

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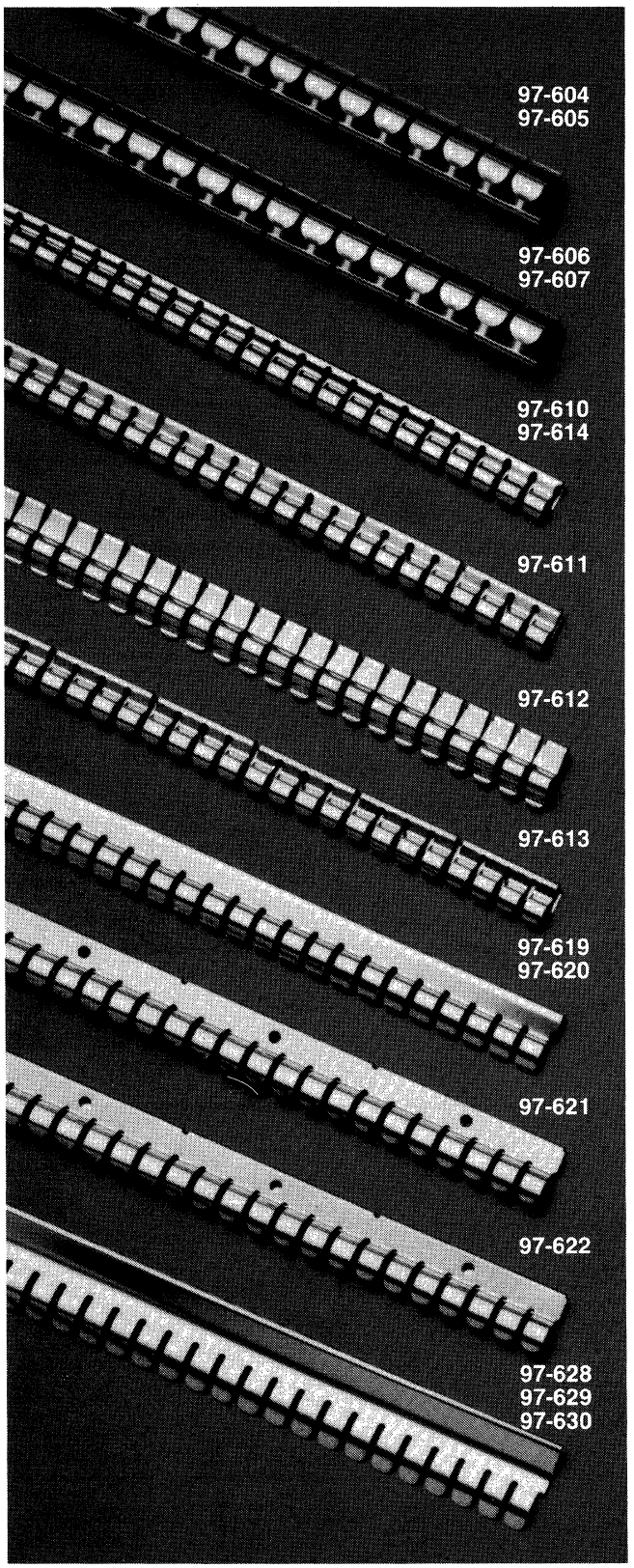
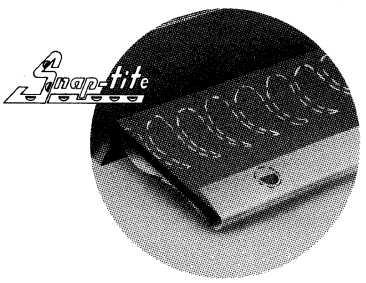
Shielding Clip-On Gaskets



This Series from Instrument Specialties is designed for use where high temperature or other design considerations preclude the use of adhesive-mounted gasketing. Yet it provides the same shielding characteristics and effectiveness as our Sticky Fingers® mounted series. Clip-on gaskets offer shielding effectiveness > 100 dB at 100 MHz plane wave. All are available in standard 16″ (406 mm) lengths, and in your choice of finishes.

Snap-tite™, with "D" lance

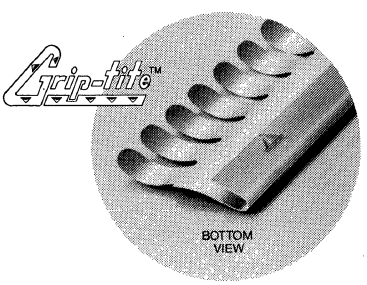
This configuration has been designed specifically to provide outstanding holding power. "D" lances snap into drilled or punched holes in the mounting surface to create a strong omnidirectional grip with excellent conductivity.



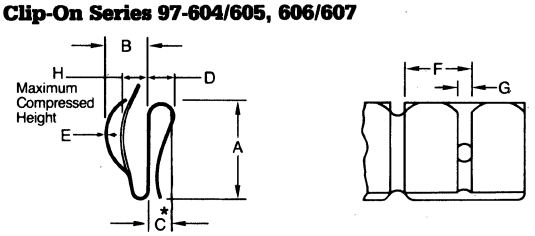
Grip-tite™, with "T" lance

Ideal for use with softer materials, such as aluminum or plated plastic, sharp "T" lances bite into the mounting surface and preserve electrical conductivity.

Parts may be supplied with holes for cleaning and plating purposes. These holes will not affect the overall performance of the product.



Clip-On Series 97-604/605, 606/607



***Variations in the clip-on area are available. Consult Customer Service.**

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Please see our Environmental Shielding products in the Military Components and Equipment Section, Vol. B, Section 2440.

Shielding Clip-On Gaskets

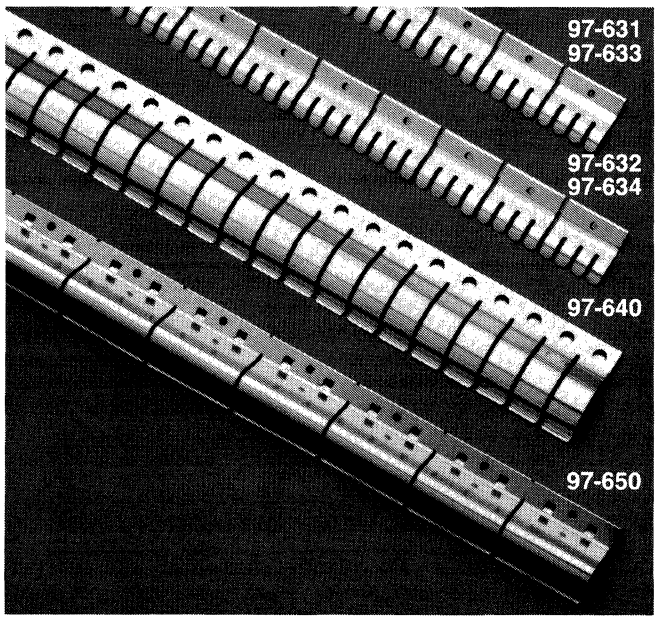
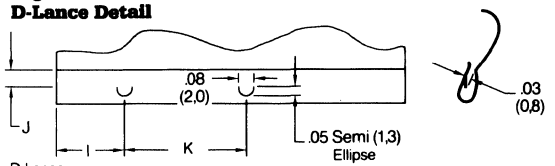
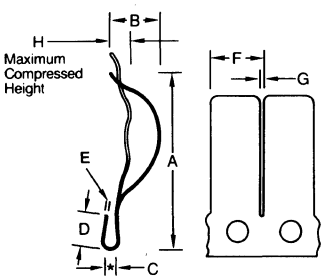


Figure 1.
D-Lance Detail



All Others



***Variations in the clip-on area are available. Consult Customer Service.**

Clip-On Series

Series	A	B	C	D	E	F	G	H	Approx. Length	NL	SQ	GT	ST	I	J	K	Slot	Sol.
										No Lance	Square Lance	Grip-tite 'T' Lance	Snap-tite 'D' Lance	Lance Locations Dimensions		Lance to Lance Dimensions		Body Style
97-604	.38 (9,7)	.28 (6,7)	.07 (1,8)	.08 (2,0)	.005 (0,13)	.250 (6,35)	.040 (1,02)	.06 (1,5)	16.0 (406)			X X		.230 (5,80)	.096 (2,44)	.500 (12,7)	X X	
97-605	.38 (9,7)	.20 (5,1)	.07 (1,8)	.08 (2,0)	.005 (0,13)	.250 (6,35)	.040 (1,02)	.06 (1,5)	16.0 (406)			X X		.230 (5,80)	.096 (2,44)	.500 (12,7)	X X	
97-606	.38 (9,7)	.20 (5,1)	.07 (1,8)	.08 (2,0)	.005 (0,13)	.250 (6,35)	.040 (1,02)	.06 (1,5)	16.0 (406)				X X	.25 (6,4)	.14 (3,6)	.500 (12,7)	X X	
97-607	.38 (9,7)	.28 (6,7)	.07 (1,8)	.08 (2,0)	.005 (0,13)	.250 (6,35)	.040 (1,02)	.06 (1,5)	16.0 (406)				X X	.25 (6,4)	.14 (3,6)	.500 (12,7)	X X	
97-610	.30 (7,6)	.10 (2,5)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.187 (4,75)	.047 (1,19)	.06 (1,5)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-611	.30 (7,6)	.10 (2,5)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.182 (4,62)	.047 (1,19)	.06 (1,5)	16.0 (406)			X X		.364 (9,25)	.032 (0,80)	.728 (18,49)	X X	
97-612	.44 (11,2)	.10 (2,5)	.07 (1,8)	.19 (4,8)	.003 (0,08)	.187 (4,75)	.047 (1,19)	.02 (0,5)	16.0 (406)	‡ ‡	X X			.093 (2,37)	.056 (1,42)	.750 (19,05)	X X	
97-613	.30 (7,6)	.10 (2,5)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.182 (4,62)	.047 (1,19)	.06 (1,5)	16.0 (406)				X X	.36 (9,1)	.05 (1,3)	.728 (18,49)	X X	
97-614	.30 (7,6)	.10 (2,5)	.05 (1,3)	.19 (4,8)	.005 (0,13)	.187 (4,75)	.047 (1,19)	.06 (1,5)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-619	.44 (11,2)	.08 (2,0)	.05 (1,3)	.19 (4,8)	.005 (0,13)	.187 (4,75)	.047 (1,19)	.07 (1,8)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-620	.44 (11,2)	.08 (2,0)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.187 (4,75)	.047 (1,19)	.07 (1,8)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-621	.44 (11,2)	.12 (3,0)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.193 (4,90)	.046 (1,17)	.06 (1,5)	16.0 (406)			X X		.652 (16,56)	.050 (1,27)	1.351 (34,32)	X X	
97-622	.44 (11,2)	.12 (3,0)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.193 (4,90)	.046 (1,17)	.06 (1,5)	16.0 (406)				X X	.29 (7,4)	.08 (2,0)	.725 (18,42)	X X	
97-628	.60 (15,2)	.21 (5,3)	.05 (1,3)	.19 (4,8)	.005 (0,13)	.187 (4,75)	.047 (1,19)	.07 (1,8)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-629	.60 (15,2)	.21 (5,3)	.05 (1,3)	.19 (4,8)	.005 (0,13)	.187 (4,75)	.047 (1,19)	.07 (1,8)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-630	.60 (15,2)	.21 (5,3)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.187 (4,75)	.047 (1,19)	.07 (1,8)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-631	.60 (15,2)	.21 (5,3)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.182 (4,62)	.047 (1,19)	.07 (1,8)	16.0 (406)			X X		.364 (9,25)	.032 (0,80)	.728 (18,49)	X X	
97-632	.60 (15,2)	.21 (5,3)	.07 (1,8)	.19 (4,8)	.005 (0,13)	.182 (4,62)	.047 (1,19)	.07 (1,8)	16.0 (406)				X X	.36 (9,1)	.08 (2,0)	.728 (18,49)	X X	
97-633	.60 (15,2)	.21 (5,3)	.05 (1,3)	.19 (4,8)	.005 (0,13)	.182 (4,62)	.047 (1,19)	.07 (1,8)	16.0 (406)			X X		.364 (9,25)	.032 (0,80)	.728 (18,49)	X X	
97-634	.60 (15,2)	.21 (5,3)	.05 (1,3)	.19 (4,8)	.005 (0,13)	.182 (4,62)	.047 (1,19)	.07 (1,8)	16.0 (406)				X X	.36 (9,1)	.08 (2,0)	.728 (18,49)	X X	
97-640	1.09 (27,7)	.26 (6,6)	.07 (1,8)	.28 (7,1)	.005 (0,13)	.375 (9,53)	.040 (1,02)	.05 (1,3)	16.0 (406)	X X		‡ ‡	‡ ‡					X X
97-650	.98 (24,9)	.40 (10,2)	.20 (5,1)	.30 (7,6)	.004 (0,10)	1.00 (25,4)	.030 (0,76)	.05 (1,3)	16.0 (406)	‡ ‡	X X			.192 (4,88)	.120 (3,05)	.486 (12,34)	X X	

Metric units are indicated in parentheses.

‡Optional

Instrument Specialties
Headquarters
Delaware Water Gap, PA 18327-0136
TEL: 717-424-8510 FAX: 717-424-6213
Western Division
505 Porter Way, Placentia, CA 92670
TEL: 714-579-7100 FAX: 714-579-7105
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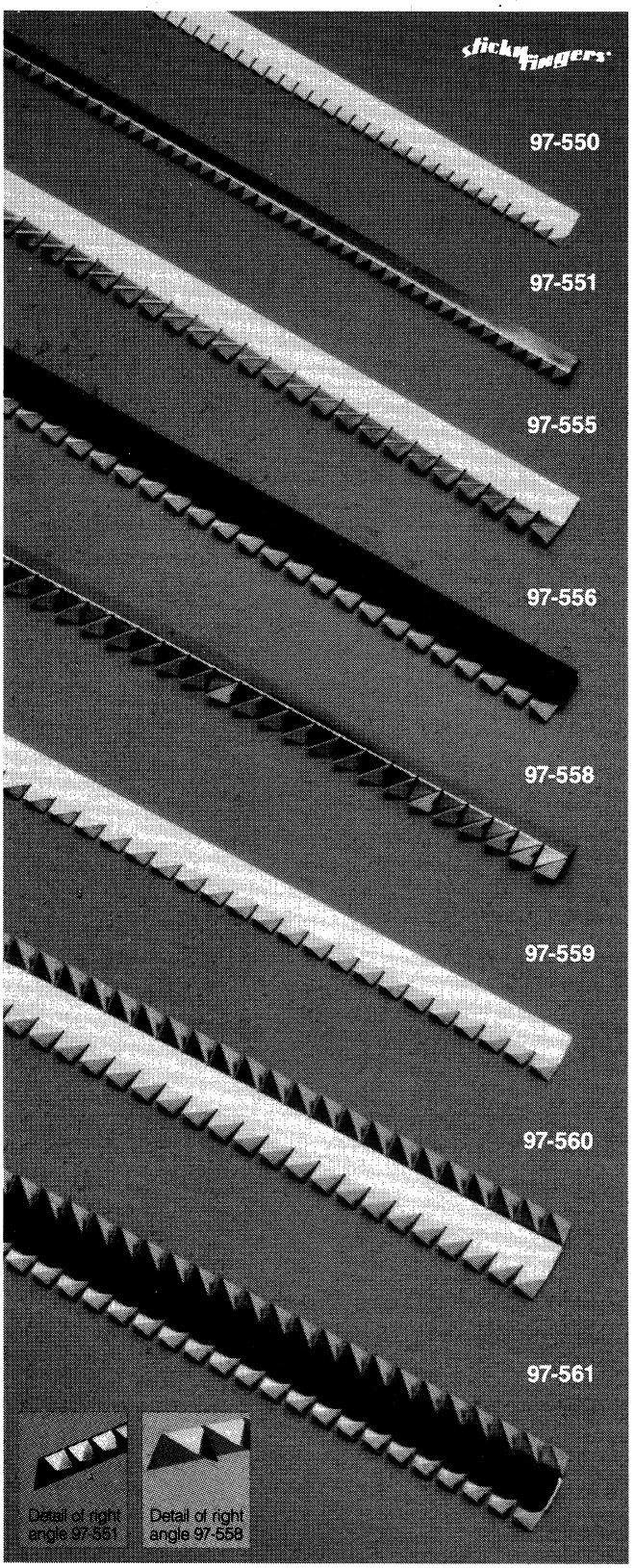
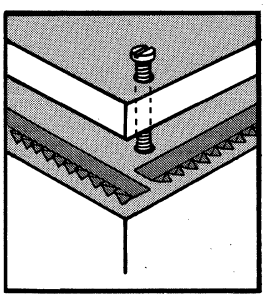
Shielding Twist Series





Self-adhesive beryllium copper contact strips with scientific twist design offer narrow electronic gaskets for general shielding applications.

Four different widths are available to suit your specific application for single edge contact strips. Also available are two 90 degree versions (Series 97-551 and 97-558) to provide alternate mounting capability. Series 97-555, 97-558, and 97-559 provide shielding effectiveness > 100 dB at 100 MHz plane wave, ideal for all types of panel or electronic enclosures. Series 97-550, 97-551, and 97-560 provide shielding effectiveness > 115 dB at 100 MHz plane wave. Series 97-560 strips are especially suitable for cabinets with panel-divider bars. Their unique double-edge design permits panels to be removed easily and replaced without damage to the installed strip.

All Twist Series strips are furnished in 24″ (610 mm) lengths. Strips except 97-551 and 97-558 are also available in standard 25-ft (7,6 m) coils. Right angle product configurations are not available in coils. All are available in your choice of finishes.

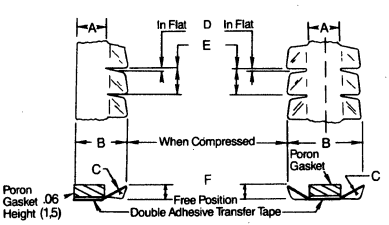
Poron environmental rubber gasket

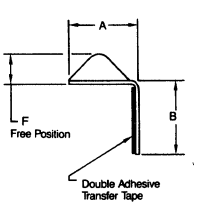
Series 97-556 and 97-561 are versions of 97-555 and 97-560, respectively, incorporating a Poron rubber gasket to act as an environmental shield, offering a high degree of protection against dust and moisture. All are available in your choice of finishes.

Parts may be supplied with holes for cleaning and plating purposes. These holes will not affect the overall performance of the product.

Twist Series

Series	A	B	C	D Slot	E Pitch	F	Approx. Length in. (mm)	Approx. Coil ft (M)	Gasket
97-550	.14 (3,6)	.23 (5,8)	.003 (0,08)	.015 (0,38)	.095 (2,41)	.03 (0,8)	24.0 (610)	25 (7,6)	NO
97-551	.08 (2,0)	.16 (4,1)	.003 (0,08)	.015 (0,38)	.095 (2,41)	.03 (0,8)	24.0 (610)	---	NO
97-555	.18 (4,6)	.34 (8,6)	.003 (0,08)	.015 (0,38)	.165 (4,19)	.07 (1,8)	24.0 (610)	25 (7,6)	NO
97-556	.18 (4,6)	.34 (8,6)	.003 (0,08)	.015 (0,38)	.165 (4,19)	.07 (1,8)	24.0 (610)	25 (7,6)	YES
97-558	.11 (2,8)	.20 (5,1)	.003 (0,08)	.015 (0,38)	.165 (4,19)	.07 (1,8)	24.0 (610)	---	NO
97-559	.18 (4,6)	.30 (7,6)	.003 (0,08)	.015 (0,38)	.165 (4,19)	.07 (1,8)	24.0 (610)	25 (7,6)	NO
97-560	.19 (4,8)	.50 (12,7)	.003 (0,08)	.015 (0,38)	.165 (4,19)	.07 (1,8)	24.0 (610	25 (7,6)	NO
97-561	.19 (4,8)	.50 (12,7)	.003 (0,08)	.015 (0,38)	.165 (4,19)	.07 (1,8)	24.0 (610)	25 (7,6)	YES





97-551/558

Metric units are indicated in parentheses.

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Instrument Specialties
Headquarters
Delaware Water Gap, PA 18327-0136
TEL: 717-424-8510 FAX: 717-424-6213
Western Division
505 Porter Way, Placentia, CA 92670
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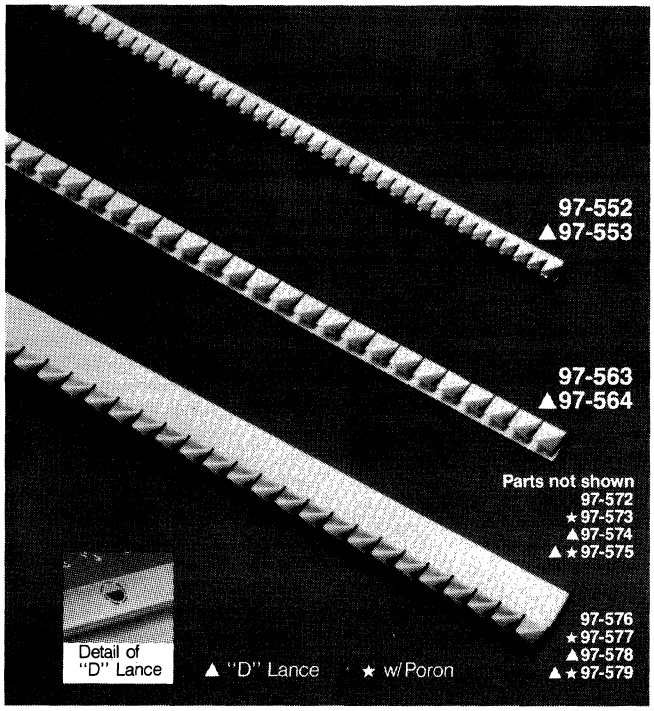
Shielding — Clip-On Twist Series



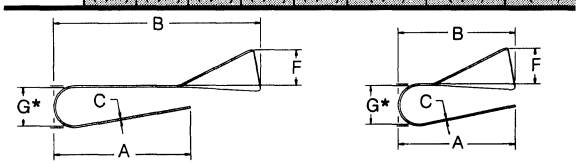
Ideal for general shielding applications where mounting space is at a premium, Clip-On Twist Series strips combine the performance advantages of scientific twist design with the strength of clip-on mounting.

Clip-On Twist Series gaskets are offered in four different widths, each available in either equal leg or offset leg configurations. In addition, each configuration is available with Poron rubber environmental gaskets for dust and moisture resistance, as well as with "D" lances that snap into .10″ (2,5 mm) diameter holes to provide added mounted strength.

This Series offers shielding effectiveness > 115 dB at 100 MHz plane wave, and is provided in standard 16″ (406 mm) lengths. All are available in your choice of finishes.

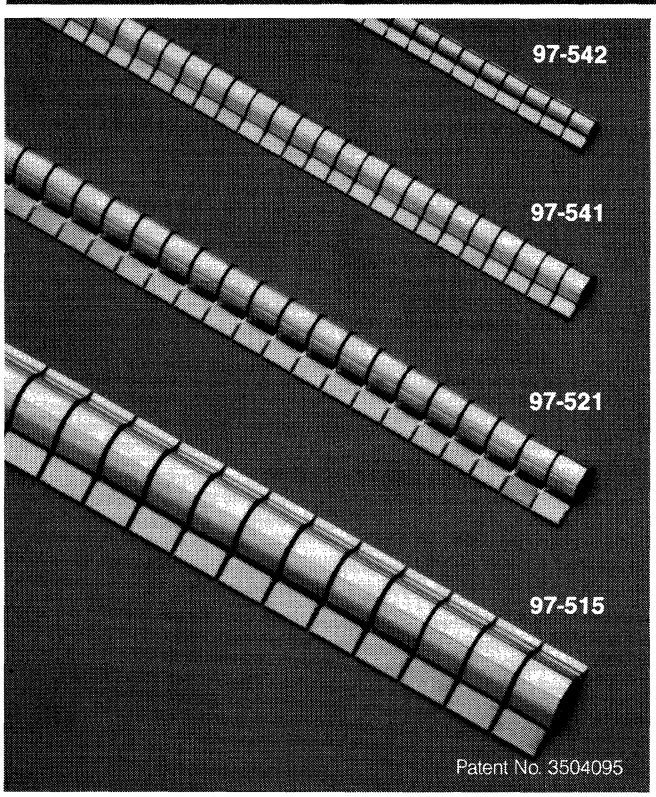
Twist Series

Series	A	B	C	F	G	Pitch	Slot	Approx. Length
97-552	.150 (3,80)	.150 (3,80)	.003 (0,08)	.030 (0,76)	.070 (1,78)	.095 (2,41)	.015 (0,38)	16.0 (406)
97-563	.210 (5,33)	.210 (5,33)	.003 (0,08)	.070 (1,78)	.070 (1,78)	.165 (4,19)	.015 (0,38)	16.0 (406)
97-572	.175 (4,45)	.275 (6,99)	.003 (0,08)	.075 (1,91)	.070 (1,78)	.095 (2,41)	.015 (0,38)	16.0 (406)
97-576	.250 (6,35)	.378 (9,60)	.003 (0,08)	.075 (1,91)	.070 (1,78)	.165 (4,19)	.015 (0,38)	16.0 (406)



***Variations in the clip-on area are available. Consult Customer Service.**

Shielding — Foldover Series

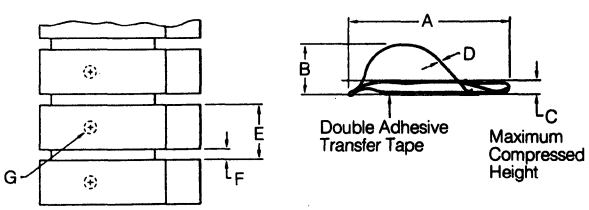


This version of Sticky Fingers® beryllium copper shielding gaskets features a special U-shaped end that permits the finger of the strip to slide when enclosure doors are closed. It also retains the strip's fingers when enclosure doors are open, thus preventing accidental damage to the strip's fingers. Shielding effectiveness is > 115 dB at 100 MHz plane wave.

Four models provide you a choice of widths to suit your application. They are available in standard 16″ (406 mm) lengths, except 97-515 which is furnished in 24″ (610 mm) lengths. Also, all styles are available in continuous 25-ft (7,6 m) coils, and in your choice of all finishes except tin lead and satin tin.

Foldover Series

Series	A Ref.	B Ref.	C	D	E	F	G Dia.	Approx. Length in./(mm)	Approx. Coil ft/(M)
97-542	.25 (6,4)	.08 (2,0)	.04 (1,0)	.003 (0,08)	.188 (4,78)	.018 (0,46)	.06 (1,5)	16.0 (406)	25 (7,6)
97-541	.38 (9,7)	.12 (3,1)	.05 (1,3)	.003 (0,08)	.188 (4,78)	.018 (0,46)	.06 (1,5)	16.0 (406)	25 (7,6)
97-521	.51 (13,0)	.14 (3,6)	.06 (1,5)	.003 (0,08)	.250 (6,35)	.022 (0,56)	.06 (1,5)	16.0 (406)	25 (7,6)
97-515	.76 (19,3)	.23 (5,8)	.06 (1,5)	.004 (0,10)	.375 (9,53)	.032 (0,81)	.08 (2,0)	24.0 (610)	25 (7,6)



Metric units are indicated in parentheses.

Instrument Specialties
Headquarters
Delaware Water Gap, PA 18327-0136
TEL: 717-424-8510 FAX: 717-424-6213
Western Division
505 Porter Way, Placentia, CA 92670
TEL: 714-579-7100 FAX: 714-579-7105
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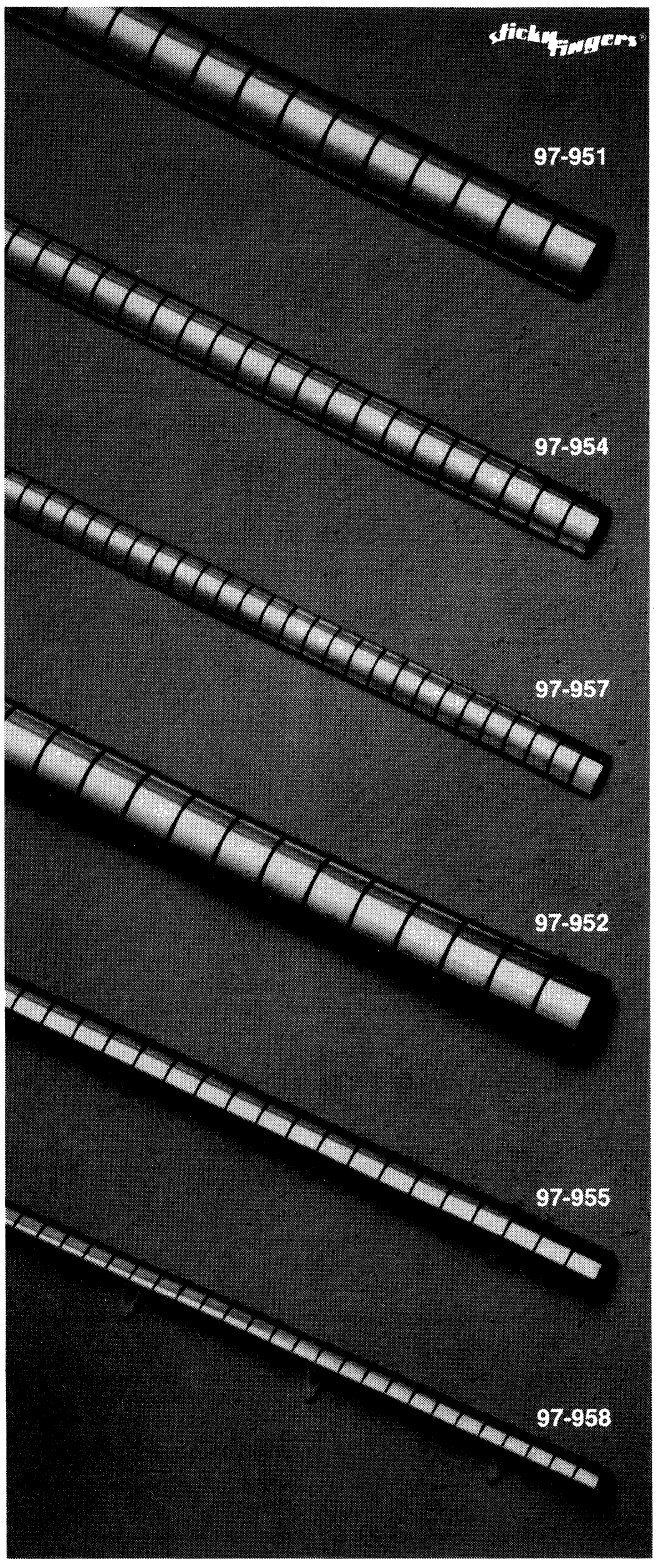
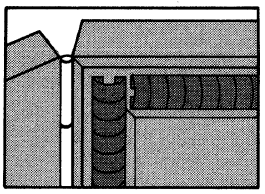
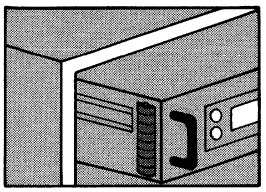
Shielding — Symmetrical Slotted Shielding (S³)



Strips with Sticky Fingers and rivet mounts exhibit typical attenuation >100 dB at 100 MHz.





With Sticky Fingers®

Series 97-951/954/957 are low-compression, adhesive-mounted beryllium copper shielding strips. Designed as a continuous band, the strip is slotted to permit spring contact throughout its length. A wide radius profile creates the greatest contact for maximum conductivity with minimum compression requirements. As with all Sticky Fingers® shielding strips, a self-adhesive tape makes mounting easy and secure. All are available in your choice of finishes.

With bi-directional rivet mount*

Series 97-952/955/958 are as described above, but with the addition of an integral pierced track to provide plastic push rivet mounting in a .125″ (3,2 mm) diameter hole.

Designed especially for slide applications, this configuration allows total symmetrical compression action with bi-directional engagement. It is recommended for high-temperature and/or extremely high side-load situations, such as PC board connections and electronic drawers. All are available in your choice of finishes.

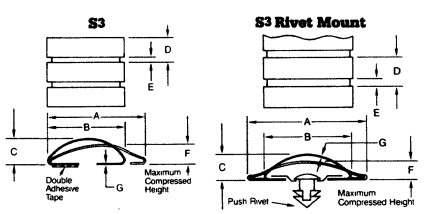
S3 Series Sticky Fingers®

Series	A	B	C Min.	D	E	F	G	Approx. Length
97-951	.76 (19,3)	.62 (15,8)	.22 (5,6)	.375 (9,53)	.030 (0,76)	.10 (2,5)	.004 (0,10)	15.0 (381)
97-954	.51 (13,0)	.45 (11,4)	.14 (3,6)	.250 (6,35)	.022 (0,56)	.08 (2,0)	.003 (0,08)	15.0 (381)
97-957	.38 (9,6)	.35 (8,9)	.11 (2,8)	.187 (4,75)	.018 (0,46)	.07 (1,8)	.003 (0,08)	15.0 (381)

S3 Series Rivet Mount

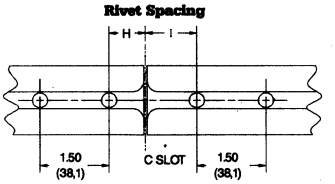
Series	A	B	C Min.	D	E	F	G	Approx. Length	H	I	Number of Rivets
97-952	.76 (19,3)	.62 (15,8)	.22 (5,6)	.375 (9,53)	.030 (0,76)	.10 (2,5)	.004 (0,10)	15.0 (381)	.56 (14,2)	.94 (23,9)	10
97-955	.51 (13,0)	.45 (11,4)	.14 (3,6)	.250 (6,35)	.022 (0,56)	.08 (2,0)	.003 (0,08)	15.0 (381)	.63 (16,0)	.88 (22,4)	10
97-958	.38 (9,6)	.35 (8,9)	.11 (2,8)	.187 (4,75)	.018 (0,46)	.07 (1,8)	.003 (0,08)	15.0 (381)	.66 (16,8)	.84 (21,3)	10

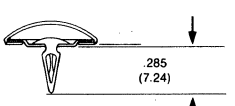
*Two rivet types are available. Consult Customer Service for further information.



97-944

Rivet Spacing





Tapered Type
97-950
97-945 (97-958 only)

Metric units are indicated in parentheses.

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Instrument Specialties
Headquarters
Delaware Water Gap, PA 18327-0136
TEL: 717-424-8510 FAX: 717-424-6213
Western Division
505 Porter Way, Placentia, CA 92670
TEL: 714-579-7100 FAX: 714-579-7105
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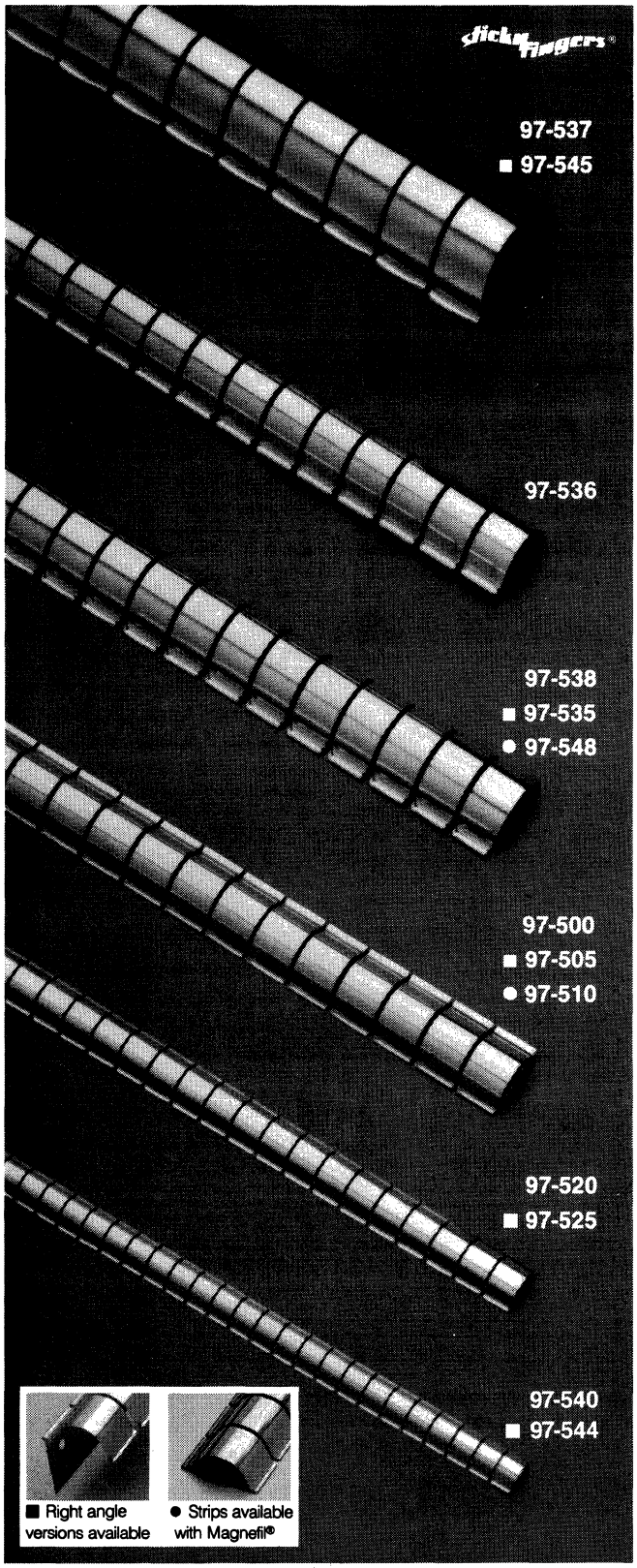
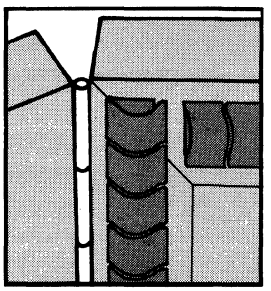
Shielding All-Purpose Gaskets



Patent No. 3504095



These versatile gaskets are made from high-performance beryllium copper with Sticky Fingers® self-adhesive backing. They provide an extremely tight, instant bond, and are ideal as an all-purpose contact strip for metal cabinets and electronic enclosures, particularly where space is critical.

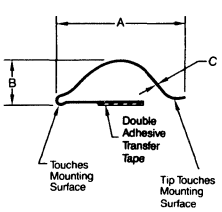
Shielding effectiveness of these strips has been proven to be > 46 dB at 14 kHz magnetic, and 108 dB at 10 GHz plane wave. When tested per MIL-STD-285 for electromagnetic shielding, these strips showed superior performance under minimum compression. They proved to be especially effective where variations exist in the space to be shielded, and in applications that require high shielding performance despite frequent opening and closing of the cabinet.

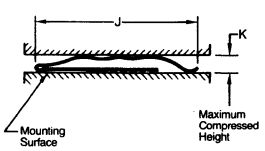
Strips 97-500 and 97-538 are furnished in standard lengths of 24″ (610 mm), and in continuous 25-ft (7,6 m) coils. Series 97-520 and 97-540 are supplied in standard 16″ (406 mm) lengths and in 25-ft (7,6 m) coils. Strips 97-537 are in 12″ (305 mm) lengths. All are available in your choice of finishes.

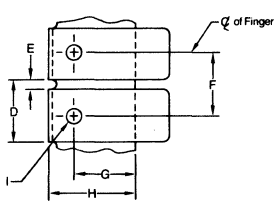
Please note that designated strips are available with Magnefil®, a rubber strip filled with magnetic absorbing particles, and inserted within the curve of the fingers. Magnefil provides increased magnetic field shielding.

Series	A Ref.	B Ref.	C	D	E	F	G	H	I Dia.
97-537	1.13 (28,7)	.41 (10,4)	.007 (0,18)	.500 (12,7)	.040 (1,02)	.50 (12,7)	.56 (14,2)	.78 (19,8)	.14 (3,6)
97-536	.670 (17,02)	.310 (7,87)	.004 (0,10)	.375 (9,53)	.040 (1,02)	.38 (9,7)	.38 (9,7)	.53 (13,5)	.14 (3,6)
97-538	.78 (19,8)	.25 (6,4)	.005 (0,13)	.375 (9,53)	.040 (1,02)	.38 (9,7)	.38 (9,7)	.53 (13,5)	.14 (3,6)
97-500	.60 (15,2)	.23 (5,8)	.004 (0,10)	.375 (9,53)	.032 (0,81)	.38 (9,7)	.31 (7,9)	.50 (12,7)	.08 (2,0)
97-520	.37 (9,4)	.14 (3,6)	.003 (0,08)	.250 (6,35)	.022 (0,56)	.25 (6,4)	.09 (2,3)	.31 (7,9)	.06 (1,5)
97-540	.28 (7,1)	.11 (2,8)	.003 (0,08)	.188 (4,78)	.018 (0,46)	.19 (4,8)	.08 (2,0)	.23 (5,8)	.06 (1,5)

Series	J Ref.	K	L	Approx. Length in. (mm)	Approx. Coil ft (M)
97-537	1.94 (49,3)	.06 (1,5)	.750 (19,05)	12.0 (305)	—
97-536	.94 (23,9)	.06 (1,5)	—	24.0 (610)	25 (7,6M)
97-538	.94 (23,9)	.06 (1,5)	.480 (12,19)	24.0 (610)	25 (7,6M)
97-500	.77 (19,6)	.06 (1,5)	.500 (12,70)	24.0 (610)	25 (7,6M)
97-520	.50 (12,7)	.06 (1,5)	.320 (8,13)	16.0 (406)	25 (7,6M)
97-540	.37 (9,4)	.04 (1,0)	.240 (6,09)	16.0 (406)	25 (7,6M)







Metric units are indicated in parentheses.

Sticky Fingers® is a registered trademark of Instrument Specialties Co., Inc.

Please see our Environmental Shielding products in the Military Components and Equipment Section, Vol. B, Section 2440.

Where shielding is a science.

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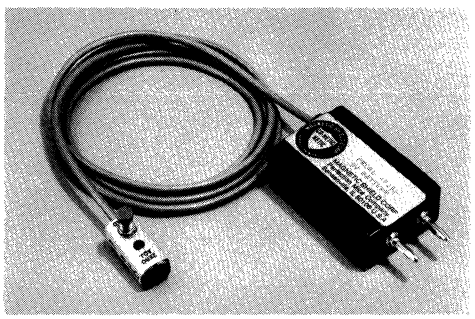
TEL: 717-424-8510 FAX: 717-424-6213
Western Division
505 Porter Way, Placentia, CA 92670
TEL: 714-579-7100 FAX: 714-579-7105

Magnetic Shielding Products

MAGNETIC SHIELD CORP.

Perfection Mica Company
750 North Thomas Drive
Bensenville, Illinois 60106 U.S.A.
FAX: 708-766-2813, TWX: 910-256-4815
Telephone: 708-766-7800

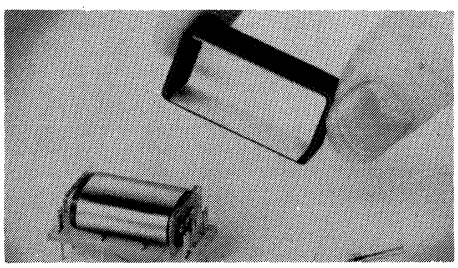


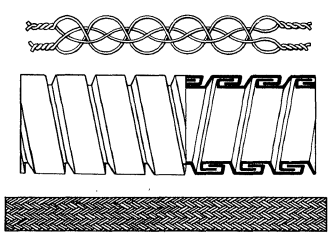
Lab Kits & Probes

Lab Kit contains assorted CO-NETIC and NETIC shielding alloys, double-faced pressure sensitive tape for shield construction and 20 millivolts/gauss A.C. magnetic pickup probe, LK-120 . . . $129.00
AC Probe only, 20 mV/gauss, axial, EP-101A $49.50
AC Probe, 60 mV/gauss, axial or transverse, EP-102A or T . . . $79.50
AC/DC probe, HP-103 . . . . . $195.00
Request Lab Kit catalog LK-2, Probe catalogs EP-3, HP-1

Component Shields

Full time engineering staff available for consultation on shielding problems. Magnetic Shield Corporation is also the preferred source for custom shields to your specifications. Extensive standard and special tooling provide fast shipment. Call for design assistance or send print for prompt quotation.



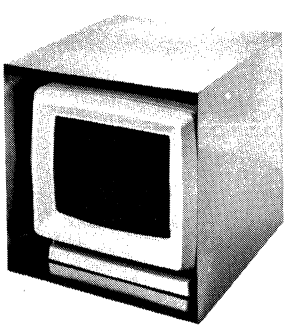


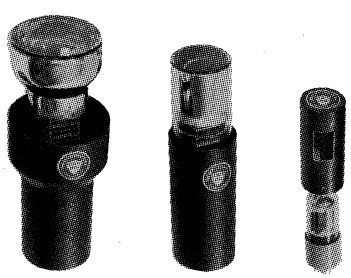
Cable, Conduit & Sleeving

Our patented, Inter-8 Weave configuration of four #24 AWG wires provides superior attenuation over twisted pair. Insulation choice is PVC or ETFE. Available unshielded or with braided CO-NETIC for magnetic shielding or copper for R.F. shielding. SPIRA-SHIELD Flexible conduit stocked in 3/8" I.D., CO-NETIC Braided sleeving stocked in 1/4" & 1/2" I.D., CO-NETIC wire stocked in #36 AWG. Request catalog WC-2

Monitor Enclosures

CO-NETIC magnetic shield enclosures protect CRT monitors from magnetic fields (DC to 100 kHz) that cause shimmy or jitter of the display. Image distortions are often caused by high current industrial or electric power equipment, particularly in color and high resolution monitors. Engineering provided by specification guide CM-1





Photomultiplier Shields

CO-NETIC magnetic shields improve the amplification characteristics of photomultiplier tubes by providing significant attenuation of magnetic fields. Effective shielding is ensured over a wide range of field intensities. When grounded, the shields provide protection against electrostatic interference. Catalog lists all current photomultiplier tubes and recommended shields. Custom shields available. Request catalog PM-5

CO-NETIC® & NETIC® Magnetic Shielding Alloys

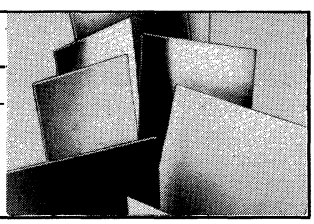
MAGNETIC SHIELD CORP.

Perfection Mica Company
750 North Thomas Drive
Bensenville, Illinois 60106 U.S.A.
FAX: 708-766-2813, TWX: 910-256-4815
Telephone: 708-766-7800

A complete stock of CO-NETIC (high permeability) and NETIC (high saturation) shielding alloys is available in sheet and foil form. Our engineering department will gladly assist you in the development of shield designs to meet your prototype or production requirements. Request catalog MG-5, material and fabrication guide for additional data and MIL specs.

Sheet Stock: standard 30″ × 120″ Shipped immediately from stock.

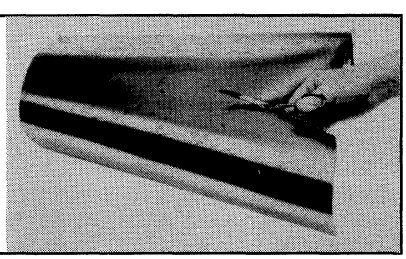
STD.THK. (inch)	CO-NETIC AA ALLOY STRESS ANNEALED	CO-NETIC AA ALLOY PERFECTION ANNEALED	NETIC S3-6 ALLOY
.014 .020 .025 .030 .040 .050 .062	High permeability characteristics. Stress annealed for ease of fabrication. Must be final annealed for maximum attenuation performance. Also stocked in .100″.	High permeability characteristics. Perfection Annealed material has been fully annealed for optimum magnetic shielding properties. No further annealing after fabrication is necessary if severe forming is avoided. 30″ × 59″ maximum length.	High saturation capability. .040″ not stocked. Also stocked in .095″



Foil Stock: standard coils 50 and 100 linear ft.

STD. THK. (Inch)	CO-NETIC PERFECTION ANNEALED WIDTH (Inch)	NETIC PERFECTION ANNEALED WIDTH (Inch)
.002	4	—
.004	4	4
.004	15	15
.006	4	—
.006	15	—
.010	4	—
.010	15	—

Standard foils shipped immediately from stock. All sizes available with double-faced pressure sensitive tape and release coated liner. Foils can be slit to a minimum width of 1/4″. Backed and slit foils shipped one week after receipt of order. All foil is Perfection Annealed for maximum attenuation.



Physical & Magnetic Data:

	CO-NETIC AA PERFECTION ANNEALED	CO-NETIC AA STRESS ANNEALED	NETIC S3-6
Specific Gravity	8.74	8.74	7.86
Coefficient of expansion per °C × 10^{-6}	12.6	12.6	13.7
Tensile strength PSI × 10^3	64	85	42
Yield strength PSI × 10^3	18.5	33	27
Hardness, Rockwell B	50 Ref.	70 Ref.	50 Ref.
Elongation in 2 inches, percent	27	32	38
Melting point (°F)	2650	2650	2790
Thermal conductivity (cal/sec/cm²/cm/°C) at 20°C	.138	.138	.118
Curie Temp. (°F)	850	850	1420

	CO-NETIC AA PERFECTION ANNEALED	CO-NETIC AA STRESS ANNEALED	NETIC S3-6
Electrical Resistivity ohms/cir mil foot	330	330	64
Microhm centimeters	55	55	11
Saturation Induction (Gauss)	8000	8000*	21,400
Initial Permeability	30,000	30,000*	200
Permeability at 200 gauss	135,000	135,000*	500
Maximum Permeability	450,000	450,000*	4000
Induction at μ max.	3000	3000*	8000
Coercive force H_c, oersteds	.015	.015*	1.0

* Magnetic Properties after Hydrogen Anneal.

Do you need magnetic shielding as good as MμShield®?

Only if you need optimum attenuation.
Unless your design calls for magnetic shielding that meets the most stringent specs, you may not need to consider MμShield materials.

But, if you need custom shielding with maximum attenuation or tubing with totally uniform permeability, you do need MμShield. And you can get MμShield materials only from MμShield, a company with more than 35 years of experience.

The MμShield Company can satisfy the most demanding applications — aerospace, nuclear and electronic — with a wide variety of custom shields, materials, and services.

MμShield cathode ray tube shields.
Assure high resolution. For use in special military applications. Also suitable for commercial, industrial, and laboratory applications.

MμShield photomultiplier tube shields.
Ideal for electro-optical devices of all kinds, CAT- and PET-scan machines, and TV cameras.

MμShield custom electronic components shields.
For use in computer-related technology such as disk drives, printed circuits, and PC terminals.

MμShield special application shields.
Nuclear Magnetic Resonance Imaging. Electron microscopes. X-ray spectography. Wide area shielding in laboratories and sensitive areas.

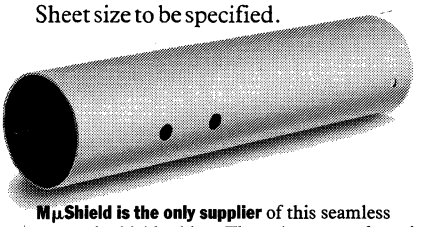
Coils, sheets and tubing in stock

- High saturation shielding. Permeability ranges from 200 to 50,000. Saturation point between 18,000 and 20,000 gauss.
- Medium permeability shielding. Permeability from 12,500 to 150,000. Saturation point approximately 15,000 gauss.
- High permeability shielding. Permeability from 80,000 (at B-40) to 350,000. Saturation point approximately 7,500 gauss.
- Dimensions:

Coils — .004", .006", .010" thickness; 8" and 15" widths. Minimum order $100.

Sheets — Cold rolled annealed, .015" to .060" thickness. Full sheet 30" × 10'. Minimum order 30" × 36".

Hot rolled, .090" to .265" thickness. Sheet size to be specified.



MμShield is the only supplier of this seamless magnetic shield tubing. The unique manufacturing process eliminates the non-uniformity of permeability inherent in welded tubing.

Tubing — .10" to 2.00 ID. Wall thicknesses .010" to .060". Lengths to 20'.

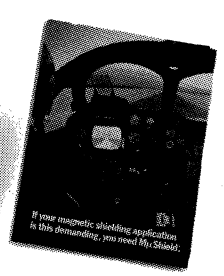
Heat treating service.
Gives magnetic materials optimum permeability with low shock-sensitivity. Permeability and uniformity of MμShield-fabricated parts are guaranteed.

Special consultation services.
We'll do more than just give you a quote. We'll do everything from on-site input meetings to prototyping, testing, and manufacturing. When your designs require optimum shielding, send us your specs and we'll be happy to review your application.

Now when you need magnetic shielding as good as MμShield, you don't need to worry.

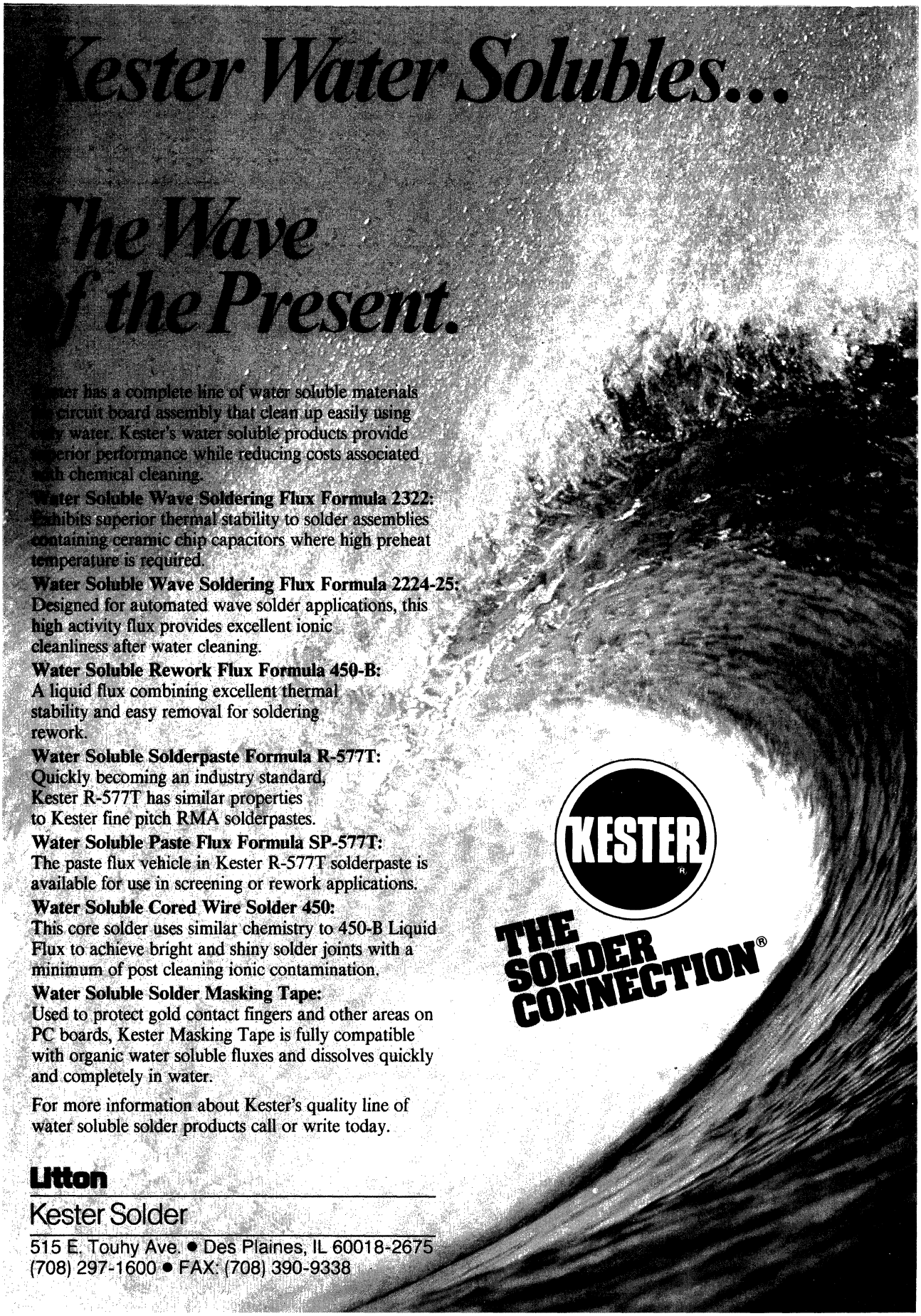
Call or write The MμShield Company, 5 Springfield Road, P.O. Box 439, Goffstown, NH 03045. Phone 603/666-4433.

Fax 800/666-4013.



Ask for our new catalog.

MμShield®
Magnetic Shielding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Exhibits superior thermal stability to solder assemblies containing ceramic chip capacitors where high preheat temperature is required.
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Designed for automated wave solder applications, this high activity flux provides excellent ionic cleanliness after water cleaning.
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A liquid flux combining excellent thermal stability and easy removal for soldering rework.
Water Soluble Solderpaste Formula R-577T:
Quickly becoming an industry standard, Kester R-577T has similar properties to Kester fine pitch RMA solderpastes.
Water Soluble Paste Flux Formula SP-577T:
The paste flux vehicle in Kester R-577T solderpaste is available for use in screening or rework applications.
Water Soluble Cored Wire Solder 450:
This core solder uses similar chemistry to 450-B Liquid Flux to achieve bright and shiny solder joints with a minimum of post cleaning ionic contamination.
Water Soluble Solder Masking Tape:
Used to protect gold contact fingers and other areas on PC boards, Kester Masking Tape is fully compatible with organic water soluble fluxes and dissolves quickly and completely in water.
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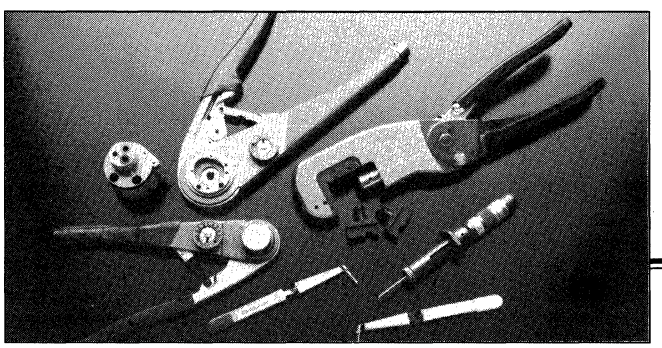
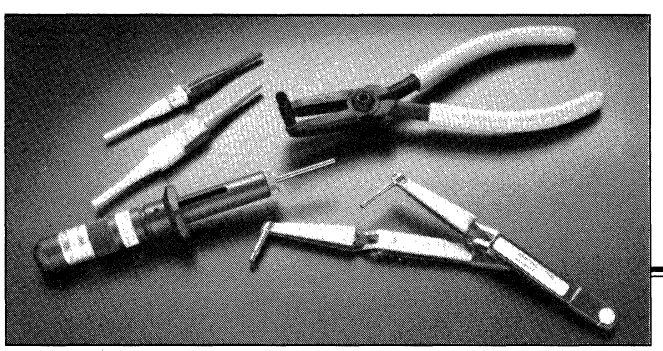
Astro manufactures the world's finest crimpers, (hand and pneumatic) insertion removal tools, kits and pneumatic tools. Tools you can depend on.

Many are in-stock ready to ship and you can order factory direct for fast turnaround. We also custom build to your specs from single tools to complete kits.

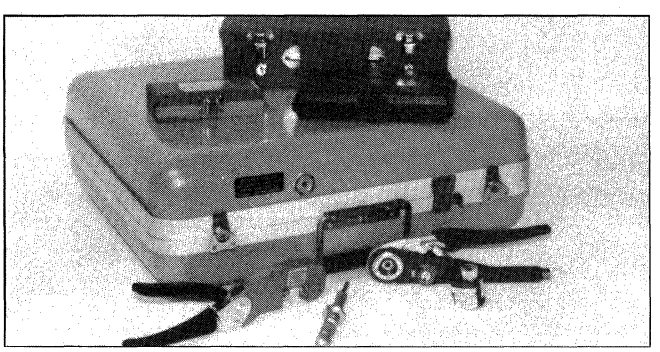
We want to be your tool company.
Give us a call and let's talk.



Manufactured to M22520, M22910, MS3191 and including many custom designed crimping tools. We also manufacture a wide range of pneumatic crimping tools.



Insertion and removal tools to the latest MIL-I-81969 military specification as well as hundreds of custom designed proprietary tools.



Connector service/assembly kits for military, commercial, general aviation and insertion/removal applications. We will custom design and manufacture kits to meet your specifications.

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Assembly And Service Tools For Wiring Systems.

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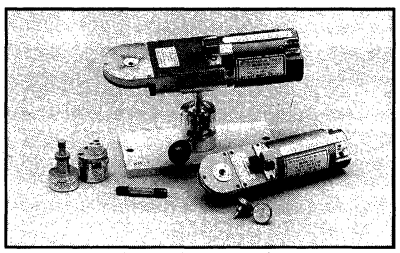
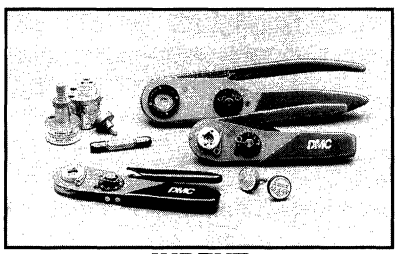
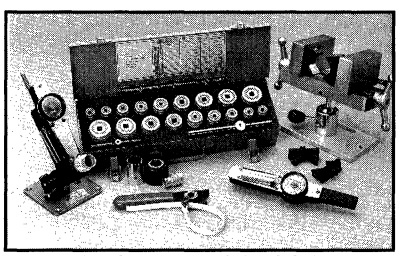


PNEUMATIC CRIMPING TOOLS

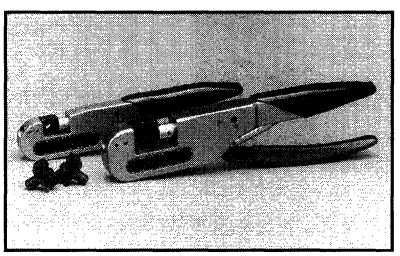


INDENT CRIMPING TOOLS

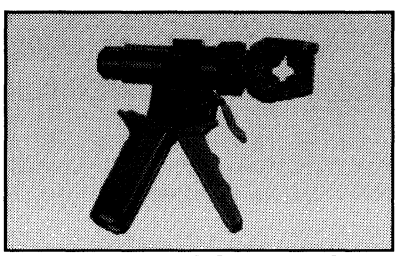
INSTALLING AND REMOVAL TOOLS (MIL-1-81969)



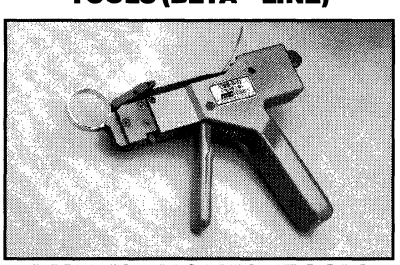
BACKSHELL ACCESSORY TOOLS (BETA™ LINE)



OPEN FRAME CRIMPING TOOLS

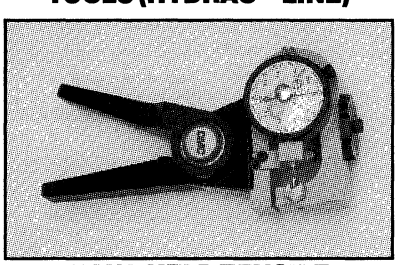


HYDRAULIC CRIMPING TOOLS (HYDRAC™ LINE)



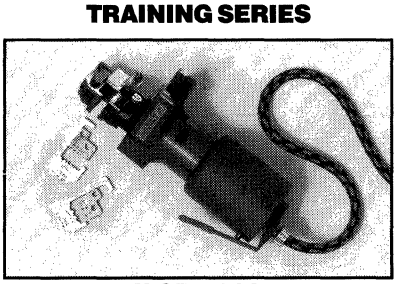
BAND APPLICATION TOOLS FOR EMI/RFI SHIELDING

VIDEO TAPE TRAINING SERIES

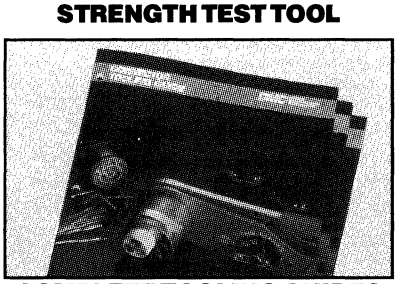


HAND HELD TENSILE STRENGTH TEST TOOL

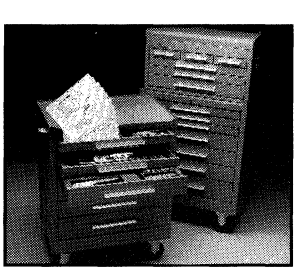
FIBER OPTIC CLEAVE TOOL



WSP-1630 WIRE STRIPPER

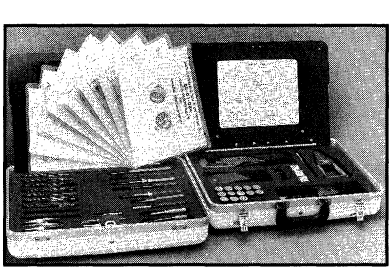


COMPLETE TOOLING GUIDES FOR WIRING SYSTEMS



DMC TOOL KITS

DMC is the world leader in connector assembly tools and complete tool kit systems to support aircraft, weapon systems, transport vehicles, communications and other electronic equipment.



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For wire and cable components that meet your specs on the front end and back, the only name you need to know is National Wire & Cable Corp.

National has over 5,500 different standard wires and multi-conductor cables to satisfy your design requirements. Plus a staff of engineers to help design custom wires and cables for special applications.

And National offers quality and reliability that's second to none. With a Q.C. manual in accordance with Mil-I-45208 and a complete test lab for U.L., C.S.A., Mil-Spec. and for virtually any other reliability standard. We've even installed sophisticated equipment for statistical process control (S.P.C.).

Our manufacturing capabilities–combined with an inventory of over 165 million feet of wire and cable stock–also let us deliver to meet the most pressing schedule. So you can count on getting your product to market on time.

From tinsel wire, buss wires and high-voltage wires. . .to instrument cables, computer cables, digital seismic data cables and molded cable assemblies. Virtually any wire and cable product for virtually any application. Count on National Wire & Cable Corp. for the selection you need and the quality your customers demand. Call us today for more information and a complete catalog.

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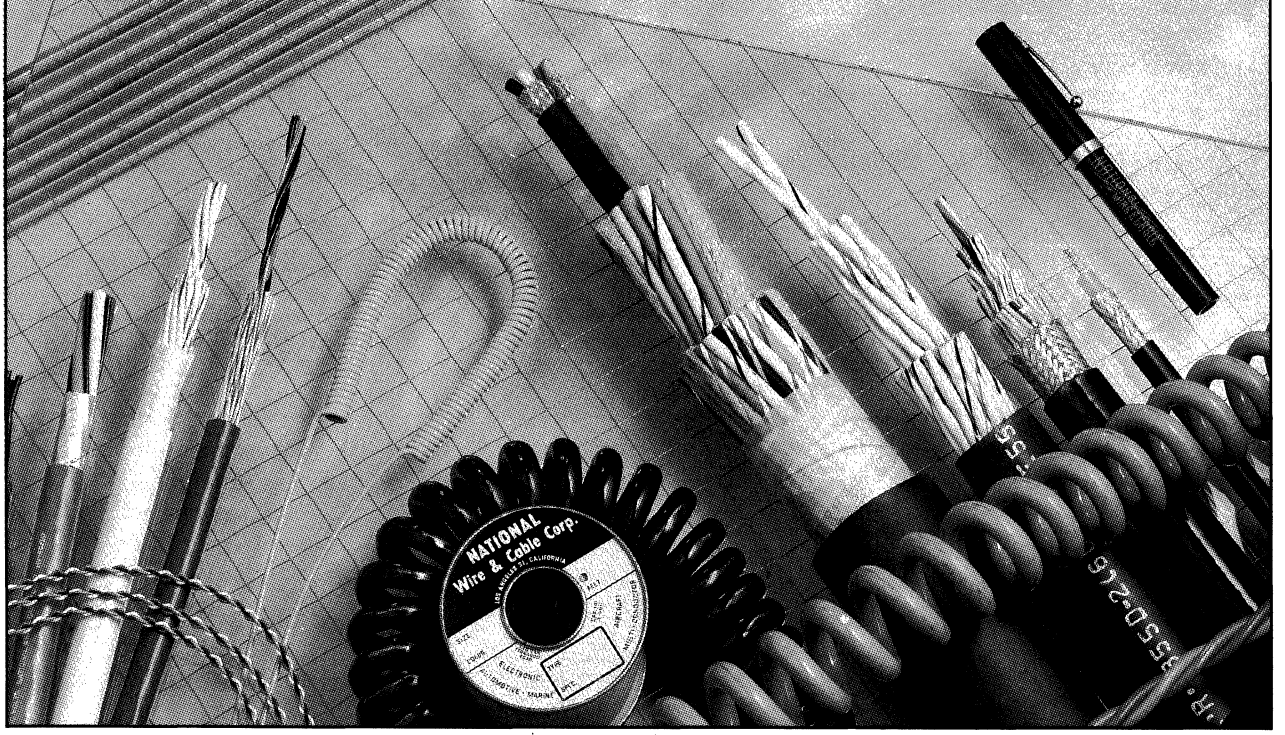


ABBREVIATIONS FOR WIRE & CABLE PRODUCT SELECTION GUIDE

CODE	EQUALS
AP	Aluminized Polyester
BC	Bare Copper
BCB	Bare Copper Braid
BCCS	Bare Copper Coated Steel
BTC	Braided Tinned Copper
DRN	Drain Wire
EPR	Synthetic Rubber
FLR	Filler

CODE	EQUALS
FPE	Foamed Polyethylene
FRSR	Fire Resistant Silicone Rubber
GLS	Glass
IRPVC	Irradiated PVC
KYN	Kynar
MYL	Mylar (DuPont™)
NEO	Neoprene
NPC	Nickle Plated Copper

CODE	EQUALS
NYL	Nylon
PCA	Polychloroalkene
PE	Polyethylene
POE	Polyethylene
POP	Polypropylene
PVC	Polyvinylchloride
REEL	Cord on Reel
RTCL	Retractile Cord

CODE	EQUALS
RUB	Rubber
SBR	Synthetic Rubber
SHLD	Shielded
SPC	Silver Plated Copper
TC	Tinned Copper
TEF	Teflon
TFG	Teflon/Fiberglass
XLP	Cross Linked Polyethylene
**	Specs Not Shown On Page
–	Not Applicable

MULTICONDUCTOR CABLE

Manufacturer	Starting EEM Page No.	Number of Conductors (range)	Conductor (AWG range)	Insulation (type)	
				Primary	Secondary
ABL Electronic Supply	C•1710	2-102	38-10	PVC, PE, TEF, IRPVC, RUB,	GLS, NED, NYL, PE, PVC, TEF, TFG
Brim Electronics	C•1716	2-101	24-16	PVC, PP	PVC, PE, PU
Consolidated Electronic Wire & Cable	C•1726	2-60	30-6	PVC, PE, POLYPRO,	Foam PE, FEP Teflon PVC, PE, FEP Teflon
General Cable Company	C•1753	(Call Manufacturer)			
Globtek	C•1754	(Call Manufacturer)			
GSI Corp.	C•1755	2-200	40-12	All	All
ISL Products	C•1759	9 50	28 AWG 12 AWG-44	Polypropylene PVC & Polypropylene	PVC
Manhattan Electric Cable Corp.	C•1771	2-100	28 AWG-20AWG	PVC	Teflon
National Wire & Cable Corp.	C•1776	2-120	28-12 AWG	PVC	PVC
Omega Engineering	C•1799	2-24	20	Polyvinyl	
Panel Components	C•1804	3-5	18 AWG-4 AWG; 0.75mm^2-16.0mm^2		
Pan International U.S.A.	C•1810	3-37	14-24	PVC, NEO RUB	
Phoenix Wire Inc.	C•1813	Not Limited	20-50	TFE Teflon	FEP Teflon
RDI Electronics	C•1815	1-62	14-28	Polypropelene	PVC
Rodale Technical Sales	C•1816	2-100	10-30	SR PVC	Vinyl, Plastic
Rowe Industries	C•1819	3	24-10	Silicone	Silicone
Shogyo Int'l	C•1820	1-50	14-34	PVC	PU
Virginia Plastics	C•1822	2-10	26	Oriented Polyester	Vinyl-Rubber Blend, Phenyl PVC
Weico Wire & Cable Inc.	C•1826	1-200	30-8	PVC, SR-PVC, PE, TEF, POP, RUB	PVC, TEF, NEO, PE

DATA CABLES

Manufacturer	Starting EEM Page No.	Number of Conductors	Conductor (AWG range)	Shielding Material (type)	Insulation (type)	
					Primary	Jacket
ABL Electronic Supply	C•1710	1-120	38-12	BCB, BCCS, BTC, AP w/Drain Wire	PVC, SRPVC, FPE, PE, TEF	PE, PVC, TEF
Brim Electronics	C•1716	5-60	30-16	Spiral, Braided Al. Mylar	PVC, PE, PP, FEP,	PVC, FEP
Consolidated Electronic Wire & Cable	C•1726	1-50	28-16	Foil, Braid, Tape	PVC, PE, Foam PG	PG, PVC, TEF
Daburn Electronics & Cable Corp.	C•1745	1-60	16-24	BTC, Alum/Poly Foil	TFE, PVC	TFE GLS, TFE, PVC
General Cable Company	C•1753	(Call Manufacturer)				
Globtek	C•1754	(Call Manufacturer)				
GSI Corp.	C•1755	2-200	40-12	All	All	All
ISL Products International	C•1759	16	14-22	Mylar/Foil Shield	PVC	PVC
Manhattan Electric Cable	C•1771	2-100	28 AWG-12AWG	Foil or Foil/Braid	PVC	PVC
National Wire & Cable Corp.	C•1776	2-100	28-18AWG	Braided Copper & AL, Foil	Polyethylene or PVC	PVC
RDI Electronics	C•1815	1-62	20-28	Braided Copper & AL, Foil	PP	PVC
Rodale Technical Sales	C•1816	2-100	16-30	BCB, MYL/Alum. Foil	SR PVC or PVC	Vinyl, Plastic
Rowe Industries	C•1819	3	24-10	NPC	Silicone	Silicone
Shogyo International	C•1820	2-50	2-50	Mylar Foil, Braid	PVC	PVC, PU
Virginia Plastics	C•1822	2-10	26	Foil	Oriented Polyester	Vinyl-Rubber Blend, Phenyl PVC
Weico Wire & Cable Inc.	C•1826	1-200	28-12	SPC, BTC, Aluminum Foil	SR-PVC, PE, TEF, Polypropylene	PVC, PE, TEF

ACCESSORIES, HARDWARE, SERVICES

Manufacturer	Starting EEM Page No.	Clamps	Clips	Cable Ties	Tubing	Grommets	Other	Material	Approvals	Services
ABL Electronic Supply	C•1710	√	√	√	√	√	Tubing-Heat Shrink	PVC, TEF Polyolefin	UL, CSA	Engrave Cut to Length
Brim	C•1716	√	√	√	√	√				Cutting & Stripping Markers, Crimping Harness Assemblies
Consolidated Electric Wire & Cable	C•1726				√					
GSI Corp.	C•1755			√	√		Termination Sleeves (splices)	Polyolefin, Kynar, PVC	MIL-1-45208, MIL-STD-2000, UL, CSA	Wire Processing: Wire Marking, Soldering, Crimping, Braiding, Shielding
Heyco	C•1758	√	√	√		√		Nylon-Polypropylene	UL, UR, CSA	
ISL Products	C•1759		√		√	√				Custom Molding, Stamping, Tooling
M. M. Newman Corp.	C•1798	√		√	√		Spirally Cut Cable Wrap	Nylon, Teflon Polyethylene	MIL Specs, AMS Specs, UL Recognized	
National Wire & Cable	C•1776						Bio Medical Cable Assemblies	PVC	FDA, AAMP, UL	
Panduit	C•1800	√	√	√	√	√	Spiral Wrap	Nylon, PVC	UL, MIL	
Panel Components	C•1804									Made-to-Order Assembly Services (UL listed & CSA certified shop)
Phoenix Wire Inc.	C•1813				√			Teflon		
Shogyo International	C•1820		√							
Weico Wire & Cable	C•1826				√		Sleeving	Neoprene, PVC, Polyolefin, Kynar, Teflon, Polyester	MIL, UL	

HOOKUP WIRE

Manufacturer	Starting EEM Page No.	Conductor (type)	Conductor (AWG range)	Insulation (type)	
				Primary	Secondary
ABL Electronic Supply Inc.	C•1710	Solid, Stranded, Bonded, BC, NPC, SPC, TC	38 - 4/0	PVC, IRPVC, TEF, KYN, NEO, RUB, XLP	GLS, NEU, NYL, PE, PVC, RUB, TEF, TFG
Brim Electronics	C•1716	Copper Solid & Standard	2 - 38	PVC, PVC & Nylon, Mylar, PE, PP, TPE, FEP, TFE, Kynar, Silicon Rubber	PVG, FEP, TFE, PU, PE, TPE
Consolidated Electronic Wires & Cables	C•1726	BC, TC, SPC	30 - 6	PVC, KYN, IR PVC	PVC, Nylon, FEP Teflon
Daburn Electronics & Cable Corp.	C•1745	Copper Solid, Stranded, Soft Drawn	2 - 36	Soft Vinyl, Flexible, PVC, IRPVC, TC, NPC, SPC	NYL Jacket TFE
General Cable Company	C•1753	(Call Manufacturer)			
Globtek Inc.	C•1754	(Call Manufacturer)			
ISL Products	C•1759	2 - 3	18 AWG	PVC	PVC
Judd Wire Inc.	C•1764	Tinned Copper	36 - I/O	Irradiated	
Manhattan Electric Cable Corp.	C•1771	Standard Tinned Copper	30 AWG - 6 AWG	PVC	Teflon
MWS Wire Industries	C•1772	Copper, Aluminum Magnet wire: ribbon, square, to 20 conductors, twisted, plated, alloys	14, 16 - 52, 24 & Finer	One-to-four coats, Film Enamel	"bondable overcoats" & Solderable
National Wire & Cable Corp.	C•1776	Stranded Tinned Copper	28 - 6AWG	PVC	NYL
Omega	C•1799	All (Incl. Thermocouple)	40-16	Teflon, Polyvinyl	Fiberglass
Phoenix Wire Inc.	C•1813	All Types	20 - 50	TFE Teflon	
Rodale Technical Sales	C•1816	BC, TC, Stranded & Solid	12 - 26	PVC, —40°C - 105°C	
Rowe Industries Inc.	C•1819	TC, SPC	24 - 0	Silicone	Silicone
Welco Wire & Cable Inc.	C•1826	Solid, Stranded, Bonded, BC, TC, SPC	32 - 4/0	PVC, IRPVC, TEF, KYN, IRR Polyolefin, FEP, Polyalkene, Tefzel, Nylon	NYL, Polyvinylidene Fluoride

SINGLE CONDUCTOR COAXIAL

Manufacturer	Starting EEM Page No.	Nominal Impedance (ohms)	Conductor (AWG)	Shielding Material (type)	Insulation (type)	
					Primary	Jacket
ABL Electronic Supply	C•1710	12 - 200	11 - 30	Foil and Braid-Copper Braid	PE, TEF, FPE	PVC, TFG, TEF
Brim Electronics	C•1716	50 - 95	30 - 21	Braided, Aluminum, MYL	PE, FEP, TFE	PVC, FEP, TFE
Consolidated Electronic Wire & Cable	C•1726	50 - 125	30 - 8	BTC, BCB, SPC Braid	PE, FPE, TFE, Foam TFE	PVC, PE, TFG, TEF
General Cable Company	C•1753	(Call Manufacturer)				
Globtek	C•1754	(Call Manufacturer)				
ISL Products Int'l Ltd.	C•1759	50 - 75	14 - 22	Aluminum Foil/Mylar Shield	Polyethylene	PVC
Manhattan Electric Cable	C•1771	75	20	Braid	Polyethylene	PVC
RDI Electronics	C•1815	75	20	Copper	PVC	PVC
Rodale Technical Sales	C•1816	50 - 93	25 - 13	BCB	PE or HDPE	PVC
Shogyo International	C•1820	75	26	Mylar, Foil, Braid	PVC	PVC, PU
Welco Wire & Cable Inc.	C•1826	12 - 200	30 - 11	BC, TC, SPC, Aluminum Foil	PE, TEF	PE, PVC, TEF

CABLE ASSEMBLIES

Manufacturer	Starting EEM Page No.	Subminiature "D" Assemblies					GPIB	Ethernet Transc.	Trunk	Parallel Interface	DIN Keyboard			Modular Keyboard	
		9 Pos.	15 Pos.	25 Pos.	37 Pos.	50 Pos.					3 Pos.	5 Pos.	8 Pos.	Straight	Retract.
ABL Electronic Supply	C•1710	√	√	√	√	√	√	√	√						
Brim Electronics	C•1716													√	√
Consolodated Elec. Wire & Cable	C•1726	√	√	√	√	√	√			√	√	√	√		
GSI Corporation	C•1755	√	√	√	√	√									
ISL Products Int'l Ltd.	C•1759	√	√	√	√	√					√	√	√	√	√
J.H. America	C•1760	√	√	√	√					√	√	√	√		
Kycon	C•1765	√	√	√	√					√	√	√	√	√	√
LZR Elecronics Inc.	C•1766	√	√	√	√	√		√	√	√	√	√	√	√	√
Manhattan Electric Cable Corp.	C•1771			√											
Pan International U.S.A.	C•1810	√	√	√	√	√	√	√	√	√	√	√	√	√	√
RDI Electronics	C•1815	√	√	√	√	√				√	√	√	√	√	√
Rodale Technical Sales	C•1816	√	√	√	√	√				√	√	√	√	√	√
Shogyo International	C•1820	√	√	√	√	√					√	√	√	√	√

POWER CORDS

Manufacturer	Starting EEM Page No.	3 Conductor		Detachable 3 Conductor		2 Conductor		Jumper	Retractable	Hospital	Extension
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded				
ABL Electronic Supply	C•1710	√	√	√	√	√	√	√	√	√	√
Bergquist	C•1714	√	√	√	√	√	√				
Brim Electronics	C•1716		√				√		√		√
Consolidated Electric Wire & Cable	C•1726	√	√	√	√		√		√	√	√
Feller/Neumater US Corp.	C•1752	√	√	√	√	√	√	√	√	√	√
GSI Corp.	C•1755	√	√	√	√	√	√	√	√	√	√
ISL Products Int'l Ltd.	C•1759	√	√	√	√	√	√	√	√	√	
LZR Elecronics Inc.	C•1766	√	√	√	√	√	√	√	√	√	√
Manhattan Electric Cable Corp.	C•1771	√	√	√	√	√	√				
Panel Components	C•1804		√		√		√	√		√	√
Power Dynamics	C•1814	√	√	√	√	√	√	√		√	√
RDI Electronics	C•1815	√	√	√	√	√	√				
Rodale Technical Sales	C•1816	√	√	√	√	√	√	√	√	√	√
Rowe Industries	C•1819	√	√			√	√	√		√	
Shogyo International	C•1820	√	√	√	√	√	√	√	√	√	√
Weico Wire & Cable	C•1826	√	√	√	√						√

THERMAL CONDUCTIVITY OF DIELECTRICS AT ROOM TEMPERATURE

Material	Thermal Conductivity, J/ (m.K)
Diamond	658
BeO	167
Graphite	117-200
Bonded SiC	42
MgO	42
Al_2O_3	33
TiC	33
BN	28
Mullite	6.3
Titania	3.3-4.2
Porcelain	1.7
Fused silica glass	1.5
Soda-lime glass	0.8
Cast epoxies	0.17-1.3
Wood	0.5-2.5
Melamines	0.3-0.7
Mica	0.3-0.7
Phenolics (molded)	0.17-0.67
Polyethylenes	0.33
Nylons	0.17-0.25
TFE fluorocarbons	0.25
Elastomers	0.08-0.17
Foams	0.003-0.04

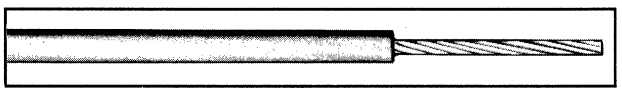
ABLE RATED™

Electronic Cable Hook Up Wire, Power Cords, Shrink and Flex Tubing, Cable Ties, Flat Ribbon Cable, Custom Assemblies, and Connectors, Coaxial Hi Temperature and Data Cable.

MULTI-SPEC WIRE

PVC Insulation – Light Wall

SPECIFICATIONS



- **Conductor:** Solid, stranded or bonded tinned copper
- **Insulation:** Polyvinylchloride (PVC)
- **Insulation Thickness:** .010″
- **Stranding:** Smooth bunch
- **Colors:** White, black, red, green, yellow, light blue, brown, orange, gray, violet, pink, tan and dark blue
- **Stripes:** Any color over colors listed above (Maximum 3 stripes per wire)
- Wire printed with UL and CSA information

ABLE RATED MULTI-SPEC HOOK-UP WIRE meets or exceeds the electrical characteristics of the following:		
UL Style 1061	300V	80°C
CSA Type SRPVC, T2	300V	80°C
MIL-W-76 Type LW	300V	80°C
M 16878/1 Type B	600V	105°C

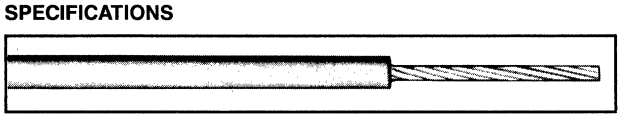
DIMENSIONS

Size AWG	Cond. Strand.	Nom. O.D.	Part No.	Price Per M
32*	7x40	.028″	11132	24.00
30	7x38	.032″	11130	21.60
30	Solid	.031″	11330	24.00
28	7x36	.037″	11128	19.20
28	Solid	.036″	11328	19.00
26	7x34	.038″	11126	19.04
26	Solid	.036″	11326	17.00
24	19x36	.044″	11024	25.76
24	7x32	.044″	11124	20.16
24	7x32†	.044″	11224	26.40
24	Solid	.042″	11324	18.00
22	19x34	.051″	11022	26.88
22	7x30	.051″	11122	22.40
22	7x30†	.051″	11222	26.88
22	Solid	.049″	11322	20.16
20	19x32	.058″	11020	31.36
20	7x28	.058″	11120	24.64
20	7x28†	.058″	11220	31.20
20	Solid	.055″	11320	22.40
18	19x30	.068″	11018	35.84
18	7x26	.068″	11118	31.36
18	7x26†	.068″	11218	43.20
18	Solid	.066″	11318	30.00
16	19x29	.077″	11016	40.32
14*	19x27	.091″	11014	58.24

*Not UL or CSA †Bonded Conductor

PVC Insulation – Medium Wall

SPECIFICATIONS



- **Conductor:** Solid, stranded or bonded tinned copper
- **Insulation:** Polyvinylchloride (PVC)
- **Insulation Thickness:** .016″
- **Stranding:** Smooth bunch
- **Colors:** White, black, red, green, yellow, light blue, brown, orange, gray, violet, pink, tan and dark blue
- **Stripes:** Any color over colors listed above (Maximum 3 stripes per wire)
- Wire printed with UL and CSA identification

ABLE RATED MULTI-SPEC HOOK-UP WIRE meets or exceeds the electrical characteristics of the following:		
UL Style 1007	300V	80°C
UL Style 1569	300V	105°C
CSA Type TR64, T1	300V	90°C
MIL-W-76 Type MW	1000V	80°C
M 16878/2 Type C	1000V	105°C

DIMENSIONS

Size AWG	Cond. Strand.	Nom. O.D.	Part No.	Price Per M
30	7x38	.045″	11430	21.60
28	7x36	.048″	11428	19.20
26	7x34	.052″	11426	19.04
26	Solid	.050″	11626	17.00
24	7x32	.057″	11424	20.16
24	7x32*	.058″	11524	26.40
24	Solid	.055″	11624	18.00
22	7x30	.063″	11422	22.40
22	7x30*	.064″	11522	26.88
22	Solid	.061″	11622	20.16
20	10x30	.069″	11420	29.12
20	10x30*	.070″	11520	31.00
20	Solid	.067″	11620	22.40
18	16x30	.081″	11418	33.60
18	16x30*	.082″	11518	43.20
18	Solid	.078″	11618	30.00
16	26x30†	.093″	11416	40.32
16	Solid	.091″	11616	39.10
14	41x30	.107″	11414	58.24
12	65x30	.128″	11412	102.00
10	105x30	.150″	11410	147.60

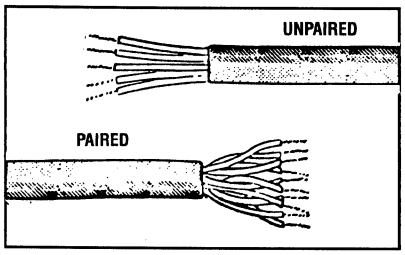
*Tinned Overcoat †Bare Overcoat Prices are for solid colors.

Call, Write or Fax for Our Full Line Discount Catalogue Which includes Specs, Prices and Cross Reference

ABLE RATED™

Electronic Cable Hook Up Wire, Power Cords, Shrink and Flex Tubing, Cable Ties, Flat Ribbon Cable, Custom Assemblies, and Connectors, Coaxial Hi Temperature and Data Cable.

22 AWG UNSHIELDED PAIRED AND UNPAIRED CABLE



APPLICATIONS: Multi-purpose unshielded, PVC insulated, paired and unpaired cable for use in various electrical and electronic equipment, control circuits, computers, and other data transmision and signal applications.

UL Conductor Style 1061 VW-1	300V	80°C
UL Cable Style 2464 VW-1	300V	80°C
CSA Conductor Type SR-PVC	300V	80°C
CSA Cable Type AWM	300V	80°C

Conductor: 22 AWG, 7×30 stranding, tinned copper
Insulation: .010" Color coded PVC except **.015
Construction: Conductors Cabled or paired with fillers as required
Jacket: Gray PVC

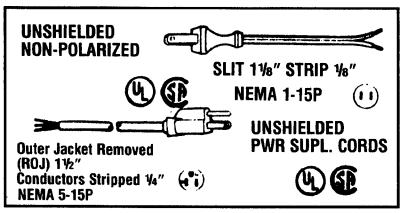
ABLE Part No.	No. of Cond.	Jkt. Thk.	Nom. O.D.	Color Code Chart	Wt. per M	PRICES PER C FEET 100	250
UNPAIRED CABLE							
14020	2	.032	.164	1	12	9.08	7.90
140311	3	.031	.170	•	13	12.30	10.72
140312	3	.032	.169	1	15	12.30	10.72
14041	4	.032	.194	1	19	15.06	13.10
14051	5	.032	.199	1	22	17.77	15.45
14061	6	.032	.209	1	25	21.74	18.90
14071	7	.032	.214	1	28	25.25	21.09
14081	8	.032	.224	1	34	29.38	25.55
14091	9	.032	.245	1	37	31.00	29.18
14101	10	.032	.259	1	41	35.65	31.00
14121	12	.032	.270	1	48	47.10	40.95
141511	15	.032	.304	1	61	66.75	58.05
141512	15	.040	.330	2	71	66.75	58.05
14181	18	.032	.320	2	79	79.97	69.54
142011	20	.032	.324	1	81	64.36	55.96
142012	20	.040	.350	2	83	64.36	55.96
142511	25	.032	.354	1	98	111.19	96.69
142512	25	.040	.370	2	105	111.19	96.69
143011	30	.032	.379	1	121	135.31	117.66
143012	30	.040	.400	2	140	135.30	117.66
14351	35	.032	.409	1	148	148.12	128.80
14371	37	.036	.425	1	150	154.56	134.40
144911	40	.032	.439	1	151	183.21	159.24
144012	40	.049	.455	2	180	183.21	159.24
145011	50	.035	.500	1	190	227.33	197.68
145012	50	.049	.500	2	225	227.33	197.68
146011	60	.035	.539	1	230	269.69	234.51
146012	60	.035	.535	2	235	269.69	234.51

*Black, red, and green

PAIRED CABLE							
14013	1**	.032	.188	3	14		
14023	2**	.032	.250	3	28	11.17	12.84
14033	3**	.032	.280	3	40	15.70	18.06
14043	4**	.032	.298	3	48	26.16	30.09
14063	6	.032	.320	3	60	39.05	44.90
14093	9	.032	.375	3	90	61.18	70.35
14123	12	.032	.405	3	115	91.99	80.00
14153	15	.037	.440	3	140	112.05	97.44
14193	19	.037	.480	3	160	141.24	122.82
14233	23	.042	.540	3	200	177.65	154.50
14273	27	.042	.570	3	220	218.54	190.00
14314	31	.050	.635	3	270	251.50	218.69
14413	41	.060	.730	3	357	329.26	286.31
14513	51	.060	.780	3	425	413.78	359.81

COLOR CODE CHART UPON REQUEST

POWER SUPPLY CORDS



Part No. Color Code	AWG & Type	Feet	Meters	Length Std. Carton	Each	Unit Prices 25	300	1000
UNSHIELDED NON-POLARIZED POWER SUPPLY CORDS—2 CONDUCTOR								
2050-006-BL	18/2 SPT-1	6/1.8		250	1.34	1.11	.93	.81
2050-008-BL*	18/2 SPT-1	8/2.4		100	1.41	1.15	.95	.84
2050-010-BL*	18/2 SPT-1	10/3.1		100	1.50	1.18	.98	.87
2343-007-BL	18/2 SPT-2	7/2.1		200	1.43	1.16	.97	.86
UNSHIELDED POWER SUPPLY CORDS—3 CONDUCTOR								
2103-076-GX	18/3 SVT	6/1.8		125	2.60	2.16	1.80	1.57
2112-006-GY**	18/3 SVT	6/1.8		100	2.60	2.16	1.80	1.57
2112-008-GY**	18/3 SVT	8/2.4		100	2.93	2.44	2.04	1.77
2112-008-BX	18/3 SVT	8/2.4		100	2.93	2.44	2.04	1.77
2112-010-GY**	18/3 SVT							
1318-006-GY	18/3 SJT	6/1.8		100	2.75	2.29	2.91	1.66
1618-006-GX	18/3 SJT	6/1.8		100	2.84	2.37	1.97	1.72
1318-006-BL	18/3 SJT	6/1.8		100	2.25	2.29	1.91	1.66
1618-006-BX	18/3 SJT	6/1.8		100	2.84	2.37	1.97	1.72
1318-008-GY	18/3 SJT	8/2.4		75	3.20	2.66	2.32	1.99
1618-008-GX	18/3 SJT	8/2.4		75	3.29	2.74	2.28	1.99
1318-008-BL	18/3 SJT	8/2.4		75	3.20	2.66	2.22	1.93
1618-008-BX	18/3 SJT	8/2.4		75	3.29	2.74	2.28	1.99
1318-010-BL	18/3 SJT	10/3.1		75	3.73	3.11	2.59	2.25
1618-010-BX	18/3 SJT	10/3.1		75	4.39	3.66	3.05	2.65
UNSHIELDED POWER SUPPLY CORDS—3 CONDUCTOR								
1316-006-BL	16/3 SJT	6/1.8		75	3.38	2.81	2.34	2.04
1616-006-BX	16/3 SJT	6/1.8		75	3.55	2.95	2.46	2.14
1316-008-BL	16/3 SJT	8/2.4		50	3.79	3.15	2.62	2.28
1616-008-BX	16/3 SJT	8/2.4		50	3.94	3.29	2.74	2.38
1316-010-BL	16/3 SJT	10/3.1		75	4.23	3.53	2.96	2.56
1616-010-BX	16/3 SJT	10/3.1		75	4.39	3.66	3.05	2.65
1314-006-BL	14/3 SJT	6/1.8		50	5.98	4.93	4.11	3.58
1614-006-BX*	14/3 SJT	6.7/2.0		50	5.98	4.93	4.11	3.58
1314-008-BL	14/3 SJT	8/2.4		50	6.61	5.51	4.59	3.99
1614-008-BX*	14/3 SJT	8/2.4		50	6.61	5.51	4.59	3.99
1318-01M-GX*T	18/3 SJTO	3.3/1.0		100	2.65	2.03	1.81	1.63
1318-02M-GX*T	18/3 SJTO	6.4/2.0		100	3.28	2.48	2.23	2.00
1318-25M-GX*T	18/3 SJTO	8.3/2.5		100	3.85	2.92	2.64	2.38
1318-03M-GX*T	18/3 SJTO	10.3/3.1		75	4.49	3.38	3.12	2.81

** Jacket Ribbed (Not a PEC Product)

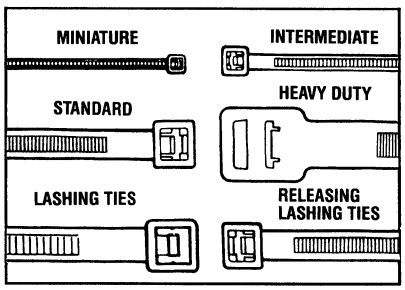
* Not a PEC Product T Tinned

UNSHIELDED CABLE SPECIFICATIONS

AWG/ No. Cond.	Wire Type	Stranding	Nom. O.D. (inches)	Power Ratings Watts	Amps	Volts
18/2	SPT-1	41×34	.106/.203	1250	10	125
18/2	SPT-2	41×34	.136/.265	1250	10	125
18/3	SVT	41×34	.253	1250	10	125
18/3	SJT	16×30	.328	1250	10	125
16/3	SJT	26×30	.333	1625	13	125
14/3	SJT	41×30	.375	1875	15	125

NORTH AMERICAN		INTERNATIONAL
Black	Live	Brown
White	Neutral	Blue
Green	Ground	Grn/Yel
Color Code	**Jacket**	**Conductors**
GY	Gray	NA
GX	Gray	CEE
BL	Black	NA
BX	Black	CEE

TYABLE CABLE TIES·

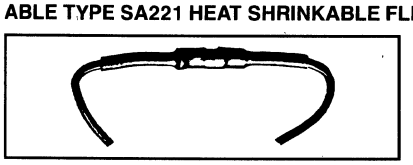


ABLE Part No.	Min. Ten. Str.	Max Bdl. Dia.	Approx. Length (in.)	MIL SPEC 3367	Prices per C (hundred pack) 100	500
MINIATURE						
C-T25	18	3/4	3.75	N/A	2.00	1.60
C-T35	18	15/16	4.00	4	2.42	1.94
C-T36	18	1-1/2	5.88	NOTE 1	3.39	2.72
C-T37	18	2	7.63	NOTE 1	4.10	3.28
INTERMEDIATE						
C-T4	30	1	5.00	N/A	3.41	2.73
C-T5	40	1-1/4	6.00	5	3.90	3.12
C-T40	40	2-1/8	8.50	NOTE 2	4.40	3.52
C-T51	40	3	11.50	NOTE 2	9.80	7.85
STANDARD						
C-T6	50	1-3/4	7.00	1	4.84	3.88
C-T110	50	3	11.00	7	11.55	9.24
C-T140	50	4	14.00	2	12.54	10.03
HEAVY DUTY						
C-TH80	120	2	7.88	N/A	15.60	14.10
C-TH140	120	4	14.72	3	22.00	19.94
C-TH170	120	5	17.58	NOTE 3	35.20	32.00
C-TH210	120	6	21.47	NOTE 3	43.00	39.00
C-TH280	120	8	28.91	6	49.60	45.00
C-TH320	120	9	32.00	NOTE 4	61.60	56.00
EXTRA HEAVY DUTY						
C-THX240	175	7	24.00	N/A	59.00	40.00
C-THX340	175	10	34.00	N/A	74.00	52.00
C-THX480	175	15	48.00	N/A	120.00	90.00
LASHING TIES						
C-THL509	250	2	9.00	N/A	40.00	33.40
C-THL520	250	5	20.00	N/A	20.00	58.80
C-THL522	250	6	22.00	N/A	90.00	65.20
C-THL529	250	8	29.00	N/A	120.00	89.20
C-THL535	250	10	35.00	N/A	130.00	104.00
C-THL541	250	12	41.00	N/A	150.00	115.40
RELEASING LASHING TIES						
C-THR509	250	2	9.00	N/A	48.00	40.08
C-THR520	250	5	20.00	N/A	84.00	70.56
C-THR522	250	6	22.00	N/A	108.00	78.24
C-THR529	250	8	29.00	N/A	144.00	107.04
C-THR535	250	10	35.00	N/A	156.00	124.80
C-THR541	250	12	41.00	N/A	180.00	138.48

STANDARD COLORS: Natural, Black available at additional 15%
OTHER COLORS: Please call for quote

NOTE 1: Meets MS3367/4 except accommodates a larger bundle diameter
NOTE 2: Meets MS3367/5 except accommodates a larger bundle diameter
NOTE 3: Meets MS3367/3 except accommodates a larger bundle diameter
NOTE 4: Meets MS3367/6 except accommodates a larger bundle diameter

ABLE TYPE SA221 HEAT SHRINKABLE FLEXIBLE POLYOLEFIN



DESCRIPTION: ABLE TYPE SA221 is flexible, cross-linked polyolefin heat shrinkable tubing available on spools or in cut lengths that will recover to half its original length when heated to temperatures of 250°F (121 C). During the shrinking operation the tubing will encapsulate any device inside of it and assume the contour of that device. Continuous operating range −55°C to +135°C. SA221 conforms to MIL-I-23053/5 Type 1 (all colors and Type 2 clear). Type 1 recognized by UL and CSA and meet SAE Aerospace Material Specification AMS 3636. Type 2 meets SAE AMS 3637.

2:1 shrink at 250°F (121°C)
600V 125°C VW-1
UL recognized
CSA certified

MIL-I-23053/5
Type 1 and 2
Class I and II
AMS 3636 and 3637

***PART NUMBER PREFIX:**
Change SA to SL: 4-foot lengths
Change SA to PL: 4-foot UL & CSA
Change SA to SR: spools
Change SA to PR: spools UL & CSA

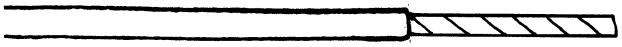
STANDARD COLORS: Black, clear
AVAILABLE COLORS: White, red, blue, yellow
TYPE 1: (flame retarded) all colors, UL and CSA
TYPE 2: (flammable) clear only, not UL or CSA
MARKING: Printed with recognized UL and CSA markings

*ABLE Part No.—Size	Min. Exp. I.D.	Min. Rec. I.D.	Nom. Rec. Wall	Prices Per C Feet Under 100	100	500
SA221-3/64	.046	.023	.016	22.80	15.20	13.68
SA221-1/16	.063	.031	.017	24.30	16.20	14.58
SA221-3/32	.093	.046	.020	27.60	18.40	15.56
SA221-1/8	.125	.062	.020	29.10	19.40	17.46
SA221-3/16	.187	.093	.020	35.40	23.60	21.24
SA221-1/4	.250	.125	.025	44.85	29.90	26.91
SA221-3/8	.375	.187	.025	49.95	33.30	29.97
SA221-1/2	.500	.250	.025	56.40	37.60	33.84
SA221-3/4	.750	.375	.030	75.45	50.30	45.27
SA221-1	1.00	.500	.035	105.75	70.50	63.45
SA221-1-1/2	1.50	.750	.040	195.00	130.00	117.00
SA221-2	2.00	1.00	.045	267.75	178.50	160.65
SA221-3	3.00	1.50	.050	540.00	360.00	324.00
SA221-4	4.00	2.00	.055	700.00	465.00	418.00

ABLE ELECTRONIC SUPPLIES 1736 FRONT STREET, YORKTOWN HEIGHTS, NY 10598 • 914-962-2253 • 1-800-431-2103 FAX 914-962-2296

ABLE RATED™ — Electronic Cable, Hook Up Wire, Power Cords, Shrink and Flex Tubing, Cable Ties, Flat Ribbon Cable, Custom Assemblies, and Connectors, Coaxial, High Temperature and Data Cable.

EX-FLEX MICRO MINIATURE INSULATED LEAD WIRE



APPLICATIONS

An instrument lead where ultra-flexability is required in a micro-miniature size, for use in guidance control systems, gyroscopes, data processing equipment, biomedical instruments, or wherever continuous flexing is encountered.

FEATURES

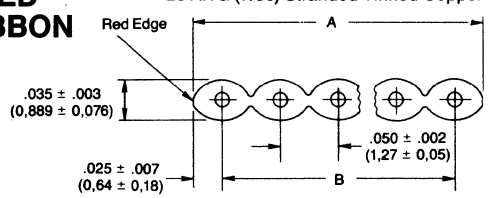
Conductor: Soft bare annealed copper
Insulation: Special soft PVC compound formulated for superior flexibility, dielectric durability, and reliability
Temp Rating: 90° C
UL: On request

ABLE Part No.	AWG	Strand	Nom. Thk.	Max. Volt.	PRICES PER C FEET 100	1000
16136	36	7x44	.005	200V	22.00	11.00
16134	34	10x44	.010	600V	18.00	9.00
16132	32	18x44	.010	600V	8.00	4.00
16130	30	28x44	.010	600V	12.00	6.00
16129	29	51x46	.010	600V	14.00	7.00
16128	28	41x44	.010	600V	16.00	8.00
16127	27	48x44	.010	600V	18.00	9.00
16126	26	66x44	.010	600V	12.00	6.00
16124	24	105x44	.015	600V	18.00	9.00
16122	22	168x44	.015	600V	26.00	13.00
16120	20	259x44	.015	600V	36.00	18.00
16118	18	413x44	.015	600V	44.00	22.00

COLORS: White, black, red, green, yellow, blue, brown, orange, gray, and violet.

EXTRUDED FLAT RIBBON CABLE

28 AWG (7/36) Stranded Tinned Copper



FEATURES

Dimensions and characteristics subject to change without notice.

- Fast, mass termination to all standard 50 mil (IDC) connectors
- Up to 64 conductors, precisely spaced for controlled electrical characteristics
- Highly flexible
- Double contour allows termination from either side of cable, easy conductor separation for circuit routing
- UL listed Style 2651

ELECTRICAL CHARACTERISTICS

Voltage rating: 300V
Temperature rating: 105°C
Impedance: 105 Ohms nominal
Capacitance: 15 pf/ft (49.2 pf/m) nom.
Insulation resistance: 10^{10} Ohms/10 ft (3m) min.
UL style number: Cable Style 2651

PACKAGING-100′ lengths—also available in 300′ lengths

DIMENSIONAL DATA

ABLE Part No.	No. of Cond.	Width A inches	Width A mm	Span B inches	Span B mm
17709	9	.450 ± .010	(11,43)	.400 ± .007	(10,16 ± 0,18)
17710	10	.500 ± .010	(12,70)	.450 ± .007	(11,43 ± 0,18)
17714	14	.700 ± .010	(17,78)	.650 ± .007	(16,51 ± 0,18
17715	15	.750 ± .010	(19,05)	.700 ± .007	(17,78 ± 0,18)
17716	16	.800 ± .010	(20,32)	.750 ± .009	(19,05 ± 0,23)
17720	20	1.000 ± .015	(25,40)	.950 ± .009	(24,13 ± 0,23)
17724	24	1.200 ± .015	(30,48)	1.150 ± .009	(29,21 ± 0,23)
17725	25	1.250 ± .015	(31,75)	1.200 ± .009	(30,48 ± 0,23)
17726	26	1.300 ± .015	(33,02)	1.250 ± .009	(31,75 ± 0,23)
17734	34	1.700 ± .015	(43,18)	1.650 ± .009	(41,91 ± 0,23)
17737	37	1.850 ± .015	(47,00)	1.800 ± .009	(45,72 ± 0,23)
17740	40	2.000 ± .015	(50,80)	1.950 ± .011	(49,53 ± 0,28)
17750	50	2.500 ± .015	(63,50)	2.450 ± .011	(62,23 ± 0,28)
17760	60	3.000 ± .015	(76,20)	2.950 ± .011	(74,93 ± 0,28)
17764	64	3.200 ± .015	(81,28)	3.150 ± .011	(80,01 ± 0,28)

MULTI-PURPOSE SINGLE CONDUCTOR SHIELDED WIRE

For use in control systems, power supplies, and other interconnecting circuits.

ABLE RATED MULTI-SPEC HOOK-UP WIRE

Meets or exceeds the electrical characteristics of the following:

UL Conductor Style 1569 VW-1	300V	105°C
UL Cable Style 1108*	300V	90°C
CSA Type TR64	300V	90°C
MIL-W-76 Type MW	1000V	80°C
MIL-W-16878/2 Type C	1000V	105°C

FEATURES

Conductor: Stranded tinned copper
Insulation: .016″ thick, black PVC**
Shield: 85% coverage 36 AWG tinned copper braid
Jacket: .016″ thick PVC

ABLE Part No.	AWG	Strand	Nom. O.D.	PRICES PER C FEET 100	PER M FEET 1000
11412SJ	12*	65x30	.185	46.53	258.50
11414SJ	14*	41x30	.164	46.00	230.00
11416SJ	16	26x30	.150	34.00	170.00
11418SJ	18	16x30	.138	28.00	140.00
11420SJ	20	10x30	.126	24.00	120.00
11422SJ	22	7x30	.120	22.00	110.00
11424SJ	24	7x32	.115	20.00	100.00

* Not approved for UL style 1108 ** Other colors available

Standard Insulation Color: Black** White
Standard Jacket Colors: White, black, red, green, yellow, blue, brown, orange, gray, violet,

SHIELDING AND BONDING FLAT COPPER BRAID

APPLICATIONS

Very flexible multi-strand tinned copper braid for use as ground strap or for shielding applications. Braid is supplied flat or available in a tubular configuration.

TINNED COPPER FLAT BRAID

ABLE Part No.	Approx AWG Equiv.	Width and Thickness	Approx CAM x 1000	AWG & No. of Wire	Approx AMP* Rating	Lbs. per M	PRICE PER C 100	500
95000	3/0	2.00x.12	154.40	30/1463	310	500	550.00	450.00
95005	2/0	1.75x.08	125.40	30/1248	280	420	462.00	378.00
95010	3	1.50x.06	53.064	30/528	150	180	198.00	162.00
95015	5	1.38x.05	33.700	30/336	100	118	130.00	106.00
95020	7	1.00x.04	20.800	36/816	85	75	94.00	77.00
95025	7	0.75x.04	20.800	36/816	85	75	94.00	77.00
95030	10	0.63x.03	9.600	36/384	53	39	44.00	36.00
95035	10	0.50x.03	9.600	36/384	53	39	44.00	36.00
95040	12	0.38x.03	7.200	36/288	46	28	33.00	27.00
95045	14	0.25x.03	4.200	36/168	32	18	22.00	18.00
95050	15	0.18x.02	3.000	36/120	25	13	17.00	14.00
95055	18	0.12x.02	1.800	36/72	16	9	14.00	11.00
95060	19	0.09x.02	1.200	36/48	11	7	12.00	9.00
95065	22	0.05x.02	.600	36/24	7	5	10.00	7.50
95070	24	0.03x.02	.450	36/16	6	4	9.00	6.50

* To be used as a guide only (bare copper in free air at 30°C

Call, Write or Fax for Our Full Line Discount Catalogue Which includes Specs, Prices and Cross Reference

ABLE ELECTRONIC SUPPLIES 1736 FRONT STREET, YORKTOWN HEIGHTS, NY 10598 • 914-962-2253 • 1-800-431-2103 FAX 914-962-2296

ABLE RATED™

Electronic Cable Hook Up Wire, Power Cords, Shrink and Flex Tubing, Cable Ties, Flat Ribbon Cable, Custom Assemblies, and Connectors, Coaxial Hi Temperature and Data Cable.

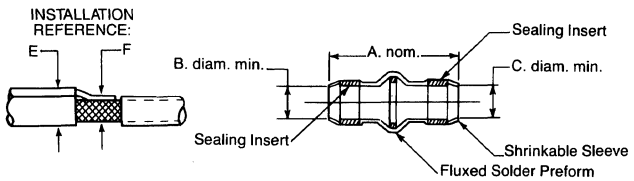
SPECIAL TERMINATION SLEEVES

Designed for terminating wire & cable with tin coated or silver plated shields with either high temperature (125°C Series SSH) or low temperature insulations (105°C Series SSL).

Solder preforms with heat shrink irradiated polyvinylidene flouride tubing conforming to MIL-1-23053/8. Using prefluxed SN63RMA Per QQ-S-571 and thermoplastic meltable sealing inserts. Designed to be terminated with infrared heating tools.

OPERATING TEMPERATURE

SSH SERIES	(BLUE TINT)	-55°C TO 15°C
SSL SERIES	(CLEAR)	-55°C TO 105°C



Part Number	Dimension As Supplied (Inched)			Installation Reference (Inches)		Cross Reference Nas P/N
	A (Nom.)	B (Min.)	C (Min.)	E (Max.)	F (Min.)	
SSH-I-1	.590	.075	.095	.095	.035	1746-1
SSH-I-2	.590	.110	.125	.125	.055	1746-2
SSH-I-3	.590	.180	.200	.200	.100	1746-3
SSH-I-4	.590	.235	.250	.250	.125	1746-9
SSH-I-5	.590	.280	.300	.300	.160	1746-4
SSH-C-1	.625	.075	.095	.095	.035	1745-1
SSH-C-2	.625	.110	.125	.125	.055	1745-2
SSH-C-3	.625	.180	.200	.200	.100	1745-3
SSH-C-4	.750	.235	.250	.250	.125	1745-17
SSH-C-5	.750	.280	.300	.300	.160	1745-4
SSL-C-1	.625	.075	.095	.095	.035	1745-13
SSL-C-2	.625	.110	.125	.125	.055	1745-14
SSL-C-3	.625	.180	.200	.200	.100	1745-15
SSL-C-4	.750	.235	.250	.250	.125	1745-23
SSL-C-5	.750	.280	.300	.300	.160	1745-16

NON INSULATED EXTRA FLEXIBLE GROUND CABLE

Rope Lay Bare Copper Cable Where Flexibility and Extended Flexi-Life are Primary Consideration.

A*

LENGTHS AVAILABLE

In	MM
3	76,2
6	152,4
6	228,6
12	304,8
15	381,0
18	457,2
24	609,6
30	762,0
36	914,4

Able Part No	AWG	Circular Mil Area	No Of Wires/Awg	Approx.** Ampacity	Nom Dia IN	Nom Dia MM
GS-14-100*	1/0	105,350	4214/36	214	.475	12.06
GS-14-002*	2	66,150	2646/36	160	.377	9.58
GS-14-004*	4	41,650	1666/36	114	.299	7.59
GS-14-006*	6	26,250	1050/36	80	.210	5.33
GS-14-008*	8	16,625	665/36	62	.167	4.24
GS-14-010*	10	10,325	413/36	46	.131	3.32
GS-14-12*	12	6,475	259/36	31	.104	2.64
GS-14-014*	14	4200	168/36	25	.084	2.13
GS-14-016*	16	2625	105/36	17	.067	1.70
GS-14-018*	18	1575	63/36	13	.052	1.32
GS-14-020*	20	1050	42/36	9	.042	1.07

TINNED COPPER AVAILABLE, OTHER SIZES AND LENGTHS TO ORDER

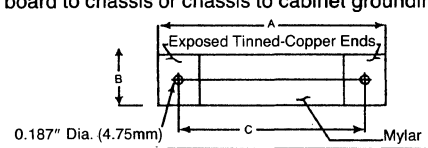
** To be used as a guide only. Values for cable in free air at ambient temp of 30°C

* Add Length

INSULATED GROUND STRAP

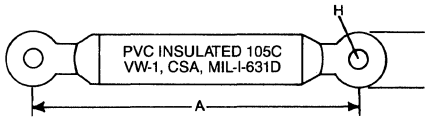
(UL APPROVED) PASSES ALL REQUIREMENTS OF UL SPEC 94VO

Flexible Ground Straps, Double insulated laminates of Copper (inside) and Mylar® outside. The Ends Tinned and Prepunched for a No. 10 Screw for ease of termination. These Straps provide a low impedence ground path at R.F. reducing EMI problems caused by wire grounds. These ground straps are recommended wherever board to chassis or chassis to cabinet grounding is required.



Part No.	Nominal Dimensions, Inches (mm)		
	A	B	C
GS-11-3	3.0(76.2)	0.500(12.7)	2.5(63.5)
GS-11-6	6.0(152.4)	0.500(12.7)	5.5(139.7)
GS-11-9	9.0(228.6)	0.500(12.7)	8.5(215.9)
GS-11-12	12.0(304.8)	0.500(12.7)	11.5(292.1)
GS-11-15	15.0(381.0)	0.500(12.7)	14.5(368.3)
GS-11-18	18.0(457.2)	0.500(12.7)	17.5(444.5)
GS-12-3	3.0(76.2)	1,000(25.4)	2.5(63.5)
GS-12-6	6.0(152.4)	1,000(25.4)	255(63.5)
GS-12-9	9.0(228.6)	1,000(25.4)	8.5(215.9)
GS-12-12	12.0(304.8)	1,000(25.4)	11.5(292.1)
GS-12-15	15.0(381.0)	1,000(25.4)	14.5(368.3)
GS-12-18	18.0(457.2)	1,000(25.4)	17.5(444.5)

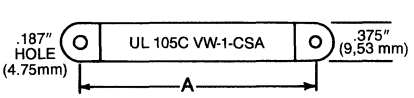
FLAT EXTRA FLEXIBLE INSULATED GROUND STRAPS



Part No.	AWG	Circular MIL Area	No of Wires/AWG	Approx* Ampacity	B (mm) in	A (mm) in	H (mm) in
GS-15-1009	1/0	105,600	1056/36	215	1.25 (31,75)	9 (228,6)	.375 (9,53)
GS-15-1012	1/0	105,600	1056/36	215	1.25 (31,75)	12 (304,8)	.375 (9,53)
GS-15-1018	1/0	105,600	1056/36	215	1.25 (31,75)	18 (457,2)	.375 (9,53)
GS-15-1024	1/0	105,600	1056/36	215	1.25 (31,75)	24 (609,6)	.375 (9,53)
GS-15-0109	1	76,800	768/30	170	1.00 (25,40)	9 (228,6)	.375 (9,53)
GS-15-0112	1	76,800	768/30	170	1.00 (25,40)	12 (304,8)	.375 (9,53)
GS-15-0118	1	76,800	768/30	170	1.00 (25,40)	18 (457,2)	.375 (9,53)
GS-15-0124	1	76,800	768/30	170	1.00 (25,40)	24 (609,6)	.375 (9,53)
GS-15-0209	2	64,800	648/30	160	0.93 (23,62)	9 (228,6)	.312 (7,92)
GS-15-0212	2	64,800	648/30	160	0.93 (23,62)	12 (304,8)	.312 (7,92)
GS-15-0218	2	64,800	648/30	160	0.93 (23,62)	18 (457,2)	.312 (7,92)
GS-15-0224	2	64,800	648/30	160	0.93 (23,62)	24 (609,6)	.312 (7,92)
GS-15-0409	4	43,200	432/30	110	0.72 (18,29)	9 (228,6)	.312 (7,92)
GS-15-0412	4	43,200	432/30	110	0.72 (18,29)	12 (304,8)	.312 (7,92)
GS-15-0418	4	43,200	432/30	110	0.72 (18,29)	18 (457,2)	.312 (7,92)
GS-15-0424	4	43,200	432/30	110	0.72 (18,29)	24 (609,6)	.312 (7,92)

INSULATED GROUND STRAP

Flat insulated ground strap to efficiently provide static grounds, supplied as a .009" (.228 mm) Tinplate steel insulated with a black PVC jacket .023" (.584 mm) thick UL AWM style 1878-CSA TI



ABLE PART NO	A In	A mm
GS-13-3	3	76,2
GS-13-6	6	152,4
GS-13-9	9	228,6
GS-13-12	12	304,8
GS-13-18	18	457.2

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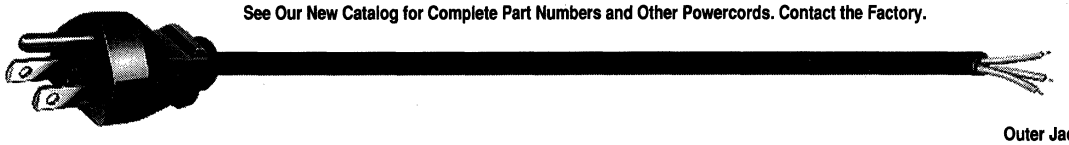
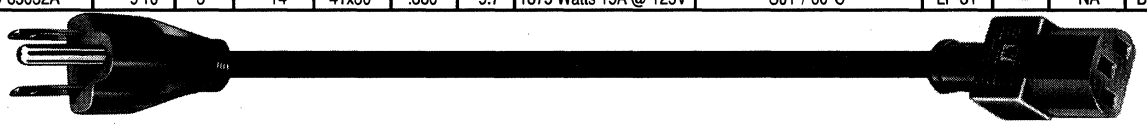
UL, CSA



Outer Jacket Removed 2"
Conductors Stripped 5/8"

Nondetachable with NEMA 5-15P Grounding Plug Aluminum Foil Shielded (Power Supply Cords, 3 Conductor, PVC Jacket)

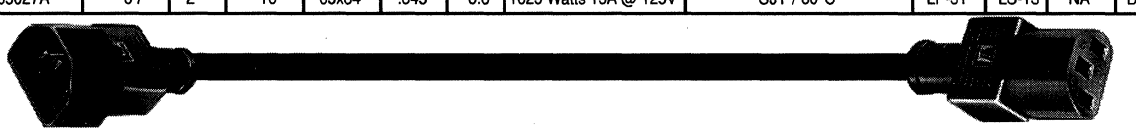
Part No.	Cord Length Ft.	M	Conductor AWG.	Strand	Nominal O.D. Inch	mm	Power Rating	Cord Type / Temp.	Plug No. Male	Fem.	Color Code	Jacket Color
IPC-64001A	6'7"	2	18	41 x 34	.260	6.6	1250 Watts 10A @ 125V	SVT/Alum. Foil Shield / 60°C	LP-31	--	NA	Black
IPC-64012A	6'7"	2	18	41 x 34	.330	8.4	1250 watts 10A @ 125V	SJT/Alum. Foil Shield / 60°C	LP-31	--	NA	Black
Unshielded												
IPC-65001A	6'7"	2	18	41x34	.250	6.4	1250 Watts 10A @ 125V	SVT / 60°C	LP-30	—	NA	Black
IPC-65019A	6'7"	2	18	41x34	.320	8.2	1250 Watts 10A @ 125V	SJT / 60°C	LP-30	—	NA	Black
IPC-65029A	6'7"	2	16	67x34	.345	8.8	1625 Watts 13A @ 125V	SJT / 60°C	LP-31	—	NA	Black
IPC-65032A	9'10"	3	14	41x30	.380	9.7	1875 Watts 15A @ 125V	SJT / 60°C	LP-31	—	NA	Black



UL, CSA

Detachable with Nema 5-15P Grounding Plug & IEC Female Connector, Aluminum foil Shield (Power Supply Cords, 3 Conductor, PVC Jacket)

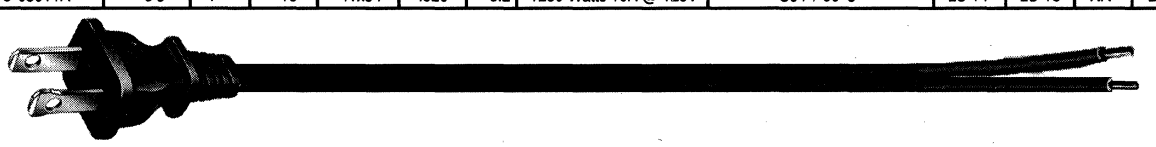
IPC-64007A	6'7"	2	18	41x34	.260	6.6	1250 Watts 10A @ 125V	SVT/Alum. Foil Shield / 60°C	LP-31	LS-13	NA	Black
IPC-64009A	6'7"	2	18	41x34	.330	8.4	1250 Watts 10A @ 125V	SJT/Alum. Foil Shield / 60°C	LP-31	LS-13	NA	Black
Unshielded												
IPC-65010A-00	6'	1.83	18	41x34	.250	6.4	1250 Watts 10A @ 125V	SVT / 60°C	LP-30	LS-13	NA	Black
IPC-65008A	6'7"	2	18	41x34	.320	8.2	1250 Watts 10A @ 125V	SJT / 60°C	LP-31	LS-13	NA	Black
IPC-65027A	6'7"	2	16	65x34	.345	8.8	1625 Watts 13A @ 125V	SJT / 60°C	LP-31	LS-13	NA	Black



UL, CSA

Electronic Jumper Cord with IEC Male and Female, Aluminum Foil Shielded (Power Supply Cords, 3 Conductor, PVC Jacket)

IPC-64011A	3'3"	1	18	41x34	.260	6.6	1250 Watts 10A @ 125V	SVT/Alum. Foil Shield / 60°C	LS-14	LS-13	NA	Black
IPC-64018A	3'3"	1	18	41x34	.330	8.4	1250 Watts 10A @ 125V	SJT/Alum. Foil Shield / 60°C	LS-14	LS-13	NA	Black
Unshielded												
IPC-65036A	1'8"	.50	18	41x34	.320	8.2	1250 Watts 10A @ 125V	SJT / 60°C	LS-14	LS-13	NA	Black
IPC-65011A	3'3"	1	18	41x34	.320	8.2	1250 Watts 10A @ 125V	SJT / 60°C	LS-14	LS-13	NA	Black



UL, CSA

SPT Nondetachable with NEMA 1-15P, Unshielded (Power Supply Cords, 2 Conductor, PVC Jacket) Conductors Split 1 1/2", stripped 5/8"

IPC-65012A	6'	1.83	18	41x34	.110 x .215	2.8 x 5.5	1250 Watts 10A-125V	SPT-1 / 60°C	LP-5W Polarized	-	NA	Black
IPC-65059A	6'	1.83	18	41x34	.135 x .270	3.45 x 6.9	1250 Watts 10A-125V	SPT-2 / 60°C	LP-5W Polarized	—	NA	Black
IPC-65061A	6'	1.83	16	65x34	.145 x .290	3.7 x 7.4	1625 Watts 13A-125V	SPT-2 / 60°C	LP-5W Polarized	—	NA	Black

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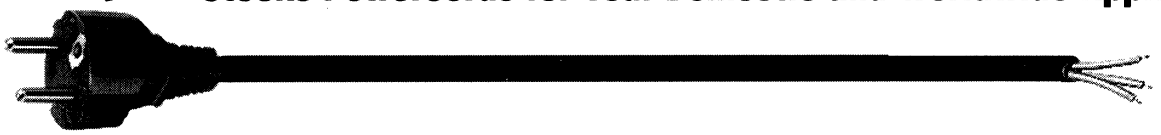
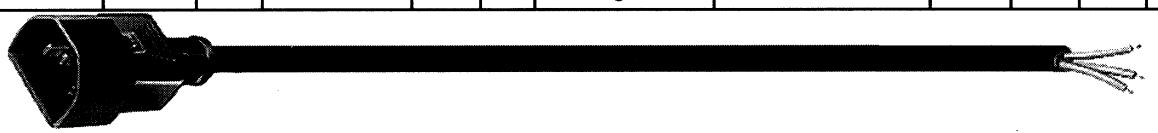


Nondetachable , 3 Conductor with Straight Dual Earthing Plug, Unshielded (Standard European Power Supply Cords, Jacket removed 30mm, conductors stripped 7mm)

	Cord Length		Conductor	Nominal O.D.				Plug No.			
Part No.	Ft	M	mm²	Inch	mm	Power Rating	Cord Type / Temp.	Male	Fem.	Color Code	Jacket Color
IPC-66001A	6'7"	2	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LP-34A	—	CEE	Black
IPC-66013A	6'7"	2	1.00	.295	7.5	10A @ 250V	HO5VVF3 / 70°C	LP-34A	—	CEE	Black

Nondetachable , 3 Conductor with IEC Straight Female, Unshielded (Standard European Power Supply Cords, PVC Jacketed) Jacket removed 30mm, conductors stripped 7mm

IPC-66005A	6'7"	2	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	--	LS-13	CEE	Black
IPC-66043A	6'7"	2	1.00	.295	7.5	10A @ 250V	HO5VVF3 / 70°C	--	LS-13	CEE	Black

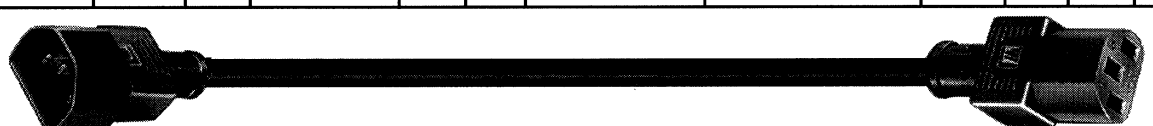


Nondetachable, 3 Conductor with IEC Male Plug, Unshielded (Standard European Power Supply Cords, PVC Jacketed) Jacket removed 30mm, conductors stripped 7mm

IPC-66049A	1'8"	.50	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LS-14	--	CEE	Black
IPC-66050A	3'3"	1	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LS-14	--	CEE	Black
IPC-66051A	6'7"	2	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LS-14	--	CEE	Black

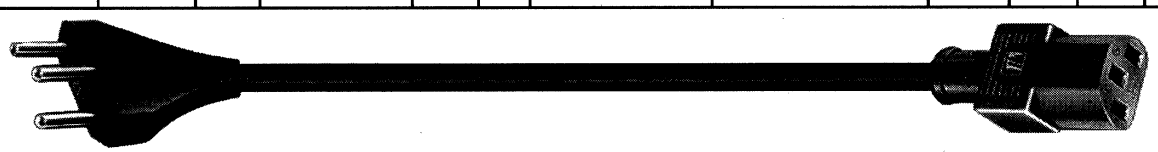
Detachable, 3 Conductor with Straight Dual Earthing Plug & IEC Straight Female (Standard European Power Supply Cords, PVC Jacketed)

IPC-61056A	6'7"	2	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LP-34A	LS-13	CEE	Black
IPC-66021A	6'7"	2	1.00	.295	7.5	10A @ 250V	HO5VVF3 / 70°C	LP-34A	LS-13	CEE	Black



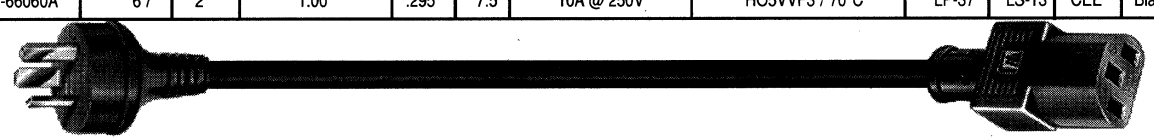
Jumper Cord, 3 Conductor with IEC Male Plug and IEC Female Connector (Standard European Power Supply Cords, PVC Jacketed)

IPC-66037A	1'8"	.5	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LS-14	LS-13	CEE	Black
IPC-66038A	3'3"	1	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LS-14	LS-13	CEE	Black



Detachable with Male Grounding Plug and IEC Straight Female Connector (Power Supply Cords, 3 Conductor, PVC Jacket for use in Switzerland)

IPC-66058A	6'7"	2	.75	.280	7.2	6A @ 250V	HO5VVF3 / 70°C	LP-37	LS-13	CEE	Black
IPC-66060A	6'7"	2	1.00	.295	7.5	10A @ 250V	HO5VVF3 / 70°C	LP-37	LS-13	CEE	Black



Detachable with Male Grounding Plug and IEC Straight Female Connector (Power Supply Cords, 3 Conductor, PVC Jacket for use in Australia)

IPC-66078A	6'7"	2	.75	.248	6.3	7.5A @ 250V	Light Duty LFC3R / 70C°	LP-23	LS-13	CEE	Black
IPC-66011A	6'7"	2	.75	.280	7.2	7.5A @ 250 V	Ordinary Duty GFC3R / 70°C	LP-23	LS-13	CEE	Black

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BRIM CHV CORONA RESISTANT HIGH VOLTAGE TEFLON* CABLE

BRIM CHV eliminates the need for bulky, thick insulation, as used with silicone rubber high voltage cables, and provides high temperature resistance not available with polyethylene insulated high voltage cables, plus the added benefit of retarding and detering corona discharges. Even under severe stress, including mechanical strain, moisture, corona or chemical, or high temperature conditions, there is no cracking of the insulation. Cable construction meets and exceeds MIL-W-16878D.

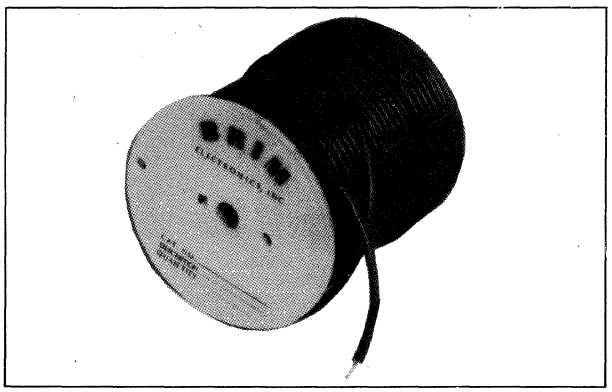
OPERATING VOLTAGE: Voltage capabilities are based on the thickness of the jacket.

OPERATING TEMPERATURE: −90°C to +250°C

DESCRIPTION: Silver plated copper conductor, per QQ-W-343, special corona retarding insulation, TFE tape wrap insulation, & a color coded jacket overall.

STD. COLORS: Red, White, Black, Green, Blue, Yellow, Orange, Brown, Purple, Gray. Stripped colors are also available.

STD. P-U: 250′, 500′, 1000′. * DuPont



Brim No.	AWG	Strand.	Volt Rating DC	Volt Rating AC	Nom. O.D.
CHV26-2	26	7/34	10000	2500	.074″
CHV26-2.5	26	7/34	12500	3800	.084″
CHV26-3	26	7/34	15000	4500	.094″
CHV26-3.5	26	7/34	17500	5400	.104″
CHV26-4	26	7/34	20000	6000	.114″
CHV26-5	26	7/34	25000	7500	.134″
CHV26-6.5	26	7/34	32500	10000	.164″
CHV26-8	26	7/34	40000	12000	.194″
CHV24-2	24	19/36	10000	2500	.080″
CHV24-2.5	24	19/36	12500	3800	.090″
CHV24-3	24	19/36	15000	4500	.100″
CHV24-3.5	24	19/36	17500	5400	.110″
CHV24-4	24	19/36	20000	6000	.120″
CHV24-5	24	19/36	25000	7500	.140″
CHV24-6.5	24	19/36	32500	10000	.170″
CHV24-8	24	19/36	40000	12000	.200″
CHV24-10	24	19/36	50000	15000	.240″
CHV22-2	22	19/34	10000	2500	.086″
CHV22-2.5	22	19/34	12500	3800	.096″
CHV22-3	22	19/34	15000	4500	.106″
CHV22-3.5	22	19/34	17500	5400	.116″
CHV22-4	22	19/34	20000	6000	.126″
CHV22-5	22	19/34	25000	7500	.146″
CHV22-6.5	22	19/34	32500	10000	.176″
CHV22-8	22	19/34	40000	12000	.206″
CHV22-10	22	19/34	50000	15000	.246″
CHV20-2	20	19/32	10000	2500	.094″
CHV20-2.5	20	19/32	12500	3800	.104″
CHV20-3	20	19/32	15000	4500	.114″
CHV20-3.5	20	19/32	17500	5400	.124″
CHV20-4	20	19/32	20000	6000	.134″
CHV20-5	20	19/32	25000	7500	.154″
CHV20-6.5	20	19/32	32500	10000	.184″
CHV20-8	20	19/32	40000	12000	.214″
CHV20-10	20	19/32	50000	15000	.254″
CHV18-2	18	19/30	10000	2500	.103″
CHV18-2.5	18	19/30	12500	3800	.113″

Brim No.	AWG	Strand.	Volt Rating DC	Volt Rating AC	Nom. O.D.
CHV18-3	18	19/30	15000	4500	.123″
CHV18-3.5	18	19/30	17500	5400	.133″
CHV18-4	18	19/30	20000	6000	.143″
CHV18-5	18	19/30	25000	7500	.163″
CHV18-6.5	18	19/30	32500	10000	.193″
CHV18-8	18	19/30	40000	12000	.223″
CHV18-10	18	19/30	50000	15000	.263″
CHV16-2	16	19/29	10000	2500	.112″
CHV16-2.5	16	19/29	12500	3800	.122″
CHV16-3	16	19/29	15000	4500	.132″
CHV16-3.5	16	19/29	17500	5400	.142″
CHV16-4	16	19/29	20000	6000	.152″
CHV16-5	16	19/29	25000	7500	.172″
CHV16-6.5	16	19/29	32500	10000	.202″
CHV16-8	16	19/29	40000	12000	.232″
CHV16-10	16	19/29	50000	15000	.272″
CHV14-2	14	19/27	10000	2500	.127″
CHV14-2.5	14	19/27	12500	3800	.137″
CHV14-3	14	19/27	15000	4500	.147″
CHV14-3.5	14	19/27	17500	5400	.157″
CHV14-4	14	19/27	20000	6000	.167″
CHV14-5	14	19/27	25000	7500	.187″
CHV14-6.5	14	19/27	32500	10000	.217″
CHV14-8	14	19/27	40000	12000	.247″
CHV14-10	14	19/27	50000	15000	.287″
CHV12-2	12	19/25	10000	2500	.147″
CHV12-2.5	12	19/25	12500	3800	.157″
CHV12-3	12	19/25	15000	4500	.167″
CHV12-3.5	12	19/25	17500	5400	.177″
CHV12-4	12	19/25	20000	6000	.187″
CHV12-5	12	19/25	25000	7500	.207″
CHV12-6.5	12	19/25	32500	10000	.237″
CHV12-8	12	19/25	40000	12000	.267″
CHV12-10	12	19/25	50000	15000	.307″
CHV10-2	10	37/26	10000	2500	.169″
CHV10-2.5	10	37/26	12500	3800	.179″
CHV10-3	10	37/26	15000	4500	.189″
CHV10-3.5	10	37/26	17500	5400	.199″

CONSTRUCTION VARIATIONS AVAILABLE TO ORDER.

BRIM HIGH TEMPERATURE LEAD WIRE

These small diameter high temperature lead wires allow unique constructions. The basic wire conforms to MIL-W-3861-stranded nickel plated copper; when shielded, nickel plated copper shielding is per MIL-N-46026A. Rated for 100 Volts RMS.*

Type 1: 800°F High Temperature Rating — Suitable for aircraft, or missile lead wire, heaters, furnaces, ovens and kilns for operations between 500°F to 800°F. Cond. insulation: Fiberglass braid, impregnated with a silicone varnish, over a stranded nickel plated conductor.

Type 2: 1500°F High Temperature Rating — Suitable as a radiation resistant aircraft, or missile lead wire, furnaces, ovens and kilns for operations between 800°F to 1500°F. Cond. insulation: Inorganic braid over a stranded nickel plated copper conductor.

Type 3: 2000°F High Temperature Rating — Suitable as a radiation resistant aircraft or missile lead wire for operations between 1500°F to 2000°F. Cond. Insulation: special formulated ceramic braid over a stranded nickel plated copper conductor, and a nickel plated braided shield overall.

* For dry locations.

UNSHIELDED

Brim No. Type 1	Brim No. Type 2	AWG	Strand.	Nom. O.D.	Std. P-U
2101/22	2102/22	22	19/34	.070″	500′, 1000′
2101/20	2102/20	20	19/32	.075″	500′, 1000′
2101/18	2102/18	18	19/30	.085″	500′, 1000′

SHIELDED

Brim No. Type 3	AWG	Strand.	Nom. O.D.	Std. P-U
2103/22	22	19/34	.108″	500′, 1000′
2103/20	20	19/32	.112″	500′, 1000′
2103/18	18	19/30	.122″	500′, 1000′

600 VRMS is available to order. CONSTRUCTION VARIATIONS ARE AVAILABLE TO ORDER

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BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

TFE & FEP TEFLON SHIELDED CABLES • BRIMCROM • BRIMFLYX • STAINLESS STEEL TUBULAR BRAID TEFLON IMPREGNATED BRAID OVER SHIELD PER MIL-W-16878 • SHIELDED RETRACTILE CORD

DESCRIPTION: One to five twisted conductors of Type E extruded TFE* insulation (.010″ wall), over a stranded silver plated copper conductor. If shielded, braided silver plated shield with a min. coverage of 90% over the conductor(s). When jacketed, either a fused double reversed TFE tape wrap jacket, a Teflon* impregnated fiberglass braided jacket, or an extruded FEP jacket. Cables are fungus, solvent, flame, acid, alkali, and oil resistant. Rated for 600 Volts. Stranding: 26 AWG — 7 strands, 24 AWG to 16 AWG — 19 strands. Color code: 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow. Jacket color: White. OPER. TEMP.: TFE −65°C to +250°C. FEP: −65°C to +200°C.

Brim No.	No. Cond.	AWG	Nom. O.D.	Brim No.	No. Cond.	AWG	Nom. O.D.
1751	1	26	.070″	1754/2	2	20	.154″
1751/2	2	26	.115″	1754/3	3	20	.163″
1752	1	24	.080″	1754/4	4	20	.179″
1752/2	2	24	.124″	1754/5	5	20	.195″
1752/3	3	24	.131″	1755	1	18	.105″
1752/4	4	24	.144″	1755/2	2	18	.172″
1752/5	5	24	.155″	1755/3	3	18	.183″
1753	1	22	.085″	1755/4	4	18	.200″
1753/2	2	22	.137″	1755/5	5	18	.222″
1753/3	3	22	.144″	1756	1	16	.114″
1753/4	4	22	.158″	1756/2	2	16	.187″
1753/5	5	22	.170″	1756/3	3	16	.200″
1754	1	20	.095″	1756/4	4	16	.220″

STD. P-U: 250′, 500′′, 1000′

TEFLON TAPE WRAP JACKET OVER SHIELD

Brim No.	No. Cond.	AWG	Nom. O.D.	Brim No.	No. Cond.	AWG	Nom. O.D.
1761	1	26	.076″	1764/2	2	20	.158"
1761/2	2	26	.119″	1764/3	3	20	.170"
1762	1	24	.087″	1764/4	4	20	.182"
1762/2	2	24	.131″	1764/5	5	20	.198"
1762/3	3	24	.138″	1765	1	18	.113"
1762/4	4	24	.155″	1765/2	2	18	.183"
1762/5	5	24	.165″	1765/3	3	18	.196"
1763	1	22	.094″	1765/4	4	18	.215"
1763/2	2	22	.145″	1765/5	5	18	.230"
1763/3	3	22	.153″	1766	1	16	.120"
1763/4	4	22	.166″	1766/2	2	16	.201"
1763/5	5	22	.183″	1766/3	3	16	.213"
1764	1	20	.100″	1766/4	4	16	.230"

STD. P-U: 250′, 500′′, 1000′

FEP TEFLON CABLES — SHIELDED — 600 VOLTS

Brim No.	No. Cond.	AWG	Strand.	Nom. O.D.	Std. P-U
1791	1	24	19/36	.087″	500′, 1000′
1791/2	2	24	19/36	.130″	500′, 1000′
1791/3	3	24	19/36	.136″	500′, 1000′
1791/4	4	24	19/36	.153″	500′, 1000′
1792	1	22	19/34	.092″	500′, 1000′
1792/2	2	22	19/34	.148″	500′, 1000′
1792/3	3	22	19/34	.155″	500′, 1000′
1792/4	4	22	19/34	.168″	500′, 1000′
1793	1	20	19/32	.100″	500′, 1000′
1793/2	2	20	19/32	.163″	500′, 1000′
1793/3	3	20	19/32	.172″	500′, 1000′
1793/4	4	20	19/32	.193″	500′, 1000′
1794	1	18	19/30	.110″	500′, 1000′
1794/2	2	18	19/30	.182″	500′, 1000′
1794/3	3	18	19/30	.200″	500′, 1000′
1794/4	4	18	19/30	.217″	500′, 1000′
1795	1	16	19/29	.118″	500′, 1000′
1795/2	2	16	19/29	.203″	500′, 1000′
1795/3	3	16	19/29	.215″	500′, 1000′
1795/4	4	16	19/29	.233″	500′, 1000′

OTHER COLOR CODES, JACKET COLORS OR CABLE CONSTRUCTIONS ARE AVAILABLE TO ORDER. * DuPont

BRIMCROM™

MICROMINIATURE TEFLON* HOOK-UP WIRE

Conductors are silver plated copper dip coated with TFE Teflon* insulation. Rated for 300 Volts, −90°C to +250°C. BRIMCROM is highly flexible, chemically inert, weather resistant, nonflammable. Suitable wherever high temperatures and lack of space are absolutely critical, such as aircraft, missiles, medical, and microminiaturized electronic components, and system designs. STD. P-U: 1000′

Brim No.	AWG	Strand.	Nom. Wall	Nom. O.D.
1729/30	30	7/38	.0035″	.0188″
1729/32	32	7/40	.0030″	.0153″
1729/34	34	7/42	.0027″	.0129″
1729/36	36	7/44	.0020″	.0101″
1729/38	38	7/46	.0019″	.0086″

STD. COLORS: WHITE, RED, BLACK, GREEN. * DuPont
OTHER COLORS AVAILABLE TO ORDER. OTHER CONSTRUCTION AVAILABLE TO ORDER.

TWO AND THREE CONDUCTOR LAMINATED RIBBON CABLES USING BRIMCROM CONDUCTORS ARE AVAILABLE TO ORDER.

BRIM OVERALL SHIELDED RETRACTILE COMMUNICATION CORDS — UL APPROVED

RETRACTED LENGTHS: 1, 2, 3, 4 FT.
EXTENDED LENGTHS: 5, 10, 15, 20 FT.
DESCRIPTION: 1 to 7 color coded conductors of 23 AWG 21/36 TC, spiral wrapped TC shield over the conductors, Black "BRYON" jacket overall. UL approved for 1 AMP & 300V max.
OPER. TEMP.: −20°C to +80°C.
STD. PKG.: 6

BRIM CAT. No. Retracted Lengths				No. Cond.	Nom. Coil O.D.	Nom. Cord O.D.
4 ft.	3 ft.	2 ft.	1 ft.			
135-4	135-3	135-2	135-1	1	5/8″	.175″
135/2-4	135/2-3	135/2-2	135/2-1	2	11/16″	.220″
135/3-4	135/3-3	135/3-2	135/3-1	3	3/4″	.230″
135/4-4	135/4-3	135/4-2	135/4-1	4	7/8″	.260″
135/5-4	135/5-3	135/5-2	135/5-1	5	1″	.285″
135/6-4	135/6-3	135/6-2	135/6-1	6	1 1/8″	.310″
135/7-4	—	135/7-2	135/7-1	7	1 1/4″	.340″

BRIMFLYX™ ULTRA-FLEXIBLE WIRE

DESCRIPTION: Soft bare copper conductor, insulated with a special flexible PVC formulation to minimize kinking & allow for ultra-low bending torque.

Designed for use where wires encounter continuous flexing, such as in data processing equipment, mercury thermostats, magnetic drums, and rotating servo platforms.

OPER. TEMP.: −40°C to +80°C

STD. COLORS: WHITE, BLACK, RED, GREEN. STD. P-U: 1000 FT. OTHER COLORS ARE AVAILABLE TO ORDER.

Brimflyx No.	AWG	Strand.	Nom. Wall	Max. Volt.	Nom. O.D.
1250/38	38	7/46	.005″	200	.015″
1250/36	36	7/44	.005″	200	.016″
1250/34	34	10/44	.005″	200	.018″
1250/32	32	18/44	.007″	300	.023″
1250/30	30	28/44	.010″	600	.031″
1250/29	29	51/46	.010″	600	.032″
1250/28	28	41/44	.010″	600	.035″
1250/27	27	48/44	.010″	600	.037″
1250/26	26	66/44	.010″	600	.042″
1250/24	24	105/44	.010″	600	.049″
1251/24	24	105/44	.015″	1000	.059″
1250/22	22	168/44	.010″	600	.054″
1251/22	22	168/44	.015″	1000	.064″
1250/20	20	259/44	.010″	600	.061″
1250/18	18	413/44	.010″	600	.072″
1250/16	16	665/44	.010″	600	.087″

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BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

UL & CSA POWER RECTRACTILE CORDS

RETRACTED LENGTHS: 1 ft., 2 ft., 3 ft., 4ft. EXTENDED LENGTHS: 6 ft., 11 ft., 16 ft., 22 ft. BRIM retractile cords are long lasting, and useful where cords must change their length or position. Our cords will extend to approximately six times their retracted length, and will return to their original shape and length, when they are released. Retractile cords eliminate tangles, twists, knots. OPER TEMP.: −20°C to +60°C. COND. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-Yellow. VOLTAGE RATING: SVO SJO SVT & SJT—300V; SO & ST—600V.

NEOPRENE

BRIM CAT. NO. Retracted Lengths 4 Ft.	3 Ft.	2 Ft.	1 Ft.	No. Cond.	Size	Strand.	UL/ CSA Type	Amps	Nom. Coil O.D.	Nom. Cord O.D.
151-4	151-3	151-2	151-1	2	18	41/34	SVO	7	7/8″	.255″
151/3-4	151/3-3	151/3-2	151/3-1	3	18	41/34	SVO	7	1″	.275″
152-4	152-3	152-2	152-1	2	18	41/34	SJO	7	13/16″	.315″
152/3-4	152/3-3	152/3-2	152/3-1	3	18	41/34	SJO	7	1 3/8″	.345″
152/4-4	152/4-3	152/4-2	152/4-1	4	18	41/34	SJO	5.6	17/16″	.380″
152/5-4	—	152/5-2	—	5	18	41/34	SJO††	5.6	1 5/8″	.440″
152/7-4	—	152/7-2	—	7	18	41/34	SJO†	5	1 7/8″	.500″
152/15-4	—	—	—	15	18	41/34	SVO†	7	2 1/8″	.575″
156/3-4	156/3-3	156/3-2	156/3-1	3	18	41/34	SO	7	19/16″	.405″
156/4-4	156/4-3	156/4-2	156/4-1	4	18	41/34	SO	5.6	1 5/8″	.435″
156/10-4	156/10-3	156/10-2	156/10-1	10	18	41/34	SO	6	2 3/8″	.650″
153-4	153-3	153-2	153-1	2	16	65/34	SJO	10	1 3/8″	.355″
153/3-4	153/3-3	153/3-2	153/3-1	3	16	65/34	SJO	10	17/16″	.385″
153/4-4	153/4-3	153/4-2	153/4-1	4	16	65/34	SJO	8	1 1/2″	.445″
157/3-4	157/3-3	157/3-2	157/3-1	3	16	65/34	SO	10	1 13/16″	.470″
157/4-4	157/4-3	157/4-2	—	4	16	65/34	SO	8	1 7/8″	.500″
157/5-4	157/5-3	157/5-2	157/5-1	5	16	65/34	SO	5.6	2 1/8″	.550″
157/6-4	—	157/6-2	—	6	16	65/34	SO	8	2″	.545″
157/7-4	—	157/7-2	—	7	6/16	65/34	SO†	8	2 1/4″	.600″
					1/14	41/30		12		
154-4	154-3	154-2	154-1	2	14	41/30	SO	15	2 1/8″	.535″
154/3-4	154/3-3	154/3-2	154/3-1	3	14	41/30	SO	15	2 1/8″	.560″
154/4-4	154/4-3	154/4-2	154/4-1	4	14	41/30	SO	12	2 1/4″	.605″
154/7-4	154/7-3	154/7-2	154/7-1	7	14	41/30	SO	10	2 7/8″	.720″
155-4	—	155-2	—	2	12	65/30	SO	20	2 1/4″	.600″
155/3-4	155/3-3	155/3-2	155/3-1	3	12	65/30	SO	20	2 3/8″	.635″
155/4-4	155/4-3	155/4-2	155/4-1	4	12	65/30	SO	16	27/16″	.675″
155/7-4	—	155/7-2	—	7	12	65/30	SO	16	2 5/8″	.775″
158/4-4	—	—	—	4	10	104/30	SO	20	2 3/4″	.745″

PLASTIC

165-4	165-3	165-2	165-1	2	18	41/34	SVT*	7	3/4″	.250″
165/3-4	165/3-3	165/3-2	165/3-1	3	18	41/34	SVT*	7	7/8″	.260″
166-4	166-3	166-2	166-1	2	18	41/34	SJT*	7	1″	.290″
166/3-4	166/3-3	166/3-2	166/3-1	3	18	41/34	SJT*	7	1 3/8″	.325″
166/4-4	166/4-3	166/4-2	166/4-1	4	18	41/34	SJT*	5.6	1 3/8″	.350″
168-4	168-3	168-2	168-1	2	18	41/34	ST*	7	1 3/8″	.350″
168/3/4	168/3-3	168/3-2	168/3-1	3	18	41/34	ST*	7	17/16″	.375″
168/4-4	168/4-3	168/4-2	168/4-1	4	18	41/34	ST*	5.6	1 5/8″	.400″
167-4	167-3	167-2	167-1	2	16	65/34	SJT*	10	1 1/8″	.310″
167/3-4	167/3-3	167/3-2	167/3-1	3	16	65/34	SJT*	10	1 3/8″	.350″
167/4-4	167/4-3	167/4-2	167/4-1	4	16	65/34	SJT*	8	1 5/8″	.410″
169-4	169-3	169-2	169-1	2	16	65/34	ST*	10	1 3/8″	.375″
169/3-4	169/3-3	169/3-2	169/3-1	3	16	65/34	ST*	10	1 5/8″	.390″
169/4-4	169/4-3	169/4-2	169/4-1	4	16	65/34	ST*	8	1 5/8″	.430″

STD. PKG.: 6 When UL Type show, cord is also CSA Approved.
Other Constructions available to order. † Non-UL †† Non-CSA *UL only

RETRACTILE COMMUNICATION CORDS

UL APPROVED RETRACTED LENGTHS: 1, 2, 3, 4 ft.

EXTENDED LENGTHS: 6, 11, 16, and 22 ft. OPER. TEMP: −20C to +80°C

DESCRIPTION: Cords are composed of multicond. 23 AWG 21/36 tinned soft copper for a longer flex life. Cords are jacketed in either TPR, or special vinyl-"Byron"-formulation, for a long service life. These cords are suitable for communication equipment, such as ham operations, head sets, radio equipment, telephone car carriers, etc. 300V working. 1 AMP carrying capacity. Nom. cond. resistance .022 ohms per linear foot, .185 ohms per retracted foot. † Stocked in Bryon only. STD. PKG.: 6

BRIM CAT. NO. Retracted Lengths 4 Ft.	3 Ft.†	2 Ft.†	1 Ft.	No. Cond.	Nom. Coil O.D.	Nom. Cord O.D.
132-4	132-3	132-2	132-1	2	5/8″	.210″
132/3-4	132/3-3	132/3-2	132/3-1	3	3/4″	.220″
132/4-4	132/4-3	132/4-2	132/4-1	4	7/8″	.250″
132/5-4	132/5-3	132/5-2	132/5-1	5	1″	.275″
132/6-4	132/6-3	132/6-2	132/6-1	6	1 1/8″	.300″
132/7-4	132/7-3	132/7-2	132/7-1	7	1 3/16″	.310″
132/8-4	132/8-3	132/8-2	132/8-1	8	1 1/4″	.340″
132/10-4	132/10-3	132/10-2	132/10-1	10	1 3/8″	.380″
132/12-4	132/12-3	132/12-2	132/12-1	12	1 1/2″	.390″
132/15-4	132/15-3	132/15-2	132/15-1	15	1 5/8″	.400″

COND. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-Yellow, 8-Brown, 9-Wh/Blk., 10-Red/Blk., 11-Green/Blk., 12-Orange/Blk., 13-Blue/Blk., 14-Yel./Blk., 15-Red/Wh.

SHIELDED RETRACTILE COMMUNICATION CORDS

RETRACTED LENGTHS: 1, 2 and 4 ft.
EXTENDED LENGTHS: 6, 11 and 22 ft.

DESCRIPTION: Single and multi-cond. spiral shielded communication cables, jacketed in TPR or "Bryon" plastic. Shielded conductors are individually shielded. Shield can be pigtailed for soldering. Safe and reliable as a mike cord.
OPER. TEMP.: −20°C to +80°C.

BRIM CAT. NO. Retracted Lengths 4 Ft.	2 Ft.†	1 Ft.†	No. Cond.	Size	Strand.	Nom. Coil O.D.	Nom. Cord O.D.	Volt. Rating	Capacitance MMF/Ft. Linear	Capacitance MMF/Ft. Ret'rd
146-4T	—	—	1	23	21/36	1/2″	.160″	300	56	440
143-4	143-2	143-1	3	2-23 23(S)	21/36	7/8″	.250″††	300	56	450
144-4T	—	—	2	23(S)* 2-23(S)*	21/36	7/8″	.250″	300	56	450
145-4T	—	—	4	2-23 2-23(S)*	21/36	1 1/8″	.280″	300	56	450
147-4T	147-2T	147-1T	2	23(S)**	21/36	7/8″	.250″	300	56	450
148-4	148-2	148-1	4	2-23(S)** 2-23	21/36	1 1/8″	.290″	300	56	450

*Individual conductors are shielded and jacketed. †Stocked in Bryon only. STD. PKG.: 6
**Individually shielded only. ††The nom. coil and cord. O.D.'s for TPR cables are slightly smaller.

UL APPROVED RETRACTILE POWER CORD SETS RETRACTED: 18″. EXTENDS TO APPX.: 9 ft.

300V

SVT and SJT Plastic, SVO and SJO Neoprene jacketed cord sets with a molded plug on one end, other end, jacket stripped and cond. exposed for easy temination. For mobile office equipment and tools.
OPER. TEMP.: −20°C to +60°C STD. PKG.: 6

Brim No.	No. Cond.	AWG	Strand.	UL Ty.	Coil O.D.	Cord O.D.
120/3	3	18	41/34	SVO	1″	.275″
121/3	3	18	41/34	SJO	1 3/8″	.345″
122/3	3	16	65/34	SJO	17/16″	.385″
123/3	3	18	41/34	SVT	7/8″	.260″
124/3	3	18	41/34	SJT	1 3/8″	.330″

BRIM MINIATURE COMMUNICATION CORDS - UL

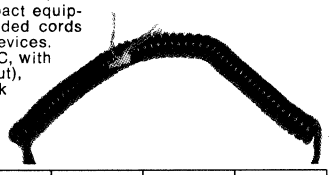
RETRACTED: 1, 2 & 4 ft. EXTENDED: 5, 10 & 20 ft. Miniature in size. Suitable for compact equipment. All cond. 28 AWG 19/40 T.C. ½ AMP rating. Black "Bryon" jacket overall.† OPER. TEMP.: −20°C to +60°C. STD. PKG.: 6

BRIM CAT. NO. Retracted Lengths 4 ft. +	2 ft.	1 ft. +	No. Cond.	AWG	Cond. Strand	Nom. Coil O.D.	Nom. Cord O.D.
118-4‡	118-2†‡	118-1‡	2	28	19/40	1/2″	.150″
118/3-4‡	118/3-2†‡	118/3-1‡	3	28	19/40	1/2″	.160″
119-4‡	119-2†‡	119-1‡	4	28	19/40	1/2″	.170″
124-4‡	125-2†‡	125-1‡	5	28	19/40	5/16″	.180″
125/6-4‡	125/6-2†‡	125/6-1‡	6	28	19/40	5/16″	.190″
125/7-4‡	125/7-2†‡	125/7-1‡	7	28	19/40	5/8″	.200″
126-4‡	126-2†‡	126-1‡	8	28	19/40	3/4″	.220″
—	127-2	—	9	28	19/40	3/4″	.230″
—	127/10-2*	—	10	28	19/40	3/4″	.240″
—	127/11-2	—	11	28	19/40	3/4″	.250″
—	127/12-2	—	12	28	19/40	7/8″	.260″
—	127/13-2	—	13	28	19/40	7/8″	.270″
—	127/15-2	—	15	28	19/40	1″	.280″
—	127/17-2	—	17	28	19/40	1″	.290″

*STD PKG.: 12 † Also available in TPE insulation; cable O.D. slightly larger.
‡ PVC Constructions are UL approved.

BRIM MINIATURE SHIELDED COMMUNICATION CORDS 1 FT. RETRACTED FOR 5 FT., EXTENDED

Miniature in size. Suitable for compact equipment, such as FCC †required shielded cords for computers or other interfaced devices. All conductors are 28 AWG 19/40 TC, with an aluminum mylar foil shield (foil out), a spiral TC shield, & then a Black Byron VW-1 vinyl jacket overall. 18″ & 2″ straight ends, cut blunt. Long lasting.
OPER. TEMP.: −20° to +60°C



BRIM No.	Cord Length	No. of Cond.	AWG	Cond. Strand	Coil O.D.	Cord O.D.
170/2-1*	1 Ft.	2	28	19.40	19/32″	.170″
170/4-1*	1 Ft.	4	28	19/40	21/32″	.175″
170/5-1*	1 Ft.	5	28	19/40	23/32″	.180″
170/6-1	1 Ft.	6	28	19/40	3/4″	.185″
170/7-1*	1 Ft.	7	28	19/40	25/32″	.190″
170/8-1	1 Ft.	8	28	19/40	13/16″	.195″
170/9-1	1 Ft.	9	28	19/40	7/8″	.200″
170/10-1	1 Ft.	10	28	19/40	7/8″	.210″

MODULAR PLUGS ARE AVAILABLE FOR SOME OF THESE CABLES.
STD. PKG.: 25 *STD. PKG.: 6 †FCC DOCKET NO. 20780.

RETRACTILE TEST LEAD WIRE: 1 FT. & 2 FT.

Stretch these coiled test lead wire/cords repeatedly without fear of kinks. 1 ft. extends to appx. 6 ft., 2 ft. to appx. 12 ft. One cond. 20 AWG flexible stranded soft T.C., TPR insulation, for 1000V, 4 AMPS working. STD. COLORS: Black, Red. OPER. TEMP.: −20°C to +60°C.

Brim No.	Cord Lgth.	AWG	Strand.	Nom. Coil O.D.	Nom. Cond. O.D.
114T	12″	20	41/36	5/8″	.165″
115T	24″	20	41/36	5/8″	.165″

STD. PKG.: 6 PVC test lead wire available to order.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 FAX 201-778-2792

WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRIM MINIATURE CABLES • COMMERCIAL RG59/U CABLE

BRIM COMMERCIAL RG 59/U CO-AX

DESCRIPTION: A type RG 59/U construction, composed of 22(1) bare Copperweld, .055″ wall of cellular Polyethylene dielectric, 4x28 AWG drain wires over an Aluminum Polypropylene tape shield, for 100% coverage, and a Black* PVC jacket overall. MAX. OPER. VOLTAGE: 500V RMS. Dielectric Strength: 1000V RMS. OPER. TEMP.: 80°C
STD. P-U: 1000′

ATTENUATION RATINGS FOR BC-59/U

83 MHz CH. 6	211 MHz CH. 13
2.3	4.0

BRIM No.	AWG	% of Shield	Nom. Imp.	Nom. Vel. of Prop.	Nom. Cap. Pf/ft.	Wall Thick.	Jck. Thick.	Nom. O.D.
BC-59/U	22(1)	100%	75 Ohms	81%	17	.058″	.042″	.242″

HI-FI STEREO CABLE

DESCRIPTION: Stranded tinned copper conductors, special soft PVC insulation, twisted, shielded or unshielded. Designed for low hum & noise pickup. Very flexible.
OPER. VOLTAGE: 200V OPER. TEMP.: −40°C to +80°C.

BRIM No.	Cond.	AWG	Strand.	Nom. Wall	Nom. O.D.
UNSHIELDED					
1542	2	32	7/40	.010″	.047″
1543	3	32	7/40	.010″	.053″
1544	4	32	7/40	.010″	.061″
SHIELDED					
1545	1	32	7/40	.010″	.040″
1546	2	32	7/40	.010″	.067″
1547	3	32	7/40	.010″	.073″
1548	4	32	7/40	.010″	.081″
1551*	2	32	7/40	.010″	.080″

STD. P-U: 500′, 1000′ * Individually shielded.
COLOR CODE: 1-White, 2-Red, 3-Black, 4-Green.

MINIATURE UNSHIELDED HI-FI & STEREO CABLE

DESCRIPTION: 2 to 4 conductors of MIL-W-16878D Type B, twisted, no jacket.
OPERATING VOLTAGE: 600V.
OPERATING TEMPERATURE: −55°C to +105°C.

BRIM No.	AWG	Cond.	Strand.	Wall	Nom. O.D.
1605/2	30	2	7/38	.010″	.058″
1605/3	30	3	7/38	.010″	.064″
1605/4	30	4	7/38	.010″	.072″

STD. P-U: 500′, 1000′. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green.

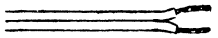
MINIATURE CABLES — SHIELDED, UNSHIELDED, JACKETED, UNJACKETED 105°C—600V.

DESCRIPTION: 2 to 4 conductors of MIL-W-16878D Type B, twisted, shielded or unshielded, jacketed or unjacketed.

BRIM No.	AWG	No. Cond.	Strand	Nom. Wall	Nom. O.D.
UNSHIELDED, CLEAR PVC JACKET					
1610/2	28	2	7/36	.010″	.090″
1610/3	28	3	7/36	.010″	.096″
1610/4	28	4	7/36	.010″	.105″
SHIELDED, UNJACKETED					
1615/2	28	2	7/36	.010″	.093″
1615/3	28	3	7/36	.010″	.099″
1615/4	28	4	7/36	.010″	.108″
SHIELDED, CLEAR PVC JACKET					
1618/2	28	2	7/36	.010″	.113″
1618/3	28	3	7/36	.010″	.119″
1618/4	28	4	7/36	.010″	.128″

STD. P-U: 500′, 1000′
COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green.

MINIATURE ZIP CORD

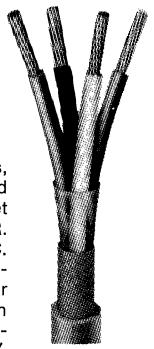


DESCRIPTION: 2 conductors of 28 AWG stranded tinned copper, insulated with 80°C PVC, extruded into a parallel or miniature zip cord. Polarity identification.

BRIM No.	AWG	Strand.	Cond.	Nom. O.D.	STD. P-U
1528	28	7/36	2	.040 x .082″	1000′
1529	29	16/40	2	.040 x .082″	1000′

STD. COLORS: White, Black.

MINIATURE SHIELDED CONTROL AND INSTRUMENTATION CABLES — 600V 105°C MIL-W-16878D TYPE B



DESCRIPTION: Stranded tinned copper conductors, .010″ wall PVC, cabled, mylar binder, braided tinned copper shield, 90% min. coverage, gray PVC jacket overall. All material pass UL VW-1 test. OPER. VOLT.: 600 Volts. OPER. TEMP.: −55°C to +105°C. PVC is resistant to acid, fungus, oils, moisture, solvents, flame. Used as an interconnecting cable for electronic equipment, control and instrumentation cable telemetry and remote control cable for sensitive recording instruments. STD. P-U: 500′, 1000′.

Brim No.	Conductor No.	Conductor AWG	Conductor Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1202/2	2	B-28	7/36	.010″	.010″	.115″
1202/3	3	B-28	7/36	.010″	.012″	.125″
1202/4	4	B-28	7/36	.010″	.012″	.135″
1202/6	6	B-28	7/36	.010″	.015″	.160″
1202/8	8	B-28	7/36	.010″	.015″	.175″
1202/10	10	B-28	7/36	.010″	.018″	.200″
1202/12	12	B-28	7/36	.010″	.018″	.215″
1202/15	15	B-28	7/36	.010″	.020″	.230″
1202/20	20	B-28	7/36	.010″	.022″	.245″
1202/25	25	B-28	7/36	.010″	.025″	.270″
1202/30	30	B-28	7/36	.010″	.028″	.301″

COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green, 5-Orange, 6-Lt. Blue, 7-Wh/Black, 8-Red/Black, 9-Green/Blk, 10-Orange/Blk, 11-Blue/Blk, 12-Black/Wh, 13-Red/Wh, 14-Green/Wh, 15-Blue/Wh, 16-Black/Red, 17-White/Red, 18-Orange/Red, 19-Blue/Red, 20-Red/Green, 21-Org./Green, 22-Blk/Wh/Red, 23-Wh/Blk/Red, 24-Red/Blk/Wh, 25-Grn/Blk/Wh, 26-Org/Blk/Wh, 27-Blu/Blk/Wh, 28-Blk/Red/Grn, 29-Wh/Red/Grn, 30-Red/Blk/Grn.

BRIM MINIFLYX™ SUBMINIATURE ULTRA-FLEXIBLE INSTRUMENTATION CABLES

DESCRIPTION: Ultra-flexible stranded bare copper conductors, .005″ wall of soft flexible PVC, braided shield, White .010″ soft flexible PVC jacket overall. Suitable as an instrumentation cable where Ultra-flexibility & subminiaturization are essential, in low voltage applications. For example: biomedical instruments, missiles, computer, miniature relays, disc drives, servo systems, recorders.
OPERATING TEMPERATURE: −40°C to +90°C.
OPERATING VOLTAGE: 200 Volts.

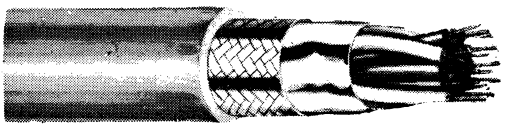
BRIM No.	No. Cond.	AWG	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.	Std. P-U
1210/2	2	30	40/46	.005″	.010″	.073″	1000′
1210/3	3	30	40/46	.005″	.010″	.076″	1000′
1210/4	4	30	40/46	.005″	.010″	.082″	1000′
1210/5	5	30	40/46	.005″	.010″	.088″	1000′
1211/2	2	32	65/50	.005″	.010″	.069″	1000′
1211/3	3	32	65/50	.005″	.010″	.072″	1000′
1211/4	4	32	65/50	.005″	.010″	.077″	1000′
1211/5	5	32	65/50	.005″	.010″	.083″	1000′
1212/2	2	34	40/50	.005″	.010″	.065″	1000′
1212/3	3	34	40/50	.005″	.010″	.068″	1000′
1212/4	4	34	40/50	.005″	.010″	.072″	1000′
1212/5	5	34	40/50	.005″	.010″	.078″	1000′
1213/2	2	36	25/50	.005″	.010″	.061″	1000′
1213/3	3	36	25/50	.005″	.010″	.063″	1000′
1213/4	4	36	25/50	.005″	.010″	.068″	1000′
1213/5	5	36	25/50	.005″	.010″	.072″	1000′
1214/2	2	38	16/50	.005″	.010″	.057″	1000′
1214/3	3	38	16/50	.005″	.010″	.059″	1000′
1214/4	4	38	16/50	.005″	.010″	.063″	1000′
1214/5	5	38	16/50	.005″	.010″	.067″	1000′

COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow.

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRAIDED TC SHIELDED CONTROL — INSTRUMENTATION — MICROPHONE CABLES

UL SHIELDED COMPUTER AND CONTROL CABLES

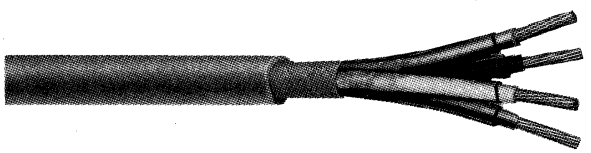


DESCRIPTION: Each conductor UL Type 1061, 24 AWG 7/32 T.C., UL VW-1. Conductors are paired, cabled, mylar wrap, braided tinned copper shield, chrome PVC jacket overall. Color coded. Shielding coverage a minimum of 85%. Cable meets UL Styles 2343 & 2344. Suitable as a control cable, computer cable, shielded audio cable. OPERATING VOLTAGE: 300V UL. OPERATING TEMPERATURE: −40°C to +80°C. STD. P-U: 500′, 1000′.

Brim No.	No. of Pairs	AWG	Strand.	Nom. Wall	Nom. Jack.	Nom. O.D.
1886/5	5	24	7/32	.009″	.062″	.355″
1886/7	7	24	7/32	.009″	.062″	.375″
1886/12	12	24	7/32	.009″	.062″	.460″
1886/15	15	24	7/32	.009″	.062″	.510″
1886/19	19	24	7/32	.009″	.062″	.530″
1886/27	27	24	7/32	.009″	.062″	.620″
1886/37	37	24	7/32	.009″	.062″	.690″
1886/48	48	24	7/32	.009″	.062″	.775″
1886/60	60	24	7/32	.009″	.062″	.845″

See color code for paired cables.
OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

MIL-W-16878D TYPE BN SHIELDED CABLES



DESCRIPTION: One to four conductors, stranded tinned copper, Tyne BN insulation — .010″ wall PVC, clear nylon jacket — conductors are cabled, braided tinned copper shield, white PVC jacket overall. Cable components meet UL VW-1 vertical flame test requirements, and is resistant to oils, acids, solvents, alkalis, moisture, fungus. OPERATING VOLTAGE: 600V. OPERATING TEMPERATURE: −55°C to +105°C. STD. P-U: 500′, 1000′.

Brim No.	No. Cond.	AWG-Strand.	PVC Wall	Nylon Jack.	Nom. Jack.	Nom. O.D.
1450	1	26-7/34	.010″	.003″	.010″	.087″
1450/2	2	26-7/34	.010″	.003″	.014″	.138″
1450/3	3	26-7/34	.010″	.003″	.014″	.142″
1450/4	4	26-7/34	.010″	.003″	.016″	.162″
1451	1	24-19/36	.010″	.003″	.010″	.092″
1451/2	2	24-19/36	.010″	.003″	.016″	.155″
1451/3	3	24-19/36	.010″	.003″	.016″	.162″
1451/4	4	24-19/36	.010″	.003″	.017″	.172″
1452	1	22-19/34	.010″	.003″	.010″	.100″
1452/2	2	22-19/34	.010″	.003″	.016″	.170″
1452/3	3	22-19/34	.010″	.003″	.016″	.180″
1452/4	4	22-19/34	.010″	.003″	.019″	.194″
1453	1	20-19/32	.010″	.003″	.010″	.108″
1453/2	2	20-19/32	.010″	.003″	.019″	.190″
1453/3	3	20-19/32	.010″	.003″	.019″	.200″
1453/4	4	20-19/32	.010″	.003″	.021″	.216″
1454	1	18-19/30	.010″	.003″	.012″	.122″
1454/2	2	18-19/30	.010″	.003″	.021″	.210″
1454/3	3	18-19/30	.010″	.003″	.021″	.225″
1454/4	4	18-19/30	.010″	.003″	.023″	.250″
1455	1	16-19/29	.010″	.003″	.016″	.137″
1455/2	2	16-19/29	.010″	.003″	.023″	.236″
1455/3	3	16-19/29	.010″	.003″	.023″	.242″
1455/4	4	16-19/29	.010″	.003″	.025″	.267″
1456	1	14-19/27	.010″	.004″	.020″	.150″
1456/2	2	14-19/27	.010″	.004″	.027″	.266″

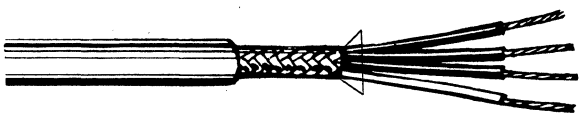
COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green.

SHIELDED MICROPHONE CABLE

DESCRIPTION: 2 Cond. stranded tinned copper .016″ wall polyethylene, fillers, mylar wrap, tinned copper shield, .030″ Hi-gloss Black PVC jacket overall. OPER. VOLT.: 1000V.
COLOR CODE: 1-Black, 2-Red.
OPERATING TEMPERATURE: −20°C to +80°C. Nom. Cap./ft. between one cond. remaining cond. connected to shield: 1884/24—38MMF, 1884/22 — 31MMF.

BRIM No.	No. Cond.	AWG-Strand	Shield	Nom. Wall	Nom. O.D.
1884/24	2	24-10/34	Spiral	.016″	.190″
1884/22	2	22-16/34	Braid	.025″	.240″

MICROPHONE — REMOTE-CONTROL CABLE

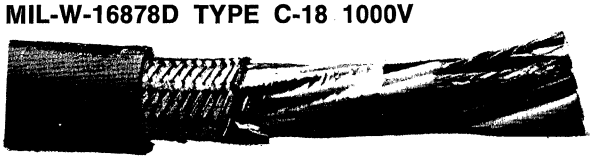


DESCRIPTION: Each conductor stranded TC .014″ wall polyethylene, cabled with fillers, mylar wrap, braided TC shield, chrome PVC jacket overall. OPER. VOLT.: 1000V.
OPERATING TEMPERATURE: −20°C to +80°C.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jack.	Nom. O.D.
1883/2	2	20	26/34	.014″	.030″	.245″
1883/3	3	20	26/34	.014″	.035″	.250″
1883/4	4	20	26/34	.014″	.035″	.260″
1883/5	5	20	26/34	.014″	.035″	.275″
1883/6	6	20	26/34	.014″	.035″	.295″
1883/8	8	20	26/34	.014″	.035″	.325″
1883/10	10	20	26/34	.014″	.035″	.370″
1883/12	12	20	26/34	.014″	.035″	.380″
1883/15	15	20	26/34	.014″	.035″	.405″
1883/20	20	20	26/34	.014″	.035″	.445″

STD. P-U: 500′, 1000′

HEAVY DUTY SHIELDED CONTROL CABLES MIL-W-16878D TYPE C-18 1000V



DESCRIPTION: MIL-W-16878D Ty C-18, 19/30 TC conductors, twisted, mylar wrap braided tinned copper shield — 90% minimum coverage — chrome PVC jacket overall. Color coded. Cable resistant to acids, oils, moisture, solvents, alkalis, fungus. Cable meets UL VW-1 vertical flame test requirements. OPERATING VOLTAGE: 1000V. OPERATING TEMPERATURE: −55°C to +105°C. Suitable as an interconnecting cable for electronic equipment, instrumentation, control, telemetry data, and remote control of sensitive recording instruments.
STD. P-U: 500′, 1000′.

Brim No.	No. Cond.	AWG	Strand.	Nom. Wall	Nom. Jack.	Nom. O.D.
3019/5	5	C-18	19/30	.016″	.025″	.302″
3019/10	10	C-18	19/30	.016″	.035″	.407″
3019/15	15	C-18	19/30	.016″	.040″	.472″
3019/20	20	C-18	19/30	.016″	.045″	.531″
3019/30	30	C-18	19/30	.016″	.055″	.651″

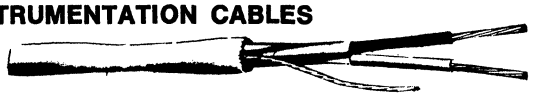
OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

COLOR CODE FOR 3019 SERIES: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-White/Black, 8-Red/Black, 9-Green/Black, 10-Orange/Black, 11-Blue/Black, 12-Black/White, 13-Red/White, 14-Green/White, 15-Blue/White, 16-Black/Red, 17-White/Red, 18-Orange/Red, 19-Blue/Red, 20-Red/Green, 21-Orange/Green, 22-Black/White/Red, 23-White/Black/Red, 24-Red/Black/White, 25-Green/Black/White, 26-Orange/Black/White, 27-Blue/Black/White, 28-Black/Red/Green, 29-White/Red/Green, 30-Red/Black/Green.

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

ALUMINUM MYLAR FOIL SHIELDED CABLES

ALUMINUM MYLAR FOIL SHIELDED CABLE — INSTRUMENTATION CABLES

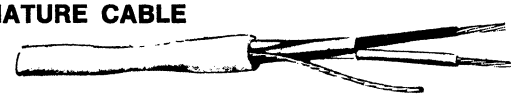


DESCRIPTION: Stranded TC conductors, polyethylene insulation, conductors twisted, an aluminum mylar foil shield, foil out, TC drain wire, gray PVC jacket overall. Color coded. Suitable as a light weight shielded instrumentation cable. Shield provides 100% coverage, and drain wire provides quick and easy grounding. OPERATING VOLTAGE: 400V.
OPERATING TEMPERATURE: −20°C to +60°C.
COLOR CODE 1-Black, 2-Red, 3-White, 4-Green.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jck.	Nom. O.D.
1639	2	24	7/32	.015″	.020″	.155″
1639/3	3	24	7/32	.015″	.020″	.172″
1639/4	4	24	7/32	.015″	.020″	.195″
1640	2	22	7/30	.015″	.020″	.165″
1640/3	3	22	7/30	.015″	.020″	.182″
1640/4	4	22	7/30	.015″	.020″	.205″
1641	2	20	10/30	.015″	.020″	.184″
1641/3	3	20	10/30	.015″	.020″	.202″
1641/4	4	20	10/30	.015″	.020″	.221″
1642	2	18	16/30	.017″	.020″	.215″
1642/3	3	18	16/30	.017″	.020″	.233″
1642/4	4	18	16/30	.017″	.020″	.258″
1643	2	16	26/30	.017″	.020″	.250″
1643/3	3	16	26/30	.017″	.020″	.273″
1644	2	14	41/30	.017″	.025″	.295″
1644/3	3	14	41/30	.017″	.025″	.315″

STD. P-U: 500′, 1000′

ALUMINUM MYLAR FOIL SHIELDED CABLES — MINIATURE CABLE



DESCRIPTION: 2 conductors 22 AWG SOLID or STRANDED TC, .008″ wall of polypropylene, aluminum mylar foil shield, foil out, TC drain wire, chrome PVC jacket overall. Suitable for miniature instrumentation.
OPERATING VOLTAGE: 200V.
OPERATING TEMPERATURE: −40°C to +105°C.
COLOR CODE: 1-Red, 2-Black, 3-White, 4-Green.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jck.	Nom. O.D.
1636	2	22	1	.008″	.018″	.117″
1637	2	22	7/30	.008″	.020″	.134″
1637/2*	4	22	7/30	.008″	.020″	.165″

STD. P-U: 500′, 1000′
* Common drain wire, and common axis.

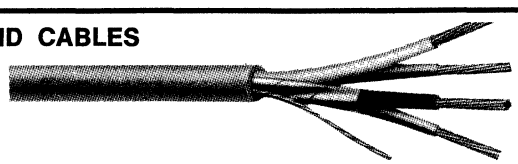
MULTIPLE PAIRED COMMUNICATION CABLES

DESCRIPTION: 22 AWG SOLID TC conductors, .008″ wall polypropylene, or .010″ wall PVC, color coded, conductors are twisted into pairs, the pairs are cabled, an aluminum mylar foil shield over all pairs, foil out, a stranded TC drain wire, chrome PVC jacket overall. Suitable for communication telephone and sound systems, control and instrumentation cable. OPERATING VOLTAGE: 200V. OPERATING TEMPERATURE: −40°C to +105°C.

BRIM NO.	NO. PAIRS	AWG	INSULA.	NOM. WALL	NOM. JCK.	NOM. O.D.
1633/38	38	22-1	Polyprop.	.008″	.045″	.575″
1633/51	51	22-1	PVC	.010″	.050″	.686″

STD. P-U: 500′, 1000′ **SEE FIGURE 1**

SOUND CABLES



DESCRIPTION: Four conductors, stranded TC, .009″ wall polypropylene, two conductors inside an aluminum mylar foil shield, foil out, a stranded TC drain wire and two conductors outside of shield, chrome PVC jacket overall. Polypropylene insulation is used because of its mechanical toughness and excellent high frequency properties. OPERATING VOLTAGE: 300V. OPERATING TEMPERATURE: −40°C to +105°C. COLOR CODE: Shielded: 1-Black, 2-Red. Unshielded: 3-Green, 4-White.

Brim No.	No. Cond.	AWG/ Strand.	No. Shld.	Nom. Wall	Nom. Jck.	Nom. O.D.
1620/4	4	20-7/28	2	.009″	.020″	.185″
1622/4	4	22-7/30	2	.009″	.020″	.167″
1624/4	4	24-7/32	2	.009″	.020″	.150″

STD. P-U: 500′, 1000′.

ALUMINUM MYLAR FOIL SHIELDED CABLES

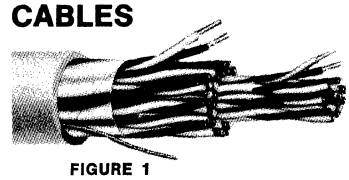


FIGURE 1

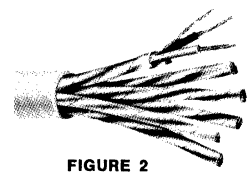


FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 and 18 AWG — POLYETHYLENE

DESCRIPTION: 22 AWG 7/30 TC or 18 AWG 16/30 TC, wall of polyethylene insulated conductors, conductors are twisted into pairs, an aluminum mylar foil shield with a stranded TC drain wire over each pair, the shielded pairs are cabled, chrome PVC jacket overall. Color coded. Nom. Cap. between conductors: 25PF/Ft. Nom. Cap. between one conductor and remaining conductor connected to shield: 45PF/Ft. Suitable for audio, R.F. data and pulse applications requiring superior circuit isolation.
OPERATING VOLTAGE: 300V.
OPERATING TEMPERATURE: −20°C to +60°C.

22 AWG 7/30

Brim No.	No. Pairs	No. Cond.	Nom. Wall	Nom. Jck.	Nom. O.D.
1630/3	3	6	.010″	.025″	.255″
1630/6	6	12	.010″	.030″	.345″
1630/9	9	18	.010″	.035″	.410″
1630/11	11	22	.010″	.040″	.460″
1630/15	15	30	.010″	.045″	.535″
1630/19	19	38	.010″	.050″	.575″
1630/27	27	54	.010″	.055″	.690″

18 AWG 16/30

Brim No.	No. Pairs	No. Cond.	Nom. Wall	Nom. Jck.	Nom. O.D.
1632/3	3	6	.016″	.035″	.375″
1632/6	6	12	.016″	.045″	.555″
1632/9	9	19	.016″	.055″	.620″
1632/11	11	22	.016″	.060″	.745″
1632/15	15	30	.016″	.065″	.820″
1632/19	19	38	.016″	.075″	.870″
1632/27	27	54	.016″	.085″	.995″

STD. P-U: 500′, 1000′. CONSTRUCTION VARIATIONS TO ORDER.
SEE FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 AWG STRANDED — POLYPROPYLENE

DESCRIPTION: 22 AWG 7/30 TC conductors, .010″ wall polypropylene, conductors are twisted into pairs, pairs are cabled, an aluminum mylar foil shield with a stranded TC drain wire over each twisted pair, chrome PVC jacket overall. Jacket passes UL VW-1 vertical flame test. For audio, pulse, data, and RF applications requiring superior circuit isolation. Polypropylene is used for its mechanical toughness and high frequency properties. OPER. VOLT.: 300V. OPER. TEMP.:− 55°C to +105°C. STD. P-U: 500′, 1000′.

Brim No.	No. Pairs	No. Cond.	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1638/3	3	6	7/30	.010″	.025″	.255"
1638/6	6	12	7/30	.010″	.030″	.345"
1638/9	9	18	7/30	.010″	.035″	.410"
1638/11	11	22	7/30	.010″	.040″	.460"
1638/15	15	30	7/30	.010″	.045″	.535"
1638/19	19	38	7/30	.010″	.050″	.575"
1638/27	27	54	7/30	.010″	.055″	.690"

SEE FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 AWG SOLID

DESCRIPTION: 22 AWG SOLID T.C. conductors, .013″ wall PVC, conductors are twisted into pairs, an aluminum mylar foil shield with a TC drain wire over each pair, the pairs are cabled, chrome PVC jacket overall. Color coded. Suitable for audio, pulse, R.F., data applications requiring superior circuit isolation. OPER. VOLT.: 300V. OPERATING TEMPERATURE: −20°C to +60°C. **SEE FIGURE 2**

Brim No.	No. Pairs	No. Cond.	AWG/ Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1635/3	3	6	22-1	.013″	.035″	.275″
1635/6	6	12	22-1	.013″	.037″	.395″
1635/9	9	18	22-1	.013″	.040″	.440″
1635/11	11	22	22-1	.013″	.040″	.485″
1635/15	15	30	22-1	.013″	.045″	.540″
1635/19	19	38	22-1	.013″	.055″	.660″
1635/27	27	54	22-1	.013″	.070″	.800″

STD. P-U: 500′, 1000′. CONSTRUCTION VARIATIONS TO ORDER.

BRIM ELECTRONICS, INC.
WIRE — CABLE — TUBING — HARDWARE
FAIR LAWN, N.J. 201-796-2886

CONTROLLED IMPEDANCE CABLE — ELECTRONIC LACING CORDS & TAPES

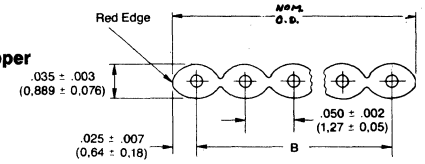
BRIM BRIBBON™ 100 OHM CONTROLLED IMPEDANCE CABLE — UL 2651

DESCRIPTION: Flexible .010" UL VW-1 PVC insulation over 28 AWG 7/36 TC conductors, laid parallel. All conductors are colored Gray, with one edge Red for polarity identification. MEETS UL 2651.

BRIBBON™ cables are designed for fast, mass termination to all standard .050" IDC connectors. Double contour allows reverse plane terminations. Easy conductor separation for circuit routing, and uniform breakouts for harness production.

BRIBBON™ cables replace bulky round twisted paired cables, providing easy routing & greater space utilization within confined chassis. Precise spacing for controlled electrical characteristics — controlled crosstalk thru precisely controlled impedance and capacitance.

CONDUCTORS:
28 AWG (7/36)
Stranded Tinned Copper



Dimensions and charactertiscs subject to change without notice.

BRIM No.	No. Cond.	AWG (Str.)	Cond. to Cond. Spacing	Nom. Wall	Nom. O.D.	Dim. B
2828/9	9	28 (7/36)	.050"	.010"	.035"x .450"	.400"
2828/10	10	28 (7/36)	.050"	.010"	.035"x .500"	.450"
2828/14	14	28 (7/36)	.050"	.010"	.035"x .700"	.650"
2828/15	15	28 (7/36)	.050"	.010"	.035"x .750"	.700"
2828/16	16	28 (7/36)	.050"	.010"	.035"x .800"	.750"
2828/20	20	28 (7/36)	.050"	.010"	.035"x1.000"	.950"
2828/24	24	28 (7/36)	.050"	.010"	.035"x1.200"	1.150"
2828/25	25	28 (7/36)	.050"	.010"	.035"x1.250"	1.200"

STD. P-U: 100 ft.

OPER. TEMP.: 105°C — OPER. VOLTAGE: 300V — OPER. CURRENT: 1 AMP nom. — OPER. IMPEDANCE: 105 Ohms nom.* — OPER. CAPACITANCE: 15 pf/ft. nom.* OPER. PROPAGATION DELAY: 1.4 ns/ft. nom. INSULATION RESISTANCE: >1,000 mΩ/ft. — CONDUCTOR RESISTANCE: 67.5 Ohms/Mft.

BRIM No.	No. Cond.	AWG (Str.)	Cond. to Cond. Spacing	Nom. Wall	Nom. O.D.	Dim. B
2828/26	26	28 (7/36)	.050"	.010"	.035"x1.300"	1.250"
2828/34	34	28 (7/36)	.050"	.010"	.035"x1.700"	1.650"
2828/37	37	28 (7/36)	.050"	.010"	.035"x1.850"	1.800"
2828/40	40	28 (7/36)	.050"	.010"	.035"x2.000"	1.950"
2828/50	50	28 (7/36)	.050"	.010"	.035"x2.500"	2.450"
2828/60	60	28 (7/36)	.050"	.010"	.035"x3.000"	2.950"
2828/64	64	28 (7/36)	.050"	.010"	.035"x3.200"	3.150"

* Measured Ground-Signal-Ground-Signal, etc., with all grounds common.

NYLON FLAT BRAIDED LACING TAPE MIL-T-43435 TYPE I FINISH B

Nylon flat braid, treated with a microcrystalline fungicidal wax finish. Stays flat, flexible, and creates a wider contact to distribute stress. Won't slip when tied. Resistant to fungus, flame, abrasion, and acids.

BRIM No.	Color	Size	Nom. Width	Nom. Thick.	Tensile Strength	Std. P-U
800	White	1	.200"	.016"	135	250 yards
800B	Black	1	.200"	.016"	135	250 yards
801	White	2	.110"	.015"	80	250 yards
801B	Black	2	.110"	.015"	80	250 yards
802	White	3	.085"	.014"	50	500 yards
802B	Black	3	.085"	.014"	50	500 yards
803	White	4	.060"	.012"	25	500 yards
803B	Black	4	.060"	.012"	25	500 yards
804	White	5	.050"	.010"	15	500 yards
804B	Black	5	.050"	.010"	15	500 yards

DACRON FLAT BRAIDED LACING TAPE MIL-T-43435 TYPE II FINISH B

Dacron flat braid, treated with a microcrystalline fungicidal wax finish to help prevent slipping when tying knots, resists fungus and mildew. Won't cut or damage items being held together. Stays flat. Superior to nylon in resistance to acids, and elongation.

BRIM No.	Color	Size	Nom. Width	Nom. Thick.	Tensile Strength	Std. P-U
819	White	2	.110"	.015"	80#	250 yards
819B	Black	2	.110"	.015"	80#	250 yards
820	White	3	.085"	.014"	50#	500 yards
821	White	4	.060"	.012"	25#	500 yards
821B	Black	4	.060"	.012"	25#	500 yards
822	White	5	.050"	.010"	15#	500 yards
822B	Black	5	.050"	.010"	15#	500 yards

TEFLON FLAT BRAIDED LACING TAPE MIL-T-43435 TYPE III FINISH A

OPERATING TEMPERATURE: −100°F TO +450°F. Highly resistant to fluids, fuels and chemicals. Won't outgas under critical vacuum conditions.

BRIM No.	Color	Size	Nom. Width	Nom. Thick.	Tensile Strength	Std. P-U
808	Brown	2	.120"	.011"	30#	250 yards
809	Brown	4	.065"	.011"	15#	500 yards

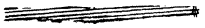
Hazardous vapors above 400°F (204°C).

TEFLON FIBERGLASS FLAT BRAIDED LACING TAPE — MIL-T-43435 TYPE IV

OPERATING TEMPERATURE: −103°F to +800°F FINISH D. Teflon impregnated fiberglass braided flat, gives high temperature performance, and strength. Stays flat. Teflon finish adds strength and abrasion protection. Will not cut or damage item tied.

BRIM No.	Color	Size	Nom. Width	Nom. Thick.	Tensile Strength	Yds./ Tube
805	White	1	.225"	.016"	200#	250
806	White	2	.110"	.016"	100#	250
807	White	3	.085"	.016"	75#	500

ROUND TWISTED NYLON LACING TAPE MIL-T-713D TYPE P



Round twisted nylon, treated with a microcrystalline fungicidal wax to resist mildew, fungus, and help in tying. OPERATING TEMPERATURE: −67°F to +250°F. P-U: 1 # tubes.

BRIM No.	Color	Class	Tensile Strength	Nom. O.D.	Yds/ Tube
810	White	1	70#	.039"	550
810B	Black	1	70#	.039"	550
811	White	2	48#	.029"	750
811B	Black	2	48#	.029"	750
812	White	3	32#	.025"	1100
812B	Black	3	32#	.025"	1100
813	White	—	20#	.020"	2400
813B	Black	—	20#	.020"	2400

ROUND TWISTED LINEN LACING CORD MIL-T-713 TYPE N

Mfg. from pure flax and treated with a microcrystalline fungicidal wax finish to resist fungus, mildew, and aid in tying. MIL-T-713E TyN. OTHER SIZES AND FINISHES ARE AVAILABLE TO ORDER. P-U: 1# tubes.

BRIM No. Natural	Black	Class	Ply	Nom. O.D.	Tensile Strength	Yds./ Tube
814	814B	—	4	.036"	22#	850
815	815B	3	6	.044"	32#	600
816	816B	2	8	.051"	48#	450
817	817B	—	9	.054"	56#	400
818	818B	1	12	.063"	70#	300

BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

FLAT BRAIDED TINNED COPPER SHIELDING — TUBULAR BRAID PER QQ-B-575A

FLAT BRAIDED TINNED COPPER

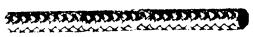
TINNED COPPER FLAT shielded braid, woven then rolled flat. Conductors are annealed for flexibility. Used as grounding cable, bonding strap for aircrafts, marine equipment, vehicles, etc., to eliminate ignition interference. Easily slides over wire and cables. Also used as a high current conductor at low voltages.

BRIM No.	Construction	Flattened I.D.	Flattened O.D.	Appx. AWG Equiv.	Nom. CMA	Current Carrying Cap.* Amps	Std. P-U	BRIM No.	Construction	Flattened I.D.	Flattened O.D.	Appx. AWG Equiv.	Nom. CMA	Current Carrying Cap.* Amps	Std. P-U
1110-1/32	12x 2 of #36	1/32"	3/64"	#22	600	7	100',1000'	1110-3/4	48x11 of #36	3/4"	13/16"	# 9	13200	62	100', 500'
1110-3/64	12x 2 of #36	3/64"	1/16"	#22	600	7	100',1000'	1110-25/32	48x19 of #36	25/32"	27/32"	# 7	22800	88	100', 250'
1110-1/16	16x 3 of #36	1/16"	5/64"	#19	1200	11	100',1000'	1110-1	48x19 of #36	1"	1 1/16"	# 7	22800	88	100', 250'
1110-3/32	16x 3 of #36	3/32"	1/8"	#17	1800	11	100',1000'	1110-1-3/8	48x19 of #36	1 3/8"	1 7/16"	# 7	22800	88	50', 100'
1110-1/8	24x 5 of #36	1/8"	5/32"	#15	3000	25	100',1000'	1110-1-1/2	48x19 of #36	1 1/2"	1 9/16"	# 7	22800	88	50', 100'
1110-3/16	24x 5 of #36	3/16"	7/32"	#15	3000	25	100',1000'	1110-1-3/4	48x27 of #30	1 3/4"	1 7/8"	#00	129600	230	50', 100'
1110-1/4	24x 7 of #36	1/4"	9/32"	#14	4200	32	100',1000'	1110-2	48x32 of #30	2"	2 1/4"	#000	153600	270	50', 100'
1110-3/8	48x 4 of #36	1/8"	15/32"	#13	4800	35	100', 500'	1110-2-1/4	48x35 of #30	2 1/4"	2 1/2"	#000	168000	300	50', 100'
1110-1/2	48x 7 of #36	1/2"	19/32"	#11	8400	50	100', 500'	1110-2-1/2	48x45 of #30	2 1/2"	2 3/4"	#0000	216000	320	50', 100'
1110-5/8	48x 8 of #36	5/8"	23/32"	#10	9600	53	100', 500'	1110-3	48x64 of #30	3"	3 1/4"	300MCM	307200	430	50', 100'

* Values are based on copper in free air at 65°F — intended as a guide only.

TUBULAR BRAID PER QQ-B-575A

TINNED COPPER TUBULAR shielded braid mfg. round per MIL Spec. QQ-B-575A. Shielding coverage of 95% or more. Used in military or critical commercial applications where maximum shielding coverage is required against electrostatic interference. Also useful as grounding wire/cable, bonds, leads, flexible connectors, and protection against mechanical abrasion and stresses for wires/cables. Each wire is soft drawn tinned copper.



BRIM No.	Nom. I.D. Round	No. of Wires	Const.	Indiv. Wire AWG	Appx. AWG Equiv.	Nom. CMA	Current Carrying Cap.* Amps	Std. P-U	BRIM No.	Nom. I.D. Round	No. of Wires	Const.	Indiv. Wire AWG	Appx. AWG Equiv.	Nom. CMA	Current Carrying Cap.* Amps	Std. P-U
1100-1/32	1/32"	24	24-1	36	#22	600	7	100',1000'	1100-1/2	1/2"	528	48-11	36	# 9	13200	62	100', 500'
1100-1/16	1/16"	48	24-2	36	#19	1200	11	100',1000'	1100-9/16	9/16"	528	48-11	36	# 9	13200	62	100', 250'
1100-5/64	5/64"	72	24-3	36	#17	1800	16	100',1000'	1101-9/16	9/16"	480	48-10	30	# 3	48000	145	100', 250'
1100-7/64	7/64"	96	24-4	36	#16	2400	19	100',1000'	1101-21/32	21/32"	768	48-16	30	# 1	77180	190	100', 250'
1100-1/8	1/8"	120	24-5	36	#15	3000	25	100',1000'	1100-11/16	11/16"	720	48-15	36	# 8	18000	70	100', 250'
1100-5/32	5/32"	240	24-10	36	#12	6000	40	100',1000'	1100-25/32	25/32"	864	48-18	36	# 7	21600	88	100', 250'
1100-11/64	11/64"	168	24-7	36	#14	4200	32	100',1000'	1100-13/16	13/16"	864	48-18	36	# 7	21600	88	100', 250'
1100-3/16	3/16"	192	24-8	36	#13	4800	33	100',1000'	1101-7/8	7/8"	336	48-7	30	# 5	33600	100	50', 100'
1100-13/64	13/64"	312	24-13	36	#11	7800	46	100',1000'	1101-1	1"	384	48-8	30	# 4	38400	120	50', 100'
1100-1/4	1/4"	384	24-16	36	#10	9600	53	100',1000'	1101-1-1/8	1 1/8"	432	48-9	30	# 4	43200	130	50', 100'
1101-9/32	9/32"	120	24-5	30	# 9	12000	60	100', 500'	1101-1-1/4	1 1/4"	480	48-10	30	# 3	48000	145	50', 100'
1100-3/8	3/8"	384	48-8	36	#10	9600	53	100', 500'	1101-1-3/8	1 3/8"	528	48-11	30	# 3	52800	150	50', 100'
1101-7/16	7/16"	240	24-10	30	# 6	24000	90	100', 500'	1101-1-1/2	1 1/2"	576	48-12	30	# 3	57600	165	50', 100'

Larger sizes, and construction variations available to order. All of the above available in bare copper or silver plated copper.
* Values based on copper in free air at 65°F. OVAL & FLAT BRAID PER QQ-B-575 IS AVAILABLE TO ORDER.

STAINLESS STEEL TUBULAR

Shielded braid mfg. with type 304 soft drawn Stainless Steel. Used where higher temperatures and/or greater mechanical strength is needed. STD. P-U 100 feet

BRIM No.	Nom. I.D. When Rounded	Total No. of Wires	Construction	AWG of Indiv. Wires	AWG Equiv.	Nom. CMA	BRIM	Nom. I.D. When Rounded	Total No. of Wires	Construction	AWG of Indiv. Wires	AWG Equiv.	Nom. CMA
1150-1/32	1/32"	48	16-3	#36	#19	1200	1150-3/8	3/8"	336	48-7	#36	#11	8400
1150-1/16	1/16"	48	24-2	#36	#19	1200	1150-7/16	7/16"	384	48-8	#36	#10	9600
1150-5/64	5/64"	72	24-3	#36	#17	1800	1150-1/2	1/2"	432	48-9	#36	#10	10800
1150-7/64	7/64"	96	24-4	#36	#16	2400	1150-5/8	5/8"	528	48-11	#36	# 9	13200
1150-1/8	1/8"	120	24-5	#36	#15	3000	1150-3/4	3/4"	720	48-15	#36	# 8	18000
1150-3/16	3/16"	192	24-8	#36	#13	4800	1150-1	1"	336	48-7	#30	# 5	33600
1150-7/32	7/32"	240	24-10	#36	#12	6000	1150-1-1/2	1-1/2"	480	48-10	#30	# 3	48000
1150-1/4	1/4"	312	24-13	#36	#11	7800							

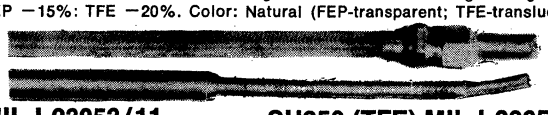
OTHER CONSTRUCTIONS AVAILABLE TO ORDER. OVAL BRAID — PER QQ-B-575 AVAILABLE TO ORDER.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 FAX 201-778-2792 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

HEAT SHRINKABLE TUBINGS: BRIFLON™ TEFLON • TEFZEL – SILICONE RUBBER TUBING

SH200, SH250, SH254 & SHTF tubings have excellent resistance to weathering, chemicals (oils, fuels, solvents, acids, alkalis, fluids), & fungus, are non-corrosive, low water absorption (.01%), will not burn nor support combustion, have hi dielectric strength (850V/MIL dry), low dielectric constant, & a very low coefficient of friction. Hi mechanical strength yet flexible. (Low temp. flexibility −67°C). Their excellent electrical characteristics remain stable throughout their electrical range. Longitudinal change with full shrinkage: FEP −15%: TFE −20%. Color: Natural (FEP-transparent; TFE-translucent).



SH200 (FEP) MIL-I-23053/11

SH200: an extruded modified FEP (Fluorinated-Ethylene-Propylene) Teflon* tubing, with a continuous Oper. Temp. of +205°C (400°F). SH200 completely shrinks at 350°F (partial shrinkage possible at 200°F). Shrinkage ratio — 1.3:1.. It melts at 525-563°F so it can be used to encapsulate. Now many sensitive components, parts, devices, etc. can be protected with Teflon*. Fills void between the hi temp. of TFE, and low temp. of PVC and polyolefin tubings.

Brifion No.	Min. Exp. I.D.	Max. Rec. Dimen.** I.D	Max. Rec. Dimen.** Wall	±Wall Toler.
SH200-24	.031″	.027″	.008″	.002″
SH200-22	.036″	.032″	.008″	.002″
SH200-20	.045″	.039″	.008″	.002″
SH200-18	.060″	.049″	.008″	.002″
SH200-16	.075″	.061″	.009″	.002″
SH200-14	.092″	.072″	.009″	.002″
SH200-12	.115″	.089″	.009″	.002″
SH200-10	.141″	.114″	.010″	.003″
SH200-9	.158″	.124″	.010″	.003″
SH200-8	.180″	.143″	.010″	.003″
SH200-7	.197″	.158″	.011″	.004″
SH200-6	.225″	.180″	.011″	.004″
SH200-5	.248″	.198″	.011″	.004″
SH200-4	.290″	.226″	.011″	.004″
SH200-3	.310″	.249″	.011″	.004″
SH200-2	.365″	.280″	.012″	.004″
SH200-1	.400″	.311″	.012″	.004″
SH200-0	.440″	.349″	.012″	.004″
SH200-3/8″	.500″	.383″	.015″	.004″
SH200-7/16″	.580″	.448″	.020″	.004″
SH200-1/2″	.666″	.510″	.020″	.004″
SH200-5/8″	.830″	.637″	.025″	.004″
SH200-3/4″	1.000″	.764″	.030″	.004″
SH200-7/8″	1.170″	.891″	.035″	.004″
SH200-1″	1.330″	1.020″	.035″	.004″
SH200-1 1/4″	1.660″	1.270″	.035″	.004″
SH200-1 1/2″	2.000″	1.520″	.035″	.004″

STD. P-U: 100′, 4 foot minimum lengths. * DuPont.

**All dimensions are based on full recovery.

OTHER SIZES IN TFE AND FEP, AND COLOR ARE AVAILABLE TO ORDER. ETCHING FOR BONDING IS AVAILABLE TO ORDER.

SH254 4:1 SHRINKABLE TFE

SH254 tubing can recover to approximately ¼ of its expanded size when heated to its "gel" point (621°F-625°F). Because of its exceptional shrinkage capability, its recommended that the outside diameter of the object to be shrunk down upon should not be more than 50% of the expanded I.D. of the size of the tubing used. Many constructions conform to AMS 3584 and MIL-I-23053/12 class 5. SH254 is non-flammable, non-corrosive, and offers all of the other outstanding electrical, chemical, and mechanical properties of Teflon*. * DuPont

Brifion No.	Max. Exp. I.D.	Max. Rec. Dimin.** I.D.	Max. Rec. Dimin.** Wall	±Wall Toler.
SH254-3/64″*	.078″	.025″	.009″	.002″
SH254-1/8″*	.125″	.037″	.010″	.002″
SH254-3/16″	.187″	.050″	.012″	.003″
SH254-1/4″*	.250″	.063″	.012″	.003″
SH254-5/16″	.312″	.079″	.012″	.003″
SH254-3/8″*	.375″	.096″	.012″	.003″
SH254-7/16″	.438″	.112″	.012″	.003″
SH254-1/2″*	.500″	.144″	.015″	.004″
SH254-9/16″	.562″	.155″	.015″	.004″
SH254-5/8″*	.625″	.178″	.015″	.004″
SH254-1 1/16″	.687″	.198″	.015″	.004″
SH254-3/4″*	.750″	.224″	.015″	.004″
SH254-7/8″	.875″	.244″	.015″	.004″
SH254-1″*	1.000″	.278″	.015″	.004″
SH254-1 1/4″*	1.250″	.347″	.015″	.004″

STD. P-U: 100′, in 4 foot lengths. Std. Color: Natural (Clear)
* Per MIL-I-23053/12 Class 5

SH250 (TFE) MIL-I-23053/12

SH250: an extruded modified TFE (PolyTetra-FluoroEthylene) Teflon* tubing, with a continuous Operating Temperature of +250°C (550°F). SH250 will shrink when heated to 621°F. Shrinkage ratio — 2:1. Used wherever hi-temperature protection required. Applications: Protective covers in corrosive environments, protection for electronic components, cable jacketing, covers on immersion heaters, heat exchangers, light duty bearing surfaces, roll covers.

Brifion No.	Class	Min. Exp. I.D.	Max. Rec. Dimen.** I.D.	Max. Rec. Dimen.** Wall	±Wall Toler.
SH250-30	3	.034″	.015″	.009″	.002″
SH250-28	3	.038″	.018″	.009″	.002″
SH250-26	3	.046″	.022″	.010″	.002″
SH250-24	3	.050″	.027″	.010″	.002″
SH250-22	3	.055″	.032″	.012″	.003″
SH250-20	3	.060″	.039″	.012″	.003″
SH250-19	3	.065″	.043″	.012″	.003″
SH250-18	3	.076″	.049″	.012″	.003″
SH250-17	3	.085″	.054″	.012″	.003″
SH250-16	3	.093″	.061″	.012″	.003″
SH250-15	3	.110″	.067″	.012″	.003″
SH250-14	3	.120″	.072″	.012″	.003″
SH250-13	3	.140″	.080″	.012″	.003″
SH250-12	3	.150″	.089″	.012″	.003″
SH250-11	3	.170″	.101″	.012″	.003″
SH250-10	3	.191″	.112″	.012″	.003″
SH250-9	3	.205″	.124″	.015″	.004″
SH250-8	3	.240″	.141″	.015″	.004″
SH250-7	3	.270″	.158″	.015″	.004″
SH250-6	3	.302″	.178″	.015″	.004″
SH250-5	3	.320″	.198″	.015″	.004″
SH250-4	3	.370″	.224″	.015″	.004″
SH250-3	3	.390″	.249″	.015″	.004″
SH250-2	3	.430″	.278″	.015″	.004″
SH250-1	3	.450″	.311″	.015″	.004″
SH250-0	3	.470″	.347″	.015″	.004″
SH250-3/8″	2	.560″	.399″	.025″	.006″
SH250-1/2″	2	.750″	.524″	.025″	.006″
SH250-5/8″	2	.930″	.655″	.030″	.006″
SH250-3/4″	2	1.125″	.786″	.035″	.008″
SH250-1″	2	1.500″	1.036″	.035″	.008″

STD. P-U 100′, Sizes 26-14: 3 foot minimum lengths. 13-1″ 1 foot minimum length. Sizes 30 to 0 are per class 3. Sizes 3/8″ to 1″ are per class 2.

SHTF SHRINKABLE TFE/FEP

SHTF is made with a combination of TFE and FEP Teflons*. The inner wall is made of FEP and the outer wall of TFE. When the tubing is heated, the TFE begins to shrink down tightly over the FEP. The FEP inner wall melts and flows-squeezes-into and around the item covered, creating a solid or near solid encapsulation. The fit is so tight that it is safe against most environmental hazards, involving pull or vibrations. It can be used as a strain relief, or moisture-proof covering for wires, connectors, terminals, splices, electronic devices, etc. SHTF is non-flamable, non-corrosive, and offers all of the other outstanding electrical, chemical, and mechanical properties of Teflon*. Color: Natural (Transparent). OPERATING TEMPERATURE: −85°F to +450°F.

Brifion No.	Min. Exp. I.D.	Max. Rec. Dimen.** I.D.	Max. Rec. Dimen.** Wall	Std. P-U+
SHTF-1	.065″	.000″**	.015″	100′
SHTF-2	.115″	.045″	.015″	100′
SHTF-3	.130″	.060″	.015″	100′
SHTF-4	.180″	.065″	.015″	100′
SHTF-5	.190″	.070″	.015″	100′
SHTF-6	.240″	.150″	.020″	100′
SHTF-7	.350″	.210″	.025″	100′
SHTF-8	.480″	.315″	.032″	100′
SHTF-9	.700″	.440″	.055″	100′
SHTF-10	1.000″	.700″	.045″	100′

** Fully closes off. +In random lengths of 1 foot to 3 feet. * DuPont

OTHER SIZES AND COLORS AVAILABLE TO ORDER.

BRIMFLEX BSR SILICONE RUBBER TUBING— ZZ-R-765 200°C

BRIMFLEX BSR Silicone Rubber tubing is an extremely elastic and stable high temperature and low temperature tubing. Besides being extremely flexible, it has excellent mechanical strength (tear resistance, tensile strength, elongation, and weather resistance), and outstanding dielectric strength, and corona resistance. BSR meets MIL-R-5847 and Fed. Spec. ZZ-R-765, Class 2b. STD. COLOR: WHITE. OPERATING VOLTAGE: 28 AWG-5/8″ — 300V, 3/4″-1″ — 600V.

Brimflex No.	Size	Nom. I.D.	Nom. Wall	Std. P.U.
BSR-28	28	.015″	.016″	1000′
BSR-26	26	.018″	.016″	1000′
BSR-24	24	.022″	.016″	1000′
BSR-22	22	.027″	.016″	1000′
BSR-20	20	.034″	.016″	1000′
BSR-19	19	.038″	.016″	1000′
BSR-18	18	.042″	.016″	1000′
BSR-17	17	.047″	.016″	1000′
BSR-16	16	.053″	.016″	1000′
BSR-15	15	.059″	.016″	500′
BSR-14	14	.066″	.016″	500′
BSR-13	13	.076″	.016″	500′
BSR-12	12	.085″	.016″	500′
BSR-11	11	.095″	.016″	500′
BSR-10	10	.106″	.016″	500′
BSR-9	9	.118″	.020″	500′
BSR-8	8	.133″	.020″	500′
BSR-7	7	.148″	.020″	500′
BSR-6	6	.166″	.020″	500′
BSR-5	5	.186″	.020″	250′
BSR-4	4	.208″	.020″	250′
BSR-3	3	.233″	.020″	250′
BSR-2	2	.262″	.020″	250′
BSR-1	1	.294″	.020″	250′
BSR-0	0	.329″	.025″	250′
BSR-3/8″	3/8″	.382″	.025″	250′
BSR-7/16″	7/16″	.446″	.025″	250′
BSR-1/2″	1/2″	.508″	.025″	100′
BSR-5/8″	5/8″	.636″	.030″	100′
BSR-3/4″	3/4″	.760″	.060″	100′
BSR-7/8″	7/8″	.895″	.070″	100′
BSR-1″	1″	1.010″	.080″	100′

SHRINKABLE E-TFE TEFZEL* TUBING — MIL-I-23053/14

Designed for ruggedness. Excellent chemical resistance and high dielectric qualities which exist over a wide temperature range. Superior to Teflon* in its mechanical strength. Shrink Ratio-1.5:1. Shrinks quickly on application of only 300°F (150°C). Because of its quick shrinking ability at a relatively low temperature, many heat sensitive components and materials (solder joints, plastics, wood, metal) can now be easily protected. It is also heat sealable, chemically inert, self-extinguishing (non-flamable in air). Dielectric Strength: 400V/MIL. Uses: cable jacketing, wire markers, terminal covers, temperature probes, immersion tubing, heat exchanger coils, sight glasses, roll covers, chafe guards, component insulation. STD. COLOR: Translucent.

Brimflex No.	Min. Expd. I.D.	Recovered Dimen. I.D. Max.	Recovered Dimen. Wall	±Wall† Toler.
SH150-1/8″	.125″	.083″	.010″	.002″
SH150-3/16″	.188″	.125″	.011″	.002″
SH150-1/4″	.250″	.166″	.013″	.003″
SH150-3/8″	.375″	.250″	.013″	.003″
SH150-1/2″	.500″	.345″	.013″	.003″
SH150-3/4″	.750″	.500″	.018″	.004″
SH150-1″	1.000″	.665″	.022″	.004″

Brimflex No.	AWG**	Rec. M.M.	STD. P-U
SH150-1/8″	12	2.11	100′, 1000′
SH150-3/16″	8	3.18	100′, 1000′
SH150-1/4″	6	4.62	100′, 1000′
SH150-3/8″	2	6.35	100′, 1000′
SH150-1/2″	00	8.76	100′, 1000′
SH150-3/4″	0000	12.70	100′, 500′
SH150-1″	350MCM	16.89	100′, 500′

STD. LENGTHS: 4 foot lengths with random lengths of 1 foot minimum. † If full recovery allowed.

E-TFE TEFZEL* SPAGHETTI TUBING IS AVAILABLE TO ORDER. **O.D. of closest equivalent wire. *DuPont SHRINKABLE TUBINGS per MIL-I-23053/7 & /8 ARE AVAILABLE.

BRIM WIRE — CABLE — TUBING — HARDWARE

ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRIMFLEX™ SHRINKABLE TUBINGS — SPIRAL WRAP TUBINGS

BRIFLEX™ SHRINKABLE PVC TUBINGS: MIL-I-23053/2B & HEAVY WALL PVC TUBING

SHRINKABLE IRRADIATED POLYOLEFIN: MIL-I-23053/5 — SPIRAL WRAP TUBING

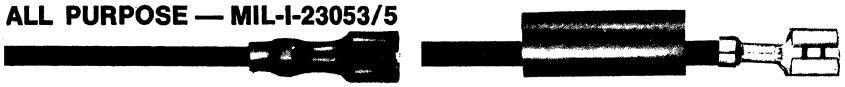
BRIMFLEX™ POLYVINYLCHLORIDE SHRINKABLE TUBING — MIL-I-23053/2B & UL VW-1

SHRINK RATIO: 2:1 (50%) — OPERATING TEMPERATURE: −20°C to +105°C
BRIMFLEX™ SH105 is a flexible all purpose shrinkable PVC tubing that shrinks 50% of its expanded size when exposed to temperatures below 200°F (within one minute). SH105 meets MIL-I-23053/2B, Class 2, and conforms to MIL-I-631D, Grade C. Longitudinal shrinkage: approximately 20%. SH105 is self-extinguishing, resistant to fungus, most oils, and chemicals, sunlight, moisture, and is non-corrosive. SH105 is suitable for insulating wires, cables, and electronic components, that vary in shapes, and dimensions. Produces a smooth snug flexible fit, in most applications — even around sharp bends. Dielectric Strength: 700V/MIL min., ASTM-D922. Tensile Strength: 2000PSI min. Suggested Storage Temperature: under 70°F for up to 10 months. UL Approved SH105 is available to order.
STD. COLORS: Black, Clear, Red, White. Other colors available to order.

Brimflex No.	Min. Exp. I.D.	Recovered Dimen.* I.D. Max.	Recovered Dimen.* Wall	±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
SH105-3/64"	.046"	.023"	.020"	.003"	24-22	0.59	— — 1000'
SH105-1/16"	.063"	.031"	.020"	.003"	22-20	0.80	100', 500', 1000'
SH105-3/32"	.093"	.046"	.025"	.003"	18-16	1.19	100', 500', 1000'
SH105-1/8"	.125"	.063"	.025"	.003"	14	1.59	100', 500', 1000'
SH105-3/16"	.187"	.093"	.025"	.003"	12-10	2.39	100', 500', 1000'
SH105-1/4"	.250"	.125"	.025"	.005"	8	3.18	100', 500', 1000'
SH105-5/16"	.312"	.156"	.028"	.005"	7	3.97	100', 500', 1000'
SH105-3/8"	.375"	.187"	.028"	.005"	5	4.77	100', 500', 1000'
SH105-1/2"	.500"	.250"	.028"	.005"	2	6.35	100', 250', 500'
SH105-3/4"	.750"	.375"	.033"	.005"	00	9.52	100', 250', 500'
SH105-1"	1.000"	.500"	.038"	.005"	0000	12.70	100', 250', 500'
SH105-1 1/2"	1.500"	.750"	.043"	.005"	450MCM	19.05	25', 50', 100'
SH105-2"	2.000"	1.000"	.048"	.006"	750MCM	25.40	25', 50', 100'
SH105-3"	3.000"	1.500"	.068"	.007"	1750MCM	38.10	— 50', 100'
SH105-4"	4.000"	2.000"	.073"	.008"	2750MCM	50.80	— 50', 100'

* If full recovery allowed. ** O.D. of closest equivalent wire.

SHRINKABLE IRRADIATED POLYOLEFIN TUBING — ALL PURPOSE — MIL-I-23053/5

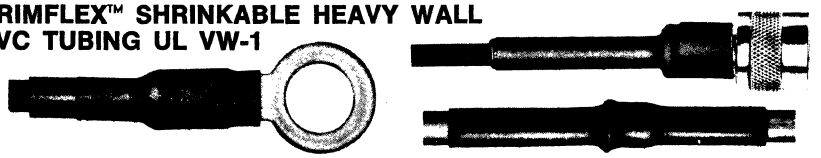


Flexible, yet greater electrical, chemical, and abrasion resistance, and greater mechanical strength than that of shrinkable PVC tubing. It not only insulates, it can also encapsulate, giving a watertight fit. Won't crack or peel. Its non-corrosive, has excellent resistance to soldering irons, oils, solvents, acids, alkalis, fuels, hydraulic fluids, fungus. Shrink Ratio-2:1 (50%). Shrinks when exposed to 250°F. Longitudinal shrinkage: 5%. Dielectric Strength: 1300V/MIL. Colored tubing is self-extinguishing; clear tubing is slow burning. Uses: Strain relief, jacketing material, component insulation. OPERATING TEMPERATURE: −55°C to +135°C. Meets MIL-I-23053/5, Class 1, 2. MIL-I-7444B, AMS 3636B, AMS 3637A, ASTM D876, ASTM D150, ASTM D257, ASTM D2671, ASTM D792.

Brimflex No.	Min. Exp. I.D.	Recovered Dimen.* I.D. Max.	Recovered Dimen.* Wall	±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
SH135-3/64"	.046"	.023"	.016"	.003"	24-22	0.59	100', 500', 1000'
SH135-1/16"	.063"	.031"	.016"	.003"	22-20	0.80	100', 500', 1000'
SH135-3/32"	.093"	.046"	.020"	.003"	18-16	1.19	100', 500', 1000'
SH135-1/8"	.125"	.063"	.020"	.003"	14	1.59	100', 500', 1000'
SH135-3/16"	.187"	.093"	.020"	.003"	12-10	2.39	100', 500', 1000'
SH135-1/4"	.250"	.125"	.025"	.003"	8	3.18	100', 500', 1000'
SH135-3/8"	.375"	.187"	.025"	.003"	5	4.77	50', 100', 200'
SH135-1/2"	.500"	.250"	.025"	.003"	2	6.35	50', 100', 200'
SH135-3/4"	.750"	.375"	.030"	.005"	00	9.52	25', 50', 100'
SH135-1"	1.000"	.500"	.035"	.006"	0000	12.70	25', 50', 100'
SH135-1 1/2"	1.500"	.750"	.040"	.006"	450MCM	19.05	25', 50', 100'
SH135-2"	2.000"	1.000"	.045"	.007"	750MCM	25.40	25', 50', 100'
SH135-3"	3.000"	1.500"	.050"	.008"	1750MCM	38.10	25', 50', 100'
SH135-4"	4.000"	2.000"	.055"	.009"	2750MCM	50.80	25', 50', 100'

STD. COLORS: Black, Clear, Red, White. Other colors are available to order.
* If full recovery allowed. ** O.D. of closest equivalent wire.

BRIMFLEX™ SHRINKABLE HEAVY WALL PVC TUBING UL VW-1



Brmflex No.	Min. Exp. I.D.	Recovered Dimen.* I.D. Max.	Recovered Dimen.* Wall	±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
SH110-1/8"	.125"	.063"	.032"	0.05"	14	1.59	1000'
SH110-3/16"	.187"	.093"	.032"	0.05"	12-10	2.39	1000'
SH110-1/4"	.250"	.125"	.032"	0.05"	8	3.18	1000'
SH110-5/16"	.312"	.156"	.032"	0.05"	6	3.97	500'
SH110-3/8"	.375"	.187"	.032"	0.05"	4	4.77	500'
SH110-1/2"	.500"	.250"	.032"	0.05"	2	6.35	250'

* If full recovery allowed. ** O.D. of closest equivalent wire.

SEMI-RIGID POLYOLEFIN SHRINKABLE TUBING IS AVAILABLE TO ORDER.
CUT AND PRINTED WIRE MARKERS ARE AVAILABLE TO ORDER.

SPIRAL WRAP TUBINGS FOR HARNESSING

Easily twists on and off. Can be repeatedly flexed without cracking or breaking. Expandable. Holds wire, and cable bundles securely, and allows leadoffs or additions at any point. Bends around sharp corners, and protection against sharp edges. Available in 4 types of insulations: Polyethylene, Rulan (a flame retardent type of polyethylene), Nylon, Teflon. All are resistant to organic solvents, alkalis, and acids (nylon satisfactory except for strong acids). OSHA and UL approved for harnessing cables.

Brimflex No.	Covers Max. Wire Group	Nom. O.D.	Nom. Wall
POLYETHYLENE (CLEAR)*		**−105°F to +215°F**	
PSW-1/8"	1/16" to 1/2"	1/8"	.032"
PSW-3/16"	1/8" to 1"	3/16"	.032"
PSW-1/4"	3/16" to 2"	1/4"	.045"
PSW-3/8"	5/16" to 3"	3/8"	.052"
PSW-1/2"	3/8" to 4"	1/2"	.062"
PSW-3/4"	3/4" to 5"	3/4"	.065"
PSW-1"	1" to 7"	1"	.095"
RULAN (WHITE)**		**−8°F to +200°F**	
RSW-1/8"	1/16" to 1/2"	1/8"	.032"
RSW-1/4"	3/16" to 2"	1/4"	.045"
RSW-3/8"	5/16" to 3"	3/8"	.052"
RSW-1/2"	3/8" to 4"	1/2"	.062"
RSW-3/4"	5/8" to 5"	3/4"	.065"
RSW-1"	1" to 7"	1"	.095"
NYLON (NATURAL)***		**−121°F to +300°F**	
NSW-1/8"	1/16" to 1/2"	1/8"	.015"
NSW-1/4"	3/16" to 2"	1/4"	.025"
NSW-3/8"	5/16" to 3"	3/8"	.032"
NSW-1/2"	3/8" to 4"	1/2"	.032"
NSW-3/4"	1/2" to 5"	3/4"	.032"
NSW-1"	1" to 7"	1"	.032"
TEFLON (NATURAL)****		**−275°F to +500°F**	
TSW-1/8"	1/16" to 1/2"	1/8"	.030"
TSW-3/16"	1/8" to 1"	3/16"	.030"
TSW-1/4"	3/16" to 2"	1/4"	.030"
TSW-3/8"	5/16" to 2 1/2"	3/8"	.030"
TSW-1/2"	3/8" to 3"	1/2"	.030"
TSW-3/4"	5/8" to 4"	3/4"	.032"
TSW-1"	3/4" to 5"	1"	.040"

STD. P-U 1/8" to 1/4" — 100', 1000'; 3/8" to 1/2" — 100', 500'; 3/4" and 1" — 100'

* MIL-E-16400, MIL-P-3803, MIL-I-631D, MIL-E- 5400F, Fed. Spec. L-P-390, ASTM D1248-65T.
** UL-70, ASTM D635, MIL-E-5400F.
*** MIL-P-20693A, MIL-P-17091B, L-P-4100, MIL-T-47287
**** MIL-1-22129C, AMS3653C, AMS3655, MIL-T-47287

BLACK NYLON AND POLYETHYLENE SPIRAL WRAP FOR ULTRAVIOLET RAY PROTECTION IS AVAILABLE.

LOW & HI TEMP. PVC TUBING PER MIL-I-631 & MIL-I-7444 STOCKED.

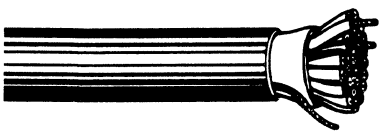
SHRINK RATIO: 2:1 (50%) — OPERATING TEMPERATURE: −20°C to +105°C

SH110 meets or exceeds the performance requirements of MIL-I-23053/2B, Class 2 but for its dimensions — its heavier wall. SH110 is a Heavy Wall Shrinkable PVC tubing, yet its flexible, and will shrink at temperatures below 200°F (within one minute). Provides outstanding dielectric and mechanical protection without damage to enclosed or adjacent components, even around sharp bends. Longitudinal shrinkage: approximately 20%. SH110 is self-extinguishing, resistant to fungus, moisture, sunlight, and most oils, and chemicals. Dielectric Strength: 600V/MIL min,. ASTM-D922. Suitable as a heavy duty all-purpose shrinkable tubing that is less expensive, almost as flexible, and has a higher temperature ability than that of Shrinkable Neoprene tubing. Suggested Storage Temperature: Under 70°F for up to 10 months.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 FAX 201-778-2792 WRITE FOR FREE CATALOG

COMPUTER CABLE

SHIELDED COMPUTER CABLES



Product Construction

Conductor:
- 24 thru 22 AWG annealed tinned copper per ASTM B-33

Insulation:
- Color coded semi rigid PVC per UL 1061

Shield:
- 100% coverage mylar*/aluminum foil, foil facing out
- Stranded tinned copper drain wire

Jacket:
- Chrome gray PVC
- Temperature: -20°C to +80°C
- Voltage: 300 volts

Applications
- Computers
- Data transmission
- EIA RS-232
- Control circuits

Special Features
- Flexible light weight construction
- Excellent abrasion resistance outer jacket

Industry Approvals
- (UL) CL2
- CSA-SR PVC Type T2
- UL 2464
- NEC article 725-38 (b)
- Passes UL VW-1
- OSHA acceptable

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

Multi Conductor Foil Shield, (UL) CL2 Style 2464 CSA Type T2 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. O.D.	COLOR CODE†	CAP** pF/FT.	UL LISTING
			24 gauge					
5710-CL	24 (7 x 32) TC	2	.010	.035	.168	1	30	CL2/2464
5711-CL	24 (7 x 32) TC	3	.010	.035	.172	1	30	CL2/2464
5801-CL	24 (7 x 32) TC	4	.010	.035	.180	1	30	CL2/2464
5713-CL	24 (7 x 32) TC	5	.010	.035	.190	1	30	CL2/2464
5714-CL	24 (7 x 32) TC	6	.010	.035	.205	1	30	CL2/2464
5715-CL	24 (7 x 32) TC	7	.010	.035	.208	1	30	CL2/2464
5716-CL	24 (7 x 32) TC	8	.010	.035	.220	1	30	CL2/2464
5717-CL	24 (7 x 32) TC	9	.010	.035	.240	1	30	CL2/2464
5718-CL	24 (7 x 32) TC	10	.010	.035	.250	1	30	CL2/2464
5719-CL	24 (7 x 32) TC	15	.010	.035	.280	2	30	CL2/2464
5720/18-CL	24 (7 x 32) TC	18	.010	.035	.290	2	30	CL2/2464
5720-CL	24 (7 x 32) TC	20	.010	.035	.310	2	30	CL2/2464
5725-CL	24 (7 x 32) TC	25	.010	.040	.370	2	30	CL2/2464
5730-CL	24 (7 x 32) TC	30	.010	.040	.390	2	30	CL2/2464
5740-CL	24 (7 x 32) TC	40	.010	.040	.440	2	30	CL2/2464
5750-CL	24 (7 x 32) TC	50	.010	.040	.490	2	30	CL2/2464
			22 gauge					
5722-CL	22 (7 x 30) TC	2	.010	.035	.170	1	35	CL2/2464
5723-CL	22 (7 x 30) TC	3	.010	.035	.185	1	35	CL2/2464
5724-CL	22 (7 x 30) TC	4	.010	.035	.200	1	35	CL2/2464
5731-CL	22 (7 x 30) TC	5	.010	.035	.210	1	35	CL2/2464
5726-CL	22 (7 x 30) TC	6	.010	.035	.230	1	35	CL2/2464
5727-CL	22 (7 x 30) TC	7	.010	.035	.240	1	35	CL2/2464
5728-CL	22 (7 x 30) TC	8	.010	.035	.245	1	35	CL2/2464
5729-CL	22 (7 x 30) TC	9	.010	.035	.258	1	35	CL2/2464
5732-CL	22 (7 x 30) TC	10	.010	.035	.275	1	35	CL2/2464
5735-CL	22 (7 x 30) TC	15	.010	.035	.305	2	35	CL2/2464
5736-CL	22 (7 x 30) TC	20	.010	.035	.345	2	35	CL2/2464
5737-CL	22 (7 x 30) TC	25	.010	.040	.400	2	35	CL2/2464
5738-CL	22 (7 x 30) TC	30	.010	.040	.420	2	35	CL2/2464
5739-CL	22 (7 x 30) TC	40	.010	.040	.465	2	35	CL2/2464
5741-CL	22 (7 x 30) TC	50	.010	.040	.505	2	35	CL2/2464

**Capacitance between conductors.
*Mylar—trademark E.I. DuPont.

UL Listed Subject 13

CSA Certified Canadian Standard Association

Passes UL VW-1 Flame Test Underwriters Laboratories Inc

OSHA Acceptable Occupational Safety and Health Administration

Recognized Component Underwriters Laboratories Inc.

Consolidated electronic wire & cable
11044 KING STREET, DEPT: EEM, FRANKLIN PARK, IL 60131
PHONE: 708/455-8830 • WATS LINE: 800/621-4278 • FAX 708/455-8837

COMPUTER CABLE

Multi Conductor PVC Foil & Braid (UL) CL2 Style 2464 CSA Type T2 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. DIA.	COLOR CODE†	CAP** pF/FT.	UL LISTING
			24 gauge					
5850-CL	24 (7 x 32) TC	2	.010	.035	.180	1	30	CL2/2464
5851-CL	24 (7 x 32) TC	3	.010	.035	.190	1	30	CL2/2464
5852-CL	24 (7 x 32) TC	4	.010	.035	.200	1	30	CL2/2464
5862-CL	24 (7 x 32) TC	5	.010	.035	.210	1	30	CL2/2464
5853-CL	24 (7 x 32) TC	6	.010	.035	.225	1	30	CL2/2464
5863-CL	24 (7 x 32) TC	7	.010	.035	.230	1	30	CL2/2464
5854-CL	24 (7 x 32) TC	8	.010	.035	.240	1	30	CL2/2464
5864-CL	24 (7 x 32) TC	9	.010	.035	.255	1	30	CL2/2464
5855-CL	24 (7 x 32) TC	10	.010	.035	.270	1	30	CL2/2464
5856-CL	24 (7 x 32) TC	15	.010	.035	.300	2	30	CL2/2464
5857-CL	24 (7 x 32) TC	20	.010	.035	.320	2	30	CL2/2464
5858-CL	24 (7 x 32) TC	25	.010	.035	.360	2	30	CL2/2464
5859-CL	24 (7 x 32) TC	30	.010	.035	.375	2	30	CL2/2464
5865-CL	24 (7 x 32) TC	37	.010	.035	.400	2	30	CL2/2464
5860-CL	24 (7 x 32) TC	40	.010	.035	.425	2	30	CL2/2464
5861-CL	24 (7 x 32) TC	50	.010	.035	.465	2	30	CL2/2464
			22 gauge					
5870-CL	22 (7 x 30) TC	2	.010	.035	.190	1	35	CL2/2464
5871-CL	22 (7 x 30) TC	3	.010	.035	.202	1	35	CL2/2464
5872-CL	22 (7 x 30) TC	4	.010	.035	.215	1	35	CL2/2464
5882-CL	22 (7 x 30) TC	5	.010	.035	.230	1	35	CL2/2464
5873-CL	22 (7 x 30) TC	6	.010	.035	.245	1	35	CL2/2464
5883-CL	22 (7 x 30) TC	7	.010	.035	.250	1	35	CL2/2464
5874-CL	22 (7 x 30) TC	8	.010	.035	.260	1	35	CL2/2464
5884-CL	22 (7 x 30) TC	9	.010	.035	.280	1	35	CL2/2464
5875-CL	22 (7 x 30) TC	10	.010	.035	.300	1	35	CL2/2464
5876-CL	22 (7 x 30) TC	15	.010	.035	.335	2	35	CL2/2464
5877-CL	22 (7 x 30) TC	20	.010	.035	.375	2	35	CL2/2464
5878-CL	22 (7 x 30) TC	25	.010	.035	.400	2	35	CL2/2464
5879-CL	22 (7 x 30) TC	30	.010	.035	.425	2	35	CL2/2464
5885-CL	22 (7 x 30) TC	37	.010	.035	.450	2	35	CL2/2464
5880-CL	22 (7 x 30) TC	40	.010	.035	.465	2	35	CL2/2464
5881-CL	22 (7 x 30) TC	50	.010	.035	.535	2	35	CL2/2464

**Capacitance between conductors.
*Mylar—trademark E.I. DuPont.

UL Listed Subject 13

CSA Certified Canadian Standard Association

Passes UL VW-1 Flame Test Underwriters Laboratories Inc

OSHA Acceptable Occupational Safety and Health Administration

Recognized Component Underwriters Laboratories Inc

SHIELDED COMPUTER CABLES

Product Construction

Conductor:
- 24 thru 22 AWG annealed tinned copper per ASTM B-33

Insulation:
- Color coded semi rigid PVC per UL 1061

Shield:
- 100% coverage mylar*/aluminum foil shield, foil facing out, plus 70% coverage tinned copper braid shield

Jacket:
- Chrome gray PVC
- Temperature: -20°C to +80°C
- Voltage: 300 volts

Applications

- Computers
- Data transmission
- EIA RS-232 applications
- Control circuits

Special Features

- Meets FCC docket 20780
- Excellent shielding where noise rejection is critical
- Flexible construction

Industry Approvals

- (UL) CL2
- CSA-SR PVC Type T2
- UL 2464
- NEC article 725-38 (b)
- Passes UL VW-1
- OSHA acceptable

Packaging

- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

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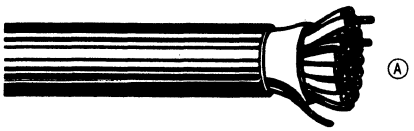
Consolidated electronic wire & cable

COMPUTER CABLE



SHIELDED COMPUTER CABLES

Product Construction

Conductor:
- 24 thru 22 AWG annealed tinned copper per ASTM B-33

Insulation:
- (5710/5791) (5901/5937) Color coded semi rigid pvc insulation UL 1061
- (5300/5338) Color coded poly "low-cap" insulation

Shield:
- 100% coverage mylar*/aluminum foil, 25% overlap, facing out
- stranded tinned copper drain wire

Jacket:
- Chrome gray pvc
- Temperature: –20°C to +80°C
- Voltage: 300 volts

Applications

- Computers
- Data transmission
- Low capacitance computer application
- Control circuits
- EIA RS-232

Special Features

- Meets FCC docket 20780
- Flexible construction
- Excellent shielding where noise rejection is critical

Industry Approvals

- (UL) CL2
- UL 2464
- UL 2448
- CSA-SR PVC Type T2
- OSHA acceptable

Packaging

- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

Multi Pair Foil Shield (UL) CL2 Style 2464 CSA Type T2 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. DIA."	COLOR CODE†	CAP** pF/FT.	UL LISTING
			24 gauge					
5710-CL	24 (7 x 32)TC	1	.010	.035	.156	3	30	CL2/2464
5772-CL	24 (7 x 32)TC	2	.010	.035	.222	3	30	CL2/2464
5773-CL	24 (7 x 32)TC	3	.010	.035	.232	3	30	CL2/2464
5774-CL	24 (7 x 32)TC	4	.010	.035	.265	3	30	CL2/2464
5775-CL	24 (7 x 32)TC	5	.010	.035	.295	3	30	CL2/2464
5776-CL	24 (7 x 32)TC	6	.010	.035	.295	3	30	CL2/2464
5777-CL	24 (7 x 32)TC	7	.010	.035	.300	3	30	CL2/2464
5778-CL	24 (7 x 32)TC	8	.010	.035	.330	3	30	CL2/2464
5779-CL	24 (7 x 32)TC	9	.010	.035	.340	3	30	CL2/2464
5780-CL	24 (7 x 32)TC	10	.010	.040	.380	3	30	CL2/2464
5785-CL	24 (7 x 32)TC	15	.010	.040	.425	3	30	CL2/2464
5789-CL	24 (7 x 32)TC	19	.010	.040	.450	3	30	CL2/2464
5790-CL	24 (7 x 32)TC	25	.010	.045	.515	3	30	CL2/2464
5791-CL	24 (7 x 32)TC	50	.010	.050	.700	3	30	CL2/2464
			22 gauge					
5912-CL	22 (solid)TC	2	.013	.032	.224	3	35	CL2/2464
5914-CL	22 (solid)TC	4	.013	.032	.265	3	35	CL2/2464
5916-CL	22 (solid)TC	6	.013	.035	.321	3	35	CL2/2464
5919-CL	22 (solid)TC	9	.013	.037	.373	3	35	CL2/2464
5925-CL	22 (solid)TC	15	.013	.040	.437	3	35	CL2/2464
5929-CL	22 (solid)TC	19	.013	.040	.475	3	35	CL2/2464
5937-CL	22 (solid)TC	27	.013	.045	.571	3	35	CL2/2464
5901-CL	22 (solid)TC	38	.008	.045	.600	3	35	CL2/2464
5902-CL	22 (solid)TC	51	.008	.050	.700	3	35	CL2/2464

Multi Pair "Low-Cap" Foil Shielded (UL) CL2 Style 2448 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. O.D.	COLOR CODE†	CAP** pF/FT.	UL LISTING
			24 gauge					
5300-CL	24 (7 x 32)TC	2	.015	.035	.280	9	12.5	CL2/2448
5301-CL	24 (7 x 32)TC	3	.015	.035	.290	9	12.5	CL2/2448
5302-CL	24 (7 x 32)TC	4	.015	.035	.315	9	12.5	CL2/2448
■ **5298-CL**	24 (7 x 32)TC	4½	.015	.035	.320	9	12.5	CL2/2448
5304-CL	24 (7 x 32)TC	6	.015	.035	.360	9	12.5	CL2/2448
■ **5299-CL**	24 (7 x 32)TC	7½	.015	.035	.385	9	12.5	CL2/2448
5305-CL	24 (7 x 32)TC	9	.015	.035	.410	9	12.5	CL2/2448
5307-CL	24 (7 x 32)TC	12½	.015	.035	.455	9	12.5	CL2/2448
5308-CL	24 (7 x 32)TC	15	.015	.035	.485	9	12.5	CL2/2448

Multi Pair "Mid-Cap" Foil Shield (UL) CL2 Style 2448 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. O.D.	COLOR CODE†	CAP** pF/FT.	UL LISTING
			24 gauge					
5310-CL	24 (7 x 32)TC	2	.010	.035	.270	9	15.5	CL2/2448
5312-CL	24 (7 x 32)TC	3	.010	.035	.280	9	15.5	CL2/2448
5313-CL	24 (7 x 32)TC	4	.010	.035	.305	9	15.5	CL2/2448
5314-CL	24 (7 x 32)TC	6	.010	.035	.350	9	15.5	CL2/2448
5316-CL	24 (7 x 32)TC	9	.010	.035	.400	9	15.5	CL2/2448
5317-CL	24 (7 x 32)TC	12½	.010	.035	.450	9	15.5	CL2/2448
5318-CL	24 (7 x 32)TC	15	.010	.035	.470	9	15.5	CL2/2448

**Capacitance between pairs

*Mylar—trademark of E.I. DuPont.

■ New catalog item.

Listed Subject 13

Certified Canadian Standard Association

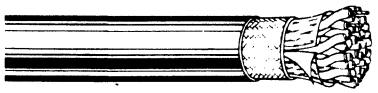
Passes UL VW-1 Flame Test Underwriters Laboratories Inc.

OSHA Acceptable Occupational Safety and Health Administration

Recognized Component Underwriters Laboratories Inc

Consolidated electronic wire & cable
11044 KING STREET, DEPT: EEM, FRANKLIN PARK, IL 60131
PHONE: 708/455-8830 • WATS LINE: 800/621-4278 • FAX 708/455-8837

COMPUTER CABLE



Multi Pair Foil & Braid (UL) CL2 Style 2464 CSA Type T2 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. O.D.	COLOR CODE†	CAP** pF/FT.	UL LISTING
			24 gauge					
5940-CL	24 (7 x 32)TC	1	.010	.032	.180	3	35	CL2/2464
5941-CL	24 (7 x 32)TC	2	.010	.032	.250	3	35	CL2/2464
5942-CL	24 (7 x 32)TC	3	.010	.032	.265	3	30	CL2/2464
5943-CL	24 (7 x 32)TC	4	.010	.035	.290	3	30	CL2/2464
5944-CL	24 (7 x 32)TC	5	.010	.035	.295	3	30	CL2/2464
5945-CL	24 (7 x 32)TC	6	.010	.035	.311	3	30	CL2/2464
5952-CL	24 (7 x 32)TC	7	.010	.035	.320	3	30	CL2/2464
5953-CL	24 (7 x 32)TC	8	.010	.035	.335	3	30	CL2/2464
5946-CL	24 (7 x 32)TC	9	.010	.035	.370	3	30	CL2/2464
5954-CL	24 (7 x 32)TC	10	.010	.035	.375	3	30	CL2/2464
5947-CL	24 (7 x 32)TC	11	.010	.035	.385	3	30	CL2/2464
5955-CL	24 (7 x 32)TC	12½	.010	.035	.395	3	30	CL2/2464
5948-CL	24 (7 x 32)TC	15	.010	.035	.435	3	30	CL2/2464
5956-CL	24 (7 x 32)TC	18	.010	.035	.470	3	30	CL2/2464
5949-CL	24 (7 x 32)TC	19	.010	.035	.482	3	30	CL2/2464
5957-CL	24 (7 x 32)TC	25	.010	.040	.540	3	30	CL2/2464
5950-CL	24 (7 x 32)TC	27	.010	.040	.570	3	30	CL2/2464
5951-CL	24 (7 x 32)TC	51	.010	.040	.725	3	30	CL2/2464
			22 gauge					
5960-CL	22 (7 x 30)TC	1	.010	.032	.195	3	40	CL2/2464
5961-CL	22 (7 x 30)TC	2	.010	.032	.265	3	40	CL2/2464
5962-CL	22 (7 x 30)TC	3	.010	.032	.290	3	35	CL2/2464
5963-CL	22 (7 x 30)TC	4	.010	.032	.318	3	35	CL2/2464
5964-CL	22 (7 x 30)TC	5	.010	.032	.322	3	35	CL2/2464
5965-CL	22 (7 x 30)TC	6	.010	.032	.345	3	35	CL2/2464
5972-CL	22 (7 x 30)TC	7	.010	.032	.365	3	35	CL2/2464
5973-CL	22 (7 x 30)TC	8	.010	.032	.384	3	35	CL2/2464
5966-CL	22 (7 x 30)TC	9	.010	.032	.408	3	35	CL2/2464
5974-CL	22 (7 x 30)TC	10	.010	.032	.420	3	35	CL2/2464
5967-CL	22 (7 x 30)TC	11	.010	.032	.430	3	35	CL2/2464
5975-CL	22 (7 x 30)TC	12½	.010	.032	.445	3	35	CL2/2464
5968-CL	22 (7 x 30)TC	15	.010	.032	.492	3	35	CL2/2464
5976-CL	22 (7 x 30)TC	18	.010	.032	.525	3	35	CL2/2464
5969-CL	22 (7 x 30)TC	19	.010	.035	.535	3	35	CL2/2464
5977-CL	22 (7 x 30)TC	25	.010	.040	.610	3	35	CL2/2464
5970-CL	22 (7 x 30)TC	27	.010	.040	.645	3	35	CL2/2464
5971-CL	22 (7 x 30)TC	51	.010	.040	.865	3	35	CL2/2464

**Capacitance between pairs

*Mylar—trademark of E.I. DuPont.

UL Listed Subject 13

CSA Certified Canadian Standard Association

Passes UL VW-1 Flame Test Underwriters Labortories Inc

OSHA Acceptable Occupational Safety and Health Administration

Recognized Component Underwriters Laboratories Inc

SHIELDED COMPUTER CABLES

Product Construction

Conductor:
- 24 thru 22 AWG annealed tinned copper per ASTM B-33

Insulation:
- Color coded semi rigid PVC insluation UL 1061

Shield:
- 100% coverage mylar*/aluminum foil, foil facing out plus over all 70% coverage tinned copper braid

Jacket:
- Chrome gray PVC
- Temperature: -20°C to +80°C
- Voltage: 300 volts

Applications
- Computers
- Data transmission
- Control circuits
- EIA RS-232

Special Features
- Meets FCC docket 20780
- Excellent shielding where noise rejection is critical
- Flexible construction

Industry Approvals
- (UL) CL2
- UL 2464
- CSA-SR PVC Type T2
- NEC article 725
- Passes UL VW-1
- OSHA acceptable

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

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Consolidated electronic wire & cable

COMPUTER CABLE

SHIELDED COMPUTER CABLES

Product Construction

Conductor:
- 28 thru 24 AWG annealed tinned copper per ASTM B-33

Insulation:
- Color coded poly "low-cap" insulation

Shield:
- (5370/5395) (5755/5766)
  100% coverage mylar*/aluminum foil, foil facing, out with stranded tinned copper drain plus 65% coverage tinned copper braid
- (5980/5993)
  100% coverage mylar*/aluminum foil, foil facing out with stranded tinned copper drain plus 90% coverage tin copper braid

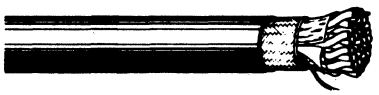
Jacket:
- Chrome gray pvc
- Temperature: -20°C to +80°C
- Voltage: 30 volts

Applications
- High speed computers
- Low capacitance requirements
- Data transmission
- RS-422 CAD/CAM
- RS-485 application

Special Features
- Flexible light weight construction
- Low loss high speed computer cable

Industry Approvals
- (UL) CL2
- UL 2919
- Passes UL VW-1
- NEC article 725
- OSHA acceptable

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels



Ⓐ

Multi Pair "Low-Cap" Foil & Braid (UL) CL2 Style 2919 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. DIA.	COLOR CODE†	CAP** pF/FT.	UL LISTING
28 gauge foil & 65% coverage braid shield								
5370-CL	28 (7 x 36)TC	2	.015	.032	.255	9	11	CL2/2919
5373-CL	28 (7 x 36)TC	3	.015	.032	.265	9	11	CL2/2919
5374-CL	28 (7 x 36)TC	4	.015	.032	.285	9	11	CL2/2919
5376-CL	28 (7 x 36)TC	5	.015	.032	.295	9	11	CL2/2919
5377-CL	28 (7 x 36)TC	6	.015	.032	.325	9	11	CL2/2919
5378-CL	28 (7 x 36)TC	7	.015	.032	.328	9	11	CL2/2919
5390-CL	28 (7 x 36)TC	8	.015	.032	.345	9	11	CL2/2919
5391-CL	28 (7 x 36)TC	10	.015	.035	.395	9	11	CL2/2919
5392-CL	28 (7 x 36)TC	12½	.015	.035	.405	9	11	CL2/2919
5393-CL	28 (7 x 36)TC	15	.015	.040	.455	9	11	CL2/2919
5394-CL	28 (7 x 36)TC	18	.015	.040	.480	9	11	CL2/2919
5395-CL	28 (7 x 36)TC	25	.015	.040	.555	9	11	CL2/2919

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. DIA.	COLOR CODE†	CAP** pF/FT.	UL LISTING
24 gauge foil & 65% coverage braid shield								
5355-CL	24 (7 x 32)TC	2	.015	.035	.270	9	12.5	CL2/2919
5356-CL	24 (7 x 32)TC	3	.015	.035	.280	9	12.5	CL2/2919
5357-CL	24 (7 x 32)TC	4	.015	.035	.305	9	12.5	CL2/2919
5358-CL	24 (7 x 32)TC	5	.015	.035	.330	9	12.5	CL2/2919
5359-CL	24 (7 x 32)TC	6	.015	.035	.355	9	12.5	CL2/2919
5360-CL	24 (7 x 32)TC	7	.015	.035	.365	9	12.5	CL2/2919
5361-CL	24 (7 x 32)TC	8	.015	.035	.395	9	12.5	CL2/2919
5362-CL	24 (7 x 32)TC	10	.015	.035	.445	9	12.5	CL2/2919
5363-CL	24 (7 x 32)TC	12½	.015	.035	.460	9	12.5	CL2/2919
5364-CL	24 (7 x 32)TC	15	.015	.035	.520	9	12.5	CL2/2919
5365-CL	24 (7 x 32)TC	18	.015	.040	.650	10	12.5	CL2/2919
5366-CL	24 (7 x 32)TC	25	.015	.040	.630	10	12.5	CL2/2919

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. DIA.	COLOR CODE†	CAP** pF/FT.	UL LISTING
24 gauge foil & 90% coverage braid shield 15.5 pf								
5980-CL	24 (7 x 32)TC	2	.010	.035	.250	3	15.5	CL2/2919
5981-CL	24 (7 x 32)TC	3	.010	.035	.260	3	15.5	CL2/2919
5982-CL	24 (7 x 32)TC	4	.010	.035	.270	3	15.5	CL2/2919
5983-CL	24 (7 x 32)TC	5	.010	.035	.290	3	15.5	CL2/2919
5984-CL	24 (7 x 32)TC	7	.010	.035	.310	3	15.5	CL2/2919
5985-CL	24 (7 x 32)TC	9	.010	.035	.350	3	15.5	CL2/2919
5986-CL	24 (7 x 32)TC	10	.010	.035	.365	3	15.5	CL2/2919
5987-CL	24 (7 x 32)TC	12	.010	.035	.385	3	15.5	CL2/2919
5988-CL	24 (7 x 32)TC	18	.010	.040	.465	3	15.5	CL2/2919
5989-CL	24 (7 x 32)TC	25	.010	.040	.560	3	15.5	CL2/2919
24 gauge foil & 90% coverage braid shield 12.5 pf								
5990-CL	24 (7 x 32)TC	1	.015	.035	.240	3	12.5	CL2/2919
5991-CL	24 (7 x 32)TC	2	.015	.035	.290	3	12.5	CL2/2919
5992-CL	24 (7 x 32)TC	3	.015	.035	.320	3	12.5	CL2/2919
5993-CL	24 (7 x 32)TC	4	.015	.035	.340	3	12.5	CL2/2919

**Capacitance between pairs

*Mylar—trademark of E.I. DuPont.

UL Listed Subject 13

Passes UL VW-1 Flame Test Underwriters Laboratories Inc

OSHA Acceptable Occupational Safety and Health Administration

Recognized Component Underwriters Laboratories Inc.

Consolidated electronic wire & cable
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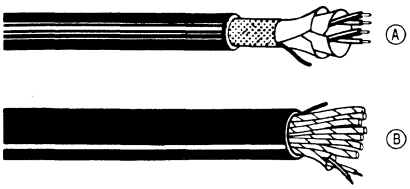
COMPUTER CABLE



Point of Sale/Loop Cable, (UL) CL2, Style 2582, 2919 Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK"	NOM. DIA."	NOM. IMP.	UL LISTING
5890-CL	22 (solid) IBM 1657265 UL Style 2919	2	.018 PE	Alum Foil +58% TC Braid	.036	.305	108	2919/ CL2

COLOR CODE CHART—5890

PAIR NO.	COLOR
1	BLUE/WHITE WITH BLUE
2	ORANGE/WHITE WITH ORANGE

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK"	NOM. DIA."	NOM. IMP.	UL LISTING
5891-CL	22 (solid) NCR-0061000747 UL Style 2582	2	.018 PE	Alum Foil +58% TC Braid	.032	.290	100	2582/ CL2

COLOR CODE CHART—5891

PAIR NO.	COLOR
1	RED WITH BLUE
2	BLACK WITH YELLOW

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK"	NOM. DIA."	NOM. IMP.	UL LISTING
5893-CL	22 (solid) UL Style 2582	4	.016 PE	Alum Foil +58% TC Braid	.032	.318	120	2582/ CL2

COLOR CODE CHART—5893

PAIR NO.	COLOR
1	BLACK WITH RED
2	BLACK WITH WHITE
3	BLACK WITH BROWN
4	BLACK WITH BLUE

Point of Sale Cable, (UL) CL2, Style 2464 Ⓑ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK"	NOM. DIA."	NOM. IMP.	UL LISTING
5892-CL	26 (7×34) SEMICON-6090001 UL Style 2464	8	.016 PVC	Each Pair Mylar/Alum. Foil, Foil Plus Common TC Drain	.035	.370	75	2464/ CL2

COLOR CODE CHART—5892

PAIR NO.	COLOR CODING		
1	BROWN WITH WHITE/BROWN	5	GREEN WITH WHITE/GREEN
2	RED WITH WHITE/RED	6	BLUE WITH WHITE/BLUE
3	ORANGE WITH WHITE/ORANGE	7	BLACK WITH WHITE/BLACK
4	YELLOW WITH WHITE/YELLOW	8	VIOLET WITH WHITE/VIOLET

UL Listed Subject 13

OSHA Acceptable Occupational Safety and Health Administration

Recognized Component Underwriters Laboratories Inc

SHIELDED COMPUTER CABLES

Product Construction

Conductor:
- 26 thru 22 AWG annealed tinned copper per ASTM B-33

Insulation:
- Color coded polyethylene insulation
- Color coded semi rigid pvc insulation UL1061 (5892)

Shield:
- 100% coverage mylar*/aluminum foil, 25% overlap with tinned copper drain
- 58% coverage tinned copper braid

Jacket:
- Black PVC
- Temperature: -20°C to +80°C
- Voltage: 300 volts

Applications
- Data transmission
- Computers
- Point of sale
- Financial transaction
- Terminal Networks

Special Features
(5890) - IBM/3630
IBM/3650
IBM/3660
(5891) - NCR 2140
NCR 2552
(5892) - SEMICON 6090001

Industry Approvals
- UL CL2
- UL 2464
- UL 2582
- UL 2919
- OSHA acceptable

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

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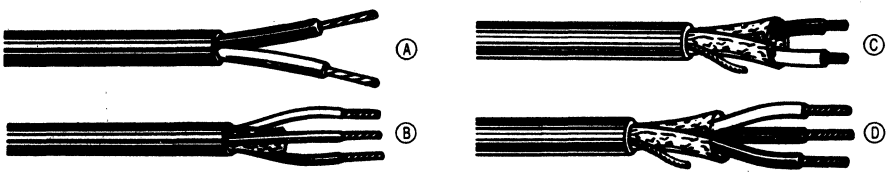
Consolidated electronic wire & cable

POWER LIMITED CONTROL AND SIGNAL CIRCUIT CABLE



PLTC CABLES

Product Construction

Conductor:
- 22 thru 12 AWG annealed stranded tinned copper and bare copper per ASTM B-33

Insulation:
- Color coded PVC insulation

Shield:
- 100% coverage mylar*/aluminum foil shield, 25% overlap, foil facing out
- Stranded tinned copper drain wire

Jacket:
- Chrome gray PVC
- Temperature: – 20°C to + 105°C
- Voltage: 300 volts

Applications
- Power limited circuits
- industrial control systems
- Burglar alarms
- Audio systems

Special Features
- UL tray cable rated
- Excellent weather and sunlight resistant jacket

Industry Approvals
- NEC article 725-38(B) class 2 and 3 power limited circuits
- Meets IEEE 70,000 BTU vertical flame test
- PLTC/CL3
- Meets UL 70,000 BTU vertical flame test UL subject 13
- OSHA acceptable

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

Power Limited Tray Cable, Type PLTC Unshielded 300 Volts UL Subject 13 NEC Article 725 Ⓐ Ⓑ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. O.D."	COLOR CODE†	UL LISTING
5001	22 (7 x 30)TC	2	.010	.035	.165	1	PLTC
5002	20 (10 x 30)TC	2	.010	.035	.176	1	PLTC
5003	18 (16 x 30)TC	2	.010	.035	.204	1	PLTC
5004	16 (26 x 30)TC	2	.010	.035	.230	1	PLTC
5005	14 (41 x 30)TC	2	.015	.035	.285	1	PLTC
5006	12 (65 x 30)TC	2	.015	.035	.306	1	PLTC
5020	22 (7 x 30)TC	3	.010	.035	.175	2	PLTC
5021	20 (10 x 30)TC	3	.010	.035	.185	2	PLTC
5022	18 (16 x 30)TC	3	.010	.035	.215	2	PLTC
5023	16 (26 x 30)TC	3	.010	.035	.245	2	PLTC
5024	14 (41 x 30)TC	3	.015	.035	.300	2	PLTC

Power Limited Tray Cable, Type PLTC Shielded 300 Volts UL Subject 13 NEC Article 725 Ⓒ Ⓓ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. DIA.	COLOR CODE†	UL LISTING
5010	22 (7 x 30)TC	2	.010	.035	.170	1	PLTC
5011	20 (10 x 30)TC	2	.010	.035	.180	1	PLTC
5012	18 (16 x 30)TC	2	.010	.035	.210	1	PLTC
5013	16 (26 x 30)TC	2	.010	.035	.235	1	PLTC
5014	14 (41 x 30)TC	2	.015	.035	.290	1	PLTC
5015	12 (65 x 30)TC	2	.015	.035	.310	1	PLTC
5030	22 (7 x 30)TC	3	.010	.035	.176	2	PLTC
5031	20 (10 x 30)TC	3	.010	.035	.190	2	PLTC
5032	18 (16 x 30)TC	3	.010	.035	.220	2	PLTC
5033	16 (26 x 30)TC	3	.010	.035	.246	2	PLTC
5034	14 (41 x 30)TC	3	.015	.035	.304	2	PLTC

Power Limited Tray Cable, Type PLTC Unshielded 300 Volts UL Subject 13 NEC Article 725 Ⓐ Ⓑ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. DIA.	COLOR CODE†	UL LISTING
■ **5025**	16 (7 x 24)BC	2	.010	.035	.245	2	PLTC
■ **5026**	16 (7 x 24)BC	3	.010	.035	.255	2	PLTC

Power Limited Tray Cable, Type PLTC Shielded 300 Volts UL Subject 13 NEC Article 725 Ⓒ Ⓓ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. DIA.	COLOR CODE†	UL LISTING
■ **5027**	20 (7 x 28)BC	2	.010	.035	.205	2	PLTC
■ **5028**	18 (7 x 26)BC	2	.010	.035	.220	2	PLTC
■ **5029**	16 (7 x 24)BC	2	.010	.035	.250	2	PLTC
■ **5038**	18 (7 x 26)BC	3	.010	.035	.232	2	PLTC
■ **5039**	16 (7 x 24)BC	3	.010	.035	.265	2	PLTC

*Mylar—trademark of E.I. DuPont.
■ New catalog item.

Listed Subject 13 — Certified Canadian Standard Association — Passes UL VW-1 Flame Test Underwriters Laboratories Inc — OSHA Acceptable Occupational Safety and Health Administration — IEEE 383 FLAME TEST

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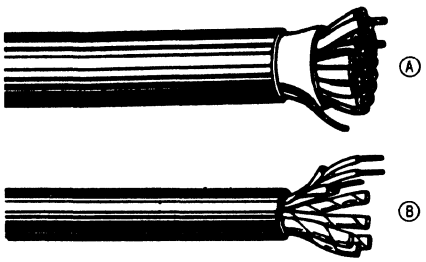
POWER LIMITED CONTROL AND SIGNAL CIRCUIT CABLE



Power Limited Tray Cable, Type PLTC Multi-Pair, Overall Shield Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. O.D."	COLOR CODE	UL LISTING
			22 gauge				
5040	22 (7×30)TC	2	.010	.035	.280	Red/Black	PLTC
5041	22 (7×30)TC	3	.010	.035	.290	Red/Black	PLTC
5042	22 (7×30)TC	4	.010	.035	.335	Red/Black	PLTC
5043	22 (7×30)TC	6	.010	.045	.400	Red/Black	PLTC
5044	22 (7×30)TC	9	.010	.045	.465	Red/Black	PLTC
5045	22 (7×30)TC	11	.010	.045	.515	Red/Black	PLTC
5046	22 (7×30)TC	15	.010	.045	.575	Red/Black	PLTC
5047	22 (7×30)TC	19	.010	.050	.605	Red/Black	PLTC
5048	22 (7×30)TC	27	.010	.050	.750	Red/Black	PLTC
5049	22 (7×30)TC	51	.010	.050	.920	Red/Black	PLTC
			20 gauge				
5084	20 (7×28)TC	4	.010	.055	.405	Red/Black	PLTC
5085	20 (7×28)TC	8	.010	.055	.480	Red/Black	PLTC
5086	20 (7×28)TC	12	.010	.055	.570	Red/Black	PLTC
5087	20 (7×28)TC	16	.010	.055	.650	Red/Black	PLTC
5088	20 (7×28)TC	24	.010	.055	.800	Red/Black	PLTC
5089	20 (7×28)TC	36	.010	.066	.940	Red/Black	PLTC
5095	20 (7×28)TC	50	.010	.066	1.080	Red/Black	PLTC
			18 gauge				
5050	18 (16×30)TC	2	.010	.043	.360	Red/Black	PLTC
5051	18 (16×30)TC	3	.010	.053	.400	Red/Black	PLTC
5052	18 (16×30)TC	4	.010	.053	.435	Red/Black	PLTC
5053	18 (16×30)TC	6	.010	.053	.500	Red/Black	PLTC
5054	18 (16×30)TC	9	.010	.053	.585	Red/Black	PLTC
5055	18 (16×30)TC	11	.010	.063	.665	Red/Black	PLTC
5056	18 (16×30)TC	15	.010	.063	.740	Red/Black	PLTC

Power Limited Tray Cable, Type PLTC Multi-Pair, Individually Shielded Pairs Ⓑ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. O.D."	COLOR CODE	UL LISTING
			22 gauge				
5060	22 (7×30)TC	2	.010	.035	.290	Red/Black	PLTC
5061	22 (7×30)TC	3	.010	.035	.300	Red/Black	PLTC
5062	22 (7×30)TC	4	.010	.043	.330	Red/Black	PLTC
5063	22 (7×30)TC	6	.010	.053	.400	Red/Black	PLTC
5064	22 (7×30)TC	9	.010	.053	.460	Red/Black	PLTC
5065	22 (7×30)TC	11	.010	.053	.495	Red/Black	PLTC
5066	22 (7×30)TC	15	.010	.053	.545	Red/Black	PLTC
5067	22 (7×30)TC	19	.010	.063	.630	Red/Black	PLTC
5068	22 (7×30)TC	27	.010	.063	.705	Red/Black	PLTC
5069	22 (7×30)TC	51	.010	.063	.920	Red/Black	PLTC
			18 gauge				
5070	18 (16×30)TC	2	.010	.043	.316	Red/Black	PLTC
5071	18 (16×30)TC	3	.010	.053	.421	Red/Black	PLTC
5072	18 (16×30)TC	4	.010	.053	.456	Red/Black	PLTC
5073	18 (16×30)TC	6	.010	.053	.526	Red/Black	PLTC
5074	18 (16×30)TC	9	.010	.063	.660	Red/Black	PLTC
5075	18 (16×30)TC	11	.010	.063	.686	Red/Black	PLTC
5076	18 (16×30)TC	15	.010	.063	.766	Red/Black	PLTC

†Color code chart on pages 80 and 81.
*Mylar—trademark E.I. DuPont.

PLTC CABLES

Product Construction

Conductor:
- 22 thru 18 AWG annealed stranded tinned copper per ASTM B-33

Insulation:
- Color coded red/black pairs, PVC insulation number marked for easy identification at one inch intervals

Shield:
(Overall Shield)
- Mylar*/aluminum foil shield, 100% coverage, foil facing out with stranded tinned copper drain (Individual Shielded Pairs)
- Mylar*/aluminum foil shield, 100% coverage, foil facing in with stranded tinned copper drain wire each pair

Jacket:
- Chrome gray PVC
- Temperature: −20°C to +105°C
- Voltage: 300 volts

Applications
- Power limited circuits
- Industrial control systems
- Tray cable applications
- Audio intercom
- Security systems

Special Features
- UL tray cable rated
- Excellent weather and sunlight resistant jacket
- Highly abrasive
- High temperature characteristics

Industry Approvals
- NEC article 725-38(B) class 2 and 3 power limited circuits
- Meets IEEE 70,000 BTU vertical flame test
- PLTC
- Meets UL 70,000 BTU vertical flame test UL subject 13

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

UL Listed Subject 13 · CSA Certified Canadian Standard Association · Passes UL VW-1 Flame Test Underwriters Laboratories Inc · OSHA Acceptable Occupational Safety and Health Administration · IEEE 383 FLAME TEST

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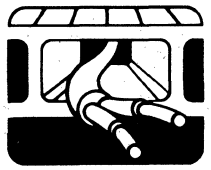
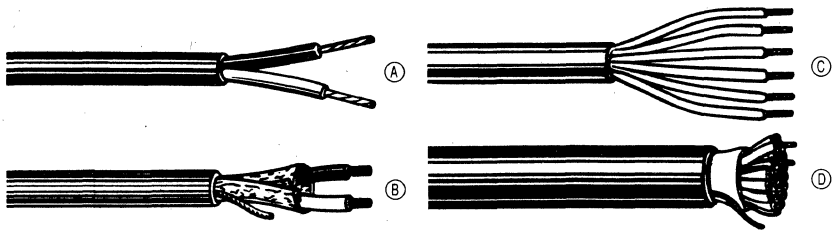
Consolidated electronic wire & cable



PLENUM CABLE – FEP TEFLON



PLENUM CABLES

Product Construction

Conductor:
- 24 thru 18 AWG stranded copper conductors per ASTM B-33

Insulation:
- Color coded "FEP" Teflon‡ 200°C

Shield:
- 100% coverage mylar*/aluminum foil, 25% overlap, foil facing in with stranded tinned copper drain wire

Jacket:
- Fluoropolymer resin "FEP" Teflon‡
- Documentation marker tape for identification
- Temperature: -80°C to +200°C
- Voltage: 150 volts

Applications
- Power limited circuits
- Burglar alarms
- Computer systems
- Intercom systems
- Remote controls
- Communication and signal systems

Special Features
- Installation in air plenums without the use of conduit
- Passes Steiner Tunnel Low Smoke and Flame Test
- Outstanding oil and moisture resistance
- Excellent electrical and mechanical properties
- Suitable for Cable Tray Use Class 2 circuits

Industry Approvals
- UL listed for low smoke and fire characteristics per National Electric Code Article 725-38(b)3
- UL Subject 13, Power Limited Circuit Cables, Type CL2P
- UL Subject 910, Smoke and Flame Test
- Passes UL VW-1 Vertical Flame Test
- OSHA acceptable
- Passes IEEE 383 70,000 BTU Flame Test

Packaging
- 1000 ft. spools
- Also available on bulk reels

COLOR CODE CHART—
PAIRED CABLES ON THIS PAGE

1-Black/Brown
2-Blue/Violet
3-Yellow/Green
4-Gray/White
5-Red/Orange
6-Tan/Pink
7-Black/White
8-Black/Red
9-Black/Green
10-Red/White
11-Red/Green
12-Red/Blue
12½-Orange

NEC Article 725-38(b)3 Multi-Conductor Unshielded Power Limited Remote Control Signal Cable (UL) CL2P Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. O.D."	COLOR CODE	UL LISTING
9874	22 (7×30)	2	.006	.010	.125	1	CL2P
9876	22 (7×30)	4	.006	.010	.145	1	CL2P
9870	18 (7×26)	2	.006	.010	.162	1	CL2P
9872	18 (7×26)	4	.006	.010	.190	1	CL2P

NEC Article 725-38(b)3 Multi-Conductor Shielded Power Limited Remote Control Signal Cable (UL) CL2P Ⓑ

CAT. NO.	COND. SIZE/STRAND	NO. OF COND.	INSUL. THICK."	JACKET THICK."	NOM. O.D."	COLOR CODE	UL LISTING
9926	24 (7×32)	2	.006	.010	.110	1	CL2P
9980	22 (7×30)	2	.006	.010	.120	1	CL2P
9977	22 (7×30)	4	.006	.010	.142	1	CL2P
9981	18 (7×26)	2	.006	.010	.145	1	CL2P
9973	18 (7×26)	4	.006	.010	.178	1	CL2P

NEC Article 725-38(b)3 Multi-Pair Unshielded Power Limited Remote Control Signal Cable (UL) CL2P Ⓒ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIR	INSUL. THICK."	JACKET THICK."	NOM. O.D."	UL LISTING
9922	22 (7×30)	2	.007	.015	.181	CL2P
9893	22 (7×30)	3	.007	.015	.192	CL2P
9924	22 (7×30)	4	.007	.015	.211	CL2P
9896	22 (7×30)	6	.007	.015	.245	CL2P

NEC Article 725-38(b)3 Multi-Pair Shielded Power Limited Remote Control Signal Cable (UL) CL2P Ⓓ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	JACKET THICK."	NOM. DIA."	UL LISTING
9882	24 (7×32)	2	.007	.015	.135	CL2P
9891	24 (7×32)	3	.007	.015	.150	CL2P
9892	24 (7×32)	4	.007	.015	.195	CL2P
■ **9918**	24 (7×32)	4½	.007	.015	.200	CL2P
9895	24 (7×32)	6	.007	.015	.225	CL2P
■ **9819**	24 (7×32)	7½	.007	.015	.255	CL2P
9898	24 (7×32)	9	.007	.015	.285	CL2P
9899	24 (7×32)	12½	.007	.015	.320	CL2P

‡Teflon—trademark of E.I. DuPont. **COLOR CODE CHART SHOWN BELOW**
*Mylar—trademark E.I. DuPont.
■ New catalog item.

UL Listed Subject 13

Passes UL VW-1 Flame Test
Underwriters Laboratories Inc.

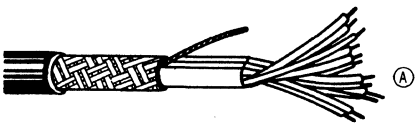
OSHA Acceptable
Occupational Safety and Health Administration

IEEE 383 FLAME TEST

Recognized Component
Underwriters Laboratories Inc.

Consolidated electronic wire & cable
11044 KING STREET, DEPT: EEM, FRANKLIN PARK, IL 60131
PHONE: 708/455-8830 • WATS LINE: 800/621-4278 • FAX 708/455-8837

PLENUM CABLE – FEP TEFLON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PLENUM CABLES

NEC Article 725-38(b)3 Multi-Pair Foil & Braid Shield "Low-Cap" Power Limited Remote Control Signal Cable (UL) CL2P Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK."	NOM. DIA."	CAP.** pF/FT.	UL LISTING
9871	24 (7×32) Tin Copper	2	.012	Foil & Drain Plus TC Braid, 90% Cov.	.017	.220	12.5	CL2P
9875	24 (7×32) Tin Copper	3	.012	Foil & Drain Plus TC Braid, 90% Cov.	.017	.242	12.5	CL2P
9878	24 (7×32) Tin Copper	4	.012	Foil & Drain Plus TC Braid, 90% Cov.	.017	.253	12.5	CL2P
9879	24 (7×32) Tin Copper	6	.012	Foil & Drain Plus TC Braid, 90% Cov.	.017	.290	12.5	CL2P

COLOR CODE: 9871 thru 9879	Pair No.	Color
	1	Black/Yellow
	2	Red/Violet
	3	Blue/Brown
	4	Orange/Green
	5	Gray/White
	6	Tan/Pink

NEC Article 725-38(b)3 Multi-Pair Foil & Braid Shield Point of Sale/Loop Cable (UL) CL2P Ⓑ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK."	NOM. DIA."	CAP.** pF/FT.	UL LISTING
9850	22 (Solid) Bare Copper IBM7838695	2	.018	Foil & TC Braid, 70% Coverage	.020	.270	12.5	CL2P
9851	22 (Solid) Tin Copper NCR type	2	.018	Foil & TC Braid, 55% Coverage	.017	.231	12.5	CL2P

NEC Article 725-38(b)3 Multi-Pair Foil Individually Shielded Point of Sale/Loop Cable (UL) CL2P Ⓒ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK."	NOM. DIA."	CAP.** pF/FT.	UL LISTING
9852	22 (Solid) Bare Copper	2	.010	Each Pair My/Alum Foil Plus TC Drain	.017	.182	15	CL2P

COLOR CODE CHARTS

Catalog 9850	Catalog 9851	Catalog 9852
1 - Blue with White/Blue	1 - Red with Blue	1 - Red with Green
2 - Orange with White/Orange	2 - Yellow with Black	2 - Yellow with Black

** Capacitance between pairs.
‡ Teflon—trademark E.I. DuPont.
* Mylar—trademark E.I. DuPont.

Product Construction

Conductor:
- Solid bare copper
- Solid tinned copper
- Stranded tinned copper

Insulation:
- Color coded "FEP" Teflon‡ 200°C

Shield:
- 100% coverage mylar*/aluminum foil, 25% overlap, stranded tinned copper drain, overall tinned copper braid
- (9852) each pair mylar*/aluminum foil plus tinned copper drain

Jacket:
- FEP Teflon‡ Jacket
- Documentation marker tape
- Temperature: –80°C to +200°C

Applications
- Power limited circuits
- Point of sale networks
- Financial transaction terminal networks
- Communications and signal systems

Special Features
- Installation in air plenums without the use of conduit
- Passes Steiner Tunnel Low Smoke and Flame Test
- Outstanding oil and moisture resistance
- Excellent electrical and mechanical properties
- Suitable for Cable Tray Use Class 2 circuits

Industry Approvals
- UL listed for low smoke and fire characteristics per National Electric Code Article 725-38(b)3
- UL Subject 13, Power Limited Circuit Cables, Type CL2P
- UL Subject 910, Smoke and Flame Test
- Passes UL VW-1 Vertical Flame Test
- OSHA acceptable
- Passes IEEE 383 70,000 BTU Flame Test

Packaging
- 1000 ft. spools
- Also available on bulk reels

UL Listed Subject 13

Passes UL VW-1 Flame Test
Underwriters Laboratories Inc.

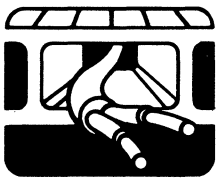
OSHA Acceptable
Occupational Safety and Health Administration

IEEE 383 FLAME TEST

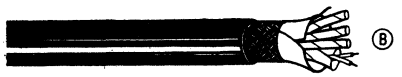
Recognized Component
Underwriters Laboratories Inc.

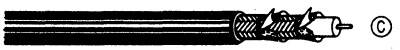
11044 KING STREET, DEPT: EEM, FRANKLIN PARK, IL 60131
PHONE: 708/455-8830 • WATS LINE: 800/621-4278 • FAX 708/455-8837

Consolidated electronic wire & cable



PLENUM CABLE – FEP TEFLON





PLENUM CABLES

Product Construction

Conductor:
- 26 thru 12 AWG stranded tinned copper conductors per ASTM B-33
- Solid bare copper
- Solid tinned copper
- Stranded tinned copper

Dielectric:
- Semi solid "FEP" Teflon‡ Insulation
- Foam "FEP" Teflon‡ insulation

Insulation:
- Color coded "FEP" Teflon‡ 200°C

Shield:
- Each pair 100% coverage mylar*/aluminum foil, 25% overlap, foil facing in with stranded tinned copper drain
- 100% coverage mylar*/aluminum foil
- 100% coverage mylar*/aluminum foil plus tinned copper braid

Jacket:
- "FEP" Teflon jacket
- Documentation marker tape for identification
- Temperature: – 55°C to + 200°C

Applications
- Power limited circuits
- Computer systems
- Communication and signal systems
- Cash registers
- Remote Controls
- Data and logic transmission
- Instrumentation systems requiring no cross talk
- Computer peripheral interconnect

Special Features
- Installation in air plenums without the use of conduit
- Passes Steiner Tunnel Low Smoke and Flame Test
- Outstanding oil and moisture resistance
- Excellent electrical and mechanical properties
- Suitable for Cable Tray Use Class 2 circuits

Industry Approvals
- UL listed for low smoke and fire characteristics per National Electric Code Article 725-38(b)3
- UL Subject 13, Power Limited Circuit Cables, Type CL2P
- UL Subject 910, Smoke and Flame Test
- Passes UL VW-1 Vertical Flame Test
- OSHA acceptable
- Passes IEEE 383 70,000 BTU Flame Test

Packaging
- 1000 ft. spools
- Also available on bulk reels

UL Listed Subject 13 — Passes UL VW-1 Flame Test, Underwriters Laboratories Inc

OSHA Acceptable, Occupational Safety and Health Administration

IEEE 383 FLAME TEST

Recognized Component, Underwriters Laboratories Inc.

NEC Article 725-38(b)3 Individually Shielded Pairs Power Limited Remote Control Signal Cable (UL) CL2P Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK."	NOM. DIA."	CAP.** pF/FT.	UL LISTING
9890	22 (7 x 30)TC	2	.007 FEP	Mylar*/Alum Foil Plus TC Drain	.015	.174	25	CL2P
9883	22 (7 x 30)TC	3	.007 FEP	Mylar*/Alum Foil Plus TC Drain	.015	.252	25	CL2P
9894	22 (7 x 30)TC	6	.007 FEP	Mylar*/Alum Foil Plus TC Drain	.015	.357	25	CL2P

COLOR CODE CHARTS

Catalog 9890
1 - Black with Red
2 - Green with White

Catalog 9883 & 9894
1 - Black with Red
2 - Black with White
3 - Black with Green
4 - Black with Blue
5 - Black with Yellow
6 - Black with Brown

NEC Article 725-38(b)3 Individually Shielded Pairs "Low-Cap" Power Limited Remote Control Signal Cable (UL) CL2P Ⓐ

CAT. NO.	COND. SIZE/STRAND	NO. OF PAIRS	INSUL. THICK."	SHIELD TYPE	JACKET THICK."	NOM. DIA."	CAP.** pF/FT.	UL LISTING
9859	22 (7 x 30)TC	1	.015 Foam FEP	Each Pair Mylar*/ Alum Foil, TC Drain	.017	.220	8.8	CL2P
9867	24 (7 x 32)TC	2	.012 Foam FEP	Each Pair Mylar*/ Alum Foil, TC Drain	.017	.225	12.5	CL2P
9868	24 (7 x 32)TC	3	.012 Foam FEP	Each Pair Mylar*/ Alum Foil, TC Drain	.017	.245	12.5	CL2P
9869	24 (7 x 32)TC	4	.012 Foam FEP	Each Pair Mylar*/ Alum Foil, TC Drain	.017	.265	12.5	CL2P

**Capacitance between pairs
*Mylar—trademark E.I. DuPont.
‡Teflon—trademark E.I. DuPont.

COLOR CODE: 9859 thru 9869

Pair No.	Color	Pair No.	Color
1	White with White/Red	3	White with White/Green
2	White with White/Black	4	White with White/Blue

NEC Article 725-38(b)3 Ethernet Transceiver Cable (UL) CL2P Ⓑ

CAT. NO.	CABLE TYPE	COND. SIZE/STRAND	NO. OF PAIRS	DIELEC-TRIC TYPE	SHIELD COVER	JKT. TYPE	IMP. OHMS	CAP.** pF/FT.	UL LISTING
9897	Low Loss Transceiver 4/Pair	20 (7 x 28)TC	4	FEP Teflon	Each Pair Mylar*/Alum & Overall/Mylar*/ Alum Foil & TC Braid, 95% Cov.	.035 Brn FEP .412	78	19	CL2P
9855	Transceiver 3/Pair Signal, 1/Pair Power	22 (7 x 30)TC 20 (7 x 28)TC	3	FEP Teflon	Each Pair Mylar*/Alum & Overall/Mylar*/ Alum Foil & TC Braid, 95% Cov.	FEP .325	78	17.5	CL2P

NEC Article 725-38(b)3 Ethernet Trunk Coax (UL) CL2P Ⓒ

CAT. NO.	CABLE TYPE	COND. SIZE/STRAND	DIELEC-TRIC TYPE	SHIELD TYPE	JKT. TYPE	NOM. DIA."	IMP. OHMS	CAP.** pF/FT.	UL LISTING
4790	Ethernet Trunk	12 (Solid) .0855 BC	Foam FEP .246	Alum/Foil Plus 94% TC Braid Alum/Foil Plus 90% TC Braid	FEP Org	.375	50	25.5	CL2P

NEC Article 725-38(b)3 Thinnet RG58/U Coax Class 2 Circuits (UL) CL2P Ⓓ

CAT. NO.	CABLE TYPE	COND. SIZE/STRAND	DIELEC-TRIC TYPE	SHIELD TYPE	JKT. TYPE	NOM. DIA."	IMP. OHMS	CAP.** pF/FT.	UL LISTING
4758	Thinnet	20 (19 x 33)TC	Foam FEP	Alum/Foil Plus 95% TC Braid	FEP Gray	.165	50	25.4	CL2P

NEC Article 725-38(b)3 Miniature Multi 34/Conductor RG62U Coax (UL) CL2P Ⓔ

CAT. NO.	CABLE TYPE	COND. SIZE/STRAND	DIELEC-TRIC TYPE	SHIELD TYPE	JKT. TYPE	NOM. DIA."	IMP. OHMS	CAP.** pF/FT.	UL LISTING
4762	Mini RG 62	26 (Solid) TC	Semi Solid FEP .106	Alum Foil	FEP Teflon‡	1.153	93	13.0	CL2P

**Nominal capacitance per foot. *Mylar—trademark E.I. DuPont. ‡Teflon—trademark E.I. DuPont.

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COAXIAL/BROADCAST CABLE

Coaxial Cable — Polyethylene Dielectric MIL-C-17 Ⓐ

CAT. NO.	RG/U NO.	UL STYLE	JKT. O.D."	JKT. TYPE	SHIELDS OUTER	SHIELDS INNER	INSUL. DIELEC-TRIC & TYPE	CENTER COND.	V.P. %	CAP pF/FT.	MAX. OPER. VOLTS RMS	IMP. OHMS
4433	6A		.332	111A	C	C	.185P	21CW	65.9	20	2,700	75
4415	8	1354	.405	1		C	.285P	7/21C	65.9	29.5	4,000	52
4435	8A	1354	.405	11A		C	.285P	7/21C	65.9	29.5	4,000	52
4419	11		.405	1		C	.285P	7/26TC	65.9	20.5	4,000	75
4440	11A		.405	11A		C	.285P	7/26TC	65.9	20.5	4,000	75
4475	22B		.420	11A	TC	TC	.285P	Two 7/.0152C	65.9	16	1,000	95
4447	55		.206	111A	TC	TC	.206P	20C	65.9	28.5	1,900	53.5
4448	55A		.216	11A	S	S	.116P	.035S	65.9	29.5	1,900	50
4484	55B		.206	111A	TC	TC	.116P	20S	65.9	28.5	1,900	53.5
4405	58	1354	.195	1		TC	.116P	20C	65.9	28.5	1,900	53.5
4449	58A	1354	.195	1		TC	.116P	19/0071TC	65.9	29.5	1,900	52
4450	58C	1354	.195	11A		TC	.116P	19.0071TC	65.9	29.5	1,900	50
★ 4401	59	1354	.242	1		C	.146P	22CW	65.9	21	2,300	73
4470	59B	1354	.242	11A		C	.146P	.0253CW	65.9	20.5	2,300	75
★ 4456	62A	1478	.242	11A		C	.146ASP	22CW	84	13.5	750	93
4472	62B	1354	.242	11A		C	.146ASP	7/32CW	84	13.5	750	93
4454	63		.405	1		C	.285ASP	22CW	84	10	1,000	125
4455	63B		.405	11A		C	.285ASP	22CW	84	10	1,000	125
4485	71B		.250	111A	TC	TC	.146ASP	22CW	84	13.5	750	95
4487	79B		.475	11A		C	.285P	22CW	84	10	1,000	125
4465	108A		.235	11A		TC	.235P	Two 7/28TC	65.9	23.5	1,000	78
4457	122	1354	.160	11A		TC	.096P	27/36TC	65.9	29.5	1,900	50
4459	174	1354	.105	1		TC	.060P	7/.0063CW	65.9	30	1,500	50
4473	174A	1354	.105	11A		C	.060P	7/.0063CW	65.9	30	1,500	50
4489	213		.405	11A		C	.285P	7 x .0296C	65.9	29.5	5,000	50
4490	214	1354	.425	11A	S	S	.285P	7 x .0296S	65.9	29.5	5,000	50
4491	216		.425	11A	C	C	.285P	7 x 26TC	65.9	20.5	4,000	75
4492	216		.545	11A	C	C	.370P	.106C	65.9	29.5	7,000	50
4493	218		.870	11A		C	.680P	.195C	65.9	29.5	11,000	50
4496	223	1354	.216	11A	S	S	.116P	.035S	65.9	29.5	1,900	50

★ 4401 available in (UL) CL2 construction
★ 4456 available in (UL) CL2 construction

KEY TO ABBREVIATIONS:

C—Bare Copper
S—Silver Copper
P—Polyethylene
CW—Copperweld
TC—Tinned Copper
ASP—Air Spaced Polyethylene

MILITARY DESIGNATION	JACKET TYPE	TEMPERATURE LIMITS
TYPE I	Black Polyvinylchloride	-40°C to +80°C
TYPE II	Grey Polyvinylchloride	-25°C to +80°C
TYPE IIa	Black or Grey Polyvinylchloride	Under ¼" O.D. -55°C to +90°C Over ¼" O.D. -40°C to +90°C
TYPEIIIa	Black Polyethylene	-55°C to +80°C

COAXIAL CABLES

Product Construction

Conductor:
- Bare copper
- Tinned copper
- Silver plated copper
- Copperweld

Dielectric:
- Polyethylene
- Air spaced polyethylene

Shield:
- Bare copper braid
- Tinned copper braid
- Silver plated copper braid

Jacket:
- Polyvinylchloride (PVC)
- Low-temperature non-contaminating PVC
- Polyethylene (P)

Applications

- Data transmission
- RF communication
- Video
- Broadcast
- Computer

Industry Approvals

- (UL) CL2
- UL 1354
- UL 1478
- MIL-C-17
- OSHA acceptable

Packaging

- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

UL Listed Subject 13

OSHA Acceptable Occupational Safety and Health Administration

IEEE 383 FLAME TEST

Recognized Component Underwriters Laboratories Inc.

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PHONE: 708/455-8830 • WATS LINE: 800/621-4278 • FAX 708/455-8837

Consolidated electronic wire & cable

COAXIAL/BROADCAST CABLE

COAXIAL CABLES

Product Construction

Conductor:
- Bare copper
- Tinned copper
- Silver plated copperweld

Insulation:
- Solid polyethylene (P)
- Foam polyethylene (FP)
- Solid TFE Teflon‡ (F-1)

Shield:
- Bare copper braid
- Tinned copper braid
- Silver plated copper braid

Jacket:
- Polyvinylchloride +80°C
- Teflon‡ braid +200°C
- TFE Teflon‡ tape +260°C
- FEP Teflon‡ jacket +200°C

Applications
- Data transmission
- RF communication
- Video
- High temperature
- Broadcast

Industry Approvals
- UL 1354
- OSHA acceptable

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

Miniature Coaxial Cable — Polyethylene Dielectric MIL-C-17 Ⓐ

CAT. NO.	RG/U NO.	UL STYLE	JKT. O.D."	JKT. TYPE	SHIELDS	INSUL. DIELEC-TRIC & TYPE	CENTER COND.	V.P. %	NOM. CAP.** pF/FT.	MAX. OPER. VOLTS RMS	IMP. OHMS
4407	Mini 8		.242	1	BC	.154FP	19 x 29	78.0	28	2,500	50
4459	174	1354	.105	1	TC	.060P	7/34	65.9	30	1,500	50
4473	174A	1354	.105	11A	TC	.060P	7/34	65.9	30	1,500	50
4466	—	1354	.150	1	TC	.100P	7/35	66.0	20.5	2,500	75

Coaxial Cable — Teflon‡ Dielectric MIL-C-17 Ⓐ

CAT. NO.	RG/U NO.	CENTER CONDUCTOR	DIELEC-TRIC TYPE	DIELEC-TRIC O.D."	SHIELDS	JKT. TYPE	JKT. O.D."	NOM. CAP.** pF/FT.	MAX. OPER. VOLTS RMS	NOM. IMP. OHMS
4717	142	.0359 Silver Cov. Copper Steel	F-1	.116	Silver Coated Copper Dbl. Braid	V	.206	28.5	1,900	50
4718	142A	.039 Silver Cov. Copper Steel	F-1	.116	Silver Coated Copper Dbl. Braid	V	.206	28.5	1,900	50
4719	142B	.039 Silver Cov. Copper Steel	F-1	.116	Silver Coated Copper Dbl. Braid	V	.195	28.5	1,900	50
4727	178	7/.0039 Silver Cov. Copper Steel	F-1	.036	Silver Coated Copper Dbl. Braid	V	.079	27.9	1,000	50
4728	178A	7/.004 Silver Cov. Copper Steel	F-1	.034	Silver Coated Copper Dbl. Braid	V	.075	27.9	1,000	50
4729	178B	7/.004 Silver Cov. Copper Steel	F-1	.034	Silver Coated Copper Dbl. Braid	V	.075	—	1,000	50
4761	179	7/.004 Silver Cov. Copper Steel	F-1	.063	Silver Coated Copper Dbl. Braid	V	.100	—	1,200	75
4730	179A	7/.004 Silver Cov. Copper Steel	F-1	.063	Silver Coated Copper Dbl. Braid	V	.105	20.0	1,200	75
4731	179B	7/.004 Silver Cov. Copper Steel	F-1	.063	Silver Coated Copper Dbl. Braid	V	.105	—	1,200	75
4735	187	7/.004 Silver Cov. Copper Steel	F-1	.060	Silver Coated Copper Dbl. Braid	V	.110	—	1,200	75
4736	187A	7/.004 Silver Cov. Copper Steel	F-1	.060	Silver Coated Copper Dbl. Braid	V	.110	—	1,200	75
4737	188	7/.0067 Silver Cov. Copper Steel	F-1	.060	Silver Coated Copper Dbl. Braid	V	.110	—	1,200	50
4738	188A	7/.0067 Silver Cov. Copper Steel	F-1	.060	Silver Coated Copper Dbl. Braid	V	.110	—	1,200	50
4757	303	7/.0039 Silver Cov. Copper Steel	F-1	.060	Silver Coated Copper Dbl. Braid	V	.170	28.5	1,900	50
4759	316	7/.0067 Silver Cov. Copper Steel	F-1	.060	Silver Coated Copper Dbl. Braid	V	.102	—	1,200	50

‡Teflon—trademark E.I. DuPont.

KEY TO ABBREVIATIONS: F-1—Solid Teflon, **F-2**—Taped Teflon, **V**—High Temperature Lacquer Impregnated Fiberglass Braid with Teflon Between Shield and Jacket, **FEP**—Fluorinated Ethylene Propylene Copolymer, 200°C Teflon, **TFE**—Tetrafluoride Ethylene Propylene Copolymer, 250°C Teflon, **I**—Type I PVC Jacket, **IIA**—Type IIA Low Temperature PVC Jacket, **BC**—Bare Copper, **TC**—Tin copper

OSHA Acceptable
Occupational Safety and Health Administration

Recognized Component
Underwriters Laboratories Inc.

Consolidated electronic wire & cable
11044 KING STREET, DEPT: EEM, FRANKLIN PARK, IL 60131
PHONE: 708/455-8830 • WATS LINE: 800/621-4278 • FAX 708/455-8837

COAXIAL/BROADCAST CABLE

Twinaxial Data Cable
(UL) CL2 - Styles 2092, 2448, 2498, 2582, 2668 Ⓐ

CAT. NO.	CENTER COND.	COND. INSUL.	SHIELD COV.	JKT. TYPE	NOM. DIA."	V.P. %	CAP. pF/FT.	IMP. OHMS	UL LISTING
4591	2/Cond 20 (7×28) TC	.020 PE	TC Braid 93% Cov.	PVC Blue	.242	66	19.7	78	CL2/ 2092
4598	2/Cond 20 (7×28) TC	.022 PE	Mylar* Alum Foil Plus TC Braid 57% Cov.	PVC Blue	.243	66	19.7	78	CL2/ 2582
4465	2/Cond 20 (7×28) TC	.020 PE	TC Braid 90% Cov.	PVC Black	.235	66	23.5	78	RG108A/U
4475	2/Cond 18 (7×26) BC	.025 PE	2/TC Braid 95% Cov.	PVC Black	.420	66	16	95	RG22B/U
4592	2/Cond 20 (7×28) 1/C Tin 1/C Bare	PE .236 IBM 7362211	TC Braid 95% Cov.	PVC Black	.330	66	15.5	100	CL2/ 2498
4593	2/Cond 20 (7×28) 1/C Tin 1/C Bare	Air Dielectric PE .236	TC Braid 95% Cov.	PVC Black	.330	70	13.8	100	2498
4589	2/Cond 20 (7×28) 1/C Tin 1/C Bare	PE .236	TC Braid 95% Cov.	High Density PE Direct Burial Black	.330	66	15.5	100	—
4594	2/Cond 25 (7×33) TC	.027 Foam PE Blue White	Mylar* Alum Foil Plus TC Drain	.050 PVC Blue	.242	66	12.2	124	CL2/ 2092
4586	2/Cond 16 Solid BC	.060 Foam PE Blue White	Mylar* Alum Foil Plus TC Braid 92% Cov.	PVC Black	.440	78	10.9	124	2448
4596	2/Cond 22 (19×34) TC	.051 Foam PE Black Yellow	Mylar* Alum Foil Plus TC Drain	PVC Black	.350	78	8.8	150	2668

* Mylar — trademark E.I. DuPont

BROADCAST CABLES

Product Construction

Conductor:
- Bare copper
- Tinned copper

Insulation:
- Solid polyethylene
- Foam polyethylene
- Air spaced polyethylene

Shield:
- Mylar*/aluminum foil plus tinned copper drain
- Plus tinned copper drain
- Tinned copper braid

Jacket:
- Polyvinylchloride (PVC)
- High density polyethylene
- Temperature -20°C to +80°C

Applications
- Broadcast
- Computer
- Factory CIM type (4591)
- Factory data bus (4598)
- IBM system 36 type (4592)
- Programmable controller (4594)
- Factory communications (4596)

Industry Approvals
- (UL) CL2
- UL 2092
- UL 2448
- UL 2498
- UL 2582
- UL 2668
- OSHA acceptable

Packaging
- 1000 ft. spools
- 500 ft. spools
- Also available on bulk reels

Listed Subject 13 | IEEE 383 FLAME TEST | Recognized Component Underwriters Laboratories Inc

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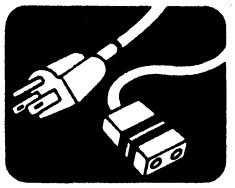
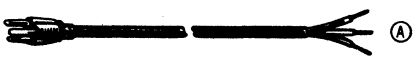


CORD SETS



RETRACTILE CORD

Product Construction

Conductor:
- 18 AWG thru 12 AWG annealed stranded bare copper per ASTM B-33

Insulation:
- Color coded PVC insulation

Jacket:
- PVC black, gray, orange
- Temperature: – 30°C to + 60°C
- Voltage:
  Extension cords 125 volts
  Power supply 300 volts

Termination:
- Jacket removed 2″
- Insulation stripped 5/8″
- Conductor strands twisted

Applications
- Original equipment electronic supply cord
- Replacement supply cord
- Indoor/outdoor cord
- Power supply medical hospital application

Special Features
- Molded plug assembly
- Flexible conductor stranding
- Molded strain reliefs
- Special preparation of free ends available ie...attach lugs, disconnects etc....contact factory for details.

Industry Approvals
- UL subject 62 SVT, SJT
- UL subject 817
- CSA certified
- OSHA acceptable

Packaging
- 1000 pieces per carton
- Bulk packed
- Also available custom packaging

3 Conductor Power Supply Cord Unshielded PVC Jacket
NAS Color Code Ⓐ

CAT. NO.	LENGTH METERS	LENGTH FT.	GAUGE AND STRAND	UL STYLE	COLOR CODE† CONDUCTOR	JACKET COLOR	O.A. DIA.″
A7136	1.8	6′	18 (16 × 30)	SVT	NAS	Black	.250
A7137	2.5	8′	18 (16 × 30)	SVT	NAS	Grey	.250
■ A7138	2.5	8′	18 (16 × 30)	SVT	NAS	Black	.250
A7139	1.8	6′	18 (16 × 30)	SJT	NAS	Grey	.315
A7140	2.5	8′	18 (16 × 30)	SJT	NAS	Grey	.315
■ A7141	1.8	6′	18 (16 × 30)	SJT	NAS	Black	.315
■ A7142	2.5	8′	18 (16 × 30)	SJT	NAS	Black	.315
■ A7151	3.1	10′	18 (16 × 30)	SJT	NAS	Black	.307
■ A7152	1.8	6′	16 (65 × 34)	SJT	NAS	Black	.334
■ A7153	2.5	8′	16 (65 × 34)	SJT	NAS	Black	.334
■ A7154	3.1	10′	16 (65 × 34)	SJT	NAS	Black	.334
■ A7155	1.8	6′	14 (41 × 30)	SJT	NAS	Black	.375

3 Conductor Power Supply Cord Unshielded PVC Jacket,
CEE Color Code Ⓐ

CAT. NO.	LENGTH METERS	LENGTH FT.	GAUGE AND STRAND	UL STYLE	COLOR CODE† CONDUCTOR	JACKET COLOR	O.A. DIA.″
A7130	2	6′5″	18 (16 × 30)	SJT	CEE	Black	.330
A7131	3	10′	18 (16 × 30)	SJT	CEE	Black	.330
A7132	2	6′5″	16 (26 × 30)	SJT	CEE	Black	.360
A7133	3	10′	16 (26 × 30)	SJT	CEE	Black	.360
A7134	2	6′5″	14 (41 × 30)	SJT	CEE	Black	.380
A7135	3	10′	14 (41 × 30)	SJT	CEE	Black	.380
A7149	2	6′5″	18 (16 × 30)	SVT	CEE	Black	.253
A7150	3	10′	18 (16 × 30)	SVT	CEE	Black	.253

■ New catalog item.

UL and CSA labeling service
All cords are labeled by tag, letter on file, or bulk pack carton labeling

Color Code Chart

North America (NAS)*

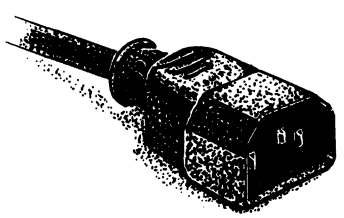
COLOR	FUNCTION
White	N-Neutral
Black	L-Live
Green or Green/Yellow	E-Earth or Ground

European (CEE)*

COLOR	FUNCTION
Light Blue	N-Neutral
Brown	L-Live
Green/Yellow	E-Earth or Ground

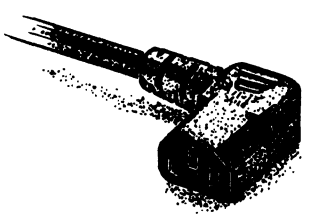
CSA Certified Canadian Standard Association
OSHA Acceptable Occupational Safety and Health Administration
Recognized Component Underwriters Laboratories Inc

Male Shrouded IEC 320-C14 (3-Wire)



NEMA 5-15R (3-Wire) 15 Amp-125 Volt

Right Angle IEC 320-C13 (3-Wire)



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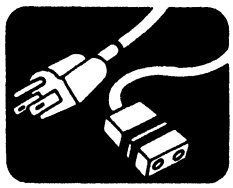

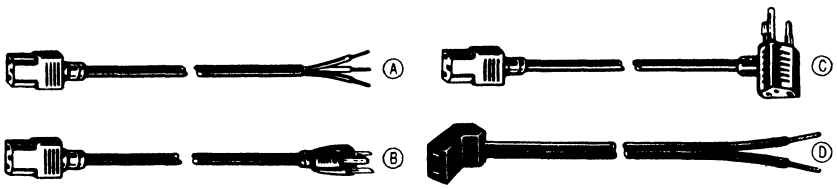

3 Conductor Power Supply Cord Unshielded Straight Connector Ⓐ

CAT. NO.	LENGTH METERS	FT.	GAUGE AND STRAND	UL STYLE	COLOR CODE‡ CONDUCTOR	JACKET COLOR	NOM. DIA."
A7100	2	6'5"	18 (16 x 30)	SJT	CEE	Blk	.315
A7102	2.5	8'	18 (41 x 34)	SVT	CEE	Blk	.250
A7103	2	6'5"	16 (26 x 30)	SJT	CEE	Blk	.340

3 Conductor Detachable Power Supply Cord Shielded Ⓑ

CAT. NO.	LENGTH METERS	FT.	GAUGE AND STRAND	UL STYLE	COLOR CODE‡ CONDUCTOR	JACKET COLOR	NOM. DIA."
A7020	2	6'5"	18 (16 x 30)	SJT	CEE	Blk	.340
A7021	3	10'	18 (16 x 30)	SJT	CEE	Blk	.340
A7022	2	6'5"	16 (26 x 30)	SJT	CEE	Blk	.370
A7023	3	10'	16 (26 x 30)	SJT	CEE	Blk	.365
A7024	2	6'5"	14 (41 x 30)	SJT	CEE	Blk	.402
A7025	3	10'	14 (41 x 30)	SJT	CEE	Blk	.402
A7026	2	6'5"	18 (41 x 34)	SVT	CEE	Blk	.270
A7027	3	10'	18 (41 x 34)	SVT	CEE	Blk	.270

3 Conductor Detachable Power Supply Cord Unshielded Ⓑ

CAT. NO.	LENGTH METERS	FT.	GAUGE AND STRAND	UL STYLE	COLOR CODE‡ CONDUCTOR	JACKET COLOR	NOM. DIA."
A7110	2	6'5"	18 (16 x 30)	SJT	CEE	Blk	.315
A7111	3	10'	18 (16 x 30)	SJT	CEE	Blk	.315
A7112	2	6'5"	16 (26 x 30)	SJT	CEE	Blk	.340
A7118	3	10'	16 (26 x 30)	SJT	CEE	Blk	.360
A7128	2	6'5"	14 (41 x 30)	SJT	CEE	Blk	.380
A7129	3	10'	14 (41 x 30)	SJT	CEE	Blk	.380
A7117	2.3	7'6"	18 (16 x 30)	SVT	CEE	Blk	.250
A7113	2.3	7'6"	18 (16 x 30)	SVT	NAS	Blk	.250
A7114	2.3	7'6"	18 (16 x 30)	SJT	NAS	Blk	.360

3 Conductor UL Listed Harness Cable Assembly Convenience Outlet Molded Plug Ⓒ

CAT. NO.	LENGTH METERS	FT.	GAUGE AND STRAND	UL STYLE	COLOR CODE‡ CONDUCTOR	JACKET COLOR	NOM. DIA."
A7120	2.8	8'	16 (26 x 30)	SJTW	NAS	Blk	.365

Two Conductor Cooling Fan Power Cords SPT-1 105°C Ⓓ

CAT. NO.	LENGTH METERS	FT.	GAUGE AND STRAND	VOLTS	AMPS	WATTS
■ A7167	.3	1'	18 (41 x 34)	125	10	1250
A7162	.6	2'	18 (41 x 34)	125	10	1250
A7163	.9	3'	18 (41 x 34)	125	10	1250

†Color code chart see page 67.
■ New catalog item.

CSA Certified Canadian Standard Association
OSHA Acceptable Occupational Safety and Health Administration
Recognized Component Underwriters Laboratories Inc

CORD SETS

Product Construction

Conductor:
- 18 AWG thru 14 AWG annealed stranded bare copper per ASTM B-33

Insulation:
- Color coded PVC
  North American code: NAS
  Black, white, green
  European code: CEE
  Lt. blue, brown, green and yellow

Shield:
- (7020/7027) Mylar aluminum foil plus tinned copper drain

Jacket:
- PVC black
- Temperature: −30°C to +60°C

Termination:
- Power supply cords jacket removed 2" insulation stripped 5/8" conductor strands twisted
- Cooling fan cords free end split 1 1/2" conductors stripped 1/2" and dip tinned

Applications
- Original equipment electronic supply cord
- Detachable power supply cord
- Fans, lamps, small appliances

Special Features
- Flexible stranding provides increased flex life
- Molded low profile plug design
- Aluminum foil shield provides superior EMI and RFI suppression
- Special preparation of free ends available ie....attach lugs, disconnects, etc.... contact factory for details.

Industry Approvals
- UL subject 62 SVT, SJT
- CSA certified
- OSHA acceptable

Packaging
- 100 pieces per carton
- Bulk packed
- Also available custom packaging

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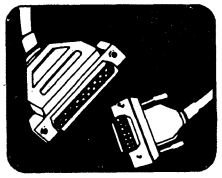
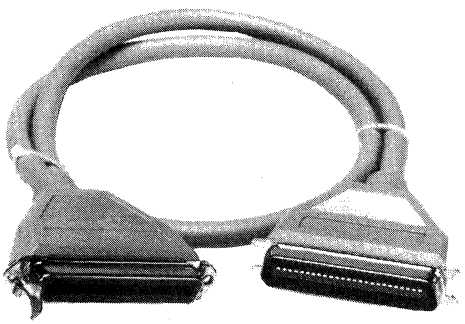


CABLE & COMPONENTS

MOLDED DATA CABLE ASSEMBLIES

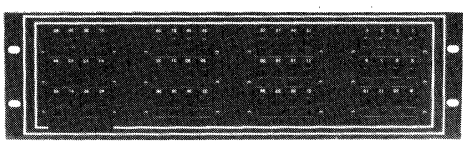


A100MF-6	RS232 Serial Cable, 6′ MF
A100MM-6	RS232 Serial Cable, 6′ MF
A100MF-10	RS232 Serial Cable, 10′ MF
A100MM-10	RS232 Serial Cable, 10′ MM
A100MF-25	RS232 Serial Cable, 25′ MF
A100MM-25	RS232 Serial Cable, 25′ MM
A102MF-6	Modem Cable, MF, 6′
A102MM-6	Modem Cable, MM, 6′
A102MF-10	Modem Cable, MF, 10′
A102MM-10	Modem Cable, MM, 10′
A104MF-6	IBM Type PC-AT Modem Cable, 6′
A104MF-10	IBM Type PC-AT Modem Cable, 10′
A108MM-6	Parallel Printer Cable, 6′ MM
A108MM-10	Parallel Printer Cable, 10′ MM
A109MM-15	Parallel Printer Cable, 15′ MM
A109MM-25	Parallel Printer Cable, 25′ MM
A113MM-6	Centronics Cable, 6′ MM
A113MM-10	Centronics Cable, 10′ MM
A113MM-15	Centronics Cable, 15′ MM
A114MF-6	Mon/Term Ext. Cable, 6′, MF
A114MM-6	Mon/Term Ext. Cable, 6′, MM
A114MF-10	Mon/Term Ext. Cable, 10′, MF
A114MM-10	Mon/Term Ext. Cable, 10′, MM
A115MF-4	37 cond. ext. cable, 4′ MF
A115MM-4	37 cond. ext. cable, 4′ MM
A116MF-6	Retr. Keyboard Cable, 6′ MF
A117RGB-6	RGB Monitor Cable, 6′
A118MF-10	PC-XT to HP Laser Jet, 10′
A120MM-6	Apple IIc to Imagewriter II
A121MM-6	Apple IIe to Imagewriter
A122MM-6	Apple IIc to Hayes Modem
A123MM-6	Apple IIc to Serial Printer
A124MM-6	MacIntosh to Imagewriter II
A125MM-6	MacIntosh to Serial Printer
A126MM-6	MacIntosh to Hayes Modem
A127MM-6	MacIntosh to H. P. Laser Jet
A128MM-6	MacIntosh to Imagewriter II
A128MM-10	MacIntosh to Imagewriter II
A129MF-1	MacIntosh + adaptor cable,
A130MM-6	MacIntosh to Hayes Modem
A130MM-10	MacIntosh to Hayes Modem
A131MM-6	MacIntosh to Imagewriter I
A132MM-6	8 pin mini-Din plugs, MM
A134MF-6	Mac II Mon. Extension cable,

MOLDED DATA CABLE ASSEMBLIES

A135MM-6	Mac + to H.P. Laser Jet
A136MF-6c	PS/2 Keyboard Ext. Cable,
A136MF-6s	PS/2 Keyboard Ext. Cable,
A137MF-6c	Keyboard and Mouse Extension
A137MF-6s	Keyboard and Mouse Extension
A138MM-6.6	Appletalk Extension cable
A139MM-2	SCSI Interface Cable,
A139MM-3	SCSI Interface Cable,
A139MM-6	SCSI Interface Cable,
A140MF-3.3	SCSI Interface Cable
A141MM-3.3	SCSI "Daisy Chain"Extension

MODULAR PATCH PANELS



AP448	4 wire, 48 port RJ-11
AP464	4 wire, 64 port RJ-11
AP496	4 wire, 96 port RJ-11
AP648	6 wire, 48 port RJ-11
AP664	6 wire, 64 port RJ-11
AP696	6 wire, 96 port RJ-11
AP848	8 wire, 49 port RJ-45
AP864	8 wire, 64 port RJ-45
AP896	8 wire, 96 port RJ-45
APP2450	24 BNC Female Connectors
APP1616	16 BNC Female on front
APP2424	24 BNC Female on front
APP3232	32 BNC Female on front
APW1616	16 BNC, 16 TNC WANG

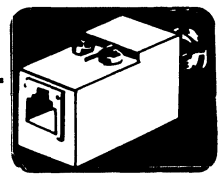
AP NET CONNECTORS FOR APPLE-TALK

AT001	3 Pin, M Din F, 8 Pin M Din M
AT002	3 Pin Mini Din F, DE-9 M
AT003	3 Pin Mini Din F, DB-25 M
ALT001	RJ-11 (6 X 4), 9 Pin M Din M
ALT002	RJ-11 6 X 4), DE-9 M
ALT003	RJ-11 (6 X 4), DB-25 M
AT004	3 Pin Mini Din G, Changer
AT005-x	10n/2n, 3 Pin M Din, M-M
ALT64	RJ-11 6 X 4 Terminator
AMP64	RJ11 6 X 4 Extension Cable

Consolidated electronic wire & cable

ASK FOR OUR COMPLETE COMPONENTS CATALOG 1089

CABLE & COMPONENTS



MODULAR DATA JACKS

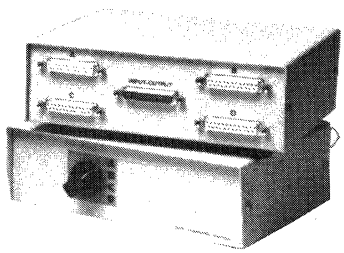
AJ625 AS625	DB-25 M/F to RJ-11 (6 X 6)
AJ825 AS825	DB-25 M/F to RJ-45 (8 X 8)
AJ615 AS615	DB-15 M/F to RJ-11 (6 X 6)
AJ815 AS815	DA-15 M/F to RJ-45 (8 X 8)
AJ809 AS809	DE-9 M/F to RJ-45 (8 X 8)

BALUNS-COAX ELIMINATORS

AJ11M	BNC Male to RJ-11
AJ12M	BNC Male to Screw Terminals
AJ13M	BNC Male to RJ-11 and Screws
AJ14M	Twinax Male to RJ-11
AJ15M	Twinax Male to Screws
AJ16M	Twinax M, to RJ-11 and Screw
ALD07	BNC/TNC F, to RJ-11 and Scr

ROTARY DATA SWITCHES

SERIAL



RS-232 SERIAL (DB-25)

AR225	2 Way
AR325	3 Way
AR425	4 Way
AR525	5 Way
AR625	6 Way
AR25X	Cross-Matrix
AR32X	3 to 2 Cross-Matrix

CENTRONICS PARALLEL

AC236	2 Way
AC336	3 Way
AC436	4 Way
AC536	5 Way
AC36X	Cross-Matrix

OTHER ROTARY SWITCHES

A4RJ4	RJ-11	4 Way
A45RJ2	RJ-45	2 Way
A45RJ4	RJ-45	4 Way
AR409	DE-9	4 Way
AR215	DA-15	2 Way
AR415	DA-15	4 Way

OTHER ROTARY SWITCHES

AR2BN	BNC	2 Way
AR4BN	BNC	4 Way
AT2T	Twinaxial	2 Way
AT4T	Twinaxial	4 Way
ATN4T	BNC, TNC	4 Way
AEE2	IEEE-488	2 Way
AEE4	IEEE-488	4 Way
A8CX	8 Pin Mini Din	Cross-MATRIX
A8D2	8 Pin Mini Din	2 Way
A8D4	8 Pin Mini Din	4 Way
A5D2	5 Pin Din, DE-9	2 Way
AC37	DC-37	2 Way
AC39	DC-37	4 Way
AC50	DD-50	2 Way
AC250	Centronics 50	2 Way
ADB36	DB-25, Cent. 36	2 Way
ADB46	Cent. 36, DB-25	2 Way

GENDER CHANGERS

AHA9P	DB-9 MALE TO MALE
AHA9S	DB-9 FEMALE TO FEMALE
AHA25P	DB-25, MALE TO MALE
AHA25S	DB-25, FEMALE TO FEMALE
AHA36P	CENTRONICS 36, MALE TO MALE
AHA36S	CENTRONICS 36, FEMALE TO FEMALE
AD3GC	Appletalk
AD8GC	8 PIN MINI DIN, FF

MOLDED HOODS, FOIL SHIELDED

AM25P	DB-25, MALE TO MALE
AM25S	DB-25, FEMALE TO FEMALE

NULL MODEM GENDER CHANGERS,

AHM25P	DB-25, NULL MODEM, MM
AHM25SP	DB-25, NULL MODEM, MF
AHM25S	DB-25, NULL MODEM, FF

PASSIVE MULTIPLEXERS

ANS02	3270, 2 PORT BNC
ANS03	3270, 2 PORT RJ11
APH01	ARCNET, 4 BNC FEMALE

NETWORK TERMINATORS

ANT-22	TWINAX
ALT-64	RJ-11 APPLETALK
ASCSI-50	SCSI 50
AN50	50 OHM BNC
AN75	75 OHM BNC
AN93	93 OHM BNC

ASK FOR OUR COMPLETE COMPONENTS CATALOG 1089

Consolidated electronic wire & cable

610 East Tenth Street
Oakland, CA 94606
FAX: (415) 452-3620

BRILL ELECTRONICS

1220 Olympic Boulevard
Santa Monica, CA 90404
Tel: (213) 452-8002

(415) 834-5888

ANTENNAS
- Antenna Specialist
- Cablewave Hardware
- Decibel Products

AUDIO PRODUCTS
- Argos
- Atlas
- Bogen
- Quam
- Shure
- Switchcraft
- University

BATTERIES
- Duracell
- Eveready
- Kodak

CABINETS
- BUD
- Calif. Chassis

CAPACITORS
- R.G. Allen
- E.F. Johnson
- Mallory
- Sprague

CIRCUIT BREAKERS
- Heinemann
- Potter Brumfield
- Waber Electric

CONNECTORS
- AMP
- Amphenol
- Cablewave
- E.F. Johnson
- Kulka
- Manhattan
- Paladin
- Panduit
- Pomona
- Superior
- Switchcraft

COUNTERS
- Hecon
- Kessler-Ellis
- Redington
- Stemco

FIBER OPTICS
- AMP
- Amphenol
- Belden Cable
- Madison

FILTERS
- Curtis
- J.W. Miller
- Mallory
- Stancor

FUSES
- Bussmann
- Littelfuse
- U.S.D.

HARDWARE
- 3-M
- Alta Boots
- AMP
- Ico Rally
- E.F. Johnson
- G.C. Electronics
- Harvey Hubbell
- Kulka Smith
- OK Tools
- Panduit
- Vector

LAMPS & LIGHTING
- Eveready
- Chicago Minature
- IDI
- IEE
- Ledu
- Luxo
- Leecraft
- Mag-Lite
- Stanley

OUTLET STRIPS
- Waber

POT'S & CONTROLS
- Bourns
- Clarostat
- Ohmite

POWER SUPPLIES & TRANSFORMERS
- Dormeyer
- Microtran
- Sola
- Stancor
- Superior
- Triad
- Tripp-lite
- UTC
- Waber

RELAYS
- Aleph International
- Allied Controls
- American Zettler
- Aromat
- C.P. Clare
- Crydom
- Coto
- Gordos
- Guardian
- ITT
- Line Electric
- Magnecraft
- Master Electronics
- Midtex
- Omron
- Potter & Brumfield
- Sigma
- Struthers-Dunn
- Theta-J

RESISTORS & NETWORKS
- R.G. Allen
- Bourns
- Clarostat
- Mallory
- Ohmite

SEMICONDUCTORS
- Semi Inc.
- Semitronics

SWITCHES
- Arrow Hart
- AMP
- C & K
- Cherry Electric
- G.C.
- McGill
- Omron
- Oslo
- Otto
- Switchcraft
- Unimax

TERMINAL BLOCKS
- AMP
- Buchanan
- Curtis
- Electrovert
- Magnum
- RDI
- Siemen
- USD
- Vernitron-Beau
- Weidmuller

TEST EQUIPMENT
- Fluke
- Simpson Electric
- Triplett

TIMERS
- Agastat
- Amperite
- Industrial Timer
- Magnecraft
- Master Electronics
- Midtex
- Omron
- Potter & Brumfield
- SSAC

TOOLS & SOLDER
- AMP
- Blazer
- Ersin
- Kester
- OK Machine & Tool
- Paladin
- Portasol
- Ungar
- Weller
- Xcelite
- Helper Winch

TRANSFORMERS
- Dormeyer
- Jeffersons
- Microtran
- Sola
- Stancor
- Thordarson
- Triad
- U.T.C.

TUBES
- Eimac
- G.E.
- National
- Raytheon
- R.C.A.
- Varian (Klystrons)

TUBING
- Alpha
- Electrovert
- Heli-Tube
- Panduit

WIRE & CABLE
- Alpha
- Belden
- Cablewave
- Carol
- Iboco
- Madison
- Manhattan
- Quabbin

COOPER INDUSTRIES **BELDEN**

PANDUIT

SHRINKABLE/NON-SHRINKABLE TUBING & SLEEVING DABURN

Daburn tubing is stocked in a wide variety of materials to meet almost any combination of physical and environmental conditions. Below is a tabulation of these products with comparative characteristics to guide selection.

SHRINKABLE TUBING

Material	DABURN Series	Expanded I.D. Range	Max. Op. Temp.	Shrink Temp.	Shrink Ratio	Min. Flex Temp.	Volts/ MIL	Notes
PVC	SH265	3/64-4"	105°C	95°C	2:1	– 10°C	700	Also heavy wall SH267 Series
Irradiated Polyolefin Shrink-Melt	SM270	1/8-1"	110°C	110°C	3:1	– 55°C	500	Inner liner for encapsulation, large shrink ratio
Neoprene	SH162	1/8-4"	120°C	120°C	2:1	– 70°C	300	
Irradiated Polyolefin	SH275	3/64-4"	135°C	120°C	2:1	– 55°C	500	Also semi-rigid SH290 Series
Irradiated Polyolefin 3:1	SH321	1/16-4"	135°C	90°C	3:1	– 55°C	500	
Irradiated Polyolefin 4:1	SH277	1"-4"	135°C	110°C	4:1	– 55°C	500	
Kynar	SH350	3/64-1"	175°C	175°C	2:1	– 55°C	1000	
FEP Teflon	SH400	.031-1.3"	200°C	250°C	1.3:1	– 67°C	2100	
TFE/FEP Teflon Shrink-Melt	SM450	1/32-1"	232°C	327°C	1.4:1	– 67°C	500	Inner Wall Melts for encapsulation
TFE Teflon	SH621	.034-1.5"	288°C	327°C	1.5:1	– 67°C	900	Also Ultra-TW SH620 Series
TFE Teflon 4:1	SH421	5/64-1.25"	288°C	327°C	4:1	– 67°C	500	

NON-SHRINK SLEEVING

Material	DABURN Series	I.D. Range	Max. Op. Temp.	Min. Flex Temp.	Dry Volts/ MIL	Dielectric Constant	Standard Colors*
PVC-Low Temp	D74	.022-2.5"	80°C	– 55°C	500 Min.	4.5	Clear
PVC	D105	.022-2.5"	105°C	– 10°C	1000 Avg.	6.0	#1 Thru 2 1/2" Clear, Black #2 True #7 Clear, Black, White #8 True #24 Clear, Black, White, Red
Vinyl Coated Fiberglass	D130	.022-1"	130°C	– 20°C	4000 Min.	7.0	Black, Yellow
Silicone Rubber Coated Fiberglass	D200	.024-1"	200°C	– 70°C	8000 Avg.	3.7	White
Teflon—Std. Wall	DTT550	.022-1.5"	250°C	– 90°C	1400 Min.	2.2	Natural
Teflon—Thin-Wall	DTT500	.012-1"	250°C	– 90°C	1400 Min.	2.2	Natural plus all MIL colors
Teflon—Ultra-TW	DUT	.002-.325"	250°C	– 90°C	1400 Min.	2.2	Natural
Fiberglass	D1200	.022-1"	648°C	N.M.	Space Variable	N.M.	Natural

*Other colors available to order

All tubing is manufactured in accordance with applicable MIL, UL, and ASTM specifications. For complete technical and ordering information, please send for the current DABURN master catalog.

DABURN ELECTRONICS & CABLE CORP. • 225 PEGASUS AVE. • NORTHVALE, N.J., 07647 • 201-768-5400 • FAX 201-768-9642

DABURN SPECIALTY • HOOK-UP • BARE COPPER WIRE

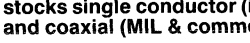
Daburn single conductor wire described below and on the page opposite is a representative selection from the complete line. Daburn stocks single conductor (including shielded and unshielded) MIL-W-76, glass braid, silicone rubber, aircraft, tefzel, kynar, microphone and coaxial (MIL & commercial). Also magnet, bare copper, copperweld, and bronze wire.

600 VOLT U/L APPROVED

– 105°C (CSA 600V — 90°C)

STYLE 1015, CSA TR-32, AWM, VW-1

Resistant to acids, alkalis, oil, flame, fungus and moisture. Temperature Rating: – 10°C to + 105°C.



DESCRIPTION: One conductor stranded annealed copper tinned, plastic insulation.

DABURN No.	Size	Strand	Nom. Ins. Wall	Nom. O.D.
2630*	22	7/30	.032″	.095″
2631*	20	10/30	.032″	.102″
2632*	18	16/30	.032″	.112″
2633*	16	26/30	.032″	.126″
2633/14	14	41/30	.032″	.142″
2633/12	12	65/30	.032″	.158″
2633/10	10	105/30	.032″	.180″

COLORS: Black, Red, Green, Yellow, Blue, White, Orange, Gray, Purple.
STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
* Meets MIL-W-76 Type HW.
Daburn stock includes UL hook-up styles: 1007, 1011, and 1061. Many other UL styles available to special order.

HIGH TEMPERATURE LEAD WIRE

High temperature aircraft and missile test lead wire for operation between 500° and 2000°F. in three types—2497, 800°F max.; 2498, 1500°F. max.; and 2499, 2000°F. max. For dry environments only.
2497 and 2498 nickel-coated copper with silicone varnish impregnated braided glass fiber. Unshielded. Available in multiconductor and shielded construction.

800° F	1500°F			
DABURN Cat. No.	DABURN Cat. No.	Size	Strand	Nom. O.D.
2497/18	2498/18	18	19/.010″	.085″
2497/20	2498/20	20	19/.008″	.075″
2497/22	2498/22	22	19/.0063″	.070″

Nickel-coated copper, braided vitreous silica insulation, braided nickel-coated copper shield. Multiconductor construction available.

2000° F

DABURN Cat. No.	Size	Strand	Nom. Insul Thickness	Braid Ni. Shield	Nom. O.D.
2499/18	18	19/.010″	.025″	16-5-36	.122″
2499/20	20	19/.008″	.025″	24-3-36	.112″
2499/22	22	19/.0063″	.027″	24-3-36	.108″

STANDARD PUT-UP: 500 Ft., 1000 Ft.

TINNED COPPER WIRE

Pure Electrolytic, Copper, annealed, tinned for quick soldering—Solid Soft Drawn QQ-W-343 Type S, ASTM-B-33 Specifications.

DABURN No.	Size AWG	Area Circ. Mills	O.D.	DABURN No.	Size AWG	Area Circ. Mills	O.D.
2360/4	4	41,704	.204″	2360/18	18	1,624	.040″
2360/6	6	26,250	.162″	2360/20	20	1,022	.033″
2360/8	8	16,510	.129″	2360/22	22	624.4	.025″
2360/10	10	10,380	.103″	2360/24	24	404.0	.020″
2360/12	12	6,530	.082″	2360/26	26	254.1	.016″
2360/14	14	4,107	.065″	2360/28	28	159.8	.013″
2360/16	16	2,583	.051″	2360/30	30	100.5	.010″

STANDARD PUT-UP: 100 Ft., 1000 Ft. See Magnet Wire Section For Additional Sizes

BUS BAR WIRE (Hard Drawn)

For hooking up all types of transmitters, especially ultra short wave equipment. All bus wire is made of hard drawn copper, tinned, straightened, and cut in 2 ft. lengths.

QQ—W—343Type S, ASTM—B—33, ASTM—B—246—51 Specifications

DABURN No.	Nom. Circ. Mil Area	Size	Nom. O.D.
2362/10	10,380	10	.103″
2362/12	6,530	12	.082″
2362/14	4,107	14	.065″
2362/16	2,583	16	.051″
2362/18	1,642	18	.040″
2362/20	1,022	20	.033″
2362/22	624	22	.025″

STANDARD PUT-UP: 100 Per Package in two foot lengths.

PLASTIC KINKLESS TEST LEAD WIRE

Soft formulation vinyl maximum flexibility. Temperature stability from – 80°C to + 105°C. Exceed requirements for MIL-I-3930A Type JP (PVC). Suitable for test leads, etc. Resistant to gasoline and oil. Excellent abrasion resistance.

OPERATING TEMPERATURE: – 80°C to + 105°C, 5000V rating.
DESCRIPTION: One conductor tinned copper stranded, special formulation vinyl insulation — smooth surface.
COLORS: Black, Red, Yellow, Green, White, Blue.

DABURN No.	Size	Strand	Ins.	Nom. O.D.
2722/22	22	26/36	.032″	.100″
2722/20	20	26/34	.032″	.104″
2722/18	18	65/36	.032″	.112″
2722/16	16	65/34	.032″	.129″

STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
We also stock rubber test lead wire—black & red, #20, #18.

DAFLEX ULTRA FLEXIBLE SUB-MINIATURE WIRE

U/L STYLE 1568, 1692

Daflex ultra flexible sub-miniature hook-up wire is designed for continuous flexing applications, such as data processing, mercury thermostats, magnetic memory drums and rotation servo platforms. It offers superior limpness and flexing characteristics.
DESCRIPTION: Stranded soft bare copper conductor, insulated with a special formulation of flexible PVC to minimize kinking and fatigue.
OPERATING TEMPERATURE: –40°C to +80°C. U/L 1568 voltage rating: 30V.

DABURN Cat. No.	AWG	Strand	Nom. Wall	Max. Volt	Nom. O.D.
2671/36	36	7/44†	.005″	150	.016″
2671/32	32	18/44	.007″	300	.023″
2671/30	30	28/44	.010″	600	.031″
2671/29	29	51/46	.008″	300	.032″
2671/28*	28	41/44	.010″	600	.035″
2671/27*	27	48/44	.010″	600	.037″
2671/26*	26	66/44	.010″	600	.042″
2671/24*	24	105/44	.010″	600	.045″
2671/22*	22	168/44	.010″	600	.052″
2671/20*	20	266/44	.010″	600	.061″
2671/18*	18	420/44	.010″	600	.072″

* To U/L Style 1568. (150V) † Silver Plated Copper.
STANDARD PUT-UP: 1000 Ft.
STOCK COLORS: Black, White, Red, Green. Additional colors to order.

IRRADIATED PVC HOOK-UP WIRE

U/L STYLE 1429 • CSA AWM XLPVC • UL STYLE 1430

CSA REW XLPVC • MIL-W-16878D TYPE B & TYPE C • VW-1

Daburn's irradiated PVC Hook-Up wire is made from extruded polyvinyl chloride insulation which has been exposed to controlled radiation. This exposure causes the insulation to become far superior to ordinary PVC in temperature, abrasion and cut-through resistance. It can withstand direct contact with a soldering iron and it will not shrink back, melt or deform. Ideal for hi-density wiring.

One conductor, solid or stranded tinned copper, with irradiated PVC insulation (XLPVC.)
TEMPERAGE RATING: – 55°C to + 105°C (UL 1429 – 80°C, UL 1430 – 105°C.)
VOLTAGE RATING: 600V (UL 1429 – 150V). 1000V (UL 1430 – 300V.)

TYPE B — UL STYLE 1429, 150V, 80°C — CSA AWM XLPVC — .010 WALL

DABURN CAT. NO	AWG	STRAND	NOM. O.D.
2200/26	26	7/34	.040″
2200/24	24	7/32	.045″
2201/24	24	19/36	.046″
2200/24S*	24	SOLID	.041″
2200/22	22	7/30	.051″
2201/22	22	19/34	.052″
2200/22S*	22	SOLID	.046″
2200/20	20	7/28	.060″
2201/20	20	19/32	.059″
2200/20S*	20	SOLID	.054″
2200/18	18	7/26	.070″
2201/18	18	19/30	.070″
2200/16	16	19/29	.078″

TYPE C — UL STYLE 1430, 300V, 105°C — REW XLPVC — .016 WALL

DABURN CAT. NO	AWG	STRAND	NOM. O.D.
2215/24	24	7/32	.056″
2215/22	22	7/30	.062″
2215/20	20	7/28	.070″
2215/18	18	7/26	.082″
2215/16	16	19/29	.093″

STANDARD COLORS: White, Black, Red, Green, Yellow, Blue, Brown, Orange, Gray, Violet.
STANDARD PUT-UPS: 100', 1000'.
*Not MIL Spec approved. Additional colors, sizes and constructions to order.

DABURN ELECTRONICS & CABLE CORP. • 225 PEGASUS AVE. • NORTHVALE, N.J., 07647 • 201-768-5400 • FAX 201-768-9642

HOOK-UP WIRE • BRAID

DABURN

The Daburn wire listed below is manufactured to meet MIL-W-16878 specifications as indicated. Wire to MIL-W-76 is also in stock in all voltage ratings, both shielded and unshielded. PVC hook-up with nylon jacket is also available from stock.

MIL-W-16878/1 600V
TYPE B

AWG	DABURN Cat. No.	Conductor Strand	Nom. O.D.
32	2500/32	7/40	.028"
30	2500/30	7/38	.030"
28	2500/28	7/36	.033"
26	2500/26	7/34	.037"
24	2500/24	7/32	.043"
24	2501/24	19/36	.043"
22	2500/22	7/30	.048"
22	2501/22	19/34	.048"
20	2500/20	7/28	.057"
20	2501/20	19/32	.057"
18	2500/18	7/26	.067"
18	2501/18	19/30	.067"
16	2500/16	19/29	.077"
14	2500/14	19/27	.091"

MIL-W-16878/2 1000V
TYPE C

AWG	DABURN Cat. No.	Conductor Strand	Nom. O.D.
24	2515/24	7/32	.058"
22	2515/22	7/30	.064"
20	2515/20	7/28	.072"
18	2515/18	7/26	.082"
16	2515/16	19/29	.091"
14	2515/14	19/27	.105"
12	2515/12	19/25	.135"

Temperature rating: – 55 to 105°C.
10 colors in stock plus a variety of tracers. Specify.
Nylon jacketed versions for greater physical and chemical protection: type 2510-600V, type 2520-1000V, type 2525N-3000V
Shielded versions to meet MIL-W-16878 and MIL-W-76 with braided tinned copper shields and PVC outer jacket are in stock.

MIL-W-16878/3 3000V
TYPE D

AWG	DABURN Cat. No.	Conductor Strand	Nom. O.D.
24	2525/24	7/32	.084"
22	2525/22	7/30	.089"
20	2525/20	7/28	.087"
18	2525/18	7/26	.107"
16	2525/16	26/30	.116"
14	2525/14	41/30	.136"
12	2525/12	86/30	.169"
10	2525/10	105/30	.194"
8	2525/8	133/29	.247"
6	2525/6	133/27	.291"
4	2525/4	133/25	.355"
2	2525/2	655/30	.425"

P-U: 100', 1000'

TEFLON* WIRE TYPE E — 600 VOLTS PER MIL-W-16878 • UL 1213

SPEC. MIL-W-16878E/4 High Temperature Rating –90°C to +200°C VW-1

Single conductor, stranded silver plated copper, .010" TFE Teflon® insulation.
Acid, alkalis, oil, flame, moisture, fungus, solvent resistant. Order nickel plated for 250°C.

DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.	DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.	DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.
2401	—	E-32	7/40	.033"	2405S	—	E-24(1)	1	.045"	2408	2415/18	E-18	19/30	.074"
2402	—	E-30	7/38	.036"	2406	2415/22	E-22	19/34	.054"	2409	2415/16	E-16	19/29	.079"
2403	2415/28	E-28	7/36	.039"	2406-7	—	E-22	7/30	.054"	2409/14	—	E-14	19/27	.097"
2404	2415/26	E-26	7/34	.043"	2406S	—	E-22(1)	1	.048"	2409/12	—	E-12	19/25	.120"
2404S	—	E-26(1)	1	.040"	2407	2415/20	E-20	19/32	.062"	2409/10	—	E-10	37/26	.139"
2405	2415/24	E-24	19/36	.048"	2407-7	—	E-20	7/28	.062"					
2405-7	—	E-24	7/32	.048"	2407S	—	E-20(1)	1	.056"					

TEFLON* TYPE EE MIL-W-16878

Extruded (1000 Volts) MIL-W-16878D

MIL-W-16878E/5

DESCRIPTION: Single conductor silver plated copper wire concentrically stranded and insulated with .016 TFE extruded TEFLON* insulation.

TEMPERATURE RATING: –90°C to +200°C, 1000 volts. Order nickel plated strand for 250 °C.

DABURN Cat. No.	Mil Type Designation	Size AWG	Strand	Nom. O.D.
2428/24	EE-24	24	19/36	.055"
2428/22	EE-22	22	19/34	.062"
2428/20	EE-20	20	19/32	.070"
2428/18	EE-18	18	19/30	.080"
2428/16	EE-16	16	19/29	.089"
2428/14	EE-14	14	19/27	.106"
2428/12	EE-12	12	19/25	.124"
2428/10	EE-10	10	37/26	.145"
2428/8 (wrapped)	EE-8	8	133/29	.210"

TEFLON* TYPE ET MIL-W-16878 250 VOLTS, 200°C

MIL-W-16878E/6

Provides lighter weight, greater flexibility and hi temperature resistance. Size Nos. 32 thru 20 conform to MIL-W-16878D Type ET 250 volts, 200°C. Silver plated copper conductor.

DABURN Cat. No.	Mil Type	AWG Size	Min. Strand	Nom. O.D.
2427/36	—	36	7/44	.018"
2427/34	—	34	7/42	.020"
2427/32	ET-32	32	7/40	.021"
2427/30	ET-30	30	7/38	.024"
2427/28	ET-28	28	7/36	.027"
2427/26	ET-26	26	7/34	.031"
2427/24	ET-24	24	7/32	.036"
2427/22	ET-22	22	7/30	.042"
2427/20	ET-20	20	7/28	.049"

Stocked in ten colors and a variety of tracers. Teflon hook-up also stocked in UL styles 1164, 1180, and 1213 shielded and multiconductor TFE and FEP cable in stock.

TUBULAR BRAID PER MIL SPEC QQ-B-575

Tinned copper shielded braid mf'd completely round per Mil Spec QQ-B-575 Maintains its round configuration. Shielding coverage is 95% or more. Used in military applications where maximum shielding is required against electrostatic interference. Useful against mechanical abrasion and stresses for cables – as grounding cable.

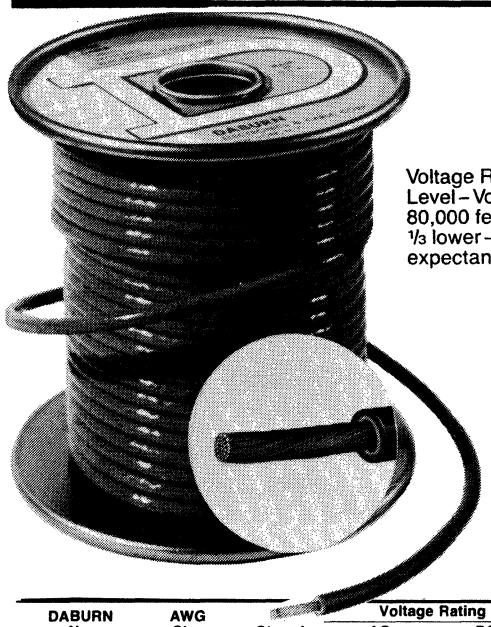
DABURN No.	Nom. Inside Diam. When Rounded	Construction Total No. of Wires	Carriers	AWG of Indiv. Wires	Approx. AWG Equiv.	Nom. Circular Mils	Current Carrying Cap.
2350-1/32	1/32"	24	24	#36	#22	640	7.0 amps
2350-1/16	1/16"	48	24	#36	#19	1290	11.0 amps
2350-5/64	5/64"	72	24	#36	#17	1900	18.0 amps
2350-7/64	7/64"	96	24	#36	#16	2500	22.0 amps
2350-1/8	1/8"	120	24	#36	#15	3260	28.0 amps
2350-5/32	5/32"	240	24	#36	#12	6200	39.0 amps
2350-11/64	11/64"	168	24	#36	#14	4500	32.0 amps
2350-3/16	3/16"	192	24	#36	#13	5100	35.0 amps
2350-13/64	13/64"	312	24	#36	#11	8200	46.0 amps
2350-1/4	1/4"	384	24	#36	#10	10,400	53.0 amps
2350-9/32	9/32"	120	24	#30	# 9	12,060	60.0 amps
2350-3/8	3/8"	384	48	#36	#10	10,400	53.0 amps
2350-7/16	7/16"	240	24	#30	# 6	24,120	90.0 amps

DABURN No.	Nom. Inside Diam. When Rounded	Construction Total No. of Wires	Carriers	AWG of Indiv. Wires	Approx. AWG Equiv.	Nom. Circular Mils	Current Carrying Cap.
2350-1/2	1/2"	528	48	#36	# 9	13,200	70.0 amps
2350-9/16†	9/16"	528	48	#36	# 9	13,200	70.0 amps
2351-9/16	9/16"	480	48	#30	# 3	48,240	145.0 amps
2350-21/32	21/32"	768	48	#30	# 1	77,180	190.0 amps
2350-11/16†	11/16"	720	48	#36	# 7	19,000	82.0 amps
2350-25/32	25/32"	864	48	#36	# 7	21,750	85.0 amps
2350-13/16	13/16"	864	48	#36	# 7	21,750	85.0 amps
2350-7/8	7/8"	336	48	#30	# 5	33,700	100.0 amps
2350-1"	1"	384	48	#30	# 4	38,600	120.0 amps
2350-1⅛"	1⅛"	432	48	#30	# 4	43,330	130.0 amps
2350-1¼"†	1¼"	480	48	#30	# 3	48,150	145.0 amps
2350-1⅜"	1⅜"	528	48	#30	# 3	53,000	150.0 amps
2350-1½"	1½"	576	48	#30	# 2	57,775	165.0 amps

Flat braid (2355 series) and stainless steel braid (2354 series) in stock. Standard put-ups: 50', 100', 250'. Larger spools available. †Manufactured to QQB575 but not listed under spec.
Send for our complete catalog. Items on this page may be ordered cut to length, cut & stripped, & printed. *DUPONT

DABURN ELECTRONICS & CABLE CORP. • 225 PEGASUS AVE. • NORTHVALE, N.J., 07647 • 201-768-5400 • FAX 201-768-9642

DABURN HI-VOLTAGE CABLE



Voltage Rating at Sea Level – Voltage Rating at 80,000 feet, approximately 1/3 lower – Minimum life expectancy: 10,000 hours

HI-VOLT CORONA RESISTANT TEFLON* CABLE®

SMALL SIZE: You do not need bulky, thick, insulation jacketing as used with silicone rubber and polyethylene insulations to get your hi-voltage requirements. Wire used is MIL-SPEC QQ-W-343 and MIL-W-16878. Insulation used conforms to and surpasses MIL-SPEC-W-16878.

AVOID CORONA PROBLEMS: Corona Resistant Teflon construction is specifically designed to retard and prevent corona penetration.

Temperature variations from – 60°C to + 250°C have no life effect on the corona resistant Teflon. In addition, there is no stress or crack failure under severe, adverse conditions including mechanical strain, moisture, corona or chemical conditions.

DESCRIPTION: Single Conductor, Stranded Silver Plated Copper, Corona Resistant Teflon* Insulation.

TEMPERATURE RATING: – 90°C to + 250°C.

VOLTAGE RATING: Based on insulation thickness.

AVAILABLE COLORS: White, Black, Red, Green, Yellow, Lt. Blue, Brown, Orange, Gray, Violet. (Also available in tracer colors)

PUT-UP: 250', 500', 1000'.

ADDITIONAL SIZES AND VOLTAGES AVAILABLE

WRITE FOR COMPLETE CATALOG

DABURN No.	AWG Size	Strand	Voltage Rating AC	Voltage Rating DC	Nom. O.D.
CRT10-2	10	37/26	2500	10,000	.158"
CRT10-2.5	10	37/26	3750	12,500	.168"
CRT12-2	12	19/25	2500	10,000	.142"
CRT12-2.5	12	19/25	3750	12,500	.152"
CRT12-3	12	19/25	4500	15,000	.162"
CRT12-3.5	12	19/25	5300	17,500	.172"
CRT12-4	12	19/25	6000	20,000	.182"
CRT12-5	12	19/25	7500	25,000	.202"
CRT12-6.5	12	19/25	10,000	32,500	.232"
CRT12-8	12	19/25	12,000	40,000	.262"
CRT12-10	12	19/25	15,000	50,000	.302"
CRT14-2	14	19/27	2500	10,000	.124"
CRT14-2.5	14	19/27	3750	12,500	.134"
CRT14-3	14	19/27	4500	15,000	.144"
CRT14-3.5	14	19/27	5300	17,500	.154"
CRT14-4	14	19/27	6000	20,000	.164"
CRT14-5	14	19/27	7500	25,000	.184"
CRT14-6.5	14	19/27	10,000	32,500	.214"
CRT14-8	14	19/27	12,000	40,000	.244"
CRT14-10	14	19/27	15,000	50,000	.284"
CRT16-2	16	19/29	2500	10,000	.111"
CRT16-2.5	16	19/29	3750	12,500	.119"
CRT16-3	16	19/29	4500	15,000	.129"
CRT16-3.5	16	19/29	5300	17,500	.141"
CRT16-4	16	19/29	6000	20,000	.151"
CRT16-5	16	19/29	7500	25,000	.172"
CRT16-6.5	16	19/29	10,000	32,500	.201"
CRT16-8	16	19/29	12,000	40,000	.231"
CRT16-10	16	19/29	15,000	50,000	.271"
CRT18-2	18	19/30	2500	10,000	.105"
CRT18-2.5	18	19/30	3750	12,500	.114"
CRT18-3	18	19/30	4500	15,000	.124"
CRT18-3.5	18	19/30	5300	17,500	.135"
CRT18-4	18	19/30	6000	20,000	.145"
CRT18-5	18	19/30	7500	25,000	.166"
CRT18-6.5	18	19/30	10,000	32,500	.194"
CRT18-8	18	19/30	12,000	40,000	.225"
CRT18-10	18	19/30	15,000	50,000	.265"

DABURN No.	AWG Size	Strand	Voltage Rating AC	Voltage Rating DC	Nom. O.D.
CRT20-2	20	19/32	2500	10,000	.095"
CRT20-2.5	20	19/32	3750	12,500	.105"
CRT20-3	20	19/32	4500	15,000	.115"
CRT20-3.5	20	19/32	5300	17,500	.126"
CRT20-4	20	19/32	6000	20,000	.135"
CRT20-5	20	19/32	7500	25,000	.156"
CRT20-6.5	20	19/32	10,000	32,500	.185"
CRT20-8	20	19/32	12,000	40,000	.215"
CRT20-10	20	19/32	15,000	50,000	.255"
CRT22-2	22	19/34	2500	10,000	.087"
CRT22-2.5	22	19/34	3750	12,500	.097"
CRT22-3	22	19/34	4500	15,000	.107"
CRT22-3.5	22	19/34	5300	17,500	.118"
CRT22-4	22	19/34	6000	20,000	.127"
CRT22-5	22	19/34	7500	25,000	.148"
CRT22-6.5	22	19/34	10,000	32,500	.177"
CRT22-8	22	19/34	12,000	40,000	.207"
CRT22-10	22	19/34	15,000	50,000	.247"
CRT24-2	24	19/36	2500	10,000	.081"
CRT24-2.5	24	19/36	3750	12,500	.091"
CRT24-3	24	19/36	4500	15,000	.101"
CRT24-3.5	24	19/36	5300	17,500	.112"
CRT24-4	24	19/36	6000	20,000	.121"
CRT24-5	24	19/36	7500	25,000	.142"
CRT24-6.5	24	19/36	10,000	32,500	.171"
CRT24-8	24	19/36	12,000	40,000	.201"
CRT24-10	24	19/36	15,000	50,000	.241"
CRT26-2	26	7/34	2500	10,000	.071"
CRT26-2.5	26	7/34	3750	12,500	.081"
CRT26-3	26	7/34	4500	15,000	.091"
CRT26-3.5	26	7/34	5300	17,500	.101"
CRT26-4	26	7/34	6000	20,000	.111"
CRT26-5	26	7/34	7500	25,000	.131"
CRT26-6.5	26	7/34	10,000	32,500	.161"
CRT26-8	26	7/34	12,000	40,000	.191"
CRT26-10	26	7/34	15,000	50,000	.231"

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HI-VOLTAGE SILICONE RUBBER LEAD WIRE 200°C VW-1

One conductor stranded tinned copper, extruded flexible silicone rubber insulation overall. Constructions to UL-3239 (150°C) and nickel plated conductor available.
STANDARD COLOR: White (Natural). Additional colors to order.

DABURN Cat. No.	Size AWG	Strand	Nom. Ins. Wall	D.C. Volt Rating	Nom. O.D.
2636/22A	22	7/30	.045"	20KV	.120"
2636/22B	22	7/30	.062"	25KV	.155"
2636/22C	22	7/30	.075"	30KV	.180"
2636/22D	22	7/30	.097"	40KV	.225"
2636/20A	20	10/30	.045"	20KV	.126"
2636/20B	20	10/30	.062"	25KV	.160"
2636/20C	20	10/30	.075"	30KV	.186"
2636/20D	20	10/30	.097"	40KV	.232"
2636/18A	18	16/30	.045"	20KV	.136"
2636/18B	18	16/30	.062"	25KV	.170"
2636/18C	18	16/30	.075"	30KV	.196"
2636/18D	18	16/30	.097"	40KV	.245"
2636/16A	16	26/30	.045"	20KV	.150"
2636/16B	16	26/30	.062"	25KV	.185"
2636/16C	16	26/30	.075"	30KV	.210"
2636/16D	16	26/30	.097"	40KV	.256"
2636/14A	14	41/30	.045"	20KV	.167"
2636/14B	14	41/30	.062"	25KV	.200"
2636/14C	14	41/30	.075"	30KV	.227"
2636/14D	14	41/30	.097"	40KV	.275"
2636/12A	12	65/30	.045"	20KV	.181"
2636/12B	12	65/30	.062"	25KV	.215"
2636/12C	12	65/30	.075"	30KV	.241"
2636/12D	12	65/30	.097"	40KV	.290"
2636/10A	10	105/30	.045"	20KV	.220"
2636/10B	10	105/30	.062"	25KV	.255"
2636/10C	10	105/30	.075"	30KV	.280"
2636/10D	10	105/30	.097"	40KV	.325"

STANDARD PUT-UP: 100 Ft., 1000 Ft.

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CABLE: TEFLON® • COMPUTER

DABURN

These products represent a small segment of the Daburn multiconductor cable line. In addition to hundreds of configurations on our shelves for immediate delivery, a near infinite variety of designs may be fabricated to order. The broad spectrum of Daburn multiconductor is described at the bottom of this page. Ask for our latest master catalog containing complete specs for all Daburn products.
Two other configurations of the family shown below are the 2464 series with teflon impregnated jacket overall and no shield, and the 2430 series of shielded cable, without jacket.

DESCRIPTION: One or more conductors, each conductor silver plated concentrically stranded copper wire. Type E, MIL-W-16878E/4 extruded TFE .010" insulation. When shielded, braided silver plated copper shield over conductor(s), 90% shield coverage. When covered, either a TEFLON* impregnated fiberglass braid or a .010" TEFLON* fused, double tape jacket overall. Fungus, solvent, moisture, flame, acid, alkali and oil resistant. Multiconductors are twisted.
VOLTAGE RATING: 600V, VW-1.
TEMPERATURE RATING: -65°C to +200°C. For 250°C USE N.P. CONDUCTOR.

TEFLON* IMPREGNATED BRAID OVER SHIELD

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2444	1	26	7/34	.075"
2444/2	2	26	7/34	.119"
2445	1	24	19/36	.081"
2445/2	2	24	19/36	.126"
2445/3	3	24	19/36	.133"
2445/4	4	24	19/36	.144"
2445/5	5	24	19/36	.156"
2446	1	22	19/34	.088"
2446/2	2	22	19/34	.137"
2446/3	3	22	19/34	.144"
2446/4	4	22	19/34	.158"
2446/5	5	22	19/34	.172"

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2447	1	20	19/32	.093"
2447/2	2	20	19/32	.154"
2447/3	3	20	19/32	.163"
2447/4	4	20	19/32	.180"
2447/5	5	20	19/32	.195"
2448	1	18	19/30	.097"
2448/2	2	18	19/30	.162"
2448/3	3	18	19/30	.172"
2448/4	4	18	19/30	.192"
2448/5	5	18	19/30	.207"
2449	1	16	19/29	.117"
2449/2	2	16	19/29	.196"

TEFLON* TAPE WRAP JACKET OVER SHIELD

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2454	1	26	7/34	.078"
2454/2	2	26	7/34	.125"
2455	1	24	19/36	.084"
2455/2	2	24	19/36	.128"
2455/3	3	24	19/36	.135"
2455/4	4	24	19/36	.148"
2455/5	5	24	19/36	.162"
2456	1	22	19/34	.090"
2456/2	2	22	19/34	.140"
2456/3	3	22	19/34	.148"
2456/4	4	22	19/34	.162"
2456/5	5	22	19/34	.183"

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2457	1	20	19/32	.099"
2457/2	2	20	19/32	.158"
2457/3	3	20	19/32	.167"
2457/4	4	20	19/32	.184"
2457/5	5	20	19/32	.204"
2458	1	18	19/30	.109"
2458/2	2	18	19/30	.178"
2458/3	3	18	19/30	.189"
2458/4	4	18	19/30	.208"
2458/5	5	18	19/30	.230"
2459	1	16	19/29	.130"
2459/2	2	16	19/29	.230"

STANDARD SPOOL PUT-UPS: 250 Ft., 500 Ft., 1000 Ft. **CONDUCTOR COLOR CODE:** 1—White, 2—Black, 3—Red, 4—Green, 5—Yellow.
We also stock—Shield braid over conductors; Teflon* impregnated braid over conductors—no shield. Additional constructions to order.

FEP TEFLON* CABLE

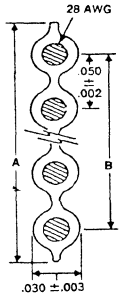
FEP EXTRUDED JACKET OVER SHIELD TYPE E CONDUCTORS

DESCRIPTION: Each conductor silver plated stranded copper wire, Type E extruded TFE .010" insulation. Color coded, cabled, braided silver plated copper shield—90% coverage, FEP white teflon jacket overall.
TEMPERATURE RATING: -65°C to +200°C.
VOLTAGE RATING: 600V. VW-1
CONDUCTOR COLOR CODE: 1—White, 2—Black, 3—Red, 4—Green
STANDARD PUT-UP: 500 Ft., 1000 Ft.
Additional FEP constructions available to order.
***DUPONT**

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2480	1	24	19/36	.085"
2480/2	2	24	19/36	.130"
2480/3	3	24	19/36	.135"
2480/4	4	24	19/36	.148"
2481	1	22	19/34	.091"
2481/2	2	22	19/34	.150"
2481/3	3	22	19/34	.158"
2481/4	4	22	19/34	.172"
2482	1	20	19/32	.100"
2482/2	2	20	19/32	.168"
2482/3	3	20	19/32	.178"
2482/4	4	20	19/32	.193"
2483	1	18	19/30	.110"
2483/2	2	18	19/30	.188"
2483/3	3	18	19/30	.207"
2483/4	4	18	19/30	.222"
2484	1	16	19/29	.123"
2484/2	2	16	19/29	.220"

TEFLON HIGH TEMPERATURE FLAT RIBBON CABLE

UL STYLE 20424 • 200°C • 300 VOLTS • VW-1



NOM. WALL: .008"
THICKNESS: .030 ± .003"
TEMPERATURE RATING: -65°C to +200°C
DIELECTRIC CONSTANT: 1.54
CONDUCTOR RESISTANCE: 63 Ohms/M
CAPACITANCE NOM.: 10.9 PF/FT/(G.S.G.)
IMPEDANCE: 120 Ohms nom. (G.S.G.)

Each conductor is 28 AWG, 7 strand of 36 AWG silver plated copper with flexible FEP insulation overall. Conductors are spaced on .050" ± .002" centers, allowing for mass termination with conventional insulation displacement connectors.

DABURN Cat. No.	No. Cond.	(.050 Pitch) Nom. Span B	(.050 Pitch) Nom. Width A
2488/9	9	.400 ± .008	.450 ± .010
2488/10	10	.450 ± .008	.500 ± .010
2488/14	14	.650 ± .008	.700 ± .010
2488/15	15	.700 ± .010	.750 ± .010
2488/16	16	.750 ± .010	.800 ± .015

STANDARD PUT-UP: 100' (30.48M); larger packages available to order.
STANDARD COLOR: Natural
ADDITIONAL CONSTRUCTIONS AVAILABLE: Shielded, shielded and jacketed; PFA (for higher temperature), Tefzel; .100" center spacing; 19 strand (for high flexing—above 50,000,000 flexures). **ADDITIONAL STANDARD CONSTRUCTION THRU 64 COND.**

The two multiconductor computer cables shown below are among many Daburn designs featuring reliable, interference-free operation. Other stock configurations include multi- and twisted-pair styles, single and double shield construction. #24AWG UL Style 2484 & CL2.

MINIATURE COMPUTER CABLE— SHIELD-PLUS™ CL2 MULTICONDUCTOR TO UL STYLE 2464

DESCRIPTION: Each conductor is #28 AWG 7/36 tinned copper, color coded, .009" wall of semi-rigid PVC (UL Style 1061, CSA Type S-R PVC). Conductors are twisted. Overall aluminum/polyester foil shield and 7 strand tinned copper drain wire, **plus** an overall braided shield of tinned copper (SHIELD-PLUS®). Gray PVC jacket overall. To UL Style 2464, FCC Docket 20780, MIL-STDS 461-462B.
Construction is flexible and suitable for computer, communication and control applications.
Cable resists acids, alkalis, oil, solvents, moisture and fungus.
TEMPERATURE RANGE: -20°C to +80°C.
VOLTAGE RATING: 300V.
FLAMMABILITY: Passes UL VW-1.

DABURN Cat. No.	No. of Cond.	Nom. Jacket Wall Inches	Nom. Jacket Wall mm	Nominal O.D. Inches	Nominal O.D. mm
2928	2	.032	.81	.170	4.30
2928/3	3	.032	.81	.175	4.40
2928/4	4	.032	.81	.185	4.70
2928/6	6	.032	.81	.205	5.20
2928/8	8	.032	.81	.215	5.40
2928/10	10	.032	.81	.240	6.10
2928/15	15	.032	.81	.265	6.70
2928/20	20	.032	.81	.285	7.20
2928/25	25	.032	.81	.310	7.80
2928/50	50	.032	.81	.395	10.10

STANDARD PUT-UP: 500 Ft., 1000 Ft.
COLOR CODE: Chart F.
Additional constructions available.

COMPUTER CABLE MULTICONDUCTOR FOIL SHIELD CL2

DESCRIPTION: Each conductor is #24 AWG 7/32 tinned copper, color coded, .009" wall of semi-rigid PVC (UL Style 1061, CSA Type S-R PVC). Conductors are twisted. Overall aluminum/polyester foil shield and 7 strand tinned copper drain wire. Cable is jacketed with gray PVC. To UL Style 2464.
Construction is suitable for computer, communication and control applications.
Cable resists acids, alkalis, oil, solvents, moisture and fungus.
TEMPERATURE RANGE: -20°C to +80°C.
VOLTAGE RATING: 300V.
FLAMMABILITY: Passes UL VW-1.

DABURN Cat. No.	No. of Cond.	Nom. Jacket Wall Inches	Nom. Jacket Wall mm	Nominal O.D. Inches	Nominal O.D. mm
2980	2	.032	.081	.164	4.17
2980/3	3	.032	.081	.168	4.29
2980/4	4	.032	.081	.185	4.70
2980/6	6	.032	.081	.210	5.33
2980/8	8	.032	.081	.225	5.72
2980/10	10	.032	.081	.250	6.35
2980/15	15	.032	.081	.280	7.11
2980/20	20	.032	.081	.305	7.75
2980/25	25	.032	.081	.345	8.76
2980/50	50	.032	.081	.445	11.30
2980/60	60	.032	.081	.475	12.07

STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
AVAILABLE TO ORDER: Overall polyester foil shield and braid; plenum constructions.
COLOR CODE: Chart F.
NOTE: Low Cap. Cables are available to order.

DABURN MULTICONDUCTOR—VW-1, CL-2, CL-3, riser, plenum. Stock designs include control and instrument; flat bonded ribbon; shielded plenum; control and portable; audio, microphone, intercom, and speaker; modular and station telephone cable. Also AC cords and cord assemblies, zip, lamp and heater.

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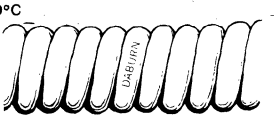
DABURN RETRACTILE CORDS • POWER • COMMUNICATION •

CSA POWER CORDS

Retracted Lengths: 1, 2, 3 & 4 Ft. Extended Lengths: 5, 10, 15 & 20 Ft.
UL Listed — Neoprene Jacketed Cord • OPERATING TEMPERATURE: –20°C to +60°C

DABURN No. & Retracted Lengths				No.			UL & CSA		Volt	Coil Nom. O.D.		Cord	Nom.
4 Ft.*	3 Ft.	2 Ft.	1 Ft.	Cond.	Size	Strand	Type	Amps	Rating	In.	mm	In.	mm
986-4	986-3	986-2	986-1	2	18	41/34	SVO	7	300	7/8	22	.260	7
986/3-4	986/3-3	986/3-2	986/3-1	3	18	41/34	SVO	7	300	1	25	.275	7
989-4	989-3	989-2	989-1	2	18	41/34	SJO	7	300	1 3/16	30	.320	8
989/3-4	989/3-3	989/3-2	989/3-1	3	18	41/34	SJO	7	300	1 3/8	35	.330	9
989/4-4	989/4-3	989/4-2	989/4-1	4	18	41/34	SJO	5.6	300	1 7/16	37	.360	10
989/5-4 f	—	989/5-2	—	5	18	41/34	SJO	5.6	300	1 3/4	41	.440	11
989/7-4 ff	—	989/7-2	—	7	18	41/34	SJO	4.9	300	1 7/8	48	.522	13
989/15-4†	—	—	—	15	18	41/34	SVO	7	300	2 1/8	54	.575	15
990/3-4	—	990/3-2	—	3	18	41/34	SO	7	600	1 9/16	40	.405	10
990/4-4	—	990/4-2	—	4	18	41/34	SO	5.6	600	1 5/8	41	.435	11
991-4	991-3	991-2	991-1	2	16	65/34	SJO	10	300	1 3/8	35	.330	9
991/3-4	991/3-3	991/3-2	991/3-1	3	16	65/34	SJO	10	300	1 7/16	37	.365	10
991/4-4	991/4-3	991/4-2	—	4	16	65/34	SJO	8	300	1 5/8	38	.395	11
991/5-4	—	991/5-2	—	5	16	65/34	SO	5.6	600	2	54	.540	14
991/6-4	—	991/6-2	—	6	16	65/34	SO	8	600	2 1/8	51	.550	14
					6/16	#16-64/34	—	#16-8					
991/7-4 f	—	991/7-2	—	7	1/14	#14-41/30	SO	#14-12	600	2 1/4	57	.600	15
992/3-4	—	992/3-2	—	3	16	65/34	SO	10	600	1 13/16	46	.470	12
992/4-4	—	992/4-2	—	4	16	65/34	SO	8	600	1 7/8	48	.500	13
993-4	993-3	993-2	—	2	14	41/30	SO	15	600	2	54	.535	14
993/3-4	993/3-3	993/3-2	—	3	14	41/30	SO	15	600	2 1/8	54	.560	14
993/4-4	993/4-3	993/4-2	—	4	14	41/30	SO	12	600	2 1/4	57	.605	15
994/3-4	994/3-3	994/3-2	—	3	12	65/30	SO	20	600	2 3/8	60	.635	16
994/4-4	994/4-3	994/4-2	—	4	12	65/30	SO	16	600	2 1/2	60	.665	17
					2/12	#12-65/30	—	#12-17					
994/6-4	—	—	—	6	4/18	#18-41/34	—	#18-16	600	2 1/4	57	.605	15
994/7-4	—	994/7-2	—	7	12	65/30	SO	16	600	2 5/8	67	.775	20
996/4-4	—	—	—	4	10	104/30	SO	20	600	2 3/4	70	.745	19



Long Lasting Service — useful wherever cords must change length or position. Extend to approximately five times its retracted length. Returns to its original shape or length when released. Eliminates tangling, twisting or knots. Cords are UL and CSA approved.

Wherever UL Type is shown, approved by CSA testing laboratories.

*Preferred Put-up. 6" tangents on all but 1 Ft. cords — 12" tangents.

Also available: 18/2, 18/3 SVT; 18/2, 18/3, 18/4 SJT; 18/2, 18/3 ST; 16/2, 16/3, 16/4 SJT; 16/2, 16/3, 16/4 SJT in 4 Ft., 3 Ft. and 1 Ft. Retracted, UL Listed.

CONDUCTOR COLOR CODE:
1—Black, 2—White, 3—Green, 4—Red, 5—Orange, 6—Blue, 7—Yellow.

† 989/15-5 Extended to 25 Ft.
f UL ONLY
ff NON UL OR CSA

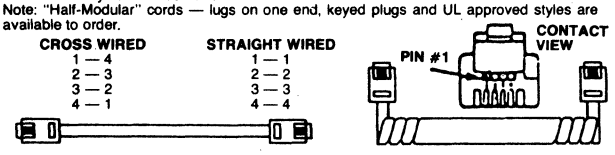
WRITE FOR COMPLETE CATALOG

MODULAR PLUG CABLES STRAIGHT AND RETRACTABLE CABLES

Each Daburn modular cord is 28 AWG 7/36 soft tinned copper, color coded with an overall PVC jacket and modular plugs at each end. Shielded constructions use an overall aluminum/polyester shield and drain wire.
Daburn modular cords are suitable for data equipment, interface, keyboards, audio, telephone handsets, security and alarm applications.
They resist oils, grease, acids, fumes and are abrasion resistant. They will not mar surfaces with which they come in contact.
Note: "Half-Modular" cords — lugs on one end, keyed plugs and UL approved styles are available to order.

CROSS WIRED
1 — 4
2 — 3
3 — 2
4 — 1

STRAIGHT WIRED
1 — 1
2 — 2
3 — 3
4 — 4



MODULAR PLUG CORDS

STRAIGHT CORDS					RETRACTILE CORDS				
DABURN Cat. No. Straight Wired	Cross Wired	No. of Cond.	Lgth. in Ft.	Construction	DABURN Cat. No. Straight Wired	Cross Wired	No. of Cond.	Lgth. Extend.	Construction
28-04-7	28-04-7X	4	7	F	28-14-1	28-14-1X	4	5 Ft.	F
28-04-14	28-04-14X	4	14	F	28-14-2	28-14-2X	4	10 Ft.	F
28-04-25	28-04-25X	4	25	F	28-14-5	28-14-5X	4	20 Ft.	F
28-06-7	28-06-7X	6	7	F	28-16-1	28-16-1X	6	5 Ft.	F
28-06-14	28-06-14X	6	14	F	28-16-2	28-16-2X	6	10 Ft.	F
28-06-25	28-06-25X	6	25	F	28-16-5	28-16-5X	6	20 Ft.	F
28-08-7	28-08-7X	8	7	F	28-18-1	28-18-1X	8	3 Ft.	F
28-08-14	28-08-14X	8	14	F	28-18-2	28-18-2X	8	6 Ft.	F
28-08-25	28-08-25X	8	25	F	28-18-5	28-18-5X	8	12 Ft.	F
SHIELDED					**SHIELDED**				
28-08-7S	28-08-7SX	8**	7	R	28-18-1S	28-18-1SX	8**	5 Ft.	R
28-08-14S	28-08-14SX	8**	14	R	28-18-2S	28-18-2SX	8**	10 Ft.	R
28-08-25S	28-08-25SX	8**	25	R	28-18-5S	28-18-5SX	8**	20 Ft.	R

STOCK JACKET COLORS: Silver Satin, Black. If not specified Silver Satin will be supplied.
STANDARD PACKAGE: 25 pcs. F = Flat construction.
Additional lengths to order. R = Round construction.
**7 conductors + 1 conductor ground. Above also available in #26 AWG, i.e., 26-04-7.
Modular plugs, with and without tabs; modular crimping tool for the above cable available.

DABURN MINI — RETRACTILE COMMUNICATION CORDS - SHIELDED - UNSHIELDED 300V .5 AMP

STYLE 2723 AWM

1, 2 Foot Retracted – 5, 10 Foot Extended

Miniature. Suitable for compact equipment. Cords are #28 AWG. 19/40 soft tinned copper, color coded, where shielded, aluminum polyester foil shield, overall black plastic jacket. 1 Ft. retracted — 12" tangents; 2 Ft. retracted — 6" tangents.
OPERATING TEMPERATURE: –20°C to +60°C.
COLOR CODE: 1—Black, 2—White, 3—Red, 4—Green, 5—Orange, 6—Blue, 7—Yellow, 8—Brown.
STANDARD PACKAGE: 10.
*Not UL construction.
The above cords are also available in 3 Ft. and 4 Ft. retracted, which extend to 15 and 20 feet respectively.

UNSHIELDED							SHIELDED*						
DABURN Cat. No.			Coil		Cord		DABURN Cat. No.			Coil		Cord	
1 Ft.	2 Ft.	Cond.	in.	mm	in.	mm	1 Ft.	2 Ft.	Cond.	in.	mm	in.	mm
975/28A	975/28	2	.5	13	.14	3.4	975/28SA	975/28S	2	.5	13	.16	4.0
976/28A	976/28	3	.5	13	.14	3.5	976/28SA	976/28S	3	.5	13	.17	4.3
977/28A	977/28	4	.5	13	.15	3.8	977/28SA	977/28S	4	.6	15	.18	4.6
978/28A	978/28	5	.6	14	.18	4.0	978/28SA	978/28S	5	.6	15	.19	4.8
979/28A	979/28	6	.6	14	.19	4.3	979/28SA	979/28S	6	.6	16	.20	5.0
980/28A	980/28	7	.6	16	.20	4.5	980/28SA	980/28S	7	.6	16	.21	5.2
981/28A	981/28	8	.9	22	.24	4.8	981/28SA	981/28S	8	.9	22	.25	6.3

Additional cords available in tough TPE (Thermo Plastic Elastomer) with many of the properties of rubber and superior retractability.

NOTE: Retracted lengths are approximate, extended lengths are guaranteed.

OVERALL SHIELDED PLASTIC RETRACTILE CORDS

Retracted Lengths 1, 2, 3, 4 Ft.
Extended Lengths 5, 10, 15, 20 Ft.

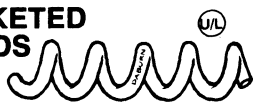
Shielded communication cords 23 AWG 21/36 soft tinned copper with min. 85% spiral T.C. shield coverage. Black "Danyon" plastic jacket overall. Six inch tangents on 2, 3, & 4 ft. cords. Twelve inch tangents on 1 ft. cords. Operating voltage 300V (120V U/L) max. Current carrying capacity 1.0 amp. Std. pkg. 10 pcs. UL Listed as AWM.

DABURN Cat. Nos. Retracted Length				No.	Cord		Coil	
					in.	mm	in.	mm
4 Ft.†	3 Ft.	2 Ft.	1 Ft.	Cond.	Nom.	O.D.	Nom.	O.D.
995D-4	995D-3	995D-2	995D-1	1	.175	4.4	5/8	16
995D/2-4	995D/2-3	995D/2-2	995D/2-1	2	.220	5.6	5/8	16
995D/3-4	995D/3-3	995D/3-2	995D/3-1	3	.230	5.9	3/4	19
995D/4-4	995D/4-3	995D/4-2	995D/4-1	4	.260	7.0	7/8	22
995D/5-4	995D/5-3	995D/5-2	995D/5-1	5	.285	7.2	1	25
995D/6-4	995D/6-3	995D/6-2	995D/6-1	6	.310	7.9	1 1/8	29

TPE jacketed (not U/L) constructions available.

DANYON PLASTIC JACKETED COMMUNICATION CORDS

Retracted Lengths 2, 3 & 4 Ft. —
Extended Lengths 10, 15 & 20 Ft.



Multi-conductors stranded extra flexible #23 AWG 21/36 tinned soft copper for long flex life. "Danyon" plastic jacketed. 120 volt working, current carrying capacity 1 amp. Nom. cond. resist. .022 ohms per linear foot, .185 ohms per retracted foot. For communication equipment such as ham operations, telephone car carriers, radio equipment, head sets, etc.
OPERATING TEMP.: –20°C to +60°C.
MAXIMUM VOLTAGE: 300V.

DABURN No.-Retracted Lengths			No.			Nom Coil O.D.		Nom Cord O.D.	
4 Ft.†	3 Ft.	2 Ft.	Cond.	Size	Strand	in.	mm	in.	mm
975D-4	975D-3	975D-2	2	23	21/36	5/8	16	.190	4.8
976D-4	976D-3	976D-2	3	23	21/36	3/4	19	.200	5.1
977D-4	977D-3	977D-2	4	23	21/36	7/8	22	.220	5.6
978D-4	978D-3	978D-2	5	23	21/36	1	25	.240	6.1
978D/6-4	978D/6-3	978D/6-2	6	23	21/36	1 1/8	29	.260	6.6
978D/7-4	978D/7-3	978D/7-2	7	23	21/36	1 3/16	30	.275	7.0
978D/8-4	978D/8-3	978D/8-2	8	23	21/36	1 1/4	32	.305	7.7
978D/10-4	978D/10-3	978D/10-2	10	23	21/36	1 3/8	35	.335	8.5
978D/12-4	978D/12-3	978D/12-2	12	23	21/36	1 1/2	38	.355	9.0
978D/15-4	978D/15-3	978D/15-2	15	23	21/36	1 5/8	41	.365	9.2

Conductor Color Code: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-Yellow, 8-Brown, 9-White/Black, 10-White/Red, 11-White/Green, 12-White/Orange, 13-White/Yellow, 14-White/Brown, 15-White/Blue.
†Preferred Put-up
Standard Package: 5

DABURN ELECTRONICS & CABLE CORP. • 225 PEGASUS AVE. • NORTHVALE, N.J., 07647 • 201-768-5400 • FAX 201-768-9642

LACING CORD & TAPE • CERAMIC INSULATORS STIK KLIPS™ • SPIRAL WRAP

DABURN

LACING CORD-TAPE TO MEET MIL-T-713D TYPE P* AND MIL-T-43435 COMP. P-TYPE S NYLON FLAT BRAIDED LACING TYPE

TYPE I FIN. B

Addtl. finishes to order.

Nylon fiber flat braided impregnated with MW microcrystaline fungicidal wax. Stays flat. Designed to create a wider contact to distribute the stress. Flexible. Won't slip when knotted. Resistant to fungus, flame, abrasion, acids, MIL-T-43435 (new) supersedes MIL-T-713 (old). 40% maximum elongation.

DABURN No.	Color	(New) Size	(Old) Class	Nom. Width	Nom. Thickness	Tensile Strength	Standard Put-Up Tubes
2035	Natural White	1	—	.200"	.014"	150 lbs.	250 yd.
2035B	Black	1	—	.200"	.014"	150 lbs.	250 yd.
2036	Natural White	2	1	.120"	.014"	80 lbs.	250 yd.
2036B	Black	2	1	.120"	.014"	80 lbs.	250 yd.
2037	Natural White	3	2*	.090"	.014"	50 lbs.	500 yd.
2037B	Black	3	2*	.090"	.014"	50 lbs.	500 yd.
2038	Natural White	4	3	.065"	.010"	30 lbs.	500 yd.
2038B	Black	4	3	.065"	.010"	30 lbs.	500 yd.
2039	Natural White	5	4	.046"	.010"	15 lbs.	500 yd.
2039B	Black	5	4	.046"	.010"	15 lbs.	500 yd.

DACRON FLAT BRAIDED LACING TAPE

TYPE II FIN. B

Addtl. finishes to order.

Dacron fiber, flat braided, impregnated with non-slip fungicidal finish. Will not cut or damage insulation. Stays flat. Has all characteristics of nylon with less elongation, better resistance to acids.

DABURN No.	Color	Nom. Width	Nom. Thickness	Tensile Strength	Standard Put-Up Tubes
2041	Natural White	.120"	.014"	80	250 yd.
2041B	Black	.120"	.014"	80	250 yd.
2042	Natural White	.090"	.014"	48	500 yd.
2042B	Black	.090"	.014"	48	500 yd.
2043	Natural White	.060"	.010"	35	500 yd.
2043B	Black	.060"	.010"	35	500 yd.
2044	Natural White	.046"	.010"	25	500 yd.
2044B	Black	.046"	.010"	25	500 yd.

Also available from stock: Teflon*-coated fiberglass, Type IV, Teflon* Type III

ROUND TWISTED NYLON LACING CORD

Manufactured to meet MIL-T-713D Type P specification, Composition P, Classes 3, 2, 1. Wax finish — compounded with fungicide to resist mildew. Easy to tie. 20% maximum elongation.

PUT-UP ON 1 LB. TUBES

DABURN No.	Color	Class	Tensile Strength	Nom. Diam.	Yds. Per Tube
2070	Natural	1	70 lbs.	.039"	600
2070B	Black	1	70 lbs.	.039"	600
2071	Natural	2	48 lbs.	.029"	800
2071B	Black	2	48 lbs.	.029"	800
2072	Natural	3	32 lbs.	.025"	1140
2072B	Black	3	32 lbs.	.025"	1140
2072/1	Natural	4	20 lbs.	.020"	2400
2072/1B	Black	4	20 lbs.	.020"	2400

PLASTIC SPIRAL WRAP – FOR HARNESSES

Available in four formulations: Polyethylene (605, 605B), Rulan (flame retardant polyethylene) (606), Nylon (607, 607B) and Teflon (608). Easily applied. Twists on easily. Can be flexed repeatedly without cracking or breaking. Reusable, bends around sharp coaners. Expandable. **Per MIL-P-22692, MIL-I-631D, MIL-P-3803.** Cut lengths available.

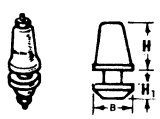
POLYETHYLENE — **Temp. Range:** −105°F to +200°F

DABURN Cat. No. Natural	DABURN Cat. No. Black*	Covers Wire Groups	Outside Diam.	Nom. Wall	Standard Package
605-1/8	605B-1/8	1/16" to 1/2"	1/8"	.031"	100', 500', 1000'
605-1/4	605B-1/4	3/16" to 2"	1/4"	.045"	100', 500', 1000'
605-3/8	605B-3/8	5/16" to 3"	3/8"	.058"	100', 500', 1000'
605-1/2	605B-1/2	3/4" to 4"	1/2"	.058"	100', 500', 1000'

*Black Polyethylene is Ultraviolet Resistant and Recommended for Outdoor Use.

Daburn catalog provides complete specifications for other spiral wrap. Made from flame retardant polyethylene, nylon & teflon.

DABURN FEED-THRU INSULATORS



These are quality porcelain insulators smoothly glazed. Heavy nickel plated brass hardware used. Cushion washers supplied.

DABURN No.	Hgt. H	B	H_1	Mounting Hole	H'dwe	Std. Pkg.
10-58	5/8"	11/16"	1/4"	5/16"	6-32	50
10-78	1"	13/16"	5/16"	7/16"	10-32	25
10-125	1 1/4"	7/8"	3/8"	7/16"	10-32	25
10-234	2 3/4"	2"	1"	1 1/4"	1/4-20	10

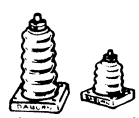
CORRUGATED FEED-THRU INSULATOR

These numbers have twice the leakage path of the straight type due to the increased surface area. Brass nickel plated hardware and cushion washers supplied.

DABURN No.	Hgt. H	B	H_1	Mounting Hole	H'dwe	Std. Pkg.
10-79	1 3/8"	1 1/4"	11/16"	9/16"	10-32	25
10-76	2 3/4"	1 5/8"	1"	3/4"	1/4-20	10
10-52	4 1/2"	2 1/8"	1 1/2"	1"	1/4-20	5

Other Daburn ceramic insulator products include steatite cones, standoffs, & fish spine beads; porcelain feed-thrus, lead-in, airplane, and antenna insulators.

DABURN METAL BASE INSULATORS



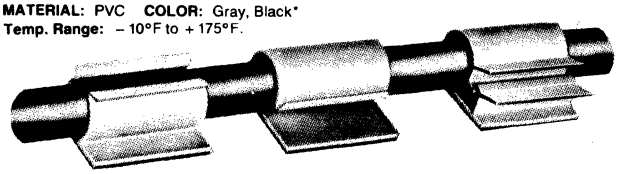
Made of hi tensile strength, low absorption ceramic, fully glazed corrugated surface. Provides longer leakage path. Drawn metal bases.

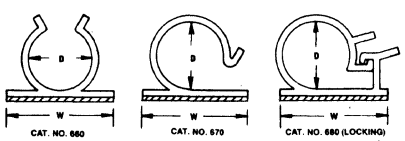
Daburn No.	Hgt. H	Base	D	Mtg. Screw	H'dwe	Std. Pkg.
10-67	1 3/8"	1 7/8" × 1 5/16"	1 1/2"	2 #8	10-32	25
10-176	2 3/4"	1 3/4" × 1 3/4"	1 3/8"	4 #10	1/4-20	10
10-451	4 1/2"	2 1/4" × 2 1/4"	1 3/4"	4 #10	1/4-20	5

Other Daburn electronic hardware items—Stik-Klips™ in additional configurations than below; cable clamps in nylon, propriianate, and aluminum, wire and cable ties; solid and serrated grommets, banana and phone tip plugs and jacks; binding posts; solderless terminals; PC supports; captive hardware; nuts, washers, spacers; and additional specialty items.
(SEND FOR YOUR COPY OF OUR COMPLETE CATALOG)

DABURN STIK KLIPS™ — SELF ADHESIVE

MATERIAL: PVC **COLOR:** Gray, Black*
Temp. Range: − 10°F to + 175°F.





For fast secure mounting on smooth surfaces. No need to screw, nail or staple in place. Fastens in a flash — just peel off the protective backing and press in place on a clean, dry, smooth surface. For best results allow a few seconds for adhesive to set before applying load.

These plastic clips are insulating, strong and elastic. They have many uses, such as keeping telephone wires off the floor, holding wire, cable, tubing rods, etc. in position.

DABURN No.	D	W	Std. Pkg.
660-1/8	1/8"	3/4"	100, 1000
660-1/4	1/4"	3/4"	100, 1000
660-3/8	3/8"	3/4"	100, 1000
660-1/2	1/2"	1"	100, 1000
660-3/4	3/4"	1"	100, 1000
670-1/8	1/8"	3/4"	100, 1000
670-1/4	1/4"	3/4"	100, 1000
670-3/8	3/8"	3/4"	100, 1000
670-1/2	1/2"	1"	100, 1000
670-3/4	3/4"	1"	100, 1000
680-1/4*	1/4"	3/4"	100, 1000
680-1/2	1/2"	1"	100, 1000
680-3/4	3/4"	1"	100, 1000

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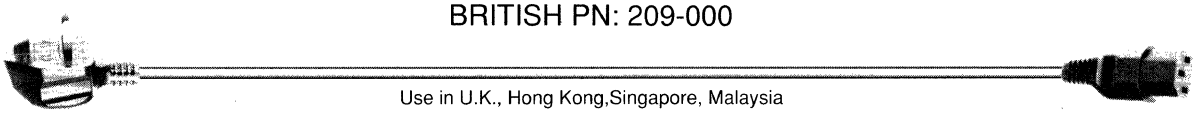
FELLER

10 AMP INTERNATIONAL CORDSETS

CONTINENTAL EUROPEAN PN: 199-000

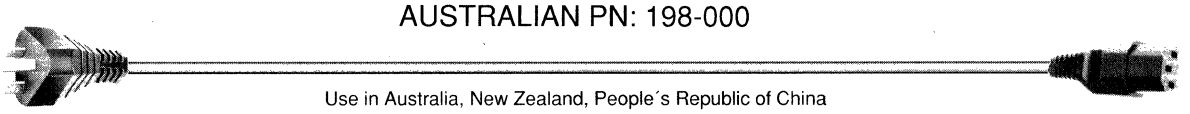
Use in Germany, Austria, Netherlands, Belgium, France, Norway, Sweden, Finland

BRITISH PN: 209-000



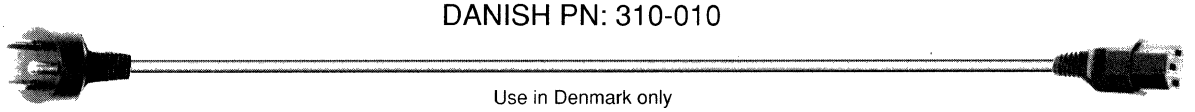
Use in U.K., Hong Kong,Singapore, Malaysia

AUSTRALIAN PN: 198-000



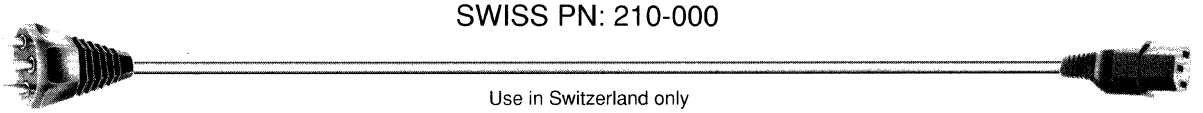
Use in Australia, New Zealand, People´s Republic of China

DANISH PN: 310-010



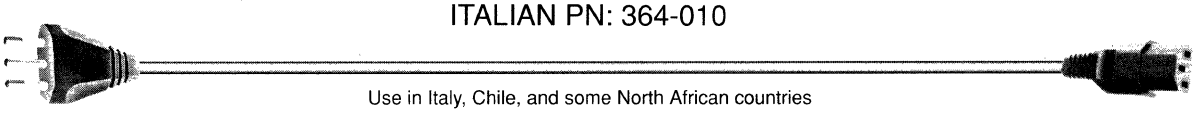
Use in Denmark only

SWISS PN: 210-000



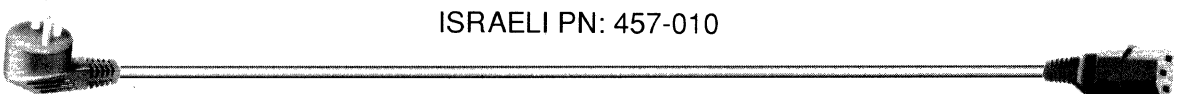
Use in Switzerland only

ITALIAN PN: 364-010



Use in Italy, Chile, and some North African countries

ISRAELI PN: 457-010



Use in Israel

SOUTH AFRICAN PN: 456-010

Use in South Africa

Cord Length	Description	Nominal O.D.	Construction	Rating	Conductor O.D.	Color
2.5 m (8.2 ft.)	HO5VVF3G 1.0 mm	7.00 mm	31 x 0.2 mm	10 A / 250 V	2.5 mm	Black

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General Cable Company

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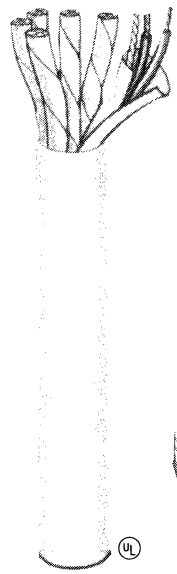

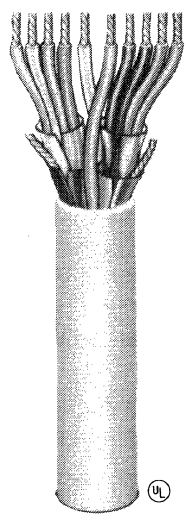

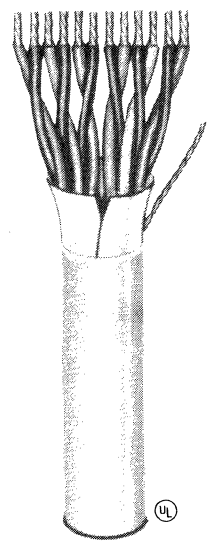

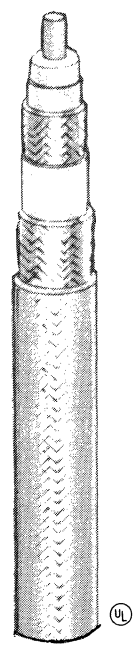

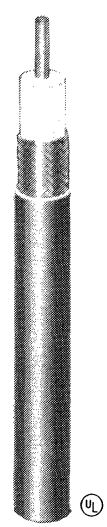

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- Telephone Wire and Cable
- Plenum Constructions
- IBM LAN Cables
- Ethernet LAN Cables
- Special Constructions

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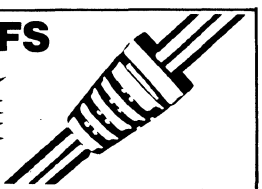

- **MULTIPLE SAFETY APPROVALS: UL, CSA, VDE, (HAR), BSI, SEV, etc.**
- **MOLDED CABLE ASSEMBLIES WITH TERMINATIONS, LENGTH, HANKING, etc PER CUSTOMER'S SPECIFICATIONS.**
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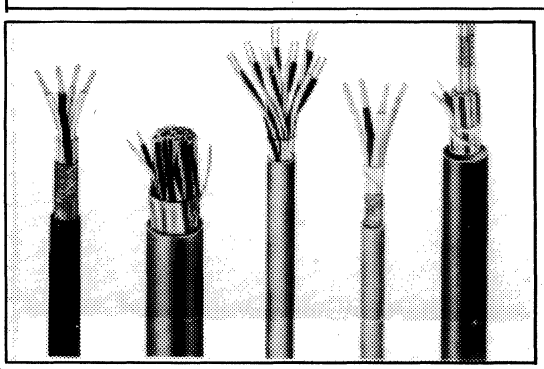
DESIGNER REFERENCE GUIDE.



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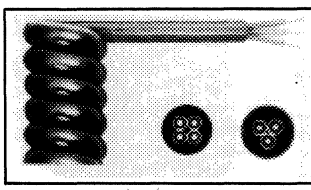
- POWER CABLES & CORDS: PVC, RUBBER, NEOPRENE,
- HOOK UP WIRE: UL, MIL, CSA, PVC, XLP, PE, SILICONE
- FLEXIBLE CORD
- EUROPEAN, JAPAN, AUSTRALIAN STANDARDS & TYPES
- SJT, SJ, ST, SVT, SPT, SO, HPN AND MANY OTHERS



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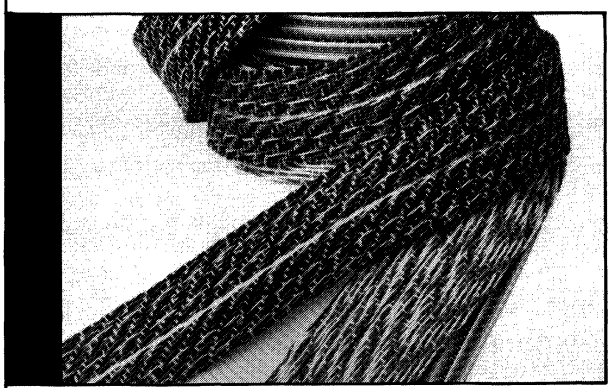
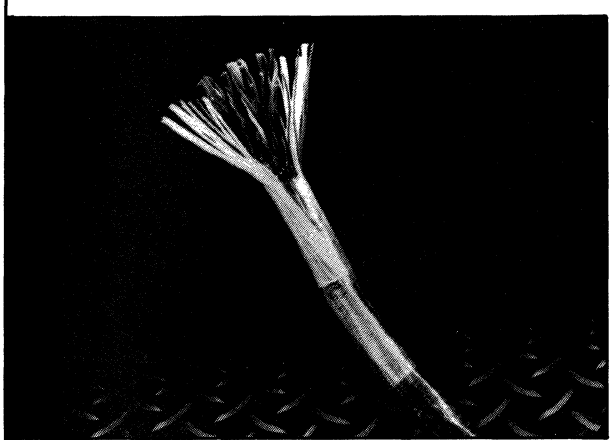
ELECTRONIC CABLE

GSI produces special cable for high technology applications where standard off-the-shelf products don't measure up. All cable products are made to exceed customer requirements and benefit from GSI's superior knowledge and experience in design, materials, system requirements and manufacturing methods.



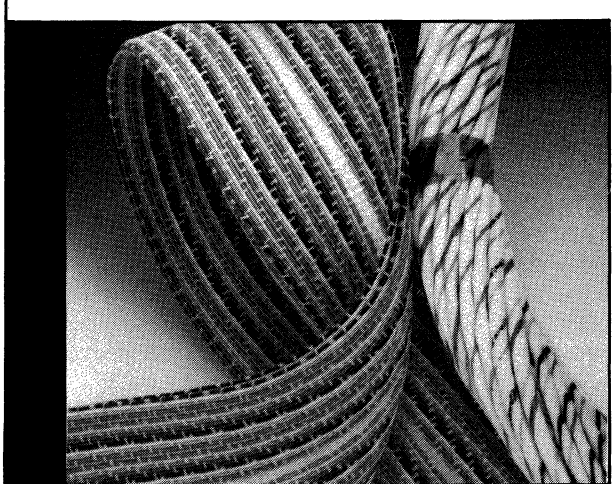
Flat Ribbon Cable ☐ This format saves space and weight and offers improved flexibility. Flat woven cable is designed for specific end-use applications and is frequently the best means of satisfying difficult mechanical, electronic and environmental system requirements.

- Precise center-to-center spacing
- Continuous or fixed lengths
- Any conductor size or formulation
- Twisted pairs and triplets
- Coax and other high-speed components



Flexible Round Cable ☐ The ideal round cross section electronic cable has a smooth surface, is perfectly round throughout its length, and can be bent with equal ease in any direction. GSI produces a cable with these features by winding layers of flexible conductors in opposite directions around a central core of twisted conductors.

- Contrahelically wound for ultimate flexibility
- Single or multiple foil or braided shields
- Engineered conductor positioning
- Braided or extruded jackets
- More compact and durable than other cable



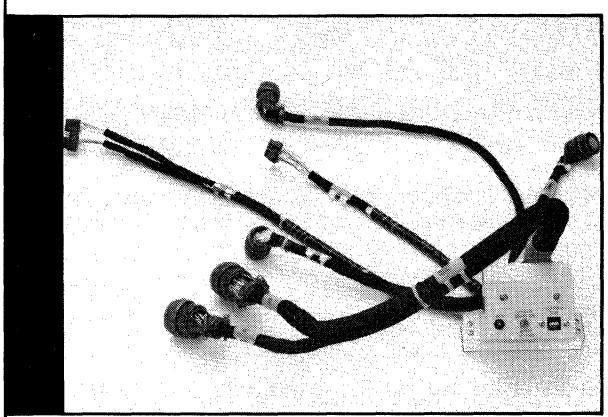
Special Cable Options ☐ Whether flat or round, or a combination of the two, all GSI cable is designed and manufactured to order. Thus, any feature that is feasible can be specified and built into the end product.

- Special features to identify and separate conductors
- Flexibility through component selection and construction
- Flat cables with multiple layers of conductors
- Composite or metal braided or woven shields
- Certification to customer, UL, CSA or MIL specifications

GSI Corporation 1917 Greenspring Drive Timonium, MD 21093-4178 Tel 410-252-1768 FAX 410-561-1768

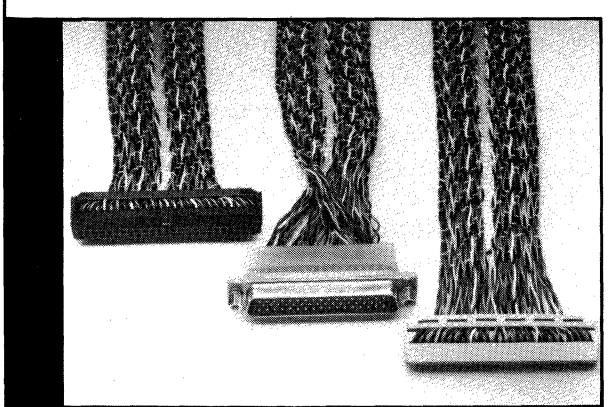
COMPLEX HARNESS ASSEMBLIES

From one-of-a-kind prototype harnesses to complex installed interconnection systems, GSI puts it all together. The most demanding assembly projects are delivered on time, complete and guaranteed free of faults, when GSI's wire management team takes on the job.



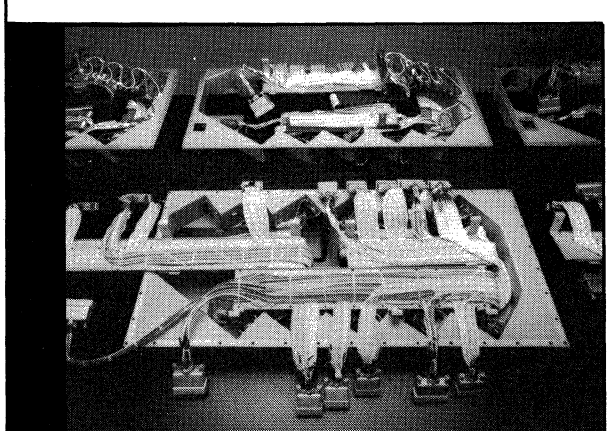
Branched Harnesses ☐ Many efforts have been made to eliminate the conventional wiring harness. The ROI wiring concept proposed for military aircraft is a contemporary example. But more often than not, a well engineered harness, incorporating superior materials and workmanship, is the best solution.

- Flat woven cable with programmed breakouts
- Contrahelically wound round trunk sections
- Hand laid and tied branches
- Shielding and jacketing
- Crimped, soldered and/or IDC terminations



Controlled Impedance Cables ☐ When test equipment and mainframe computers require something special in a transmission cable, they can get it from GSI. Controlled impedance, precise signal rise times, minimized attenuation and matched time delay are designed-in and guaranteed.

- Lower crosstalk than with any comparable product
- Closely matched impedance values
- A cable design to match each system
- Shielding and jacketing as required
- Comprehensive electronic testing



Other Harnessing Options ☐ Customers know that they can look to GSI for innovative solutions to difficult problems. An extra flexible round cable for the Space Shuttle and a flat spiral cable for the Stinger missile are but two examples of many products that have been developed from customer requests.

- Round to flat or flat to round cable transitions
- Special conductor marking or coding
- Complete systems integration
- Certifications for soldering and testing
- Space satellite capabilities

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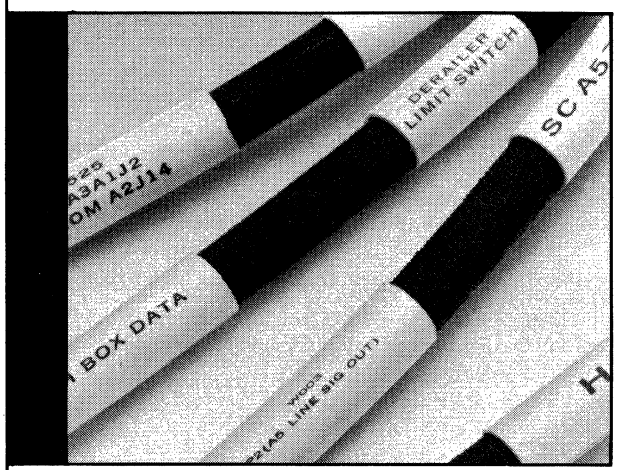
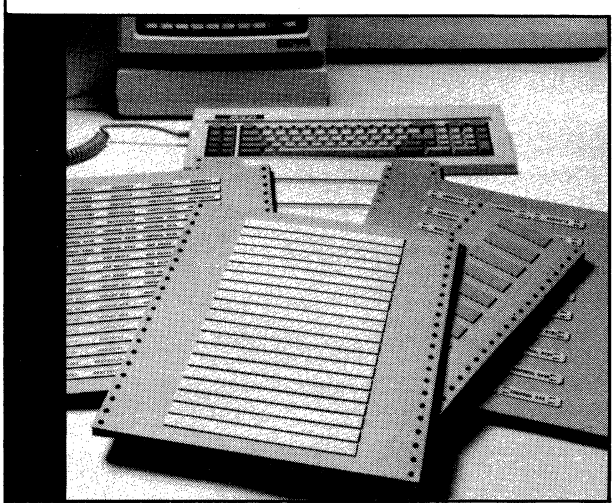
WIRE AND CABLE MARKERS HEAT SHRINKABLES

Long established as a supplier of wire markers, wire marking services and wire marking systems, GSI now also offers a comprehensive line of state-of-the-art heat shrinkable products and materials.



Wire and Cable Markers ☐ GSI has been producing wire and cable markers since 1962 and has no equal for quality, reliability and cost effectiveness. Marking methods include hot stamping and computer-generated dot matrix printing.

- Shrinkable or non-shrinkable tubing
- Cable ties and identification plates
- Colors and materials for any application
- A variety of character heights and styles
- Special logos and designs



User-Friendly Marking Systems ☐ GSI's Critchley HSI wire marking system employs user-friendly software and a choice of personal computers and printers. Heat shrinkable marker material is mounted on fan-fold computer paper giving users easy and complete control over their own marker production. This system offers an efficient and economical way of producing high quality permanent markers with MIL-I-23053/5 material.

- Lowest cost of entry among comparable systems
- Standard diameters to two inches, lengths to six inches
- No "permatizing" and associated hardware
- Negligable changeover costs from other systems
- No dedicated equipment for marking or installing

Other Heat Shrinkable Products ☐ A great variety of tubing formats is available from GSI in bulk form, in boxes or on spools. All shrinkables are made with superior materials and processes and display lower recovery temperatures, shorter recovery times, greater shrink ratios, more flexible materials and freedom from powdery residues.

- Halogen free polyolefins
- Flexible and semi-rigid Kynar
- PVCs and elastomerics
- Aluminized and convoluted tubing
- Termination sleeves

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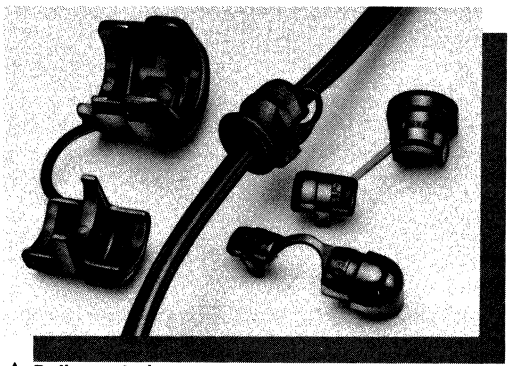


▲ **Relieve strain...**

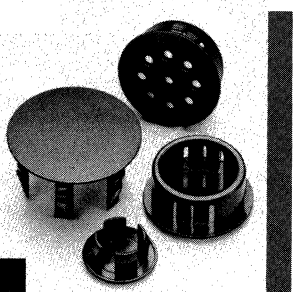
Strain Relief Bushings insulate and protect cables against pull, push, flex and twist. 79 sizes.

- Straight-through.
- Bell-mouth.
- Right angle.
- International.
- Pigtail.

▼ **Seal out liquids...**

Liquid Tight Fittings seal on cable or tubing. 29 sizes for diameters of 3/32" to 1". VDE and SEV accepted. Flex Extender prevent sharp bends.

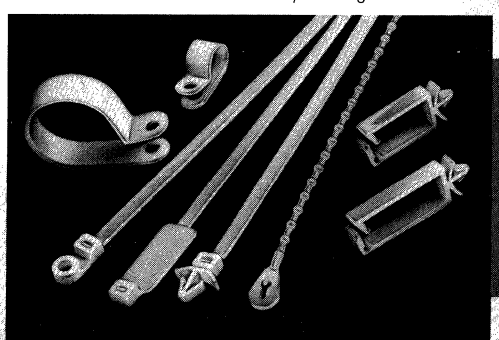
- Regular Liquid Tight Fitting.
- Flex Liquid Tight Fitting.
- Right angle Liquid Tight Fitting.



Plug holes... ▶

Hole, Vent and Pry-out plugs close unneeded holes and provide needed ventilation. 27 sizes for 1/4" to 4" diameter holes.

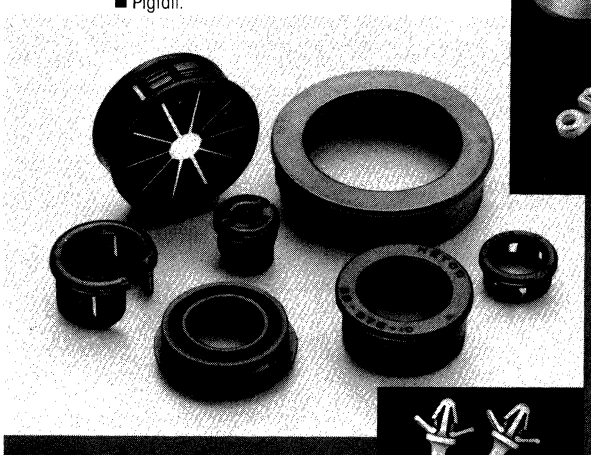
- Vent Plug.
- Hole Plug.
- Pry-out Plugs.

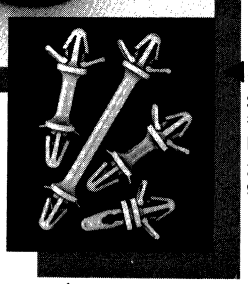


Gather and tie...

Cable Ties, Holders and Clamps bundle, anchor and direct cables, tubings, etc.

- Cable Clamp.
- Nytye® Cable Tie.
- Beaded Wire Tie.
- Wire & Cable Holder.





Insulate cables...

Insulating Bushings in 90 sizes and types to protect cables from raw-edged holes. Finger-tip installation

- Snap Bushing.
- Shorty Bushing.
- Double Insulated Bushing.
- Open-closed Bushing.
- Snub Bushing.

Connect wires... ▶

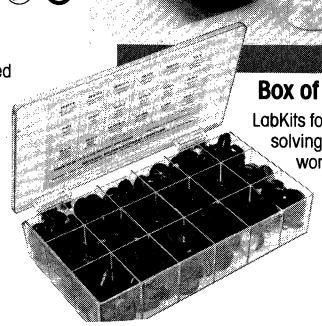
Turn-on and Crimp-on wire connectors for quick, easy, low-cost and secure connection of #6 to #22 AWG conductors.

- Polypropylene
- Urea All Plastic Turn-on.
- Nylon Crimp-on.

For spacing...

Spacer Supports provide needed 3/16" to 1 3/8" spacing between boards or boards and chassis.

2 Nylon materials: 94V-2 and 94V-0.



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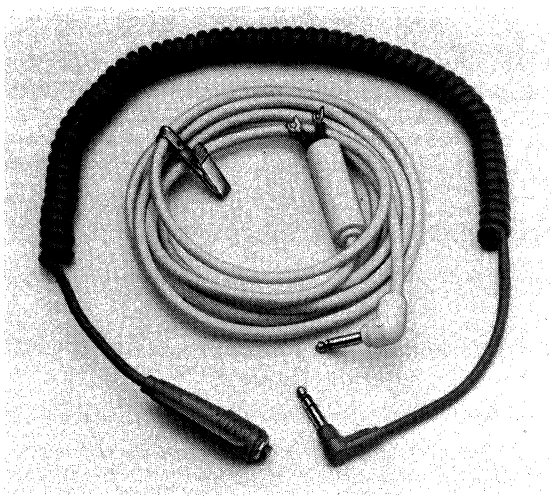
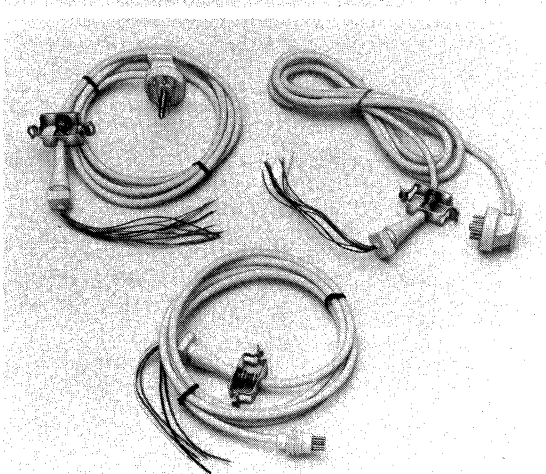


TOOLING SERVICES AVAILABLE FOR CUSTOM MOLDED CABLE ASSEMBLIES AND CUSTOM CONNECTORS

DESIGN OPTIONS

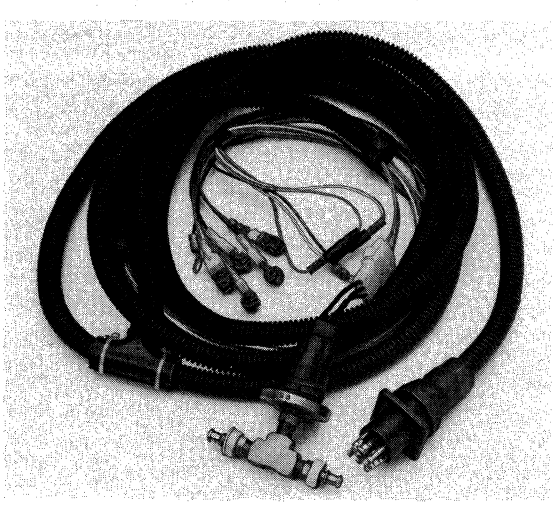
CABLE
- Conductor Type
  - Solid, Stranded, & Gauge
  - Number of Conductors
  - Paired or Unpaired
- Dielectric Type
- Types of Shields
  - Braided Copper
  - Foil/Drain Wire
  - Foil/Braid
  - 100% Shield
- Insulation of Conductors & Jacket
- Other

TERMINATION
- Stripped and Tinned
- Terminals
- Connectors
- Other



CONNECTORS

- AUDIO
- F CONNECTORS
- BNC
- TNC
- DIN CONNECTORS
- D SUB CONNECTORS
- UHF
- PCB MOUNT COAXIAL



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Free Corporate Logo

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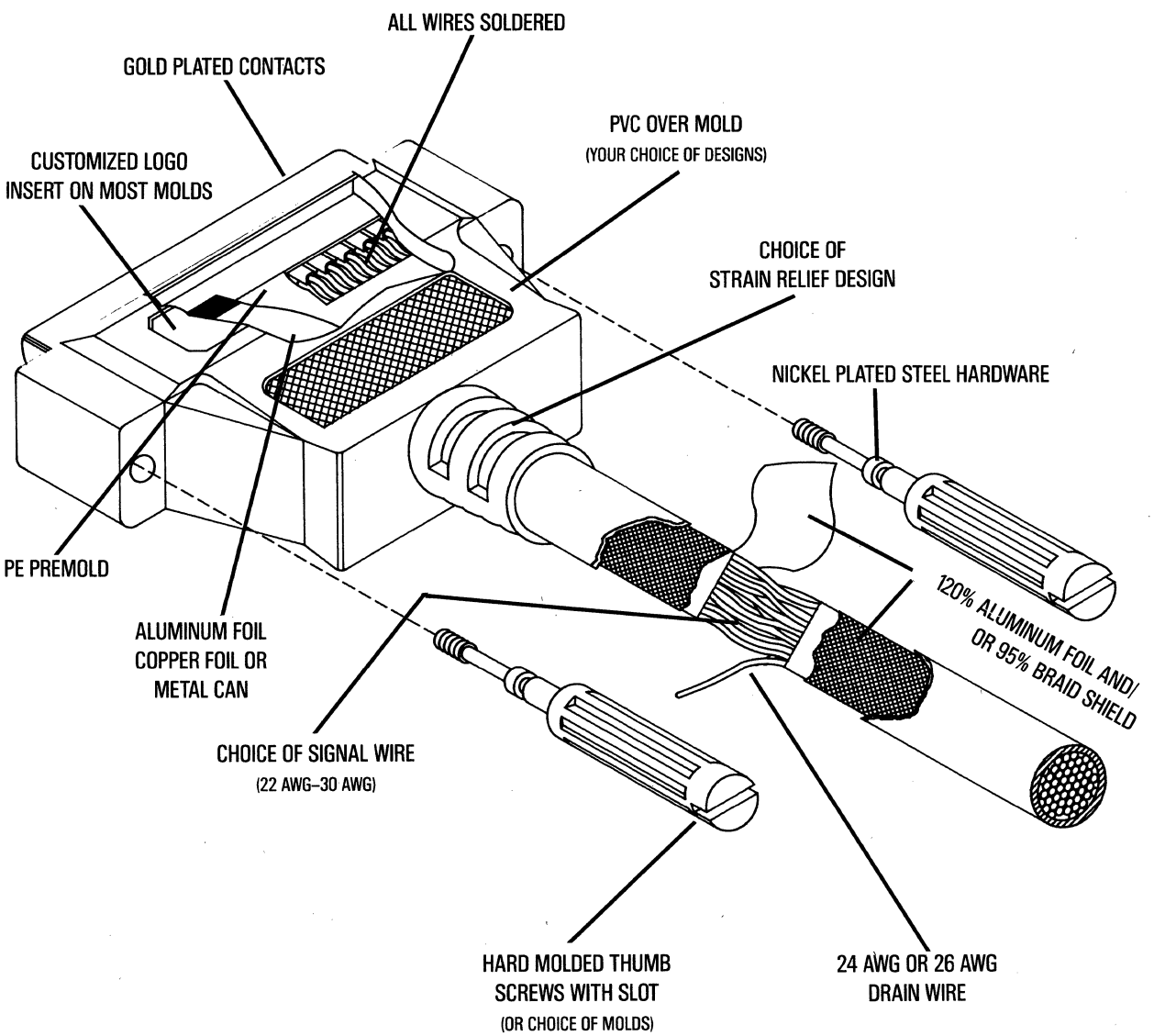

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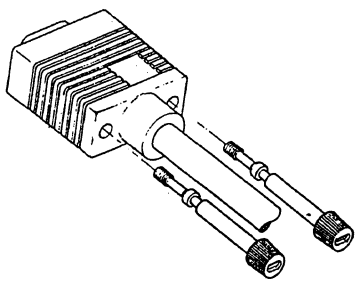
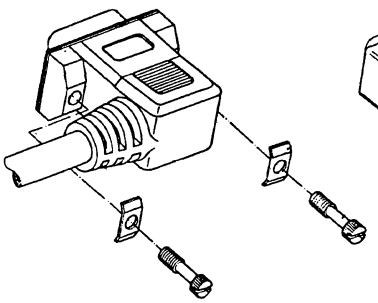
Choose from our wide variety of standard molds and give your cable a custom look. (Shown below are only some of the various mold types available.)

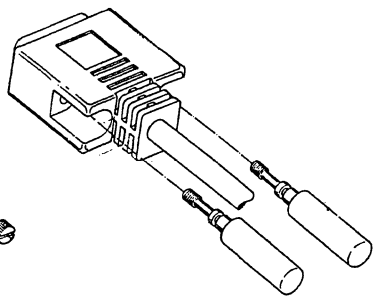
C09-008E



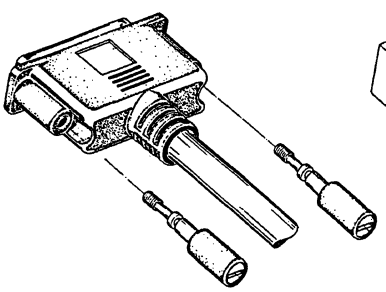
C09-003B



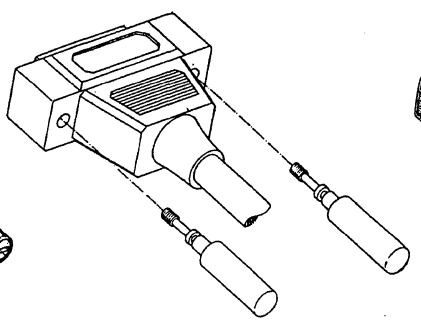
C09-004E



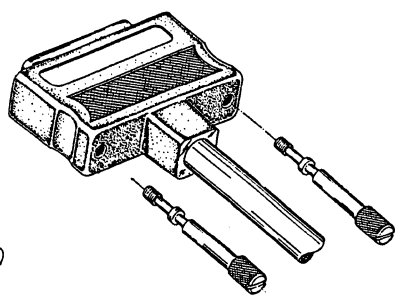
C25-017E



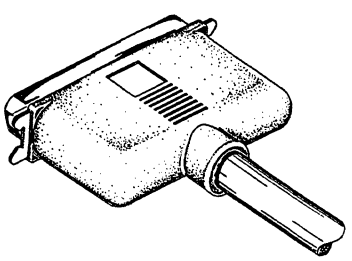
C25-001T



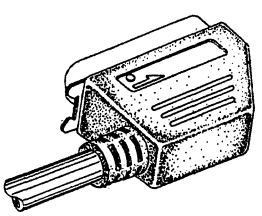
C25-015E



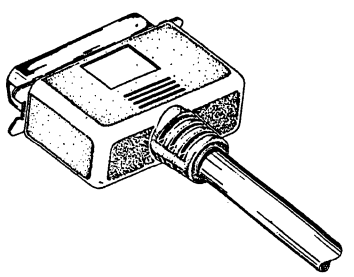
C50-002E



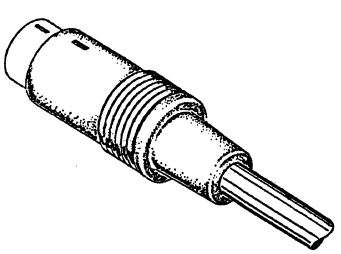
C36-001D



C36-013E

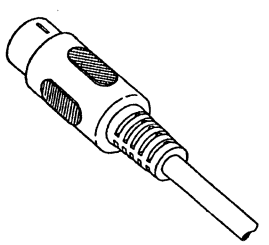


DN-02



Contact the factory for information on other mold types, logo inserts and strain relief availability for the mold design and cable you select.

DN-01

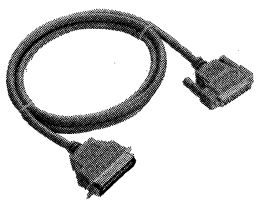


JH America, Inc.

20809 Higgins Court, Torrance, California 90501
Telephone (213) 328-0051 FAX (213) 328-0057

E112102 E110892
E118077 LR 83825

Standard Molded Cables—IBM and Compatible



Parallel Printer

DB25 Male to Centronic 36 Male

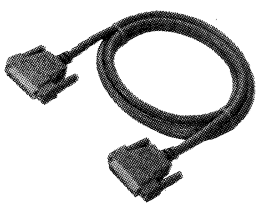
IP1 — □ □ □□ □ □
1 2 3 4 5

1. 5=25 Conductors 8=18 Conductors
2. Blank=26AWG A=28AWG
3. Cable length in feet
4. A=180° Cable Exit F=90° Cable Exit
5. B=Beige G=Grey K=Black

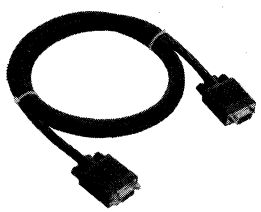
RS-232

DB25 to DB25

R3 □ — □ □ □□ A □
1 2 3 4 5



1. 1=25 Conductors 2.=15 Conductors 3=9 Conductors
2. 1=M/M 2=M/F 3.=F/F
3. Blank=26AWG A=28AWG
4. Length in Feet
5. B=Beige G=Grey K=Black



Monitor Extension

Standard: DE9 to DE9 (9 conductor)

IM1 — □ □ □□ A □ Standard IBM
1 2 3 4

1. 1=M/M 2=M/F 3=F/F
2. Blank=26AWG A=28AWG
3. Length in Feet
4. B=Beige G=Grey K/Black

PS2: HDA15 M/F (14 conductor)

P2M — 2 □□ 1 IBM PS2
1

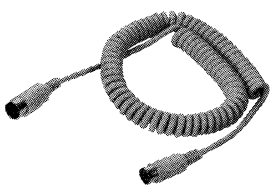
1. Length in Feet (*standard color black—26AWG only*)

Keyboard Extension

Standard: DIN 5 M/F (5 conductor)

IK □ — 2 □ □□ □ Standard IBM
1 2 3 4

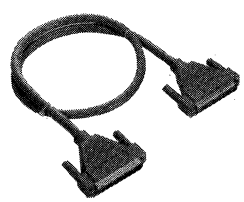
1. 1=Coiled Cord 2=Straight Cord
2. Blank=26AWG A=28AWG
3. Length in Feet
4. B=Beige G=Grey K=Black



PS2: MINIDIN 6 M/F (6 conductor)

P2K — 2 □□ IBM PS2
1

1. Length in Feet (*standard color black—26AWG only*)



RS-449

DC37 to DC37 (37 conductors)

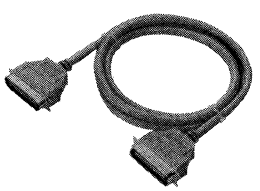
R91 — □ □ □□ E □
1 2 3 4

1. 1=M/M 2.=M/F 3.=F/F
2. Blank=26AWG A=28AWG
3. Length in Feet
4. B=Beige G=Grey K=Black

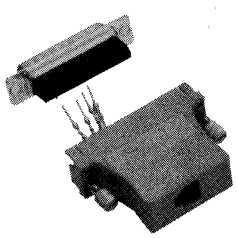
Parallel Extension

Centronic 36

IC □ — □ □ □□ A □
1 2 3 4 5



1. 1=36 Conductors 2=25 Conductors
2. 1=M/M 2=M/F 3=F/F
3. Blank=26AWG A=28AWG
4. Length in Feet
5. B=Beige G=Grey K=Black



RJ to D-Sub Adapters

Modular Jacks: 623, 647 D-Sub: 9, 15, 25

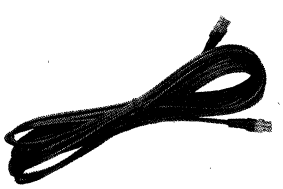
D □ □ — □□ □
1 2 3 4

1. D-Sub Shell Size (9=E, 15=A, 25=B)
2. M=Male D-Sub F=Female D-Sub
3. 14=RJ11/4 Wire 16=RJ11/6 Wire 58=RJ45/8 Wire
4. G=Grey Shell K=Black Shell

Network/BNC

Molded BNC Male to Molded BNC Male

RG □ — 0 □□
1 2



1. 2=RG 62 A/U 8=RG 58 A/U 9=RG 9 U
2. Length in Feet

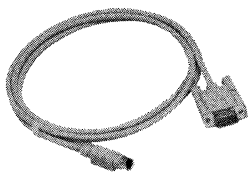
About JH . . .

Corporate	**JI-Haw Industrial Co., Ltd. Taipei, Taiwan**
Sales	**$20MM US Dollars**
Established	**1980**
Manufacturing	**Taiwan 7,800 sq. ft.** *(R&D/low volume production)* **Thailand 53,000 sq. ft.** *(high volume production)*
Approvals	**UL E112102 UL E118077 UL E110892 CSA LR 83825**
Products	**Connectors Wire & Cable Molded Assemblies IDC Assemblies Computer Accessories**
USA Offices	**Torrance, California**

E112102 E110892
E118077 LR 83825

JH America, Inc.
20809 Higgins Court, Torrance, California 90501
Telephone (213) 328-0051 FAX (213) 328-0057

Standard Molded Cables—Apple



Macintosh Plus

Mini DIN 8P to DB25M, DE9M, Mini DIN 8P

MP □ — 1 □□ C
1 2

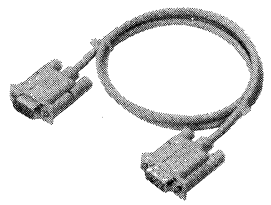
1. Peripheral:
   I=Imagewriter 2=Imagewriter II
   H=Hayes Modem M=Modem 300/1200
   A=Peripheral Adapter L=Laserwriter (&II)
   S=Hayes Smart Modem P=HP Laserjet/Plotter
2. Length in feet

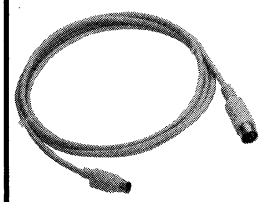
Macintosh

DE9M to DB25M, DE9M, Mini DIN 8P

M □ — 1 □□ C
1 2

1. Peripheral:
   I=Imagewriter 2=Imagewriter II
   H=Hayes Modem M3=Modem 300/1200
   P=Serial Printer
2. Length in Feet





Apple IIC

DIN 5P to DB25M, Mini DIN 8P

AC □ — 1 □□ C
1 2

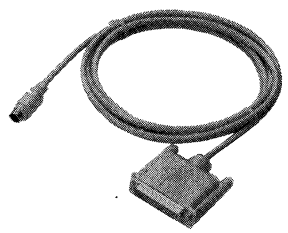
1. Peripheral:
   I=Imagewriter 2=Imagewriter II
   H=Hayes Modem M3=Modem 300/1200
   P=Serial Printer
2. Length in Feet

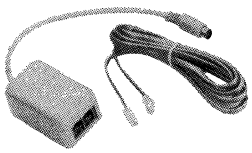
Apple III (with SSC III)

DB25M to DB25M, DE9M, Mini DIN 8P

A3 □ — 1 □□ C
1 2

1. 1=Imagewriter 2=Imagewriter II
   M3=Modem 300/1200
2. Length in feet





Network System Kits

Installs directly to Macintosh Computers and Peripherals

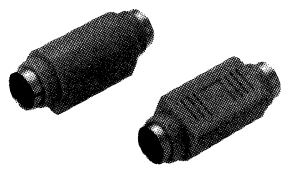
SYSTEM TYPE	PART NUMBER	INTERFACE TYPE
Phonet	APB-864	Mini DIN 8P
Phonet	APB-964	DE9
Phonet	APB-564	DB25
Apple-Talk	ATB-83	Mini DIN 8P
Apple-Talk	ATB-93	DE9
Apple-Talk	ATB-893	Mini DIN 8P (with DE9 cable)

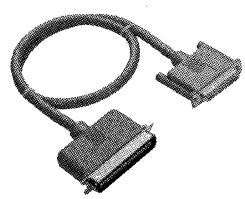
Gender Changers

Mini DIN Molded Adapters

M □ GC — M — 3G
1

1. 3=Mini DIN 3S/3S 4=Mini DIN 4S/4S
   6=Mini DIN 6S/6S 8=Mini DIN 8S/8S





SCSI Cable (I & II)

SCSI-I Centronic 50 & DD50
SCSI-II SCSI-II Hi-Density 50, Centronic & DD50

S □ □□ — □ □□ C □
1 2 3 4 5

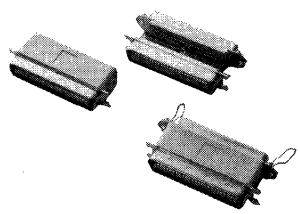
1. C=SCSI-I 2=SCSI-II
2. SH=SCSI-I System Cable SP=SCSI-I Peripheral
   SD=SCSI-I Extension SH=SCSI-II to SCSI-II
   SA=SCSI-II to C50M PA=SCSI-II to DD50
3. 1=SCSI-I Standard Cable 7=SCSI-II 75 Cable Exit
   8=SCSI-II 180 Cable Exit
4. Length in Feet
5. B=Beige G=Grey K=Black

SCSI Terminators

Centronic 50 or DB25 with Resistors

SCST — 0 □ □ □
1

1. 304=Centronics 50 M/F—36 Resistors
   348=Centronics 50 M/F—18 Resistors
   300=Centronics 50 Male—Single-sided
   400=DB25 M/F—3 Resistor Networks



About JH Standard Cables . . .

Wire	**Tinned Copper (26AWG or 28AWG)** ***(drawn in Ji-Haw Taipei facility)***
Insulation	**PVC (*applied in Ji-Haw Taipei facility*)**
Shielding	**Cable: Aluminum Foil 120%** **Braided (*available*)** **Connector: Aluminum Foil** **Copper Foil (*available*)** **Metal Can (*available*)**
Ground	**Tinned Copper (*stranded 24AWG or 26AWG*)**
Connector Plating	**Flash Gold (*1.27 u_o to 1.75 u_o/nickel*)**
Thumb Screws	**Molded (*nickel plated steel*)**
Temperature Rating	**80°**
Colors	**Grey, Beige, Black (*custom colors to color chip or PMS*)**
Standard Lengths	**6', 10', 15', 25', 50'**
Options	**Per Required Specifications (*see next two pages*)**

JUDD WIRE INC.

TURNER FALLS, MA
Tel: 413-863-4357 & 800-545-5833
Fax: 413-863-2305 & 413-863-3516

SAN MARCOS, CA
Tel: 619-744-7720 & 800-245-4421
Fax: 619-744-6089

Pioneer in Irradiated Wire

Judd Wire is a high technology wire company, specializing in the use of electron beam cross-linked thermosets for wire insulation. By applying irradiation cross-linking technology to insulating materials, Judd Wire meets the needs of the wire and cable industry for economical, high-performance products.

Judd Wire manufactures electronic wire and cable in over 100 styles recognized by Underwriters Laboratory, Canadian Standards and/or Military Specifications.

These pages contain comprehensive listings of Judd Wire standard products, may of which are stocked in a variety of colors. For the stocking status of a specific product, please call Judd Wire.

PCA (80°C & 105°C XLPVC)

PCA is a diverse line of tri-rated electronic wire. Its polychloroalkene insulation is an exclusive irradiation cross-linked PVC with a unique combination if high-performance properties.

- **High heat and burn through resistance.** PCA insulation will not melt or flow at soldering iron temperatures up to 660°F. It eliminates the problem of rework due to soldering iron damage.
- **Wide operating temperature range.** PCA insulated wires are rated for continuous operation from -55°C to 105°C regardless of the temperature range established by UL, CSA and MIL Spec ratings.
- **Improved chemical resistance.** PCA insulation has chemical and solvent resistance that is superior to the best grade PVC insulations.
- **Superior processability.** End costs are reduced with PCA insulated wires, which conform easily to desired shapes for chassis wiring and harness construction. PCA insulation can be cut and stripped cleanly by automatic processing equipment. The characteristic PVC creep due to insulation stretch is eliminated.
- **VW-1.** PCA insulated wire provides the same excellent flame-resistant properties as the best PVC insulations. It does not melt or shrink back at termination.
- **Ready availability.** PCA insulated wire is available in nine UL styles and over 100 types and configurations. They are UL and CSA rated, and MIL specified at your option.
- **Reduced material costs.** PCA tinned copper conductors do not require expensive silverplating as do many fluorocarbon constructions. PCA with tinned copper is comparable to fluorocarbon insulations with silver plating in every respect but one - price.

There, PCA offers the significant advantage of lower cost with equivalent quality.

FLEXRAD HV™ (105°C XLPE)

FLEXRAD HV is specially designed as a high voltage lead wire for consumer electronics, appliances, test equipment and instrumentation. It has Judd Wire's superior cross-linked polyethylene insulation and is temperature rated for 105° continuous, with excellent overload capacity for short duration.

- **Application-matching variety.** FLEXRAD HV is available in seven voltage ratings. 5kV to 40KV, so it is easily matched to your applications without expensive "overkill." There is no need, for example, to substitute a 15kV wire in a 5kV application. Savings up to 20% in cost, space requirement and wire weight are possible by specifying the right FLEXRAD HV for each job.
- **Superior production properties.** The excellent flexibility of FLEXRAD HV makes it easy to use in tight places. Its tough irradiated polyethylene insulation resists shrink-back and melting, even when in direct contact with a soldering iron.
- **Excellent performance characteristics.** FLEXRAD HV has high resistance to abrasion, deformation, cut-through and chemical attack.
- **Flame retardant rating VW-1.**
- **Three conductor styles.** Solid tinned copper, stranded bare copper with tinned overcoat (TOP), or stranded tinned copper with tinned overcoat (TOC).

FLEXRAD 125™ (125°C XLPE)

FLEXRAD 125 is an irradiation cross-linked polyethylene insulated wire, tri-rated by UL, CSA and Military Specifications for a wide variety of uses. It is offered in three styles, each of which has these desirable characteristics:

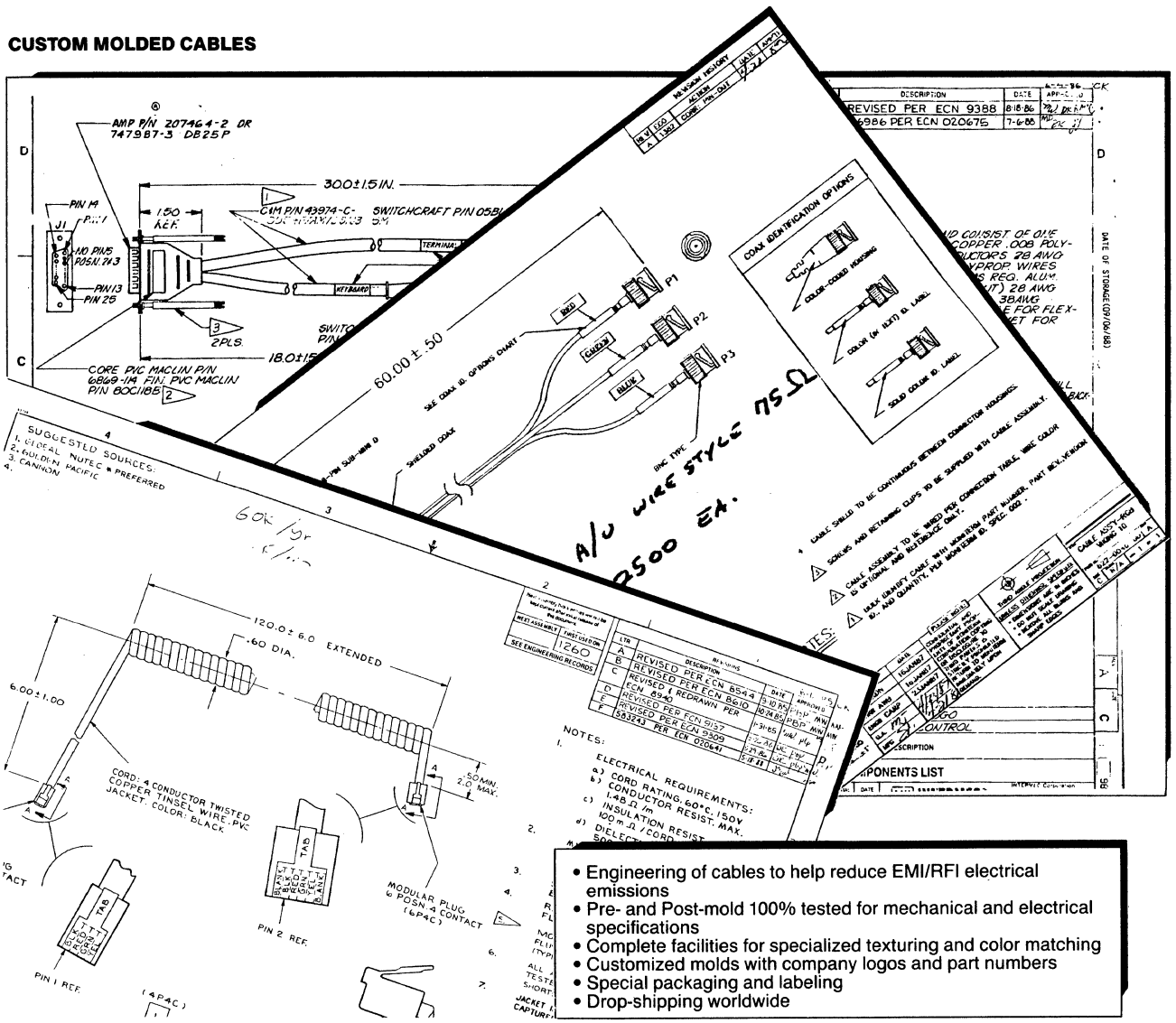
- **High heat and abrasion resistance.** FLEXRAD 125 has excellent abrasion resistance (no cut-through) and exhibits no shrink-back even when in direct contact with a soldering iron.
- **Excellent chemical resistance.** FLEXRAD 125 insulation has unusually high resistance to chemicals and solvents, especially potting systems, which makes it ideal for transformer applications.
- **Wide operating temperature range.** FLEXRAD 125 insulated wires are rated for continuous operation from -55°C to 125°C, as recognized by UL, CSA and Military Specifications.
- **Flame retardant raring VW-1.**
- **Superior processability and performance.** Highly flexible FLEXRAD \125 wires conform readily to desired shapes for lead wire and interconnection applications. They avoid the limitations of conventional 105° C PVC: limited temperature range, solder iron shrink-back, creeping insulation during automated cut and strip processing, and poor abrasion resistance. Similarly, FLEXRAD 125 avoids the production problems of fluorocarbons: cold flow, low adhesion, poor cut-through resistance, short lengths, limited flexibility and poor potting ability.
- **Reduced material costs.** Instead of the silver-plated conductors often required with fluorocarbon constructions, FLEXRAD 125 can use tinned copper at substantial savings

UL					CSA					
Style No.	Temp. Rating °C	Voltage Rating	AWG Sizes	Average Wall Thick.	Class	Temp Rating °C	Voltage Rating	AWG Sizes	Average Wall Thick.	Judd Wire Product Line
1472	80	125V	32-20	.007"	AWM	80	125V	32-16	.007"	PCA
1429	80	150V	32-20 18-16	.0105" .011"						
1534	80	NVS*	32-16 14	.011" .012"	AWM	80	150V	32-12	.011"	PCA
1536	80	NVS*	32-16 14 12-10	.011" .012" .013"						
1787	80	300V	36-20 18-16	.0105" .011"						PCA
1430	105	300V	30-16	.016"						
1557	105	NVS*	16 14-10	.016" .016"	REW	105	300V	26-10	.016"	PCA
3317	105	300V	14-10	.016"						
1431	105	600V	30-10 8 6-2	.030" .050" .060"	REW	105	600V	24-10 8 6-2	.030" .050" .060"	PCA
3265	125	150V	30-16	.011"	AWM	125	150V	30-16	.011"	FLEXRAD 125
3266	125	300V	26-10	.016"	AWM or CL 1252	125	300V	26-10	.016"	FLEXRAD 125
3271	125	600V	26-10 8 6-1/0	.030" .045" .060"	CL1251	125	600V	26-10 8 6-1/0	.030" .045" .060"	FLEXRAD 125
3239	105	5kV	24-12	.020"	TV-6	105	6kV	22-10	.020"	FLEXRAD HV
3239	105	10kV	24-12	.030"	TV-10	105	10kV	22-10	.030"	FLEXRAD HV
3239	105	15kV	24-12	.035"	TV-15	105	15kV	22-10	.035"	FLEXRAD HV
3239	105	20kV	24-12	.050"	TV-20	105	20kV	22-10	.050"	FLEXRAD HV
3239	105	25kV	24-12	.055"	TV-20	105	20kV	22-10	.055"	FLEXRAD HV
3239	105	30kV	24-12	.060"	TV-30	105	30kV	22-10	.060"	FLEXRAD HV
3239	105	40kV	24-12	.070"	TV-40	105	40kV	22-10	.070"	FLEXRAD HV

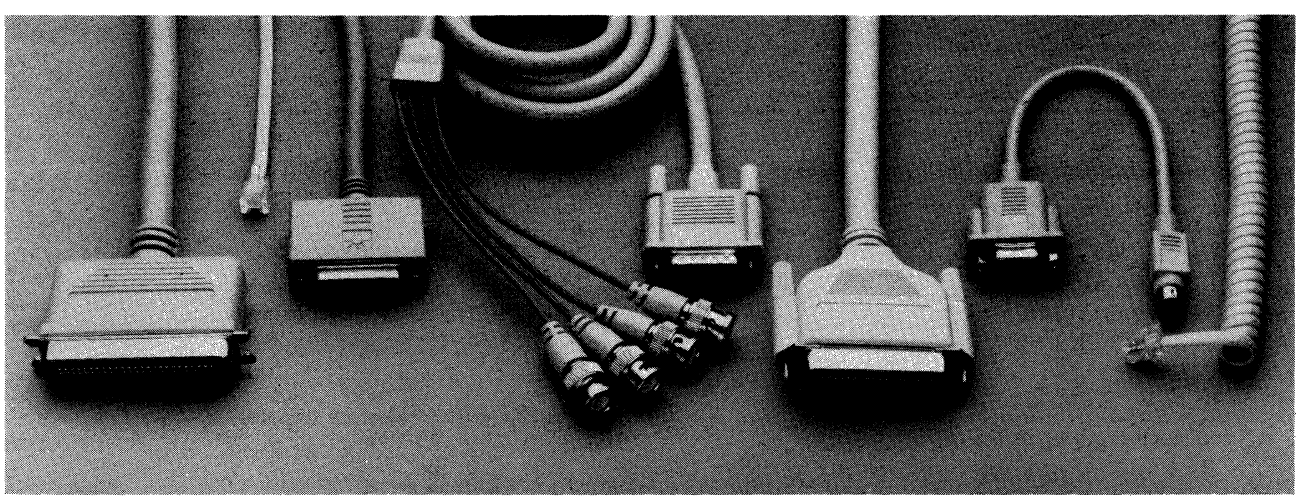
* No voltage specified.

KYCON CABLE AND CONNECTOR, Inc.

CUSTOM MOLDED CABLES

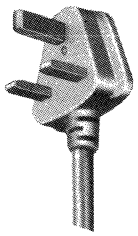


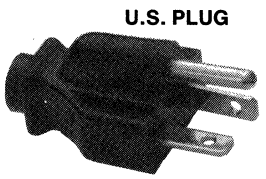
- Engineering of cables to help reduce EMI/RFI electrical emissions
- Pre- and Post-mold 100% tested for mechanical and electrical specifications
- Complete facilities for specialized texturing and color matching
- Customized molds with company logos and part numbers
- Special packaging and labeling
- Drop-shipping worldwide

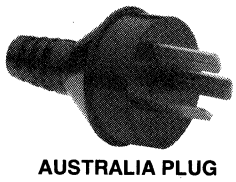


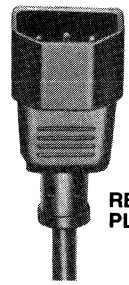
KYCON 1772 Little Orchard St., San Jose, CA 95125 (408) 295-1110 FAX: (408) 295-8054 Outside CA: (800) 544-6941

AC POWER CORDS USA AND INTERNATIONAL









STANDARD LENGTH: 6 FT.

Approval	Model No.	Rating	Size Of Conductor AWG	Size Of Conductor Composition	Cord	Nominal O.D. (mm).	Temperature Rating
TA-3							
UL	Ⓢ ZV01	125V 10A	18	41/0.16	SVT	6.4	60°C, 75°C or 105°C
CSA	Ⓢ ZJ01	125V 10A	18	41/0.16	SJT	8.3	60°C, 75°C or 105°C
TA-5							
UL	Ⓢ ZV02	250V 6A	18	41/0.16	SVT	6.4	60°C, 75°C or 105°C
CSA	Ⓢ ZJ02	250V 6A	18	41/0.16	SJT	8.3	60°C, 75°C or 105°C
VDE	Z302	250V 6A	(0.75mm²)	42/0.15	H03VV-F	6.5	60°C
	Z502	250V 6A	(0.75mm²)	42/0.15	H05VV-F	6.8	60°C
TA-3 **TA-5**							
UL	Ⓢ ZV03	125V 10A	18	41/0.16	SVT	6.4	60°C, 75°C or 105°C
CSA	Ⓢ ZJ03	125V 10A	18	41/0.16	SJT	8.3	60°C, 75°C or 105°C
TA-3 **TA-11**							
UL	Ⓢ ZV04	125V 10A	18	41/0.16	SVT	6.4	60°C, 75°C or 105°C
CSA	Ⓢ ZJ04	125V 10A	18	41/0.16	SJT	8.3	60°C, 75°C or 105°C
TA-5 **TA-10**							
UL	Ⓢ ZV05	250V 6A	18	41/0.16	SVT	6.4	60°C, 75°C or 105°C
CSA	Ⓢ ZJ05	250V 6A	18	41/0.16	SJT	8.3	60°C, 75°C or 105°C
VDE	Z305	250V 6A	(0.75mm²)	42/0.15	H03VV-F	6.5	60°C
	Z505	250V 6A	(0.75mm²)	42/0.15	H05VV-F	6.8	60°C
TA-11 **TA-10**							
UL	Ⓢ ZV06	250V 6A	18	41/0.16	SVT	6.4	60°C, 75°C or 105°C
CSA	Ⓢ ZJ06	250V 6A	18	41/0.16	SJT	8.3	60°C, 75°C or 105°C
VDE	Z306	250V 6A	(0.75mm²)	42/0.15	H03VV-F	6.5	60°C
	Z506	250V 6A	(0.75mm²)	42/0.15	H05VV-F	6.8	60°C
TA-10							
UL	Ⓢ ZV07	125V 10A	18	41/0.16	SVT	6.4	60°C, 75°C or 105°C
CSA	Ⓢ ZJ07	125V 10A	18	41/0.16	SJT	8.3	60°C, 75°C or 105°C
TA-6P							
VDE	Z308	250V 6A	(0.75mm²)	42/0.15	H03VV-F	6.5	60°C
	Z508	250V 6A	(0.75mm²)	42/0.15	H05VV-F	6.8	60°C
TA-6P **TA-10**							
VDE	Z309	250V 6A	(0.75mm²)	42/0.15	H03VV-F	6.5	60°C
	Z509	250V 6A	(0.75mm²)	42/0.15	H05VV-F	6.8	60°C
TA-6P **TA-5**							
VDE	Z310	250V 6A	(0.75mm²)	42/0.15	H03VV-F	6.5	60°C
	Z510	250V 6A	(0.75mm²)	42/0.15	H05VV-F	6.8	60°C
TA-6P **TA-11**							
VDE	Z311	250V 6A	(0.75mm²)	42/0.15	H03VV-F	6.5	60°C
	Z511	250V 6A	(0.75mm²)	42/0.15	H05VV-F	6.8	60°C

The mark Ⓢ next to the PN denotes that shielded cord is available when required.
Shielded power supply cords are 100% aluminum-mylar tape shielded.

Approval	Model No.	Rating	Size Of Conductor AWG	Size Of Conductor Composition	Type of Cordage	Temperature Rating
NEMA 1-15P	POLARIZED OR NONPOLARIZED PLUG TO OPTIONAL SOCKET Z8					
UL CSA	Z1	1250W 10A-125V	18	41/0.16	HPN, SPT-1 SPT-2, 20288	HPN—90°C, 105°C SPT-1—60°C, 105°C
UL CSA	Z2	1625W 13A-125V	16	66/0.16	HPN, SPT-2	SPT-2—60°C, 105°C 20288-105°C
	EUROPEAN PLUG					
VDE	Z3	625W 2.5A-250V	(0.75mm²)	42/0.15	H03VH-H H03VVH2-F H05VVH2-F	60°
	AUSTRALIA PLUG				OPTIONAL 2 PRONG	
SAA	Z410	2500W 10A-250V	(0.75mm²)	24/0.20	Ordinary Duty Circular Flexible Cord	105°C
	ITALIAN CORD SET					
P3056PIT		250V 10A	1.0mm²	—	H05VV-F	60°C 75°C
	CONTINENTAL EUROPE					
VDE	Z510	250V 10A	1.0mm²	—	H05VV-F	60°C 75°C
	UK (ENGLAND) CORD SET FUSED					
BSI	Z610	250V 10A	1.0mm²	—	H05VV-F	60°C 75°C
NEMA 5-15P NEMA 5-15R						
	Z80	1250W 10-A-125V	18	41/0.16	SJT,SPT-1 SJT-2,20288	SJT—60°C, 75°C 105°C
UL	Z9	1875W 15A-125V	16	66/0.16	SJT,SPT-2	SPT-2—60°C, 105°C SVT—60°C, 75°C 105°C
TA-10 NEMA 5-15R						
UL	Z10	1250W 10A-250V	18	41/0.16	SJT, SPT-2 SPT-3	SJT—60°C, 75°C 105°C SVT 60°C, 75°C 105°C

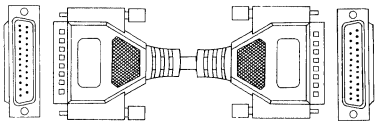
STANDARD LENGTH: 6 FT.

LZRelectronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

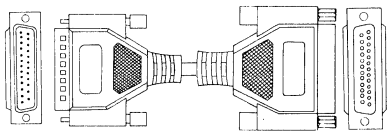
COMPUTER INTERFACE CABLES

STANDARD & CUSTOM MOLDED CABLE ASSEMBLIES

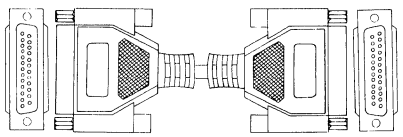
DB25MM6
DB25 male to male fully loaded, 6 ft length, molded or assembly type



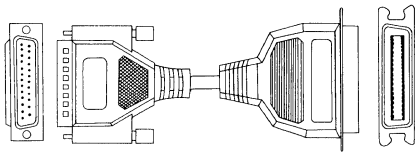
DB25MF6
DB25 male to female fully loaded, 6 ft length, molded or assembly type



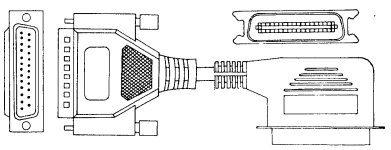
DB25FF6
DB25 female to female fully loaded, 6 ft length, molded or assembly type



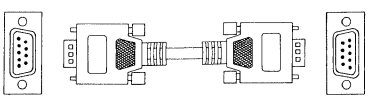
DB25M36M
Printer cable DB25M to 36 pin male, 6 ft long



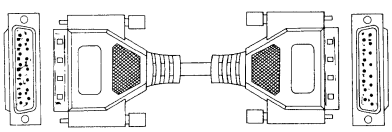
25M36MRA
Printer cable 6 ft with right 90° plug
25M36MLA
Printer cable, 6 ft with left 90° plug

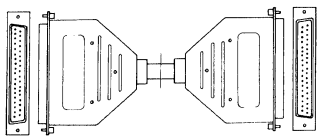


DB9MM6
DB9 male to male fully loaded, 6 ft
DB9MF6
DB9 male to female, 6 ft
DB9FF6
DB9 Female to Female 6 ft

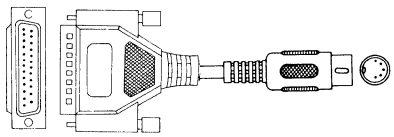


DB15MM6
DB15 male to male, 6 ft fully loaded
DB15FF6
DB15 female to female, 6 ft
DB15MF6
DB15 male to female, 6 ft

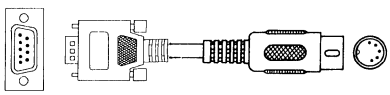




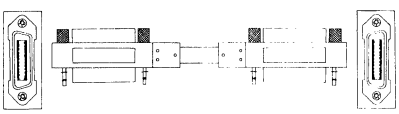
DB37MM6
DB37 male to male, 6 ft, molded or assembly type
DB37MF6
DB37 male to female 6 ft
DB37FF6
DB37 female to female 6 ft



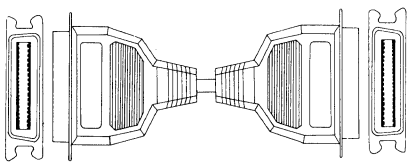
DB25M5PD6
DB25 male to 5 pin DIN plug 6 ft long molded or assembly type



DB9M5PD6
DB9 male to 5 pin DIN plug, 6 ft long, assembly or molded type

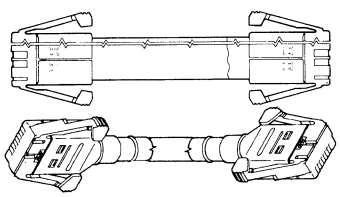


MCA8522
IEEE-488
CABLE
6 ft



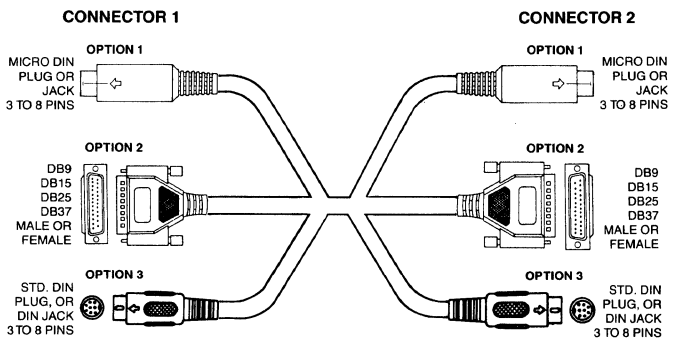
5736MM6
36 pin male to male fully loaded, 6 ft
5736MF6
Male to female, 6 ft
5736FF6
female to female, 6 ft

Molded molex connector
Mol-3
3 position, 6 ft
Mol-4
4 position, 6 ft



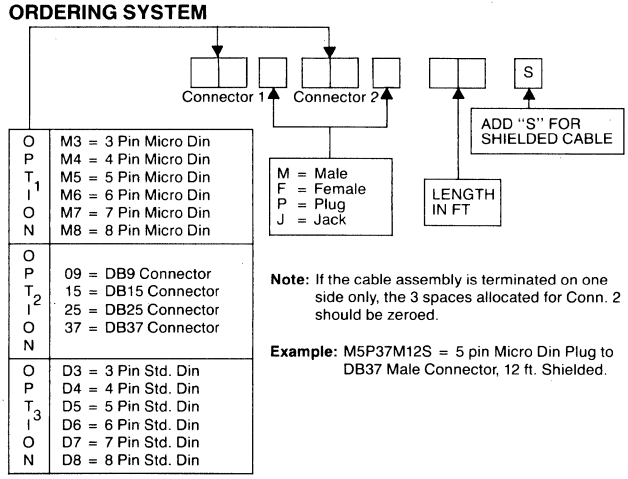
SDL TYPE
4, 6, 8, 16 position
Custom Length
Round or Flat

CUSTOM MADE MOLDED CABLE ASSEMBLIES



OTHER COMBINATIONS ARE AVAILABLE UPON REQUEST

ORDERING SYSTEM



OPTION 1	M3 = 3 Pin Micro Din M4 = 4 Pin Micro Din M5 = 5 Pin Micro Din M6 = 6 Pin Micro Din M7 = 7 Pin Micro Din M8 = 8 Pin Micro Din
OPTION 2	09 = DB9 Connector 15 = DB15 Connector 25 = DB25 Connector 37 = DB37 Connector
OPTION 3	D3 = 3 Pin Std. Din D4 = 4 Pin Std. Din D5 = 5 Pin Std. Din D6 = 6 Pin Std. Din D7 = 7 Pin Std. Din D8 = 8 Pin Std. Din

Note: If the cable assembly is terminated on one side only, the 3 spaces allocated for Conn. 2 should be zeroed.

Example: M5P37M12S = 5 pin Micro Din Plug to DB37 Male Connector, 12 ft. Shielded.

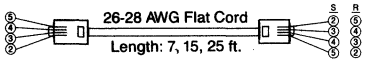
LZR electronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 **LZR**

MODULAR TELEPHONE CORDS

T4-4 CONDUCTOR SERIES: PLUG TO PLUG

6P4C PLUG

(RJ-11)



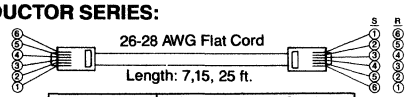
* S = Straight Through Wiring
* R = Reversed Sequence Wiring

T407S/R*	4 Cond. 7 ft. Ext. Cord
T415S/R*	4 Cond. 15 ft. Ext. Cord
T425S/R*	4 Cond. 25 ft. Ext. Cord

T6-6 CONDUCTOR SERIES:

6P6C PLUG

(RJ-11)

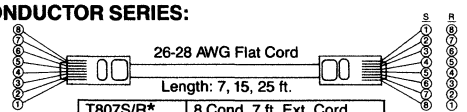


T607S/R*	6 Cond. 7 ft. Ext. Cord
T615S/R*	6 Cond. 15 ft. Ext. Cord
T625S/R*	6 Cond. 25 ft. Ext. Cord

T8-8 CONDUCTOR SERIES:

8P8C PLUG

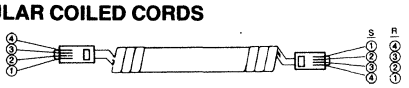
(RJ-45)



T807S/R*	8 Cond. 7 ft. Ext. Cord
T815S/R*	8 Cond. 15 ft. Ext. Cord
T825S/R*	8 Cond. 25 ft. Ext. Cord

C4—MODULAR COILED CORDS

4P4C PLUG

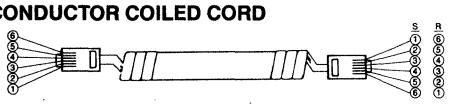


C407S/R*	Telephone Headset Cord 7 ft.
C415S/R*	Telephone Headset Cord 15 ft.
C425S/R*	Telephone Headset Cord 25 ft.

C6—6 CONDUCTOR COILED CORD

6P6C PLUG

(RJ-11)

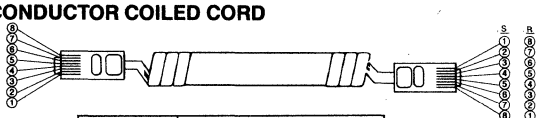


C607S/R*	6 Cond. Coiled Cord 7 ft.
C615S/R*	6 Cond. Coiled Cord 15 ft.

C8—8 CONDUCTOR COILED CORD

8P8C PLUG

(RJ-45)

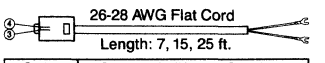


C807S/R*	8 Cond. Coiled Cord 7 ft.
C815S/R*	8 Cond. Coiled Cord 15 ft.

S2-2 CONDUCTOR SERIES: PLUG TO SPADE

6P2C PLUG

(RJ-11)

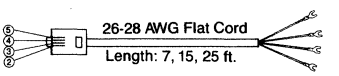


S207	2 Cond. 7 ft. Plug to Spade
S215	2 Cond. 15 ft. Plug to Spade
S225	2 Cond. 25 ft. Plug to Spade

S4-4 CONDUCTOR SERIES

6P4C PLUG

(RJ-11)

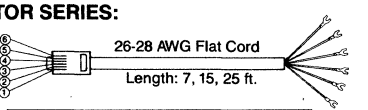


S407	4 Cond. 7 ft. Plug to Spade
S415	4 Cond. 15 ft. Plug to Spade
S425	4 Cond. 25 ft. Plug to Spade

S6-6 CONDUCTOR SERIES:

6P6C PLUG

(RJ-11)

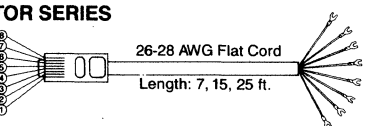


S607	6 Cond. 7 ft. Plug to Spade
S615	6 Cond. 15 ft. Plug to Spade
S625	6 Cond. 25 ft. Plug to Spade

S8-8 CONDUCTOR SERIES

8P8C PLUG

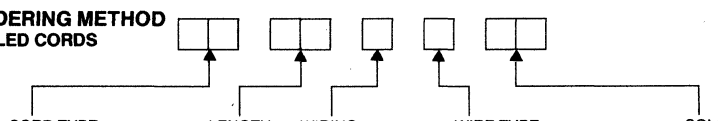
(RJ-45)



S807	8 Cond. 7 ft. Plug to Spade
S815	8 Cond. 15 ft. Plug to Spade
S825	8 Cond. 25 ft. Plug to Spade

Note: Straight through wiring means PIN 1 to 1, PIN 2 to 2, PIN 3 to 3, etc. Reverse sequence wiring means for example: PIN 1 to 6, PIN 2 to 5, PIN 3 to PIN 4...etc. (For a six cond. cable assembly)

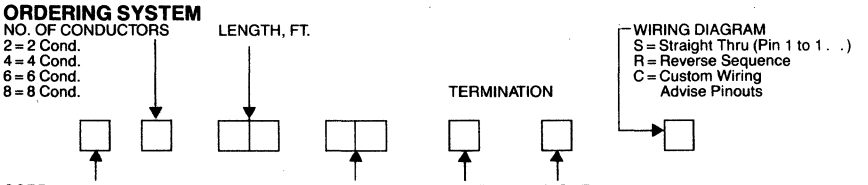
ORDERING METHOD
COILED CORDS



CORD TYPE	LENGTH	WIRING	WIRE TYPE	COLOR
C4-4 Cond.	07 - 7 ft.	S = Straight thru	C = 26-28 AWG Copper Strand	SL - Silver
C6-6 Cond.	15 - 15 ft.	R = Reverse Sequence	T = Tinsel	BK - Black
C8-8 Cond.	25 - 25 ft.			IV - Ivory

CUSTOM MADE MODULAR CORD ASSEMBLIES

ORDERING SYSTEM



NO. OF CONDUCTORS
2 = 2 Cond.
4 = 4 Cond.
6 = 6 Cond.
8 = 8 Cond.

LENGTH, FT.

WIRING DIAGRAM
S = Straight Thru (Pin 1 to 1. .)
R = Reverse Sequence
C = Custom Wiring Advise Pinouts

TERMINATION

CORD TYPE
A = Flat Cord, Copper Strand
B = Flat Cord, Tinsel Wire
C = Round Cord, 26-28AWG
D = Round Shielded Cord
E = Flat Shielded Cord
F = Coiled Cord Tinsel Wire
G = Coiled Cord, 26-28AWG
H = Coiled Cord, Shielded

COLOR
SL = Silver
BK = Black
WT = White
IV = Ivory
BG = Beige
BR = Brown
CM = Custom Color

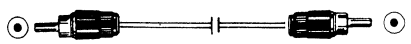
LEFT SIDE / RIGHT SIDE
0 = Unterminated
1 = 4P4C Plug
2 = 6P4C Plug
3 = 6P6C Plug
4 = 8P8C Plug
5 = Spade Lugs

LZRelectronics,inc. 8051 Cessna Ave., Gaithersburg, MD 20879 Telephone (301) 921-4600 Fax (301) 670-0436 LZR

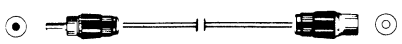
CUSTOM CABLE ASSEMBLIES

ASSEMBLY OR MOLDED TYPE
AUDIO, VIDEO, RCA, DIN, 3.5mm, 6.4mm

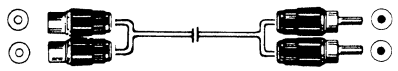
AC 094 Mono
RCA plug double end, 6 ft.



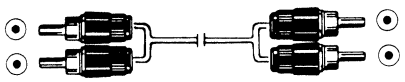
AC 095 Mono
RCA plug to RCA jack, 6 ft.



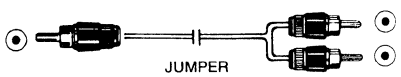
AC 096 Stereo
2 RCA jacks and 2 RCA plugs, 6 ft.



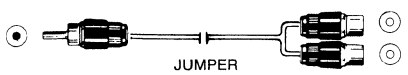
AC 097 Stereo
2 RCA plugs each end, 6 ft.



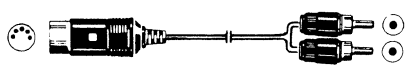
AC 099 Mono
RCA plug to 2 RCA plugs, 1 ft.



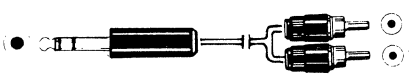
AC 100 Mono
RCA plug to 2 RCA jacks 1 ft.



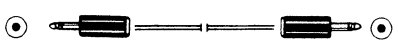
AC 015 Stereo
5 pin DIN plug to 2 RCA plugs, 6 ft.



AC 022 Stereo
1/4" phone plug stereo (6.4mm) to 2 RCA plugs, 1 ft.

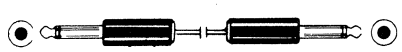


AC 049 Mono
3.5mm plug to plug, 6 ft.



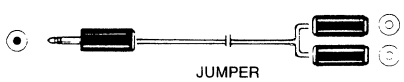
AC049S 3.5mm plug to plug, Stereo, 6 ft.

AC 047 Mono
6.4mm (1/4") plug on each end, 6 ft.

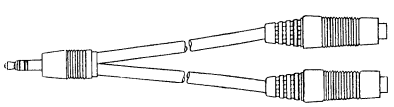


AC047S 6.4mm plug to plug, Stereo, 6 ft.

AC 108 Mono
3.5mm plug to two jacks, 1 ft.



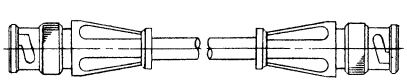
AC 108S Stereo
3.5mm plug to two jacks, stereo, 1 ft.



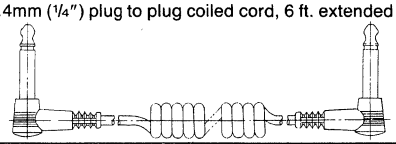
AC 6435 Mono
6.4mm (1/4") phone plug to 3.5mm plug, 6 ft.

AC 6464 Stereo
6.4mm (1/4") phone plug to jack, 6 ft.

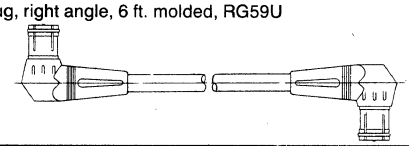
CVC 5U6
BNC Male to Male, molded, 6 ft. RG59U



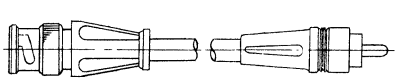
AC 64RAC Mono
Right angle 6.4mm (1/4") plug to plug coiled cord, 6 ft. extended length



CVC 510RA Push on
F plug to plug, right angle, 6 ft. molded, RG59U



CVC 509
BNC Male to RCA plug, molded, 6 ft., RG 59U



Notes: A. Some custom molded assemblies require 500 pcs. min. order and 8–10 weeks lead time.
B. Your own specifications are welcome for our quote.

LZR electronics, inc. 8051 Cessna Ave., Gaithersburg, MD 20879
Telephone (301) 921-4600 Fax (301) 670-0436 LZR

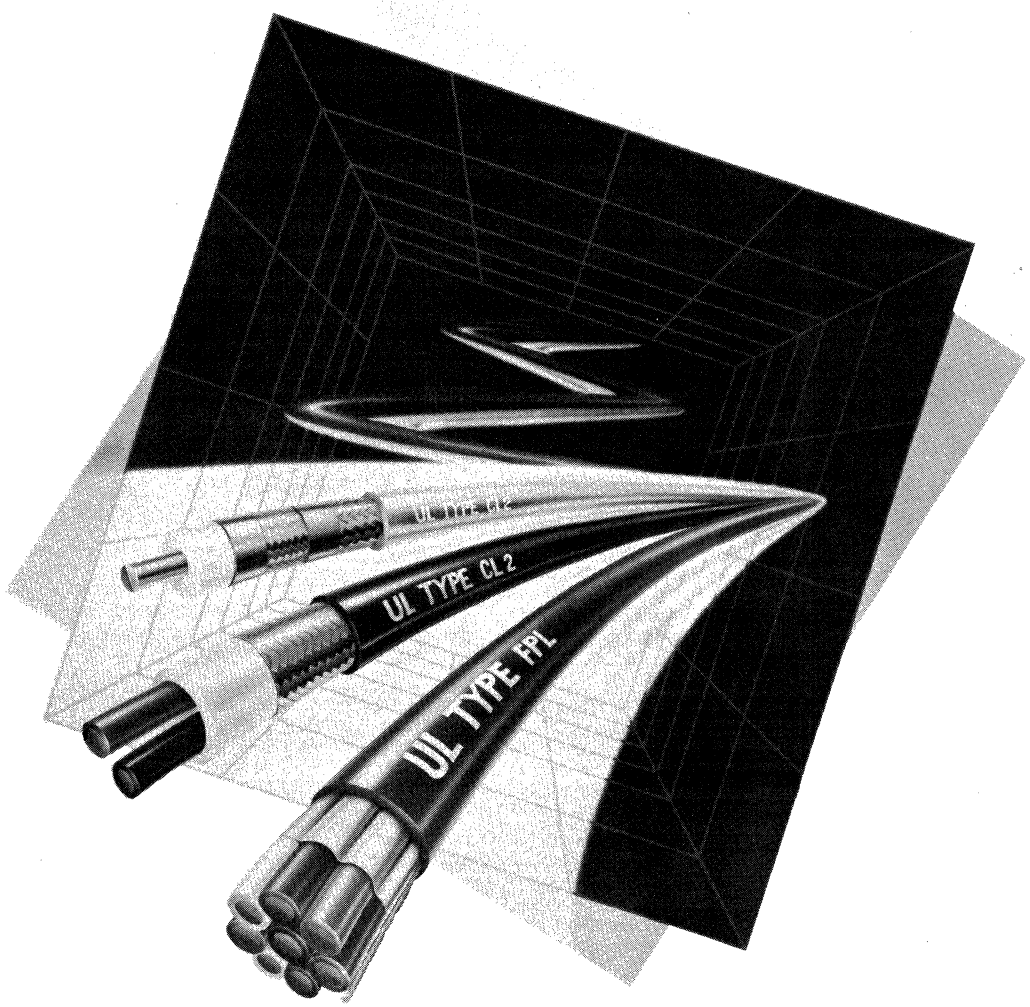
THERMAL CONDUCTIVITY OF DIELECTRICS AT ROOM TEMPERATURE

Material	Thermal Conductivity, J/ (m.K)
Diamond	658
BeO	167
Graphite	117-200
Bonded SiC	42
MgO	42
Al_2O_3	33
TiC	33
BN	28
Mullite	6.3
Titania	3.3-4.2
Porcelain	1.7
Fused silica glass	1.5
Soda-lime glass	0.8
Cast epoxies	0.17-1.3
Wood	0.5-2.5
Melamines	0.3-0.7
Mica	0.3-0.7
Phenolics (molded)	0.17-0.67
Polyethylenes	0.33
Nylons	0.17-0.25
TFE fluorocarbons	0.25
Elastomers	0.08-0.17
Foams	0.003-0.04

Manhattan®
ELECTRIC CABLE CORPORATION

Electrical and Electronic Wire • Cable • Connectors

Audio Cable
Coaxial Cable
Computer/ LAN Cable
Connectors
Control Cable
Copper - Bare and Tinned
High Temperature Wire
Hook-Up and Lead Wire
Instrumentation Cable
Thermocouple Cable
Plenum Cable
Power/Building Wire
Power/Extension Cords
Telephone/Interconnect



CALL OR WRITE FOR A FREE CATALOG

Our new MECC #120 Catalog features over 5,700 electrical and electronic wire and cable products. It covers the latest cabling technology for data, voice, power, control and instrumentation applications. It includes a cable selector guide as well as a complete Manhattan to Manufacturer cross referencing index.

CALL 800-228-MECC
FAX 914-967-1616
Station Plaza
Rye, New York 10580

Our goal is to have the wire you need, when you need it. That's why MWS stocks the largest inventory of specialty wires in the country. Over 20,000 types and sizes. If we don't have the wire you need in stock, we'll custom manufacture it. Our short run capabilities provide an alternative to large factory minimums and long deliveries.

MWS Wire Industries

LARGEST SELECTION OF WIRE PRODUCTS

ALUMINUM
BERYLLIUM COPPER
BRASS
BUS WIRE
COPPER CLAD ALUMINUM
DUMET
EXOTIC ALLOYS
INCONEL
INDIUM
KOVAR
LITZ WIRE
LOCKWIRE/MS20995
MOLYBDENUM
MONEL
MAGNET WIRE
All sizes to 56 AWG Round per—NEMA MW 1000 JW 1177B
High Temperatures, Colors, Half Sizes, Bondable Wires, Copper, Aluminum and Special Conductors
MICROSQUARE™ MAGNET WIRE
Miniature Square and Rectangular smaller than 14 AWG
MULTIFILAR® MAGNET WIRES
2—20 Conductor, Parallel Bonded, Color Coded
MUSIC WIRE
NICKEL
NICKEL SILVER
NIOBIUM
OFHC COPPER
PHOSPHOR BRONZE
PLATED WIRE AND RIBBON
Gold, Silver, Tin, Cadmium
PRECIOUS METALS
Gold, Silver, Platinum
RESISTANCE ALLOYS
Nickel-Chrome, Copper-Nickel, Nickel-Iron, Manganin
SPECIAL CABLES
STAINLESS STEEL
SUPERCONDUCTOR
TANTALUM
TITANIUM
TUNGSTEN
TWISTITE™ MAGNET WIRE
24 AWG and Finer
Up to 33 TPI ± 1%
Up to 10 colors in some sizes

FACILITIES/SERVICES

CUSTOM ENAMELING
In our custom enameling facilities we enamel most metals from .072″ to .0004″ round or square and rectangular sizes smaller than 14 AWG or 3500 sq. mil. cross-sectional area. Insulations are available in special colors, builds and bondable overcoats. All insulations meet NEMA MW 1000, 105–220°C, single thru quadruple film builds. Up to 10 insulation colors are available to aid in conductor identification.

WIRE SHAPING
MWS produces a complete line of miniature square and rectangular wires in a variety of metals. Sizes smaller than 14 AWG sq. and rectangular shapes smaller than 3500 sq. mils. are produced bare as well as film insulated.

RIBBON ROLLING
MWS operates facilities for production of flat ribbon wire in a wide variety of metals. Thicknesses range from .0005″ with widths up to .125″ Ribbon wires are available bare, film insulated and plated.

DRAWING AND ANNEALING
Our drawing and annealing capabilities round out our custom manufacturing facilities. These capabilities allow us to fabricate most metals from .064″ through .0004″ diameter in the temper and quantity you require.

TESTING LABORATORY
Expanded test facility provides complete chemical, physical and electrical test data for applicable military, federal, commercial and customer standards. Metallurgical and I/R spectro analysis are also available. We can provide you with fast and accurate answers to your technical questions.

CUSTOM PACKAGING
MWS has designed custom molded, individual foam shipping containers for our 2½″, 3″, 5″ and 6″ plastic spools. These containers eliminate damage in shipping, and later prevent breakage in storage and production line handling.

WIRE TWISTING
MWS operates facilities for twisting 2 or more conductors 24 AWG and finer. Twisting tightness up to 33 twists per inch and to tolerances of ± 1%. Conductor materials include copper, silver, plated conductors and specialty alloys, in bare and insulated constructions.

WIRE SPOOLING
Spooling facilities handle every size wire from heavy square and rectangular to ultra-fine. This enables you to buy the quantity of wire you need on the spool size you want.

MWS Wire Industries

31200 Cedar Valley Drive, Westlake Village, CA 91362
CALL TOLL FREE 800 423-5097
(818) 991-8553 FAX: (818) 706-0911

MULTIFILAR®
MAGNET WIRE

Parallel bonded for windings and leads.

When two or more magnet wires travel together, MULTIFILAR magnet wire is an excellent alternative.

This parallel bonded, color-coded magnet wire offers more consistent capacitance and impedance characteristics when compared to windings using two or more separate magnet wires.

And, it allows for increased layer winding speeds, as well as reduced labor and handling. Color-coding assists in conductor identification and helps eliminate termination errors.

MULTIFILAR magnet wire is custom produced to guarantee flat, parallel construction in an array of sizes, 16–52 AWG, with up to 20 conductors in some sizes.

Available constructions include round, flat or square conductors. Individual conductors meet NEMA MW 1000, JW 1177, temperature classes 105–220°C; single through quadruple film builds. Color-coded conductors are available in most insulations with up to 10 different colors in some sizes.

Call or write for your free copy of our new Technical Data and Capabilities Brochure. It contains valuable information on all wire produced and inventoried by MWS Wire Industries. Samples of MULTIFILAR are available upon request.

MWS
Wire Industries
31200 Cedar Valley Drive, Westlake Village, CA 91362
CALL TOLL FREE 800 423-5097
(818) 991-8553 FAX: (818) 706-0911

MULTIFILAR® is a registered trademark of MWS Wire Industries

MICROSQUARE™
MAGNET WIRE

For specialty coil and motor windings.

While product miniaturization allows less space for components, MWS MICROSQUARE film coated magnet wire lets you design compact coils and small motors that deliver more power in less space.

MICROSQUARE means miniature square and rectangular copper and aluminum magnet wire. Custom produced in sizes *smaller* than 14 AWG or 3500 sq. mil. cross-sectional area, MICROSQUARE is available in a wide range of solderable and high-temperature insulations in a variety of colors, with or without bondable overcoats.

MICROSQUARE magnet wire was developed to provide improved winding uniformity and maximum use of space. When you're looking for options to meet the most demanding coil, small motor, or other special application requirements, without size limitations or quantity minimums, take a good look at MICROSQUARE magnet wire.

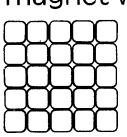


Illustration of cross-section of coil winding using MWS MICROSQUARE magnet wire. Note improved winding uniformity and maximum use of space.

Call or write for your free copy of our new Technical Data and Capabilities Brochure. It contains valuable information on all wire produced and inventoried by MWS Wire Industries. Samples of MICROSQUARE are available upon request.

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TWISTITE™
MAGNET WIRE

For superior performance and tighter control over twisted wire construction.

Developed for use in the production of custom toroid, ferrite or recording head coils, specialty audio and R.F. transformers, TWISTITE offers a number of distinct advantages.

TWISTITE is custom produced to offer a wider range of twisting construction. Manufacturing capabilities include:

- Up to 33 Twists Per Inch on fine wire.
- Twisting tolerance as tight as ±1%.
- Tightly controlled capacitance, inductance and impedance characteristics.
- Up to 10 colors in some sizes for conductor identification.
- Huge selection of insulations: NEMA MW 1000, JW1177, 105–220°C (single through quadruple film builds).
- Wide range of sizes: 24 AWG and finer.
- Wide variety of conductor materials: copper, silver, plated conductors, and special alloys.

Call or write for your free copy of our new Technical Data and Capabilities Brochure. It contains valuable information on all wire produced and inventoried by MWS Wire Industries. Samples of TWISTITE are available upon request.

MWS
Wire Industries
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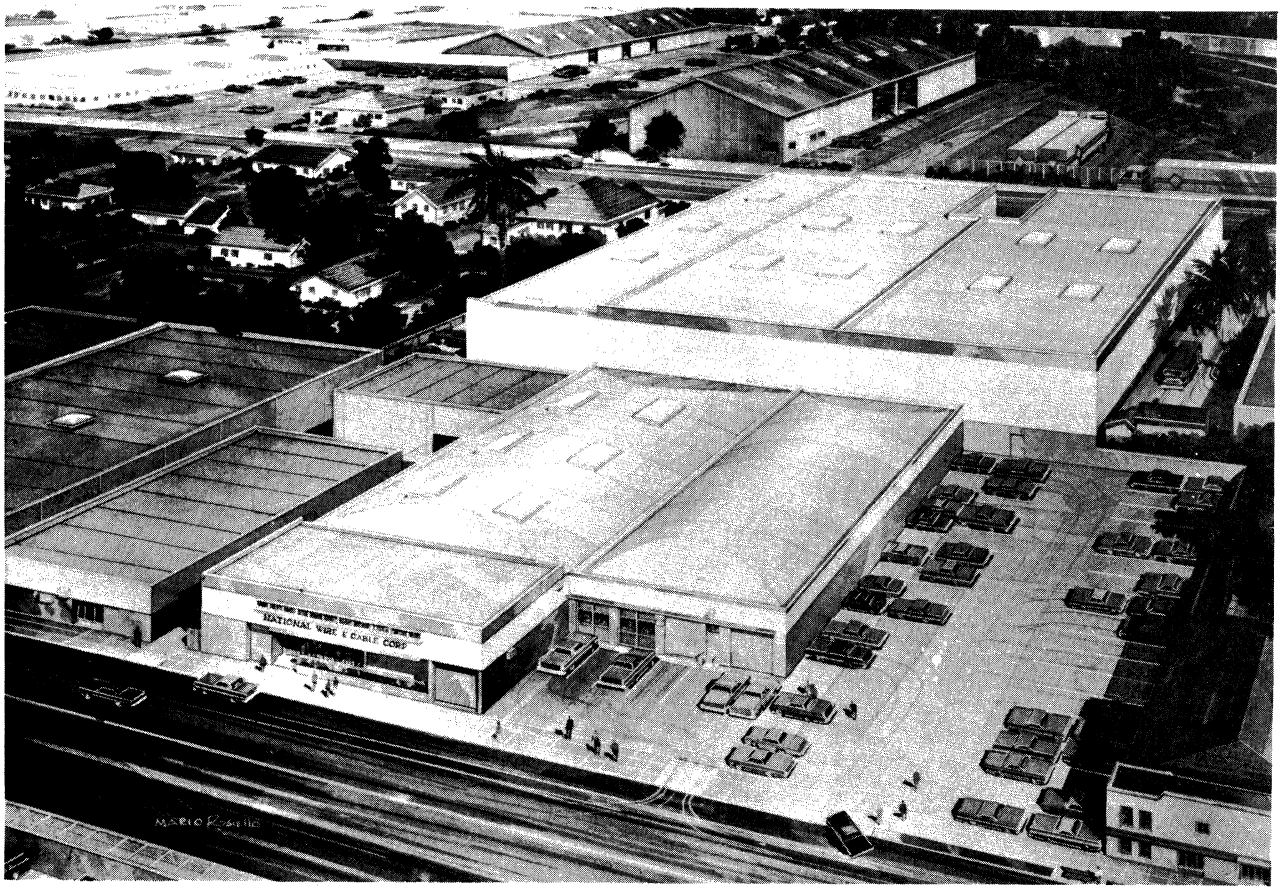
TWISTITE is a trademark of MWS Wire Industries

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, CA 90031
Phone: (213) 225-5611, TWX: 910-321-4155, TLX: 181409,
FAX: (213) 225-4630. Fed. Stock Code H4-04569



As a manufacturer of wire and cable products...with several warehouses, National Wire & Cable is ready to fill your immediate needs. Choose from our standard lines of wire or cable...OR let us design and custom manufacture exactly what you require for your application.

Our wire inventory is now over 200 million feet, and our 500 different standard multi-conductor cables total in excess of 2.0 million feet!

When you call National Wire, you'll find we are especially well equipped to handle your large as well as minimal requirements. If our "standard" items won't meet your application, we have the wire inventory, the machinery, the expertise to come up with exactly what you need. 180,000 square feet of manufacturing area and our expert engineering staff are at your disposal!!! All cable components are produced within our own facility in order to assure complete quality control.

Review the following catalog pages. If you need some assistance with your specific requirement, call our factory direct, or call our representative nearest you. See Manufacturers and Sales Office Directory Yellow Pages.

NATIONAL WIRE AND CABLE CORPORATION

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U/L Listed Wire
CSA Listed Wire

- Wires listed by the Underwriter's Laboratories, Inc. for operation in an air or an oil environment. U.L. File #E35793.
- Wires listed by the Canadian Standards Association for radio or electronic uses. CSA File #LR-20482 & LR-32511.

U/L Style 1061

Appliance wiring material available as FR-1 rated 80-degree C Service. .009" semi-rigid vinyl insulation U/L rated: 300-volt service. Meets Mil-W-16878D Type B, and CSA S-R PVC. Also available with solid conductors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
28	N304-736U	7	36	.015	.034	69.0	1.0
26	N304-1938U	19*	38	.019	.038	42.9	1.5
24	N304-1936U	19*	36	.024	.043	26.8	2.0
22	N304-1934U	19*	34	.030	.050	16.7	3.0
20	N304-1932U	19*	32	.038	.057	10.5	4.75
18	N304-1930U	19	30	.048	.068	6.57	6.5
16	N304-1929U	19	29	.057	.077	4.85	9.0

U/L Style 1007

Appliance wiring available as FR-1 rated 80-degree C Service. 1/64" vinyl insulation U/L rated: 300 volt appliance, use 600 volt electronic use. Meets Mil-W-16878D Type C. Also approved by CSA as Type TR-64 radio wiring for 90-degree C Service. Colors: 10 standard colors plus tracers on solid colors. Also available with solid conductors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N303-732U	7	32	.024	.058	26.8	2.75
22	N303-1934U	19*	34	.030	.063	16.7	3.75
20	N303-1932U	19*	32	.038	.072	10.5	5.50
18	N303-1930U	19	30	.048	.082	6.57	8.0
16	N303-1929U	19	29	.057	.090	4.85	10.0

U/L Style 1015

Appliance wiring material available as FR-1 rated 105-degree C Service 1/32" vinyl insulation U/L rated, 2500 volts electronic use, 600 volt appliance use. Meets Mil-W-16878D Type D. Colors: 10 standard colors plus tracers on solid colors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N600-732U	7	32	.024	.082	26.8	4.0
22	N600-730U	7	30	.030	.090	16.7	5.2
20	N600-728U	7	28	.038	.098	10.5	7.3
18	N600-1930U	19	30	.048	.108	6.57	10.0
16	N600-1929U	19	29	.057	.117	4.85	12.0
14	N600-1927U	19	27	.071	.130	3.05	17.1
12	N600-1925U	19	25	.090	.162	1.92	27.4
10	N600-4927U	49	27	.111	.181	1.24	38.6

CSA/Type TR-32 Radio Wire

Rated: 90-degree C 600 volt, 1/32" vinyl insulation. Also listed as CSA Appliance Wiring Material 90-degree 600 V. Meets U/L Style 1015 & Mil-W-16878D Type D.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N307-732U	7	32	.024	.082	26.8	4.0
22	N307-730U	7	30	.030	.090	16.7	5.2
20	N307-728U	7	28	.038	.098	10.5	7.3
18	N307-1930U	19	30	.048	.108	6.57	10.0
16	N307-1929U	19	29	.057	.117	4.85	12.0
14	N307-1927U	19	27	.071	.130	3.05	17.1
12	N307-1925U	19	25	.090	.162	1.92	27.4
10	N307-4927U	49	27	.111	.181	1.24	38.6

*Also available in 7 strands

CSA Listed Type TR-64 Radio Wire

Rated 90-degree C 300 volt, 1/64" vinyl insulation. Meets U/L Style 1007 & Mil-W-16878D Type C.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N308-732U	7	32	.024	.058	28.4	2.75
22	N308-1934U	19*	34	.030	.063	19.0	3.50
20	N308-1932U	19*	32	.038	.072	13.12	5.25
18	N308-1930U	19	30	.048	.082	7.89	6.75
16	N308-1929U	19	29	.057	.090	4.97	10.0

Also available with Nylon Jacket

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NATIONAL WIRE AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, CA 90031
Phone: (213) 225-5611, TWX: 910-321-4155, TLX: 181409,
FAX: (213) 225-4630. Fed. Stock Code H4-04569

Military Electronic Hookup Wire

MIL-W-16878/1

Type BU

For internal wiring of electronic equipment.
.010" wall vinyl primary insulation. No outer covering.
—54-degree C to +105-degree C, 600 V, R.M.S. (working).
Also available as NABOND.
Meets U/L Style 1061, and CSA S-R PVC.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
32	NB740U	7	40	.009	.028	179.0	0.70
30	NB738U	7	38	.012	.031	111.0	0.75
28	NB736U	7	36	.015	.034	69.0	1.0
26	NB1938U	19*	38	.019	.038	42.9	1.5
24	NB1936U	19*	36	.024	.043	26.8	2.0
22	NB1934U	19*	34	.030	.050	16.7	3.0
20	NB1932U	19*	32	.038	.057	10.5	4.5
18	NB1930U	19	30	.048	.068	6.57	6.5
16	NB1929U	19	29	.057	.077	4.85	9.0
14	NB1927U	19	27	.071	.091	3.05	14.0

*Also available in 7 strands

MIL-W-16878/17

Type BN

For internal wiring of electronic equipment.
Vinyl primary insulation with Nylon jacket overall.
—54-degree C to +115-degree C, 600 V, R.M.S. (working). Meets U/L Style 1006.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
32	NB740N	7	40	.009	.032	179.0	0.75
30	NB738N	7	38	.012	.036	111.0	1.0
28	NB736N	19	40	.015	.039	69.0	1.25
26	NB1938N	19*	38	.019	.044	42.9	1.75
24	NB1936N	19*	36	.024	.049	26.8	2.25
22	NB1934N	19*	34	.030	.056	16.7	3.25
20	NB1932N	19*	32	.038	.063	10.5	4.75
18	NB1930N	19	30	.048	.074	6.57	7.0
16	NB1929N	19	29	.057	.083	4.85	9.0
14	NB1927N	19	27	.071	.098	3.05	14.7

*Also available in 7 strands

MIL-W-16878/2

Type CU

For internal wiring of meters, panels & electronic equipment, .015" Wall Vinyl primary insulation (no outer covering).
—54° C to +105° C, 1000 Volts, R.M.S. (working).
Also available as NABOND.
Meets U/L Style 1007 and CSA TR-64.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
26	NC734U	7	34		.053	42.9	2.1
24	NC732U	7	32	.024	.058	26.8	2.75
22	NC1934U	19*	34	.030	.063	16.7	3.75
20	NC1932U	19*	32	.038	.072	10.5	5.50
18	NC1930U	19	30	.048	.082	6.57	8.0
16	NC1929U	19	29	.057	.090	4.85	10.0
14	NC1927U	19	27	.071	.104	3.05	15.0
12	NC1925U	19	25	.090	.124	1.92	24.0

*Also available in 7 strands

MIL-W-16878/3

Type DU

Resists the effect of salt water, aviation fuel, motor oil, ethylene glycol and alcohols (methyl or ethyl).
.031" wall vinyl primary insulation. No outer covering.
—54-degree C to +105-degree, 3000 V, R.M.S. (working). Meets U/L Style 1015 and CSA TR-32.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	ND732U	7	32	.024	.082	26.8	4.0
22	ND730U	7	30	.030	.090	16.7	5.2
20	ND728U	7	28	.038	.098	10.5	7.3
18	ND1930U	19	30	.048	.108	6.57	10.0
16	ND1929U	19	29	.057	.117	4.85	12.0
14	ND1927U	19	27	.071	.130	3.05	17.1
12	ND1925U	19	25	.090	.162	1.92	27.4
10	ND4927U	49	27	.111	.181	1.24	38.6
8	ND13329U	133	29	.167	.246	0.726	70.5
6	ND13327U	133	27	.210	.290	0.444	104.0

*Also available in 7 strands.

NOTE: THE ABOVE WIRES COME IN 10 STANDARD COLORS PLUS TRACERS ON SOLID COLORS.

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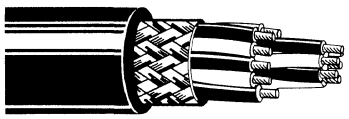
Miniature Signal & Control Cables Single Conductors (NX Series)



(NX1922SJ shown)

National Wire & Cable Corporation manufactures a complete line of MINIATURE low voltage signal and control cable. Available as cabled pairs or cabled singles, with optional overall shield. Conductors are stranded tinned copper with .010" wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type B. Insulated for 600 volts working voltage. (Also meets U.L. AWM Type 1061; 300 volt, 80°C.) All are coded using 10 standard colors plus stripes on white per MIL-STD-681.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape barrier under shields. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078; and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C. vinyl meeting MIL-I-631 Type F. All materials are self-extinguishing and fungus resistant. All items are U.L. LISTED STYLE 2343 COMPUTER CABLE; rated 80°C. (Higher temp. ratings apply for any non-U.L. service.)

U.L. and C.S.A. certification furnished only when requested.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

IN STOCK

MIL-SPEC U.L. LISTED COMPUTER GRADE STYLE 2343

For light duty, gray jacketed version of these cables in the U.L. Style 2464, see NQ Series on following pages.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage: Greater than 5000 volts AC RMS, 60 cps.

Capacitance: Nominal capacitance from a wire to all else in a cable ranges from 45. to 70. pf/ft. at 1. kc, depending on gauge and position.

Insulation Leakage: 200. megohms/1000 ft. min. @ 500. VDC from any conductor to all else in cable.

Sheath Leakage: 10. megohms/1000 ft. min. @ 500 VDC from shield or conductor group through sheath to ground.

Temperature Range: Suitable for continuous use from −40°C. to +105°C. (U.L. Service limited to +80°C.)

Bending Characteristics: All cables are suitable for flexing to a circle diameter of 6. cable diameters from +105°C. to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°C.

MULTICONDUCTOR STOCK CABLED SINGLES

Cond: 22, 24 are 7 strand; 20 AWG is 19 strand

UNSHIELDED							OVERALL SHIELDED							
PART NO.	NO. COND.	COND. AWG	COND. O.D.	JKT. WALL	NOM. O.D.	WEIGHT LB/M'	PART NO.	NO. COND.	COND. AWG	COND. O.D.	JKT. WALL	SHIELD AWG	NOM. O.D.	WEIGHT LB/M'
NX-524 J	5	24	.045	.062	.220	32 Lbs.	NX-524 SJ	5	24	.045	.062	36	.245	44 Lbs.
NX-724 J	7	24	.045	.062	.250	40 Lbs.	NX-724 SJ	7	24	.045	.062	36	.275	55 Lbs.
NX-1224J	12	24	.045	.062	.300	53 Lbs.	NX-1224SJ	12	24	.045	.062	36	.325	68 Lbs.
NX-1524J	15	24	.045	.062	.330	65 Lbs.	NX-1524SJ	15	24	.045	.062	36	.350	80 Lbs.
NX-1924J	19	24	.045	.062	.340	73 Lbs.	NX-1924SJ	19	24	.045	.062	36	.365	88 Lbs.
NX-2724J	27	24	.045	.062	.390	85 Lbs.	NX-2724SJ	27	24	.045	.062	36	.415	102 Lbs.
NX-3724J	37	24	.045	.062	.420	120 Lbs.	NX-3724SJ	37	24	.045	.062	36	.445	140 Lbs.
NX-4824J	48	24	.045	.062	.470	142 Lbs.	NX-4824SJ	48	24	.045	.062	36	.495	172 Lbs.
NX-6024J	60	24	.045	.062	.510	170 Lbs.	NX-6024SJ	60	24	.045	.062	36	.535	205 Lbs.
NX-522 J	5	22	.050	.062	.265	40 Lbs.	NX-522 SJ	5	22	.050	.062	36	.285	50 Lbs.
NX-722 J	7	22	.050	.062	.270	48 Lbs.	NX-722 SJ	7	22	.050	.062	36	.295	58 Lbs.
NX-1222J	12	22	.050	.062	.330	72 Lbs.	NX-1222SJ	12	22	.050	.062	36	.355	87 Lbs.
NX-1522J	15	22	.050	.062	.350	85 Lbs.	NX-1522SJ	15	22	.050	.062	36	.380	101 Lbs.
NX-1922J	19	22	.050	.062	.370	96 Lbs.	NX-1922SJ	19	22	.050	.062	36	.395	111 Lbs.
NX-2722J	27	22	.050	.062	.430	130 Lbs.	NX-2722SJ	27	22	.050	.062	36	.455	150 Lbs.
NX-3722J	37	22	.050	.062	.480	163 Lbs.	NX-3722SJ	37	22	.050	.062	34	.510	193 Lbs.
NX4822J	48	22	.050	.062	.530	210 Lbs.	NX-4822SJ	48	22	.050	.062	34	.560	245 Lbs.
NX-6022J	60	22	.050	.062	.570	255 Lbs.	NX-6022SJ	60	22	.050	.062	34	.600	295 Lbs.
NX-520 J	5	20	.057	.062	.275	49 Lbs.	NX-520 SJ	5	20	.057	.062	36	.300	59 Lbs.
NX-720 J	7	20	.057	.062	.290	59 Lbs.	NX-720 SJ	7	20	.057	.062	36	.315	69 Lbs.
NX-1220J	12	20	.057	.062	.360	90 Lbs.	NX-1220SJ	12	20	.057	.062	36	.385	105 Lbs.
NX-1520J	15	20	.057	.062	.390	110 Lbs.	NX-1520SJ	15	20	.057	.062	36	.415	137 Lbs.
NX-1920J	19	20	.057	.062	.410	128 Lbs.	NX-1920SJ	19	20	.057	.062	36	.435	158 Lbs.
NX-2720J	27	20	.057	.062	.490	166 Lbs.	NX-2720SJ	27	20	.057	.062	36	.515	196 Lbs.
NX-3720J	37	20	.057	.062	.520	220 Lbs.	NX-3720SJ	37	20	.057	.062	34	.550	255 Lbs.
NX-4820J	48	20	.057	.062	.580	275 Lbs.	NX-4820SJ	48	20	.057	.062	34	.610	320 Lbs.
NX-6020J	60	20	.057	.062	.640	335 Lbs.	NX-6020SJ	60	20	.057	.062	34	.670	385 Lbs.

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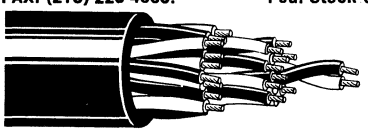

(NXP1924J shown)

Miniature Signal & Control Cables Twisted Pairs (NXP Series)

IN STOCK MIL-SPEC

U.L. LISTED COMPUTER GRADE STYLE 2343 & 2344

For light duty, gray jacketed version of these cables in the U.L. Style 2464, see NQ Series on following pages.

National Wire & Cable Corporation manufactures a complete line of MINIATURE low voltage signal and control cable. Available as cabled pairs or cabled singles, with optional overall shield. Conductors are stranded tinned copper with .010" wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type B. Insulated for 600 volts working voltage. (Also meets U.L. AWM Type 1061; 300 volt, 80°C.) All are coded using 10 standard colors plus stripes on whi) per table below.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape barrier under shields. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078; and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C. vinyl meeting MIL-I-631 Type F. All materials are self-extinguishing and fungus resistant. All items are U.L. LISTED STYLE 2343 COMPUTER CABLE; rated 80°C. (Higher temp. ratings apply for any non-U.L. service.)

U.L. and C.S.A. certification furnished only when requested.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Denotes U.L. Style 2344.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage: Greater than 5000 volts AC RMS, 60 cps.

Capacitance: Nominal capacitance from a wire to all else in a cable ranges from 45. to 70. pf/ft. at 1. kc, depending on gauge and position.

Insulation Leakage: 200. megohms/1000 ft. min. @ 500. VDC from any conductor to all else in cable.

Sheath Leakage: 10. megohms/1000 ft. min. @ 500 VDC from shield or conductor group through sheath to ground.

Temperature Range: Suitable for continuous use from −40°C. to +105°C. (U.L. Service limited to +80°C.)

Bending Characteristics: All cables are suitable for flexing to a circle diameter of 6. cable diameters from +105°C. to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°C.

Impedance: (24. AWG pairs) **Balanced: 87. ohms ±5%** **Unbalanced: 52. ohms ±5%**

MULTI-CONDUCTOR STOCK CABLED PAIRS

Cond: 22, 24 are 7 strand; 20 AWG is 19 strand

UNSHIELDED							OVERALL SHIELDED							
PART NO.	NO. PAIRS	COND. AWG	COND. O.D.	JKT. WALL	NOM. O.D.	WEIGHT LB/M'	PART NO.	NO. PAIRS	COND. AWG	COND. O.D.	JKT. WALL	SHLD. AWG	NOM. O.D.	WEIGHT LB/M'
NXP-524 J	5	24	.045	.062	.330	52 Lbs.	NXP-524 SJ	5	24	.045	.062	36	.355	67 Lbs.
NXP-724 J	7	24	.045	.062	.350	60 Lbs.	NXP-724 SJ	7	24	.045	.062	36	.375	75 Lbs.
NXP-1224J	12	24	.045	.062	.435	90 Lbs.	NXP-1224SJ	12	24	.045	.062	36	.460	115 Lbs.
NXP-1524J	15	24	.045	.062	.485	110 Lbs.	NXP-1524SJ	15	24	.045	.062	36	.510	140 Lbs.
NXP-1924J	19	24	.045	.062	.505	126 Lbs.	NXP-1924SJ	19	24	.045	.062	36	.530	161 Lbs.
NXP-2724J	27	24	.045	.062	.590	167 Lbs.	NXP-2724SJ	27	24	.045	.062	34	.620	211 Lbs.
NXP-3724J	37	24	.045	.062	.660	216 Lbs.	NXP-3724SJ	37	24	.045	.062	34	.690	266 Lbs.
NXP-4824J	48	24	.045	.062	.745	270 Lbs.	NXP-4824SJ	48	24	.045	.062	34	.775	330 Lbs.
NXP-6024J	60	24	.045	.062	.815	325 Lbs.	NXP-6024SJ*	60	24	.045	.062	34	.845	390 Lbs.
NXP-522 J	5	22	.050	.062	.365	56 Lbs.	NXP-522 SJ	5	22	.050	.062	36	.390	77 Lbs.
NXP-722 J	7	22	.050	.062	.390	82 Lbs.	NXP-722 SJ	7	22	.050	.062	36	.415	100 Lbs.
NXP-1222J	12	22	.050	.062	.470	120 Lbs.	NXP-1222SJ	12	22	.050	.062	36	.495	150 Lbs.
NXP-1522J	15	22	.050	.062	.545	145 Lbs.	NXP-1522SJ	15	22	.050	.062	34	.575	185 Lbs.
NXP-1922J	19	22	.050	.062	.550	170 Lbs.	NXP-1922SJ	19	22	.050	.062	34	.580	210 Lbs.
NXP-2722J	27	22	.050	.062	.640	230 Lbs.	NXP-2722SJ	27	22	.050	.062	34	.670	280 Lbs.
NXP-3722J	37	22	.050	.062	.750	300 Lbs.	NXP-3722SJ	37	22	.050	.062	34	.780	357 Lbs.
NXP-4822J*	48	22	.050	.080	.850	375 Lbs.	NXP-4822SJ*	48	22	.050	.080	34	.880	445 Lbs.
NXP-6022J*	60	22	.050	.080	.930	460 Lbs.	NXP-6022SJ*	60	22	.050	.080	34	.960	535 Lbs.
NXP-520 J	5	20	.057	.062	.395	82 Lbs.	NXP-520 SJ	5	20	.057	.062	36	.420	102 Lbs.
NXP-720 J	7	20	.057	.062	.440	108 Lbs.	NXP-720 SJ	7	20	.057	.062	36	.465	123 Lbs.
NXP-1220J	12	20	.057	.062	.540	163 Lbs.	NXP-1220SJ	12	20	.057	.062	34	.570	203 Lbs.
NXP-1520J	15	20	.057	.062	.600	196 Lbs.	NXP-1520SJ	15	20	.057	.062	34	.630	241 Lbs.
NXP-1920J	19	20	.057	.062	.630	235 Lbs.	NXP-1920SJ	19	20	.057	.062	34	.660	280 Lbs.
NXP-2720J	27	20	.057	.062	.745	320 Lbs.	NXP-2720SJ	27	20	.057	.062	34	.775	380 Lbs.
NXP-3720J	37	20	.057	.062	.820	420 Lbs.	NXP-3720SJ*	37	20	.057	.080	34	.850	490 Lbs.
NXP-4820J*	48	20	.057	.080	.950	530 Lbs.	NXP-4820SJ*	48	20	.057	.080	34	.980	605 Lbs.
NXP-6020J*	60	20	.057	.080	1.040	650 Lbs.	NXP-6020SJ*	60	20	.057	.080	34	1.070	735 Lbs.

COLOR CODING USED IN TWISTED PAIRS

PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS
1	White with Black	11	Black with Red	21	Brown with Green	31	Orange with Yellow	41	Green with Violet	51	Wht/Blk with Green
2	White with Brown	12	Black with Orange	22	Brown with Blue	32	Orange with Green	42	Green with Gray	52	Wht/Blk with Blue
3	White with Red	13	Black with Yellow	23	Brown with Violet	33	Orange with Blue	43	Blue with Violet	53	Wht/Blk with Violet
4	White with Orange	14	Black with Green	24	Brown with Gray	34	Orange with Violet	44	Blue with Grey	54	Wht/Ik with Gray
5	White with Yellow	15	Black with Blue	25	Red with Orange	35	Orange with Gray	45	Violet with Gray	55	Wht/Brn with Black
6	White with Green	16	Black with Violet	26	Red with Yellow	36	Yellow with Green	46	Wht/Blk with Black	56	Wht/Brn with Brown
7	White with Blue	17	Black with Gray	27	Red with Green	37	Yellow with Blue	47	Wht/Blk with Brown	57	Wht/Brn with Red
8	White with Violet	18	Brown with Red	28	Red with Blue	38	Yellow with Violet	48	Wht/Blk with Red	58	Wht/Brn with Orange
9	White with Gray	19	Brown with Orange	29	Red with Violet	39	Yellow with Gray	49	Wht/Blk with Orange	59	Wht/Brn with Yellow
10	Black with Brown	20	Brown with Yellow	30	Red with Gray	40	Green with Blue	50	Wht/Blk with Yellow	60	Wht/Brn with Green

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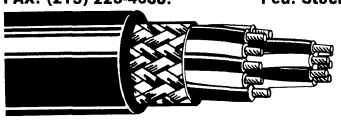
Heavy Duty Signal & Control Cables Single Conductors (NW Series)



(NW1918SJ shown)

IN STOCK

MIL-SPEC U.L. LISTED — STYLE 2343 & 2344

National Wire & Cable Corporation manufactures a complete line of multiple conductor control cable. Conductors are stranded tinned copper with 1/64" wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type C.* Insulated for 1000 volts working voltage. Color coded using 10 standard colors plus stripes on white per MIL-STD-681.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape serve over cable bundle. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078, and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C vinyl meeting MIL-I-631 Class F. All materials are self-extinguishing and fungus resistant. All cables are U. L. LISTED STYLE 2343; rated 80°C. (Higher temp. ratings apply to any non-U.L. service.) U.L. certification furnished only when requested.

Standard Putups: 100, 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

For applications in extreme environments, consult factory for alternative sheath materials.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage: Greater than 8000 volts AC RMS, 60 cps.

U.L. Voltage Rating: 300 volts RMS AC (appliance use). 600 volts RMS AC (electronic use).

Military Voltage Rating: 1000 volts RMS.

Capacitance: Nominal capacitance from a wire to all else in the cable ranges from 40 to 65 mmfd per ft., @ 1000 cps; dependent on gauge and position.

Insulation Leakage Res.: 200. megohms/1000 ft. min. at 500 VDC from any conductor to all else in cable.

Sheath Leakage Res.: 10. megohms/1000 ft. min. at 500 VDC from overall shield through sheath to outside world.

Usable Temp. Range: Suitable for continuous use from +105°C to −55°C.

Cold Bending Capability: All cables are suitable for flexing to a circle diam. of approx. 6 cable diameters from +105°C to −20°C; Recommended flex diameter should be greater than 20 cable diam. for flexing at −40°C. For continuous flexing applications consult factory.

* Insulated wires also meet U.L. style 1007 and CSA type TR-64.
† Denotes U.L. Style 2344.

Conductor sizes 22, 20, 18, 16, 14 & 12 gauge. 22 AWG is 7 strand. All others 19 strand.

UNSHIELDED						OVERALL SHIELDED						
PART NO.	NO. COND.	COND. AWG	JKT. THICK	NOM. O.D.	WEIGHT PER M'	PART NO.	NO. COND	COND AWG	T.C. SHIELD	JKT. THICK	NOM. O.D.	WEIGHT PER M'
NW-722 J	7	22	.060	.315	40 Lbs.	NW-722 SJ	7	22	No. 36	.060	.340	55 Lbs.
NW-1222J	12	22	.060	.385	70 Lbs.	NW-1222SJ	12	22	No. 34	.060	.410	90 Lbs.
NW-1922J	19	22	.060	.440	110 Lbs.	NW-1922SJ	19	22	No. 34	.060	.465	145 Lbs.
NW-2722J	27	22	.060	.510	160 Lbs.	NW-2722SJ	27	22	No. 34	.060	.535	200 Lbs.
NW-3722J	37	22	.060	.565	200 Lbs.	NW-3722SJ	37	22	No. 34	.060	.590	245 Lbs.
NW-4822J	48	22	.060	.635	245 Lbs.	NW-4822SJ	48	22	No. 34	.060	.660	300 Lbs.
NW-6022J	60	22	.060	.695	300 Lbs.	NW-6022SJ	60	22	No. 34	.060	.720	355 Lbs.
NW-7222J	72	22	.060	.755	360 Lbs.	NW-7222SJ	72	22	No. 34	.060	.780	425 Lbs.
NW-8822J	88	22	.060	.820	425 Lbs.	NW-8822SJ	88	22	No. 34	.080	.895†	500 Lbs.
NW-10222J	102	22	.080	.920†	485 Lbs.	NW-10222SJ	102	22	No. 34	.080	.945†	560 Lbs.
NW-720 J	7	20	.060	.340	50 Lbs.	NW-720 SJ	7	20	No. 34	.060	.365	68 Lbs.
NW-1220J	12	20	.060	.420	105 Lbs.	NW-1220SJ	12	20	No. 34	.060	.445	125 Lbs.
NW-1920J	19	20	.060	.485	160 Lbs.	NW-1920SJ	19	20	No. 34	.060	.510	195 Lbs.
NW-2720J	27	20	.060	.565	210 Lbs.	NW-2720SJ	27	20	No. 34	.060	.590	250 Lbs.
NW-3720J	37	20	.060	.630	280 Lbs.	NW-3720SJ	37	20	No. 34	.060	.655	325 Lbs.
NW-4820J	48	20	.060	.710	360 Lbs.	NW-4820SJ	48	20	No. 34	.060	.735	415 Lbs.
NW-6020J	60	20	.060	.775	435 Lbs.	NW-6020SJ	60	20	No. 34	.060	.800	500 Lbs.
NW-7220J	72	20	.080	.885†	485 Lbs.	NW-7220SJ	72	20	No. 34	.080	.910†	555 Lbs.
NW-8820J	88	20	.080	.960†	580 Lbs.	NW-8820SJ	88	20	No. 34	.080	1.035†	660 Lbs.
NW-10220J	102	20	.080	1.030†	670 Lbs.	NW-10220SJ	102	20	No. 34	.080	1.055†	750 Lbs.
NW-718 J	7	18	.060	.370	75 Lbs.	NW-718 SJ	7	18	No. 34	.060	.395	95 Lbs.
NW-1218J	12	18	.060	.460	135 Lbs.	NW-1218SJ	12	18	No. 34	.060	.485	170 Lbs.
NW-1918J	19	18	.060	.535	225 Lbs.	NW-1918SJ	19	18	No. 34	.060	.560	265 Lbs.
NW-2718J	27	18	.060	.625	300 Lbs.	NW-2718SJ	27	18	No. 34	.060	.650	350 Lbs.
NW-3718J	37	18	.060	.700	390 Lbs.	NW-3718SJ	37	18	No. 34	.060	.725	445 Lbs.
NW-4818J	48	18	.060	.790	510 Lbs.	NW-4818SJ	48	18	No. 34	.060	.815	575 Lbs.
NW-6018J	60	18	.080	.905†	600 Lbs.	NW-6018SJ	60	18	No. 34	.080	.930†	680 Lbs.
NW-7218J	72	18	.080	.985†	720 Lbs.	NW-7218SJ	72	18	No. 34	.080	1.010†	820 Lbs.
NW-716 J	7	16	.060	.395	95 Lbs.	NW-716 SJ	7	16	No. 34	.060	.420	125 Lbs.
NW-1216J	12	16	.060	.495	155 Lbs.	NW-1216SJ	12	16	No. 34	.060	.520	195 Lbs.
NW-1916J	19	16	.060	.575	230 Lbs.	NW-1916SJ	19	16	No. 34	.060	.600	275 Lbs.
NW-2716J	27	16	.060	.615	320 Lbs.	NW-2716SJ	27	16	No. 34	.060	.640	375 Lbs.
NW-3716J	37	16	.060	.755	430 Lbs.	NW-3716SJ	37	16	No. 34	.060	.780	500 Lbs.
NW-4816J	48	16	.080	.895†	625 Lbs.	NW-4816SJ	48	16	No. 34	.080	.920†	700 Lbs.
NW-6016J	60	16	.080	.975†	750 Lbs.	NW-6016SJ	60	16	No. 34	.080	1.000†	830 Lbs.
NW-714 J **	7	14	.060	.435	150 Lbs.	NW-714 SJ	7	14	No. 34	.060	.465	180 Lbs.
NW-1214J **	12	14	.060	.555	240 Lbs.	NW-1214SJ	12	14	No. 34	.060	.580	280 Lbs.
NW-1914J **	19	14	.060	.645	370 Lbs.	NW-1914SJ	19	14	No. 34	.060	.670	420 Lbs.
NW-2714J **	27	14	.060	.760	515 Lbs.	NW-2714SJ	27	14	No. 34	.060	.785	575 Lbs.
NW-512 J **	5	12	.060	.460	175 Lbs.	NW-512 SJ	5	12	No. 34	.060	.485	210 Lbs.
NW-712 J **	7	12	.060	.500	225 Lbs.	NW-712 SJ	7	12	No. 34	.060	.525	265 Lbs.
NW-1212J **	12	12	.060	.680	375 Lbs.	NW-1212SJ	12	12	No. 34	.060	.705	430 Lbs.
NW-1912J **	19	12	.060	.745	560 Lbs.	NW-1912SJ	19	12	No. 34	.060	.770	625 Lbs.

**Not listed under UL styles 2343 or 2344 in these gauges.

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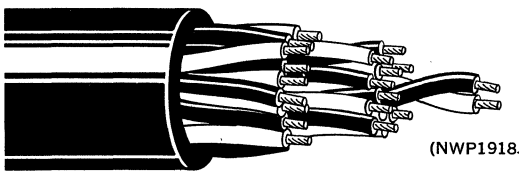
Phone: (213) 225-5611, TWX: 910-321-4155, TLX: 181409,
FAX: (213) 225-4630. Fed. Stock Code H4-04569

Heavy Duty Signal & Control Cables Twisted Pairs (NWP Series)



(NWP1918J shown)

IN STOCK MIL-SPEC

U.L. LISTED

Identical to National's NW-Series Cables except offered as twisted pairs.

National Wire & Cable Corporation manufactures a complete line of multiple pair control cables. Conductors are of tinned copper strand with 1/64" vinyl primary insulation for use up to 105°C per MIL-W-16878D Type C. Insulated for **1000** volts working voltage. Conductors are color coded using 10 standard basic colors, plus spiral tracers on white per table below.

All pairs are planetary cabled and contra-helically laid with a Mylar tape serve over the cable bundle. The overall jacket is a 105°C black vinyl plastic per MIL-I-631; or may be Neoprene to MIL-R-6855 Class 2 Grade 60 specification. (Neoprene at added cost and only available for non-U.L. applications).

SHIELDED CABLES

National Multiple Conductor SHIELDED CABLES are to the same specifications as above with addition of tinned copper braided shield over cable complex with 85-90% coverage to MIL-C-7078A.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage: Greater than 8,000 volts AC RMS, 60 cps.

Capacitance: Nominal capacitance wire to wire for a pair ranges from 27. to 40. mmfd/ft. Capacitance from both wires tied together measured to all else in common ranges from 35. to 60. mmfd/ft. dependent on gauge and position. Overall shield has negligible effect on W-W capacitance.

Insulation Leakage Res.: 200. megohms / 1000 ft. min. at 500 VDC from any conductor to all else in cable.

Sheath Leakage Res.: 10. megohms / 1000 ft. min. at 500 VDC from overall shield through sheath to outside world.

Usable Temp. Range: Suitable for continuous use from +105°C to −55°C.

Cold Bending Capability: All cables are suitable for flexing to a circle diam. of approx. 6 cable diameters from +105°C to −20°C; Recommended flex diameter should be greater than 20 cable diam. for flexing at −40°C. For continuous flexing applications consult factory.

UNSHIELDED OVERALL						OVERALL SHIELDED					
PART NO.	NO. OF PAIRS	COND. GA.	JKT. THICK	NOM. O.D.	WEIGHT	PART NO.	NO. OF PAIRS	COND. GA.	JKT. THICK	NOM. O.D.	WEIGHT
NWP-722 J	7	22	.045	.470	90 Lbs.	NWP-722 SJ	7	22	.045	.495	135 Lbs.
NWP-1222J	12	22	.050	.600	150 Lbs.	NWP-1222SJ	12	22	.050	.630	206 Lbs.
NWP-1922J	19	22	.050	.700	200 Lbs.	NWP-1922SJ	19	22	.050	.730	260 Lbs.
NWP-2722J	27	22	.055	.830	280 Lbs.	NWP-2722SJ	27	22	.055	.860	358 Lbs.
NWP-3722J	37	22	.060	.960	370 Lbs.	NWP-3722SJ	37	22	.060	.990	460 Lbs.
NWP-4822J	48	22	.060	1.080	470 Lbs.	NWP-4822SJ	48	22	.060	1.110	570 Lbs.
NWP-6022J	60	22	.060	1.200	560 Lbs.	NWP-6022SJ	60	22	.060	1.230	675 Lbs.
NWP-720 J	7	20	.050	.520	120 Lbs.	NWP-720 SJ	7	20	.050	.550	170 Lbs.
NWP-1220J	12	20	.050	.660	200 Lbs.	NWP-1220SJ	12	20	.050	.690	260 Lbs.
NWP-1920J	19	20	.050	.800	290 Lbs.	NWP-1920SJ	19	20	.050	.830	355 Lbs.
NWP-2720J	27	20	.060	.960	420 Lbs.	NWP-2720SJ	27	20	.060	.990	510 Lbs.
NWP-3720J	37	20	.060	1.100	500 Lbs.	NWP-3720SJ	37	20	.060	1.130	603 Lbs.
NWP-4820J	48	20	.060	1.240	620 Lbs.	NWP-4820SJ	48	20	.060	1.270	735 Lbs.
NWP-6020J	60	20	.060	1.380	750 Lbs.	NWP-6020SJ	60	20	.060	1.410	880 Lbs.
NWP-718 J	7	18	.050	.580	150 Lbs.	NWP-718 SJ	7	18	.050	.610	205 Lbs.
NWP-1218J	12	18	.050	.740	290 Lbs.	NWP-1218SJ	12	18	.050	.770	360 Lbs.
NWP-1918J	19	18	.060	.920	400 Lbs.	NWP-1918SJ	19	18	.060	.950	487 Lbs.
NWP-2718J	27	18	.060	1.080	560 Lbs.	NWP-2718SJ	27	18	.060	1.110	660 Lbs.
NWP-3718J	37	18	.060	1.240	750 Lbs.	NWP-3718SJ	37	18	.060	1.270	865 Lbs.
NWP-4818J	48	18	.060	1.400	900 Lbs.	NWP-4818SJ	48	18	.060	1.430	1030 Lbs.
NWP-716 J	7	16	.050	.640	180 Lbs.	NWP-716 SJ	7	16	.050	.670	240 Lbs.
NWP-1216J	12	16	.060	.840	300 Lbs.	NWP-1216SJ	12	16	.060	.870	377 Lbs.
NWP-1916J	19	16	.060	1.020	430 Lbs.	NWP-1916SJ	19	16	.060	1.050	520 Lbs.
NWP-2716J	27	16	.060	1.200	720 Lbs.	NWP-2716SJ	27	16	.060	1.230	830 Lbs.
NWP-3716J	37	16	.060	1.380	1000 Lbs.	NWP-3716SJ	37	16	.060	1.410	1330 Lbs.

COLOR CODING USED ON TWISTED PAIRS

PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS
1.	WHITE WITH BLACK	11.	BLACK WITH RED	21.	BROWN WITH GREEN	31.	ORANGE WITH YELLOW	41.	GREEN WITH VIOLET	51.	WHT/BLK WITH GREEN
2.	WHITE WITH BROWN	12.	BLACK WITH ORANGE	22.	BROWN WITH BLUE	32.	ORANGE WITH GREEN	42.	GREEN WITH GRAY	52.	WHT/BLK WITH BLUE
3.	WHITE WITH RED	13.	BLACK WITH YELLOW	23.	BROWN WITH VIOLET	33.	ORANGE WITH BLUE	43.	BLUE WITH VIOLET	53.	WHT/BLK WITH VIOLET
4.	WHITE WITH ORANGE	14.	BLACK WITH GREEN	24.	BROWN WITH GRAY	34.	ORANGE WITH VIOLET	44.	BLUE WITH GREY	54.	WHT/BLK WITH GRAY
5.	WHITE WITH YELLOW	15.	BLACK WITH BLUE	25.	RED WITH ORANGE	35.	ORANGE WITH GRAY	45.	VIOLET WITH GRAY	55.	WHT/BRN WITH BLACK
6.	WHITE WITH GREEN	16.	BLACK WITH VIOLET	26.	RED WITH YELLOW	36.	YELLOW WITH GREEN	46.	WHT/BLK WITH BLACK	56.	WHT/BRN WITH BROWN
7.	WHITE WITH BLUE	17.	BLACK WITH GRAY	27.	RED WITH GREEN	37.	YELLOW WITH BLUE	47.	WHT/BLK WITH BROWN	57.	WHT/BRN WITH RED
8.	WHITE WITH VIOLET	18.	BROWN WITH RED	28.	RED WITH BLUE	38.	YELLOW WITH VIOLET	48.	WHT/BLK WITH RED	58.	WHT/BRN WITH ORANGE
9.	WHITE WITH GRAY	19.	BROWN WITH ORANGE	29.	RED WITH VIOLET	39.	YELLOW WITH GRAY	49.	WHT/BLK WITH ORANGE	59.	WHT/BRN WITH YELLOW
10.	BLACK WITH BROWN	20.	BROWN WITH YELLOW	30.	RED WITH GRAY	40.	GREEN WITH BLUE	50.	WHT/BLK WITH YELLOW	60.	WHT/BRN WITH GREEN

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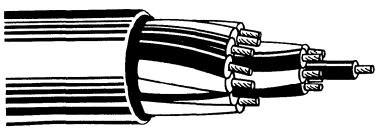
Phone: (213) 225-5611, TWX: 910-321-4155. TLX: 181409,
FAX: (213) 225-4630. Fed. Stock Code H4-04569

Miniature Signal & Control Cables Single Conductors (NQ Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQ1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

GRAY PVC JACKET

National Wire & Cable Corporation manufactures a complete line of highly flexible micro-miniature low-voltage instrument control cable. These are available as cabled pairs or singles, with optional overall shield of either foil with drain or a braided shield. Stocked with braided shields.

Conductors are stranded tinned copper with .010" wall of tough extruded polyvinyl chloride primary insulation, rated for 300 volt use at +80°C under U. L. listed style 1061.* All are color coded using ten standard colors plus white with stripes per MIL-STD-681. Coded pairs use the same sequence as type NXP and NWP.

Conductors are planetary cabled and helically laid for optimum flexibility, with a barrier under braids. Shielded cables have a tinned copper braid of 90% coverage per MIL-C-7078, with braid angles below 40° for easy pushback; or have a 100% coverage foil shield in intimate contact with a drain wire for easy termination. See Section 3 of our master catalog for relative shield effectiveness.

Outer jacket is highly flexible abrasion-resistant gray polyvinyl chloride thermoplastic, meeting the requirements of U.L. listed style 2464.**

Military certification furnished only when requested.
All materials are flame retardant and fungus resistant.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Wire also meets MIL-W-16878 type B, rated 600 volts, +105°C.

TECHNICAL DATA (all cables)

Insulation breakdown voltage:	Greater than 3000 volts AC RMS, 60cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 pf/ft at 1kc, depending on gauge and position.
Insulation Leakage:	200 megohms/1000 feet minimum @ 500VDC from conductor to all else in cable.
Sheath Leakage:	10 megohms/1000 feet minimum @ 500VDC from shield or conductor group through sheath to ground.
Temperature Range:	U.L. rating: +80°C per U.L. style 2464. Military: Continuous use from −40°C to +105°C.
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6 cable diameters from +105°C to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°. For continuous flexing applications consult the factory.
Foil Shielded Cables:	The nominal overall diameter of foil shielded cables will be .006" greater than the non-shielded cables of the same conductor count and wire size.
Characteristic Impedance: (NQP Paired Cables)	Ranges from 150 ohms to 45 ohms, dependent on wire size (AWG), geometry and drive method. Consult our technical staff for data on specific cable types.

MULTI-CONDUCTOR STOCK CABLED SINGLES

Conductor sizes 28, 26, 24, 22 are 7 strand. All others 19 strand.

UNSHIELDED CABLES							OVERALL SHIELDED CABLES						
Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'	Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQ-228 J	2	28	.034	.031	.135	8	NQ-228 SJ	2	28	.034	.031	.159	16
NQ-328 J	3	28	.034	.031	.142	9	NQ-328 SJ	3	28	.034	.031	.165	17
NQ-428 J	4	28	.034	.031	.150	11	NQ-428 SJ	4	28	.034	.031	.173	20
NQ-528 J	5	28	.034	.031	.161	12	NQ-528 SJ	5	28	.034	.031	.184	21
NQ-628 J	6	28	.034	.031	.171	13	NQ-628 SJ	6	28	.034	.031	.194	23
NQ-728 J	7	28	.034	.031	.171	14	NQ-728 SJ	7	28	.034	.031	.194	24
NQ-828 J	8	28	.034	.031	.196	19	NQ-828 SJ	8	28	.034	.031	.219	31
NQ-928 J	9	28	.034	.031	.206	22	NQ-928 SJ	9	28	.034	.031	.229	35
NQ-1028 J	10	28	.034	.031	.206	23	NQ-1028SJ	10	28	.034	.031	.229	36
NQ-1228 J	12	28	.034	.031	.212	25	NQ-1228SJ	12	28	.034	.031	.235	38
NQ-1528 J	15	28	.034	.031	.231	28	NQ-1528SJ	15	28	.034	.031	.254	42
NQ-1928 J	19	28	.034	.031	.241	33	NQ-1928SJ	19	28	.034	.031	.264	48
NQ-2728 J	27	28	.034	.031	.282	42	NQ-2728SJ	27	28	.034	.031	.305	60
NQ-3728 J	37	28	.034	.031	.311	55	NQ-3728SJ	37	28	.034	.031	.333	75
NQ-226 J	2	26	.038	.031	.144	9	NQ-226 SJ	2	26	.038	.031	.167	17
NQ-326 J	3	26	.038	.031	.150	11	NQ-326 SJ	3	26	.038	.031	.173	20
NQ-426 J	4	26	.038	.031	.160	13	NQ-426 SJ	4	26	.038	.031	.183	22
NQ-526 J	5	26	.038	.031	.171	15	NQ-526 SJ	5	26	.038	.031	.194	25
NQ-626 J	6	26	.038	.031	.183	17	NQ-626 SJ	6	26	.038	.031	.205	28
NQ-726 J	7	26	.038	.031	.183	18	NQ-726 SJ	7	26	.038	.031	.205	29
NQ-826 J	8	26	.038	.031	.210	23	NQ-826 SJ	8	26	.038	.031	.233	36
NQ-926 J	9	26	.038	.031	.222	25	NQ-926 SJ	9	26	.038	.031	.245	39
NQ-1026 J	10	26	.038	.031	.222	26	NQ-1026SJ	10	26	.038	.031	.245	40
NQ-1226 J	12	26	.038	.031	.228	30	NQ-1226SJ	12	26	.038	.031	.251	44
NQ-1526 J	15	26	.038	.031	.249	35	NQ-1526SJ	15	26	.038	.031	.272	51
NQ-1926 J	19	26	.038	.031	.261	42	NQ-1926SJ	19	26	.038	.031	.284	58
NQ-2726 J	27	26	.038	.031	.306	55	NQ-2726SJ	27	26	.038	.031	.329	75
NQ-3726 J	37	26	.038	.031	.339	70	NQ-3726SJ	37	26	.038	.031	.362	92
NQ-4826 J	48	26	.038	.031	.384	92	NQ-4826SJ	48	26	.038	.031	.407	117

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(continued on following page)

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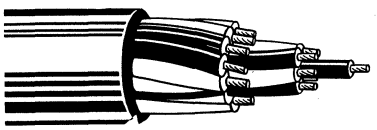
Miniature Signal & Control Cables Single Conductors (NQ Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQ1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

MULTI-CONDUCTOR STOCK CABLED SINGLES continued from previous page.

UNSHIELDED CABLES

Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQ-224 J	2	24	.043	.031	.154	11
NQ-324 J	3	24	.043	.031	.161	13
NQ-424 J	4	24	.043	.031	.172	15
NQ-524 J	5	24	.043	.031	.185	18
NQ-624 J	6	24	.043	.031	.198	21
NQ-724 J	7	24	.043	.031	.198	23
NQ-824 J	8	24	.043	.031	.229	27
NQ-924 J	9	24	.043	.031	.242	30
NQ-1024 J	10	24	.043	.031	.242	32
NQ-1224 J	12	24	.043	.031	.249	37
NQ-1524 J	15	24	.043	.031	.273	44
NQ-1924 J	19	24	.043	.031	.286	53
NQ-2724 J	27	24	.043	.031	.337	70
NQ-3724 J	37	24	.043	.031	.374	93
NQ-4824 J	48	24	.043	.031	.425	120
NQ-6024 J	60	24	.043	.031	.462	145
NQ-222 J	2	22	.050	.031	.166	13
NQ-322 J	3	22	.050	.031	.174	17
NQ-422 J	4	22	.050	.031	.186	20
NQ-522 J	5	22	.050	.031	.201	25
NQ-622 J	6	22	.050	.031	.216	28
NQ-722 J	7	22	.050	.031	.216	31
NQ-822 J	8	22	.050	.031	.251	36
NQ-922 J	9	22	.050	.031	.266	40
NQ-1022 J	10	22	.050	.031	.266	43
NQ-1222 J	12	22	.050	.031	.274	50
NQ-1522 J	15	22	.050	.031	.301	60
NQ-1922 J	19	22	.050	.031	.316	73
NQ-2722 J	27	22	.050	.031	.374	100
NQ-3722 J	37	22	.050	.031	.416	142
NQ-4822 J	48	22	.050	.031	.474	169
NQ-6022 J	60	22	.050	.031	.590	210
NQ-220 J	2	20	.057	.031	.182	17
NQ-320 J	3	20	.057	.031	.191	23
NQ-420 J	4	20	.057	.031	.205	28
NQ-520 J	5	20	.057	.031	.223	33
NQ-620 J	6	20	.057	.031	.240	39
NQ-720 J	7	20	.057	.031	.240	43
NQ-820 J	8	20	.057	.031	.281	51
NQ-920 J	9	20	.057	.031	.298	55
NQ-1020 J	10	20	.057	.031	.288	60
NQ-1220 J	12	20	.057	.031	.307	70
NQ-1520 J	15	20	.057	.031	.339	85
NQ-1920 J	19	20	.057	.031	.356	103
NQ-2720 J	27	20	.057	.031	.423	143
NQ-3720 J	37	20	.057	.031	.472	190
NQ-218 J	2	18	.068	.031	.202	23
NQ-318 J	3	18	.068	.031	.213	29
NQ-418 J	4	18	.068	.031	.229	37
NQ-518 J	5	18	.068	.031	.250	44
NQ-618 J	6	18	.068	.031	.270	52
NQ-718 J	7	18	.068	.031	.270	59
NQ-818 J	8	18	.068	.031	.318	68
NQ-918 J	9	18	.068	.031	.338	75
NQ-1018 J	10	18	.068	.031	.338	82
NQ-1218 J	12	18	.068	.031	.349	96
NQ-1518 J	15	18	.068	.031	.386	117
NQ-1918 J	19	18	.068	.031	.406	144
NQ-2718 J	27	18	.068	.031	.484	206

OVERALL SHIELDED CABLES

Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQ-224 SJ	2	24	.043	.031	.177	20
NQ-324 SJ	3	24	.043	.031	.184	22
NQ-424 SJ	4	24	.043	.031	.195	25
NQ-524 SJ	5	24	.043	.031	.208	29
NQ-624 SJ	6	24	.043	.031	.221	33
NQ-724 SJ	7	24	.043	.031	.221	35
NQ-824 SJ	8	24	.043	.031	.252	41
NQ-924 SJ	9	24	.043	.031	.265	45
NQ-1024SJ	10	24	.043	.031	.265	47
NQ-1224SJ	12	24	.043	.031	.272	53
NQ-1524SJ	15	24	.043	.031	.296	61
NQ-1924SJ	19	24	.043	.031	.309	71
NQ-2724SJ	27	24	.043	.031	.360	92
NQ-3724SJ	37	24	.043	.031	.397	118
NQ-4824SJ	48	24	.043	.031	.453	148
NQ-6024SJ	60	24	.043	.031	.490	176
NQ-222 SJ	2	22	.050	.031	.189	23
NQ-322 SJ	3	22	.050	.031	.197	27
NQ-422 SJ	4	22	.050	.031	.209	31
NQ-522 SJ	5	22	.050	.031	.224	37
NQ-622 SJ	6	22	.050	.031	.239	41
NQ-722 SJ	7	22	.050	.031	.239	44
NQ-822 SJ	8	22	.050	.031	.274	52
NQ-922 SJ	9	22	.050	.031	.289	57
NQ-1022SJ	10	22	.050	.031	.289	60
NQ-1222SJ	12	22	.050	.031	.297	67
NQ-1522SJ	15	22	.050	.031	.324	79
NQ-1922SJ	19	22	.050	.031	.339	93
NQ-2722SJ	27	22	.050	.031	.397	125
NQ-3722SJ	37	22	.050	.031	.434	169
NQ-4822SJ	48	22	.050	.031	.502	201
NQ-6022SJ	60	22	.050	.031	.618	245
NQ-220 SJ	2	20	.057	.031	.205	28
NQ-320 SJ	3	20	.057	.031	.214	35
NQ-420 SJ	4	20	.057	.031	.228	41
NQ-520 SJ	5	20	.057	.031	.246	47
NQ-620 SJ	6	20	.057	.031	.263	54
NQ-720 SJ	7	20	.057	.031	.263	58
NQ-820 SJ	8	20	.057	.031	.304	69
NQ-920 SJ	9	20	.057	.031	.321	74
NQ-1020SJ	10	20	.057	.031	.321	79
NQ-1220SJ	12	20	.057	.031	.330	90
NQ-1520SJ	15	20	.057	.031	.362	107
NQ-1920SJ	19	20	.057	.031	.379	126
NQ-2720SJ	27	20	.057	.031	.451	171
NQ-3720SJ	37	20	.057	.031	.500	221
NQ-218 SJ	2	18	.068	.031	.225	35
NQ-318 SJ	3	18	.068	.031	.236	42
NQ-418 SJ	4	18	.068	.031	.252	51
NQ-518 SJ	5	18	.068	.031	.273	60
NQ-618 SJ	6	18	.068	.031	.293	69
NQ-718 SJ	7	18	.068	.031	.293	76
NQ-818 SJ	8	18	.068	.031	.341	88
NQ-918 SJ	9	18	.068	.031	.361	97
NQ-1018SJ	10	18	.068	.031	.361	104
NQ-1218SJ	12	18	.068	.031	.372	119
NQ-1518SJ	15	18	.068	.031	.409	142
NQ-1918SJ	19	18	.068	.031	.434	171
NQ-2718SJ	27	18	.068	.031	.513	238

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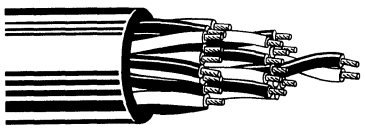
Dept. EM, 136 San Fernando Rd., Los Angeles, CA 90031
Phone: (213) 225-5611, TWX: 910-321-4155. TLX: 181409,
FAX: (213) 225-4630. Fed. Stock Code H4-04569

Miniature Signal & Control Cables Twisted Pairs (NQP Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQP1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

GRAY PVC JACKET

National Wire & Cable Corporation manufactures a complete line of highly flexible micro-miniature low-voltage instrument control cable. These are available as cabled pairs or singles, with optional overall shield of either foil with drain or a braided shield. Stocked with braided shields.

Conductors are stranded tinned copper with .010" wall of tough extruded polyvinyl chloride primary insulation, rated for 300 volt use at +80°C under U. L. listed style 1061.* All are color coded using ten standard colors plus white with stripes per MIL-STD-681. Coded pairs use the same sequence as type NXP and NWP.

Conductors are planetary cabled and helically laid for optimum flexibility, with a barrier under braids. Shielded cables have a tinned copper braid of 90% coverage per MIL-C-7078, with braid angles below 40° for easy pushback; or have a 100% coverage foil shield in intimate contact with a drain wire for easy termination. See Section 3 of our master catalog for relative shield effectiveness.

Outer jacket is highly flexible abrasion-resistant gray polyvinyl chloride thermoplastic, meeting the requirements of U.L. listed style 2464.**

Military certification furnished only when requested.

All materials are flame retardant and fungus resistant.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Wire also meets MIL-W-16878 type B, rated 600 volts, +105°C.

** Jacket material is military rated for +105°C; meets MIL-I-631, Class F.

TECHNICAL DATA (all cables)

Insulation breakdown voltage:	Greater than 3000 volts AC RMS, 60cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 pf/ft at 1kc, depending on gauge and position.
Insulation Leakage:	200 megohms/1000 feet minimum @ 500VDC from conductor to all else in cable.
Sheath Leakage:	10 megohms/1000 feet minimum @ 500VDC from shield or conductor group through sheath to ground.
Temperature Range:	U.L. rating: +80°C per U.L. style 2464. Military: Continuous use from −40°C to +105°C.
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6 cable diameters from +105°C to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°. For continuous flexing applications consult the factory.
Foil Shielded Cables:	The nominal overall diameter of foil shielded cables will be .006" greater than the non-shielded cables of the same conductor count and wire size.
Characteristic Impedance: (NQP Paired Cables)	Ranges from 150 ohms to 45 ohms, dependent on wire size (AWG), geometry and drive method. Consult our technical staff for data on specific cable types.

MULTI-CONDUCTOR STOCK CABLED PAIRS

UNSHIELDED CABLES

No. Part	No. of Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O/A Diam.	LB/M' Wght.
NQP- 228J	2	28	.034	.031	.206	15
NQP- 328J	3	28	.034	.031	.217	16
NQP- 428J	4	28	.034	.031	.234	20
NQP- 528J	5	28	.034	.031	.255	23
NQP- 628J	6	28	.034	.031	.276	29
NQP- 728J	7	28	.034	.031	.276	28
NQP- 828J	8	28	.034	.031	.325	34
NQP- 928J	9	28	.034	.031	.346	41
NQP-1028J	10	28	.034	.031	.346	39
NQP-1228J	12	28	.034	.031	.357	43
NQP-1528J	15	28	.034	.031	.395	55
NQP-1928J	19	28	.034	.031	.416	61
NQP- 226J	2	26	.038	.031	.222	20
NQP- 326J	3	26	.038	.031	.234	21
NQP- 426J	4	26	.038	.031	.253	26
NQP- 526J	5	26	.038	.031	.277	34
NQP- 626J	6	26	.038	.031	.300	37
NQP- 726J	7	26	.038	.031	.300	38
NQP- 826J	8	26	.038	.031	.355	52
NQP- 926J	9	26	.038	.031	.370	60
NQP-1026J	10	26	.038	.031	.370	51
NQP-1226J	12	26	.038	.031	.382	59
NQP-1526J	15	26	.038	.031	.420	75
NQP-1926J	19	26	.038	.031	.441	85
NQP-2726J	27	26	.038	.031	.530	115

OVERALL SHIELDED CABLES

Part No.	Pairs No. of	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O/A Diam.	LB/M' Wght.
NQP- 228SJ	2	28	.034	.031	.229	28
NQP- 328SJ	3	28	.034	.031	.240	29
NQP- 428SJ	4	28	.034	.031	.257	35
NQP- 528SJ	5	28	.034	.031	.278	37
NQP- 628SJ	6	28	.034	.031	.299	46
NQP- 728SJ	7	28	.034	.031	.299	45
NQP- 828SJ	8	28	.034	.031	.348	55
NQP- 928SJ	9	28	.034	.031	.369	63
NQP-1028SJ	10	28	.034	.031	.369	61
NQP-1228SJ	12	28	.034	.031	.380	66
NQP-1528SJ	15	28	.034	.031	.423	81
NQP-1928SJ	19	28	.034	.031	.444	88
NQP- 226SJ	2	26	.038	.031	.245	34
NQP- 326SJ	3	26	.038	.031	.257	36
NQP- 426SJ	4	26	.038	.031	.276	42
NQP- 526SJ	5	26	.038	.031	.300	52
NQP- 626SJ	6	26	.038	.031	.323	56
NQP- 726SJ	7	26	.038	.031	.323	57
NQP- 826SJ	8	26	.038	.031	.378	75
NQP- 926SJ	9	26	.038	.031	.393	85
NQP-1026SJ	10	26	.038	.031	.393	76
NQP-1226SJ	12	26	.038	.031	.405	84
NQP-1526SJ	15	26	.038	.031	.448	103
NQP-1926SJ	19	26	.038	.031	.469	115
NQP-2726SJ	27	26	.038	.031	.558	152

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(continued on following page)

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Dept. EM, 136 San Fernando Rd., Los Angeles, CA 90031
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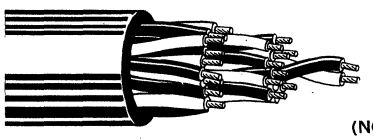
FAX: (213) 225-4630. Fed. Stock Code H4-04569

Miniature Signal & Control Cables Twisted Pairs (NQP Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQP1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

MULTI-CONDUCTOR STOCK CABLED PAIRS continued from previous page.

UNSHIELDED CABLES

Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQP- 224J	2	24	.043	.031	.216	24
NQP- 324J	3	24	.043	.031	.237	26
NQP- 424J	4	24	.043	.031	.256	32
NQP- 524J	5	24	.043	.031	.280	40
NQP- 624J	6	24	.043	.031	.312	46
NQP- 724J	7	24	.043	.031	.312	47
NQP- 824J	8	24	.043	.031	.365	65
NQP- 924J	9	24	.043	.031	.383	75
NQP-1024J	10	24	.043	.031	.383	65
NQP-1224J	12	24	.043	.031	.395	74
NQP-1524J	15	24	.043	.031	.444	95
NQP-1924J	19	24	.043	.031	.462	108
NQP-2724J	27	24	.043	.031	.554	141
NQP- 222J	2	22	.050	.031	.236	30
NQP- 322J	3	22	.050	.031	.260	33
NQP- 422J	4	22	.050	.031	.282	42
NQP- 522J	5	22	.050	.031	.309	51
NQP- 622J	6	22	.050	.031	.346	62
NQP- 722J	7	22	.050	.031	.346	64
NQP- 822J	8	22	.050	.031	.406	87
NQP- 922J	9	22	.050	.031	.426	100
NQP-1022J	10	22	.050	.031	.426	88
NQP-1222J	12	22	.050	.031	.440	102
NQP-1522J	15	22	.050	.031	.496	131
NQP-1922J	19	22	.050	.031	.516	143
NQP-2722J	27	22	.050	.031	.620	198
NQP- 220J	2	20	.057	.031	.263	39
NQP- 320J	3	20	.057	.031	.292	45
NQP- 420J	4	20	.057	.031	.312	57
NQP- 520J	5	20	.057	.031	.348	70
NQP- 620J	6	20	.057	.031	.391	85
NQP- 720J	7	20	.057	.031	.391	89
NQP- 820J	8	20	.057	.031	.460	121
NQP- 920J	9	20	.057	.031	.484	139
NQP-1020J	10	20	.057	.031	.484	124
NQP-1220J	12	20	.057	.031	.500	144
NQP-1520J	15	20	.057	.031	.565	176
NQP-1920J	19	20	.057	.031	.588	205
NQP- 218J	2	18	.068	.031	.297	52
NQP- 318J	3	18	.068	.031	.330	60
NQP- 418J	4	18	.068	.031	.360	77
NQP- 518J	5	18	.068	.031	.396	96
NQP- 618J	6	18	.068	.031	.447	117
NQP- 718J	7	18	.068	.031	.447	122
NQP-1218J	12	18	.068	.031	.575	188

OVERALL SHIELDED CABLES

Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQP- 224SJ	2	24	.043	.031	.239	39
NQP- 324SJ	3	24	.043	.031	.260	42
NQP- 424SJ	4	24	.043	.031	.279	50
NQP- 524SJ	5	24	.043	.031	.303	59
NQP- 624SJ	6	24	.043	.031	.335	67
NQP- 724SJ	7	24	.043	.031	.335	68
NQP- 824SJ	8	24	.043	.031	.390	91
NQP- 924SJ	9	24	.043	.031	.406	102
NQP-1024SJ	10	24	.043	.031	.406	92
NQP-1224SJ	12	24	.043	.031	.418	102
NQP-1524SJ	15	24	.043	.031	.467	127
NQP-1924SJ	19	24	.043	.031	.485	142
NQP-2724SJ	27	24	.043	.031	.577	185
NQP- 222SJ	2	22	.050	.031	.259	47
NQP- 322SJ	3	22	.050	.031	.283	51
NQP- 422SJ	4	22	.050	.031	.305	62
NQP- 522SJ	5	22	.050	.031	.332	73
NQP- 622SJ	6	22	.050	.031	.369	86
NQP- 722SJ	7	22	.050	.031	.369	88
NQP- 822SJ	8	22	.050	.031	.430	116
NQP- 922SJ	9	22	.050	.031	.449	131
NQP-1022SJ	10	22	.050	.031	.449	119
NQP-1222SJ	12	22	.050	.031	.463	134
NQP-1522SJ	15	22	.050	.031	.519	167
NQP-1922SJ	19	22	.050	.031	.539	180
NQP-2722SJ	27	22	.050	.031	.645	245
NQP- 220SJ	2	20	.057	.031	.286	58
NQP- 320SJ	3	20	.057	.031	.315	65
NQP- 420SJ	4	20	.057	.031	.335	79
NQP- 520SJ	5	20	.057	.031	.371	95
NQP- 620SJ	6	20	.057	.031	.414	112
NQP- 720SJ	7	20	.057	.031	.414	116
NQP- 820SJ	8	20	.057	.031	.483	154
NQP- 920SJ	9	20	.057	.031	.507	174
NQP-1020SJ	10	20	.057	.031	.507	159
NQP-1220SJ	12	20	.057	.031	.525	181
NQP-1520SJ	15	20	.057	.031	.588	216
NQP-1920SJ	19	20	.057	.031	.615	248
NQP- 218SJ	2	18	.068	.031	.320	74
NQP- 318SJ	3	18	.068	.031	.353	83
NQP- 418SJ	4	18	.068	.031	.383	103
NQP- 518SJ	5	18	.068	.031	.420	124
NQP- 618SJ	6	18	.068	.031	.475	148
NQP- 718SJ	7	18	.068	.031	.475	153
NQP-1218SJ	12	18	.068	.031	.600	230

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Dept. EM, 136 San Fernando Rd., Los Angeles, CA 90031
Phone: (213) 225-5611, TWX: 910-321-4155, TLX: 181409,
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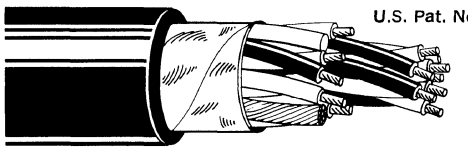
IN STOCK

Digital Data Transmission Cables

(D-200 Series)



U.S. Pat. No. 3489844

Grey (Extra Flexible) or Black Vinyl Jackets
D-200 XX (XX designates number of pairs)
D-200 XXRF (RF designates braided shield over aluminum mylar foil shield) △

LOW VOLTAGE COMPUTER CABLE

THE D-200 SERIES CABLES ARE MULTIPLE-PAIR FLEXIBLE CABLES DESIGNED FOR TRANSMISSION OF DIGITAL PULSE SIGNALS BETWEEN A COMPUTER AND ITS PERIPHERAL EQUIPMENT.

DESIGN FEATURES OF THE D-200 SERIES DIGITAL DATA CABLE

Unlike conventional flexible cable construction, the primary features offered by the D-200 series data cable are the high and accurately controlled characteristic impedance of every pair, regardless of its position in the cable and special geometry chosen to reduce crosstalk.

ADVANTAGES

1. Less crosstalk and noise from mismatched loads, due to proper matching.
2. Uniform light loading on drivers allows direct I.C. drive, accurate prediction of current demands from power supply, and driver power dissipation.
3. Proper load match reduces re-flection and inversion noise where driver end is not matched to line. (Typical of TTL.)
4. Special geometry and pair construction provides exceptionally close capacitance balance between pair wires, reducing differential crosstalk.

USAGE

We recommend use of balanced drive and differential-input line receivers for lowest crosstalk and best pulse reproduction, utilizing the 110 ohm balanced impedance of the pairs. With such a system, TTL speeds have been used on D-200 cable at 1 mc data rates over 1000 ft.

Where the system is single-ended drive and receive, all pairs exhibit the 78 ohm impedance. Since these line receivers cannot discriminate between noise and the desired signal, crosstalk limits the cable distance over which transmission is reliable. Typical runs for DTL having 50 ns risetimes are 200 ft. Where risetimes can be slowed to longer than 100 ns, run lengths are practical to 500 ft. Without differential line reception, runs over 500 ft are not recommended for D-200 cable due to external noise aspects.

The D-210 series cable are recommended for high noise or long-run application. (Utilizing individual shields.)

Although use of balanced drive and differential line reception will avoid most noise problems, there are some installations where the expected external noise is unknown but assumed to be very great. Here, the use of data cables having individually-shielded pairs may be considered as conservative engineering practice. The assurance of a lower received noise may justify the increased size, cost and rise-time.

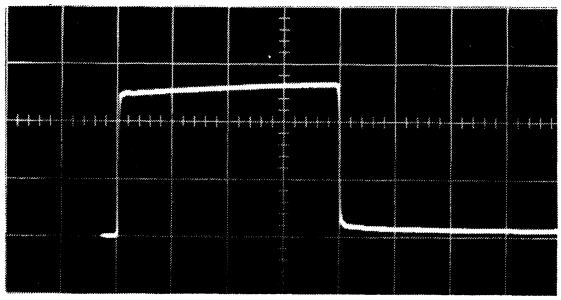
For these high noise-long run applications, Dynatronic Cable Engineering Corp has developed the D-210 series data cables. Electrical performance is essentially the same as the D-200 series cables, which use only an overall shield. △ An overall tinned-copper shield braid may be specified on either series by the suffix -RF on the part number. Standard D-200 shield is aluminum-mylar foil.

For runs of 1000-5000 ft. or where extra-fast output pulse risetime is required, we offer the D-220 series cable: a larger version of the D-200 series having improved transmission properties with sufficient mechanical strength for long pulls in conduit. Consult factory for technical data.

PULSE TRANSMISSION LOSS in D-series data cables causes a moderate amplitude loss, with definite rounding of the leading and trailing edges from 50% to 90% amplitude. The photos below (for a 1.25 megabit clock rate) show typical waveforms. The D-220 and D-222 series cables offer even lower losses than the D-200 or D-210 cables for long-run or fast-clocked applications.

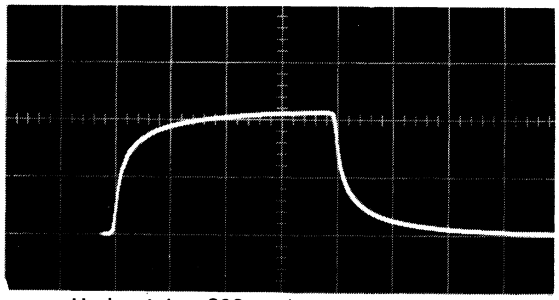
Contact our factory engineering staff for detailed pulse-shape versus distance information, or for special applications.

INPUT PULSE



Horizontal: 200. ns/cm
Vertical : 2. volts/cm

OUTPUT PULSE at 500.FT.



Horizontal: 200. ns/cm
Vertical : 2. volts/cm

We invite your telephone inquiries for technical information on data cables. Contact Mr. Frank Motley or Sam Audish in ou Engineering Dept.

NATIONAL WIRE AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, CA 90031
Phone: (213) 225-5611, TWX: 910-321-4155, TLX: 181409,
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Manufactured by our affiliate, Dynatronic Cable Engineering Corp.

Digital Data Transmission Cables (D-200 Series continued)

UL AWM STYLE 2835
Low Voltage Computer Cable

STANDARD DATA CABLE CONSTRUCTIONS — D-200 SERIES

Part No. Black Jacket	Part No. Extra Flexible Gray Jacket	No. of Pairs	Cond. AWG.	Delay NS/FT	Cable Diam.	Weight (Lbs. per M ft.)
D-200-4	D-200-4G	4	24	1.61	.315″	41.
D-200-7	D-200-7G	7	24	1.61	.410″	73.
D-200-12	D-200-12G	12	24	1.61	.455″	96.
D-200-15	D-200-15G	15	24	1.61	.510″	120.
D-200-20	D-200-20G	20	24	1.61	.635″	160.
D-200-24	D-200-24G	24	24	1.61	.660″	180.
D-200-27	D-200-27G	27	24	1.61	.690″	210.
D-200-30	D-200-30G	30	24	1.61	.710″	230.
D-200-33	D-200-33G	33	24	1.61	.750″	250.
D-200-42	D-200-42G	42	24	1.61	.840″	280.
D-200-50	D-200-50G	50	24	1.61	.910″	320.

TECHNICAL DATA

Characteristic	Balanced**	Single-ended*
Characteristic Impedance	110. ohms ±5%	78. ohms ±4%
Capacitance	14. pf/ft.	21. pf/ft.
Signal Delay	1.61 ns/ft.	1.61 ns/ft.
DC Resistance/100 ft.	5.6 ohms loop	2.8 ohms
Insulation Breakdown	6. KV min. DC	6. KV min. DC
Insulation Resistance	> 1000. megohms/M′	> 1000. megohms/M′
Temperature Range	−20. C up to +80. C (60. C for U.L.)	
Min. Bend Radius	6 x cable diameter	

*One conductor of each pair tied to common.

STANDARD DATA CABLE CONSTRUCTIONS — D-210 SERIES INDIVIDUALLY SHIELDED DATA PAIRS

Part. No.	No. of Pairs	Z_o	Delay NS/FT	Cond. AWG.	Cable Diam.	Sheath
D-210-1	1	110.	1.61	24	.220	PVC
D-210-12	12	110.	1.61	24	.980	PVC
D-210-15	15	110.	1.61	24	1.06	PVC
D-210-20	20	110.	1.61	24	1.20	PVC
D-210-30	30	110.	1.61	24	1.42	PVC
D-210-40	40	110.	1.61	24	1.69	PVC
D-210-48	48	110.	1.61	24	1.76	PVC

All items available in 50 ft. multiples.

TECHNICAL DATA

Characteristic	Balanced**	Single-ended*
Characteristic Impedance	110. ohms ±5%	63. ohms ±4%
Capacitance	14. pf/ft.	23.5 pf/ft.
Signal Delay	1.61 ns/ft.	1.61 ns/ft.
DC Resistance/100 ft.	5.6 ohms loop	2.8 ohms
Insulation Breakdown	6. KV min. DC	6. KV min. DC
Insulation Resistance	> 1000. megohms/M′	> 1000. megohms/M′
Temperature Range	−20. C up to +80. C (60. C for U.L.)	
Min. Bend Radius	9 x cable diameter	

**Both driven, one inverted. *One conductor of each pair tied to common.

We invite your telephone inquiries for technical information on data cables. Contact Mr. Frank Motley or Mr. Sam Audish in our Engineering Dept.

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TRAY CABLES NEC 725

CABLED SINGLES (NL SERIES)

NEC UL LISTED CL2

SIGNAL & CONTROL TRAY CABLES

National Wire & Cable Corporation manufactures a complete line of DUAL-RATED multiconductor NEC TRAY CABLE Type CL2, for signal, instrumentation and control uses. Also UL rated for use as 300 Volt Appliance Wiring Material (AWM). These are available as cabled singles or pairs, with optional overall shield of aluminum-Mylar foil with drain wire.

Cabled conductors use stranded tinned copper wire with 0.010" wall of tough extruded poly-vinyl-chloride (PVC) insulation, rated for 300. Volt use under U.L. Style 2464.

All wires are color coded using 10 standard solid colors plus white with stripes. Cabled singles are color coded the same as our NQ and NX cable families per MIL-STD-681. (See table in Tech section.) Cabled pairs are color coded the same as our NQP and NXP cable families.

Conductors are helically cabled and laid for optimum flexibility, with a Mylar tape barrier wrap (or Mylar + Foil) applied between cabled wire bundle and outer jacket.

Shielded cables have an overall Aluminum-Mylar foil shielding tape helically wrapped over cable and a tinned uninsulated drain wire for shield connection. (Use FSJ part number suffix.) For optional composite tinned copper RFI braid(s) + foil shielding, consult factory.

Outer jacket is a special highly flexible abrasion-resistant black poly-vinyl-chloride (PVC) thermoplastic. DUAL-RATED jacket compound meets the requirements of both U.L. Style 2464 AWM and U.L. 13 Type CL2 TRAY CABLE. Jacket is surface printed with both UL 2464 AWM and U.L. 13 Type CL2 TRAY CABLE identifiers.

Finished cables comply with applicable U.L. tests for N.E.C. Type CL2 TRAY CABLE Vertical Tray Flame Spread. All materials are flame-spread retardant and fungus resistant. The products are DUAL-RATED for AWM use as U.L. Style 2464 300 Volt, 80°C, OR for U.L. 13 Type CL2 TRAY CABLE 105°C use.

Standard putups: 500 ft. and 1000 ft. No-deposit reels. For shorter quantities or specific lengths consult factory.

TECHNICAL DATA (all cables)

Rated Working Voltage:	300 VOLTS for AWM uses.
Rated Temperature:	DUAL-RATED: + 105°C or + 80°C dependent on AGENCY intended use. See below.
Insulation Breakdown Voltage:	Greater than 1000 Volts AC RMS at 60 Hz.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 PF/FT at 1 Khz, depending on AWG and position.
Insulation Leakage:	100 Megohms/1000 feet minimum @ 500 VDC; from a conductor to all else in a cable, at 25°C.
U.L. Agency Voltage & Temperature Ratings:	UL rated: + 80°C AWM, 300 VOLT per UL Style 2464. UL rated + 105°C CL2 TRAY CABLE per UL 13, NEC Type CL2.
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 8 cable diameters from + 105°C to − 10°C. The flex diameter should be greater than 20 cable diameters for flexing at − 20°C.
Characteristic Impedance:	RF Impedance of twisted pairs or adjacent singles is: 87 ohms in AWG 24; 80 ohms in AWG 22. Suitable for digital signals.

MULTI-CONDUCTOR STOCK CABLED SINGLES

Conductor sizes 24, 22 are 7 strand. All others 19 strand.

UNSHIELDED

Part No.	No. of Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NL224J	2	24	.044	.032	.156	11
NL324J	3	24	.044	.032	.163	14
NL424J	4	24	.044	.032	.174	17
NL524J	5	24	.044	.032	.187	19
NL624J	6	24	.044	.032	.200	22
NL724J	7	24	.044	.032	.200	24
NL824J	8	24	.044	.032	.231	28
NL924J	9	24	.044	.032	.244	31
NL1024J	10	24	.044	.032	.244	33
NL1224J	12	24	.044	.032	.251	37
NL1524J	15	24	.044	.032	.275	45
NL1924J	19	24	.044	.032	.288	54
NL2724J	27	24	.044	.032	.339	73
NL3724J	37	24	.044	.032	.376	96
NL4824J	48	24	.044	.032	.424	121
NL6024J	60	24	.044	.032	.464	148
NL222J	2	22	.050	.032	.168	14
NL322J	3	22	.050	.032	.176	17
NL422J	4	22	.050	.032	.188	21
NL522J	5	22	.050	.032	.203	25
NL622J	6	22	.050	.032	.218	29
NL722J	7	22	.050	.032	.218	32
NL822J	8	22	.050	.032	.253	37
NL922J	9	22	.050	.032	.268	40
NL1022J	10	22	.050	.032	.268	43
NL1222J	12	22	.050	.032	.276	50
NL1522J	15	22	.050	.032	.303	60
NL1922J	19	22	.050	.032	.318	73
NL2722J	27	22	.050	.032	.376	100
NL3722J	37	22	.050	.032	.418	131
NL4822J	48	22	.050	.032	.473	167
NL6022J	60	22	.050	.032	.518	205

OVERALL SHIELDED

Part No.	No. of Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NL224FSJ	2	24	.044	.032	.158	13
NL324FSJ	3	24	.044	.032	.165	15
NL424FSJ	4	24	.044	.032	.176	18
NL524FSJ	5	24	.044	.032	.189	21
NL624FSJ	6	24	.044	.032	.202	24
NL724FSJ	7	24	.044	.032	.202	26
NL824FSJ	8	24	.044	.032	.233	30
NL924FSJ	9	24	.044	.032	.246	32
NL1024FSJ	10	24	.044	.032	.246	34
NL1224FSJ	12	24	.044	.032	.253	39
NL1524FSJ	15	24	.044	.032	.277	46
NL1924FSJ	19	24	.044	.032	.290	55
NL2724FSJ	27	24	.044	.032	.341	75
NL3724FSJ	37	24	.044	.032	.378	97
NL4824FSJ	48	24	.044	.032	.427	122
NL6024FSJ	60	24	.044	.032	.466	149
NL222FSJ	2	22	.050	.032	.170	16
NL322FSJ	3	22	.050	.032	.178	20
NL422FSJ	4	22	.050	.032	.190	23
NL522FSJ	5	22	.050	.032	.205	27
NL622FSJ	6	22	.050	.032	.220	31
NL722FSJ	7	22	.050	.032	.220	34
NL822FSJ	8	22	.050	.032	.255	39
NL922FSJ	9	22	.050	.032	.270	43
NL1022FSJ	10	22	.050	.032	.270	46
NL1222FSJ	12	22	.050	.032	.278	52
NL1522FSJ	15	22	.050	.032	.305	62
NL1922FSJ	19	22	.050	.032	.320	75
NL2722FSJ	27	22	.050	.032	.378	102
NL3722FSJ	37	22	.050	.032	.420	134
NL4822FSJ	48	22	.050	.032	.475	169
NL6022FSJ	60	22	.050	.032	.520	207

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TRAY CABLES
NEC 725

CABLED SINGLES (NL SERIES)

SIGNAL & CONTROL TRAY CABLES

NEC UL LISTED CL 2

MULTI-CONDUCTOR STOCK CABLED SINGLES

continued from previous page.

UNSHIELDED						
Part No.	No. of Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NL220J	2	20	.058	.032	.184	18
NL320J	3	20	.058	.032	.193	24
NL420J	4	20	.058	.032	.207	29
NL520J	5	20	.058	.032	.225	35
NL620J	6	20	.058	.032	.242	41
NL720J	7	20	.058	.032	.242	46
NL820J	8	20	.058	.032	.283	53
NL920J	9	20	.058	.032	.300	58
NL1020J	10	20	.058	.032	.300	63
NL1220J	12	20	.058	.032	.309	73
NL1520J	15	20	.058	.032	.341	89
NL1920J	19	20	.058	.032	.358	109
NL2720J	27	20	.058	.032	.425	151
NL3720J	37	20	.058	.032	.474	201
NL218J	2	18	.068	.032	.204	24
NL318J	3	18	.068	.032	.215	32
NL418J	4	18	.068	.032	.231	40
NL518J	5	18	.068	.032	.252	48
NL618J	6	18	.068	.032	.272	56
NL718J	7	18	.068	.032	.272	63
NL818J	8	18	.068	.032	.320	73
NL918J	9	18	.068	.032	.340	81
NL1018J	10	18	.068	.032	.340	88
NL1218J	12	18	.068	.032	.351	102
NL1518K	15	18	.068	.032	.388	126
NL1918J	19	18	.068	.032	.408	155
NL2718J	27	18	.068	.032	.487	215

OVERALL SHIELDED						
Part No.	No. of Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NL220FSJ	2	20	.058	.032	.186	22
NL320FSJ	3	20	.058	.032	.195	28
NL420FSJ	4	20	.058	.032	.209	33
NL520FSJ	5	20	.058	.032	.227	39
NL620FSJ	6	20	.058	.032	.244	45
NL720FSJ	7	20	.058	.032	.244	49
NL820FSJ	8	20	.058	.032	.285	56
NL920FSJ	9	20	.058	.032	.302	62
NL1020FSJ	10	20	.058	.032	.302	67
NL1220FSJ	12	20	.058	.032	.311	77
NL1520FSJ	15	20	.058	.032	.343	93
NL1920FSJ	19	20	.058	.032	.360	113
NL2720FSJ	27	20	.058	.032	.427	155
NL3720FSJ	37	20	.058	.032	.476	205
NL218FSJ	2	18	.068	.032	.206	30
NL318FSJ	3	18	.068	.032	.217	38
NL418FSJ	4	18	.068	.032	.233	46
NL518FSJ	5	18	.068	.032	.254	54
NL618FSJ	6	18	.068	.032	.274	62
NL718FSJ	7	18	.068	.032	.274	69
NL818FSJ	8	18	.068	.032	.322	79
NL918FSJ	9	18	.068	.032	.342	87
NL1018FSJ	10	18	.068	.032	.342	94
NL1218FSJ	12	18	.068	.032	.353	108
NL1518FSJ	15	18	.068	.032	.390	131
NL1918FSJ	19	18	.068	.032	.410	160
NL2718FSJ	27	18	.068	.032	.489	221

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TRAY CABLES NEC 725

TWISTED PAIRS (NLP SERIES)

NEC UL LISTED CL 2

SIGNAL & CONTROL TRAY CABLES

National Wire & Cable Corporation manufactures a complete line of DUAL-RATED multiconductor NEC TRAY CABLE Type CL2, for signal, instrumentation and control uses. Also UL rated for use as 300 Volt Appliance Wiring Material (AWM). These are available as cabled singles or pairs, with optional overall shield of aluminum-Mylar foil with drain wire.

Cabled conductors use stranded tinned copper wire with 0.010" wall of tough extruded poly-vinyl-chloride (PVC) insulation, rated for 300. Volt use under U.L. Style 2464.

All wires are color coded using 10 standard solid colors plus white with stripes. Cabled singles are color coded the same as our NQ and NX cable families per MIL-STD-681. (See table in Tech section.) Cabled pairs are color coded the same as our NQP and NXP cable families.

Conductors are helically cabled and laid for optimum flexibility, with a Mylar tape barrier wrap (or Mylar + Foil) applied between cabled wire bundle and outer jacket.

Shielded cables have an overall Aluminum-Mylar foil shielding tape helically wrapped over cable and a tinned uninsulated drain wire for shield connection. (Use FSJ part number suffix.) For optional composite tinned copper RFI braid(s) + foil shielding, consult factory.

Outer jacket is a special highly flexible abrasion-resistant black poly-vinyl-chloride (PVC) thermoplastic. DUAL-RATED jacket compound meets the requirements of both U.L. Style 2464 AWM and U.L. 13 Type CL2 TRAY CABLE. Jacket is surface printed with both UL 2464 AWM and U.L. 13 Type CL2 TRAY CABLE identifiers.

Finished cables comply with applicable U.L. tests for N.E.C. Type CL2 TRAY CABLE Vertical Tray Flame Spread. All materials are flame-spread retardant and fungus resistant. The products are DUAL-RATED for AWM use as U.L. Style 2464 300 Volt, 80°C, OR for U.L. 13 Type CL2 TRAY CABLE 105°C use.

Standard putups: 500 ft. and 1000 ft. No-deposit reels. For shorter quantities or specific lengths consult factory.

TECHNICAL DATA (all cables)

Rated Working Voltage: 300 VOLTS for AWM uses.

Rated Temperature: DUAL-RATED: + 105°C or + 80°C dependent on AGENCY intended use. See below.

Insulation Breakdown Voltage: Greater than 1000 Volts AC RMS at 60 Hz.

Capacitance: Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 PF/FT at 1 Khz, depending on AWG and position.

Insulation Leakage: 100 Megohms/1000 feet minimum @ 500 VDC; from a conductor to all else in a cable, at 25°C.

U.L. Agency Voltage & Temperature Ratings: UL rated: + 80°C AWM, 300 VOLT per UL Style 2464. UL rated + 105°C CL2 TRAY CABLE per UL 13, NEC Type CL2.

Bending Characteristics: All cables are suitable for flexing to a circle diameter of 8 cable diameters from + 105°C to − 10°C. The flex diameter should be greater than 20 cable diameters for flexing at − 20°C.

Characteristic Impedance: RF Impedance of twisted pairs or adjacent singles is: 87 ohms in AWG 24; 80 ohms in AWG 22. Suitable for digital signals.

MULTI-CONDUCTOR STOCK CABLED PAIRS

Conductor sizes 24, 22 are 7 strand. All others 19 strand.

UNSHIELDED

Part No.	No. of Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NLP224J	2	24	.044	.032	.218	21
NLP324J	3	24	.044	.032	.230	26
NLP424J	4	24	.044	.032	.253	31
NLP524J	5	24	.044	.032	.279	37
NLP624J	6	24	.044	.032	.306	42
NLP724J	7	24	.044	.032	.292	46
NLP824J	8	24	.044	.032	.367	54
NLP924J	9	24	.044	.032	.350	60
NLP1024J	10	24	.044	.032	.367	64
NLP1224J	12	24	.044	.032	.379	73
NLP1524J	15	24	.044	.032	.429	88
NLP1924J	19	24	.044	.032	.442	106
NLP2724J	27	24	.044	.032	.529	144
NLP222J	2	22	.050	.032	.238	26
NLP322J	3	22	.050	.032	.252	33
NLP422J	4	22	.050	.032	.278	40
NLP522J	5	22	.050	.032	.308	47
NLP622J	6	22	.050	.032	.338	55
NLP722J	7	22	.050	.032	.323	61
NLP822J	8	22	.050	.032	.408	71
NLP922J	9	22	.050	.032	.388	79
NLP1022J	10	22	.050	.032	.408	85
NLP1222J	12	22	.050	.032	.422	97
NLP1522J	15	22	.050	.032	.478	118
NLP1922J	19	22	.050	.032	.493	143
NLP2722J	27	22	.050	.032	.628	221

OVERALL SHIELDED

Part No.	No. of Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NLP224FSJ	2	24	.044	.032	.220	22
NLP324FSJ	3	24	.044	.032	.232	27
NLP424FSJ	4	24	.044	.032	.255	32
NLP524FSJ	5	24	.044	.032	.281	38
NLP624FSJ	6	24	.044	.032	.308	44
NLP724FSJ	7	24	.044	.032	.294	48
NLP824FSJ	8	24	.044	.032	.369	55
NLP924FSJ	9	24	.044	.032	.352	61
NLP1024FSJ	10	24	.044	.032	.369	65
NLP1224FSJ	12	24	.044	.032	.381	74
NLP1524FSJ	15	24	.044	.032	.431	89
NLP1924FSJ	19	24	.044	.032	.444	107
NLP2724FSJ	27	24	.044	.032	.531	146
NLP222FSJ	2	22	.050	.032	.240	28
NLP322FSJ	3	22	.050	.032	.254	35
NLP422FSJ	4	22	.050	.032	.280	42
NLP522FSJ	5	22	.050	.032	.310	50
NLP622FSJ	6	22	.050	.032	.340	57
NLP722FSJ	7	22	.050	.032	.325	63
NLP822FSJ	8	22	.050	.032	.410	73
NLP922FSJ	9	22	.050	.032	.390	81
NLP1022FSJ	10	22	.050	.032	.410	87
NLP1222FSJ	12	22	.050	.032	.424	99
NLP1522FSJ	15	22	.050	.032	.480	120
NLP1922FSJ	19	22	.050	.032	.495	146
NLP2722FSJ	27	22	.050	.032	.630	223

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TRAY CABLES
NEC 725

TWISTED PAIRS (NLP SERIES)

SIGNAL & CONTROL TRAY CABLES

NEC UL LISTED CL 2

MULTI-CONDUCTOR STOCK CABLED PAIRS

continued from previous page.

UNSHIELDED

Part No.	No. of Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NLP220J	2	20	.058	.032	.265	35
NLP320J	3	20	.058	.032	.281	45
NLP420J	4	20	.058	.032	.312	56
NLP520J	5	20	.058	.032	.346	68
NLP620J	6	20	.058	.032	.381	79
NLP720J	7	20	.058	.032	.364	89
NLP820J	8	20	.058	.032	.462	103
NLP920J	9	20	.058	.032	.439	115
NLP1020J	10	20	.058	.032	.462	124
NLP1220J	12	20	.058	.032	.478	144
NLP1520J	15	20	.058	.032	.544	176
NLP1920J	19	20	.058	.032	.561	216
NLP2720J	27	20	.058	.032	.711	326
NLP218J	2	18	.068	.032	.299	46
NLP318J	3	18	.068	.032	.318	61
NLP418J	4	18	.068	.032	.354	77
NLP518J	5	18	.068	.032	.394	94
NLP618J	6	18	.068	.032	.435	110
NLP718J	7	18	.068	.032	.415	124
NLP1218J	12	18	.068	.032	.549	203

OVERALL SHIELDED

Part No.	No. of Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Weight LB/K ft.
NLP220FSJ	2	20	.058	.032	.267	39
NLP320FSJ	3	20	.058	.032	.283	49
NLP420FSJ	4	20	.058	.032	.314	60
NLP520FSJ	5	20	.058	.032	.348	72
NLP620FSJ	6	20	.058	.032	.383	83
NLP720FSJ	7	20	.058	.032	.366	93
NLP820FSJ	8	20	.058	.032	.464	107
NLP920FSJ	9	20	.058	.032	.441	119
NLP1020FSJ	10	20	.058	.032	.464	128
NLP1220FSJ	12	20	.058	.032	.480	148
NLP1520FSJ	15	20	.058	.032	.546	180
NLP1920FSJ	19	20	.058	.032	.563	220
NLP218FSJ	2	18	.068	.032	.301	52
NLP318FSJ	3	18	.068	.032	.320	67
NLP418FSJ	4	18	.068	.032	.356	83
NLP518FSJ	5	18	.068	.032	.396	99
NLP618FSJ	6	18	.068	.032	.437	116
NLP718FSJ	7	18	.068	.032	.417	130
NLP1218FSJ	12	18	.068	.032	.551	209

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, CA 90031
Phone: (213) 225-5611, TWX: 910-321-4155, TLX: 181409,
FAX: (213) 225-4630. Fed. Stock Code H4-04569

SIGNAL & CONTROL TRAY CABLES

NEC 725 TRAY CABLES "PLTC"

STANDARD PLTC CABLES

UL RATED: 300 VOLTS, 105°C.

NEC UL LISTED PLTC

PAIRS:

PLTC UNSHIELDED **PAIR** CABLE				PLTC FOIL-SHIELDED **PAIR** CABLE			
PART NO.	**COND.**	**AWG**	**DIAM. INCHES**	**PART NO.**	**COND.**	**AWG**	**DIAM. INCHES**
NG222J	2	22	.170	NG222FSJ	2	22	.176
NG220J	2	20	.190	NG220FSJ	2	20	.196
NG218J	2	18	.206	NG218FSJ	2	18	.212
NG216J	2	16	.220	NG216FSJ	2	16	.226

TRIOS:

PLTC UNSHIELDED **TRIO** CABLE				PLTC FOIL-SHIELDED **TRIO** CABLE			
PART NO.	**COND.**	**AWG**	**DIAM. INCHES**	**PART NO.**	**COND.**	**AWG**	**DIAM. INCHES**
NG322J	3	22	.179	NG322FSJ	3	22	.185
NG320J	3	20	.200	NG320FSJ	3	20	.206
NG318J	3	18	.218	NG318FSJ	3	18	.224
NG316J	3	16	.233	NG316FSJ	3	16	.239

PLTC CABLE CONSTRUCTION:

ALL PLTC CABLES USE 0.012" (min.) WALL OF 105°C PVC WIRE INSULATION, PLUS AN OVERALL 0.032" WALL OF SPECIAL FLAME-SPREAD-RESISTANT BLACK PVC JACKET.

U.L. LISTED AS SUNLIGHT-RESISTANT "PLTC" TRAY CABLE.
(PLTC is abbreviation of NEC "POWER-LIMITED TRAY CABLE")

RELATIVE PERFORMANCE:

THE NATIONAL PLTC CABLES ARE **VERY** SIMILAR IN PERFORMANCE TO THE NATIONAL "NQ" FAMILY OF FLEXIBLE CABLES.

STANDARD PUTUP: 500 FT. REELS (NON RETURNABLE REELS)
STANDARD COLORS: PAIRS; BLACK & RED. TRIOS; BLACK, RED, WHITE. MANY OTHER **PLTC** CONSTRUCTIONS CAN BE MADE TO ORDER. CONSULT FACTORY FOR OTHER LARGER "PLTC" CABLES.

NATIONAL WIRE
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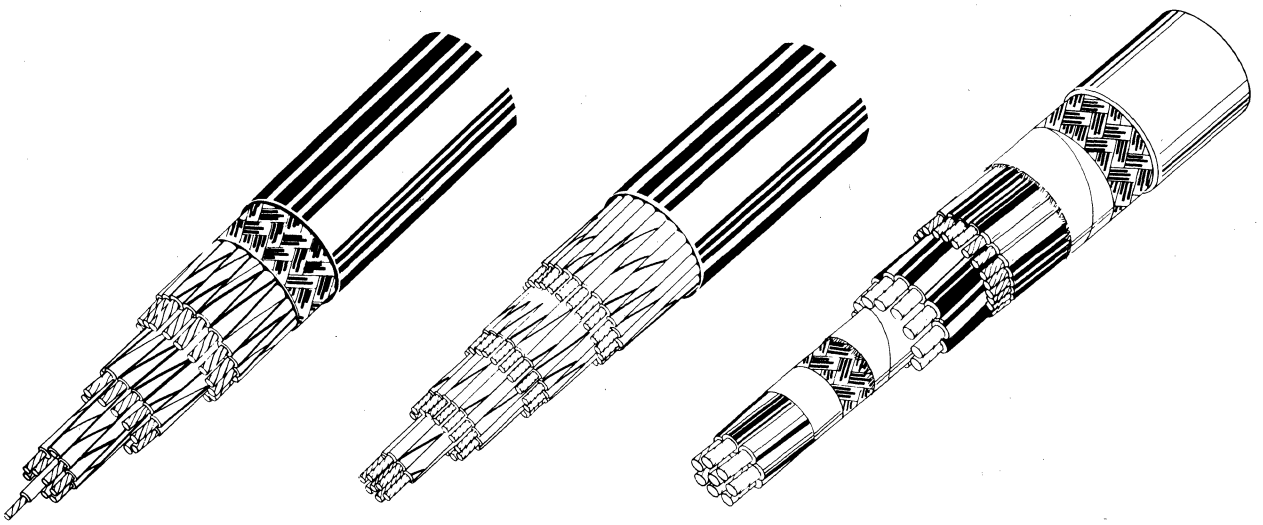
CUSTOM-MADE CABLE TO YOUR OWN SPECIFICATIONS....



COMPLETE WIRE AND CABLE FACILITIES TO MEET YOUR NEEDS

If the standard cables shown on the preceeding pages do not meet your application requirements, Custom-Made cables to your own specifications are available promptly—and at lower cost than you may suppose . . . **including cables or cable assemblies with both copper conductors, and optical fiber components.**

BECAUSE NATIONAL HAS:

1- The organization & experience to handle short-runs or rush schedules with consistent quality.

2- All types of mill machinery for fabricating cable and all intermediate operations.

3- An enormous wire inventory to draw from for material for your cable. Over 200 million feet of our own manufacture in stock.

4- Technical consultants to aid you in properly specifying your cable needs.

DESIGNERS: May we suggest:

A- Ask our nearest representative for his assistance and for our larger "Engineers & Designers Master Catalog". His name and address is shown on inside back cover.

B- Call our engineering department (213-225-5611) and discuss your needs with our technical consultants. They understand your problem and may have just the answers you need.

C- Our consultants will assist you in design, obtain cost and delivery information, provide formal quotations and drawings, and assist with sales & procurement liaison.

D- On most custom cables, we can print your company name and part number at regular intervals on the outside jacket at no extra cost. This will make your packaging truly "Custom".

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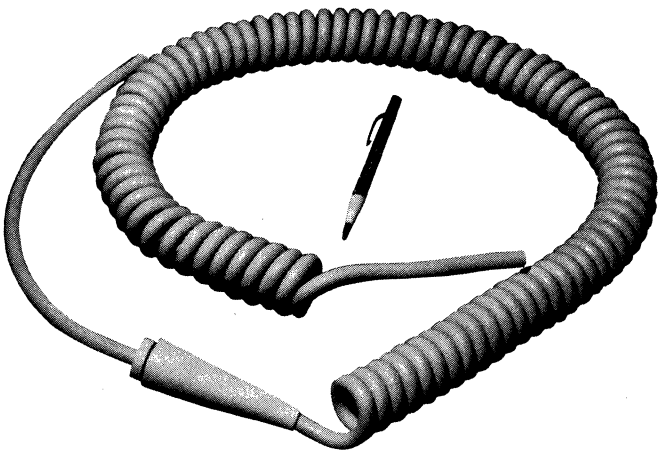
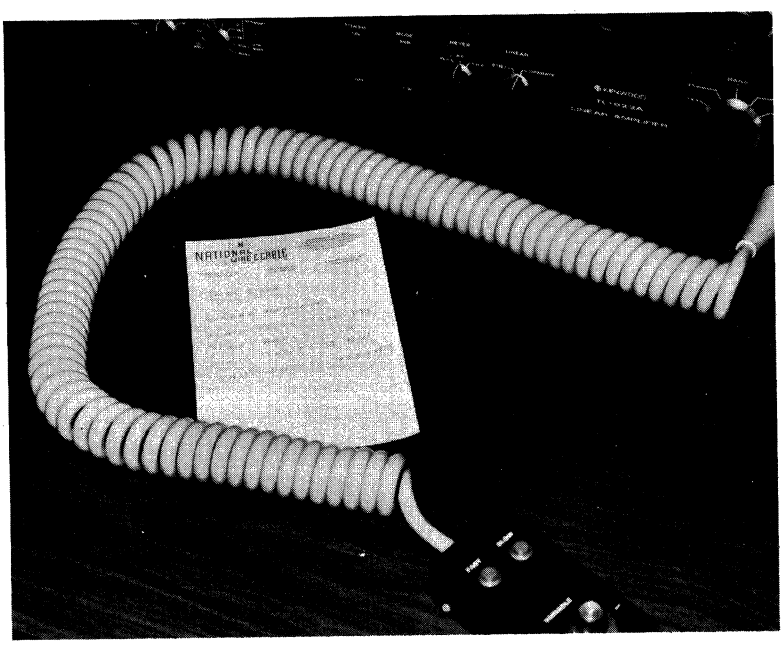
Coiled Instrumentation Cables for Custom Applications



Our new, automated coiling department is ready to design, and manufacture coiled instrumentation cables for your specific requirements. These cables are available in any number of conductors, and in gauge sizes 18 through 30 AWG. They are designed for high reliability, ultra-flexible long-life applications, as encountered in computer interconnects, bio-medical electronics, and optimum retractability, and general control cable use. Call our technical staff to discuss your custom application!



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NATIONAL CABLE MOLDING CORPORATION

AN AFFILIATE OF NATIONAL WIRE & CABLE CORPORATION

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Phone: (213) 225-5611, TWX: 910-321-4155, TLX: 181409,
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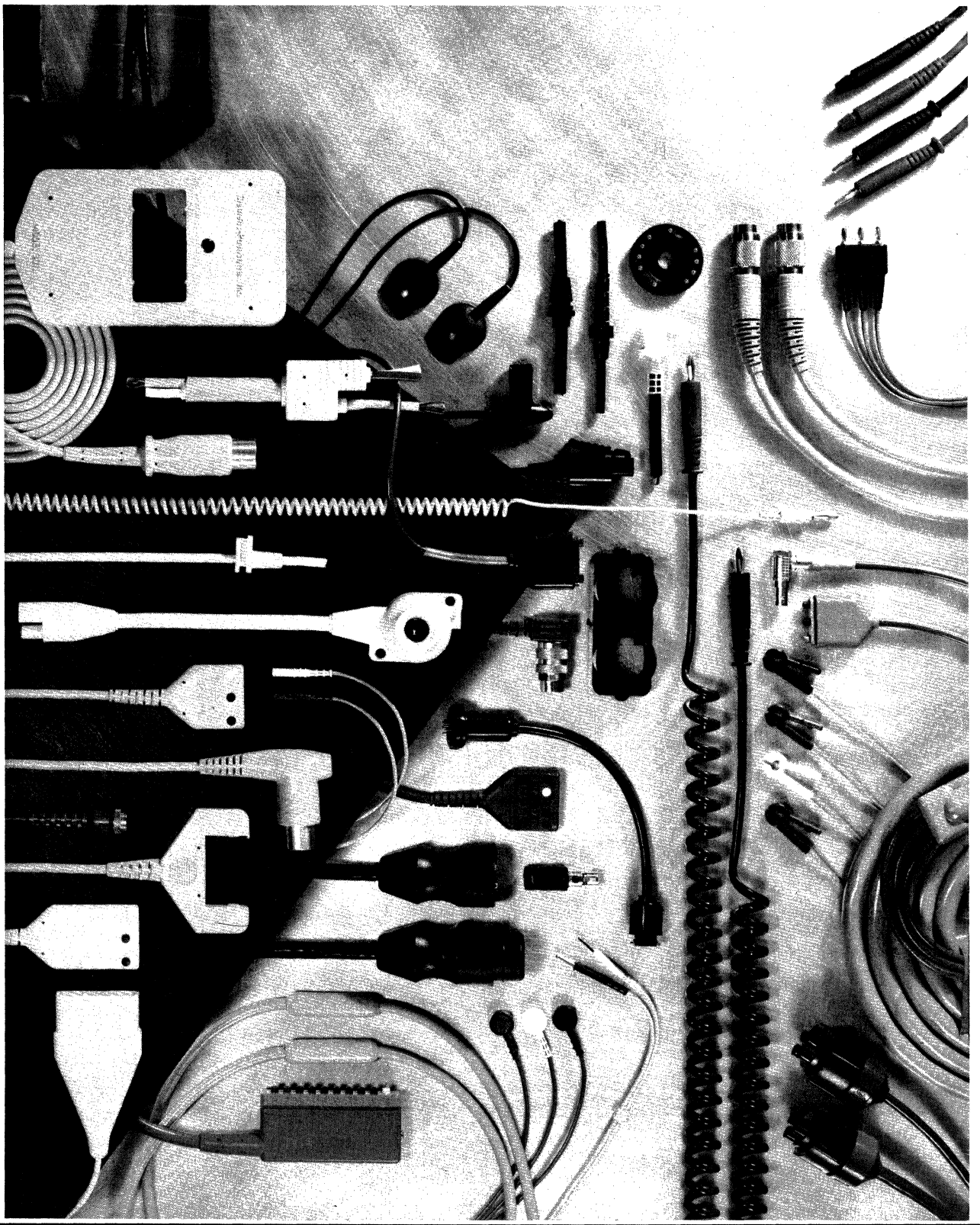
Molded Instrumentation Cables for all Types of Medical & Electronic Applications



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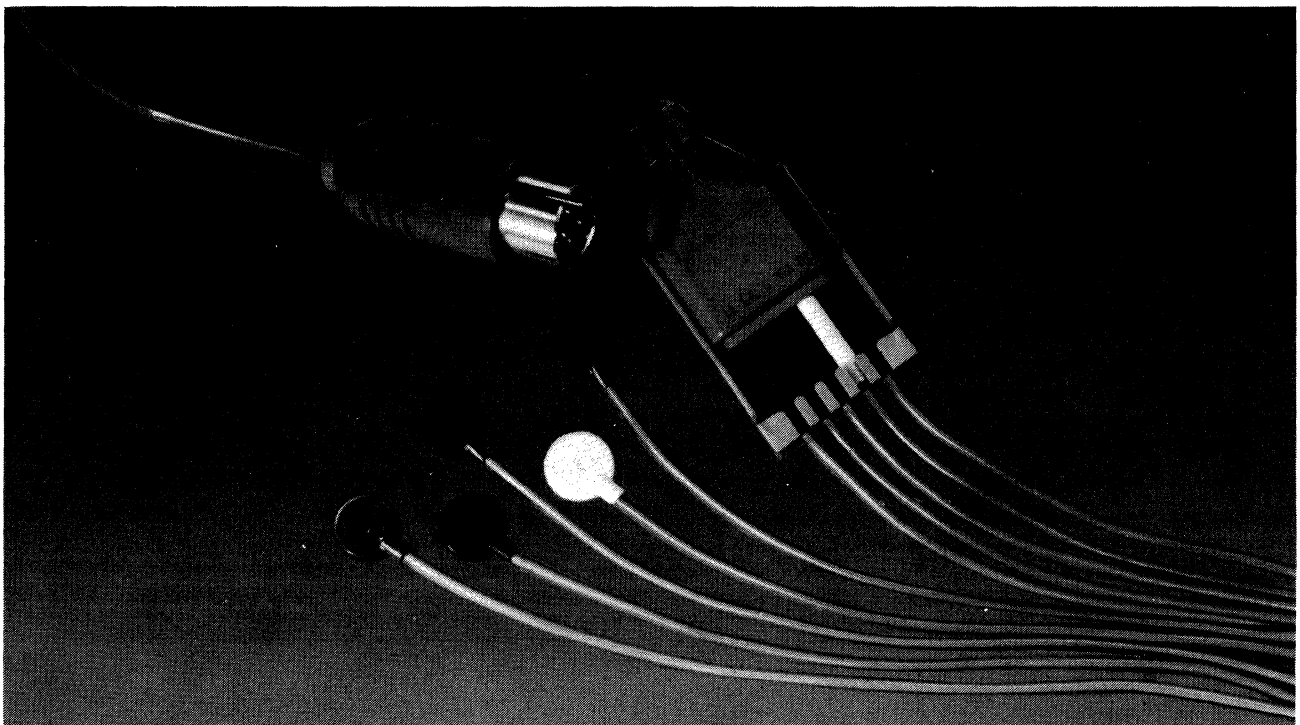
Molded Instrumentation Cables for all Types of Medical & Electronic Applications



SPECIALISTS IN INJECTION-MOLDING OF CONNECTORS DIRECTLY ONTO CABLE!

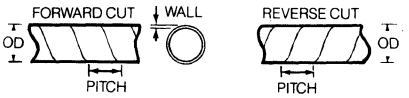
INTEGRAL-MOLDED ELECTRONIC CABLE/CONNECTOR ASSEMBLIES

Utilizing integral cable molding techniques, National Cable Molding Corporation (NCM) manufactures all components "in-house" from wire insulation to cable manufacture, connector assembly, tooling and molding the entire unit ready for use!

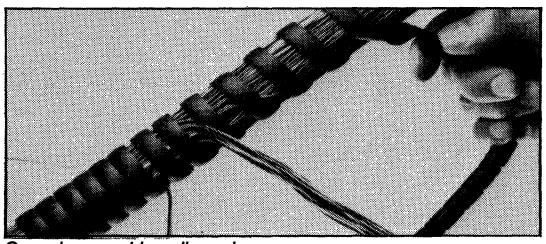
Write or call Mr. Bill Kish today for technical information or assistance. Phone: (213) 225-5611.

Heli-Tube® Cable Harness Abrasion Protector

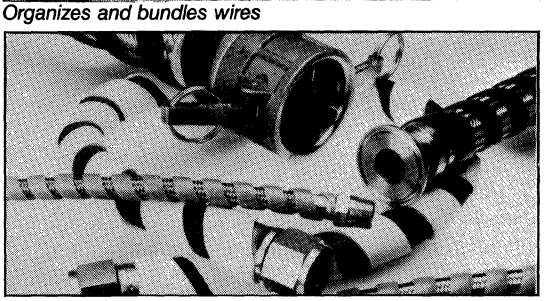
Standard Materials	Max. Oper. Temp.	Min. Oper. Temp.	MIL Spec. & Approvals
Clear Polyethylene Ideal for general applications, this low-cost material is highly abrasion resistant and is not affected by most solvents.	215°F 101°C	−105°C −76°C	Fed. Spec. LP390 MIL-I-631D MIL-P-21922A
Ultraviolet-Resistant Black Polyethylene Has the same properties as clear polyethylene but features an ultraviolet absorber which allows it to be used outdoors in direct sunlight for long periods of time.	215°F 101°C	−105°F −76°C	Fed. Spec. LP390 MIL-I-631D MIL-P-21922A
Fire-Resistant Polyethylene This material is self-extinguishing and costs less than Nylon or Teflon; available in White or Black.	200°F 93°C	−1°F −19°C	
Nylon Natural Nylon is self-extinguishing and does not produce any toxic or irritating byproducts, even when exposed to an open flame or temperatures beyond its operating range. Recommended for use in enclosed environments where the possibility of fire exists, Nylon is also lightweight, highly abrasion resistant, and operates over a wide temperature range.	200°F 93°C	−121°F −85°C	MIL-M-20693B Type I MIL-M-22096A LP 410A MIL-M-19098
Black Nylon Features the same properties as Natural Nylon with the added benefit of an ultraviolet absorber so that it can be used in direct sunlight for long periods of time.	200°F 93°C	−121°F −85°C	MIL-M-20693A Type II MIL-M-22096 LP 410A MIL-I-47287A Type II
Teflon (TFE) Natural (TFE) features the widest operating temperature range of any material and can be used from −450° to +500°F. It is chemically inert, non-flammable, and can be supplied in a variety of colors.	500°F 260°C	−450°F −85°C	AMS 3651C AMS 3653C AMS 3654 AMS 3655 ASTM D3295 MIL I-22129C P-22296B MIL-T-47287A Type I



Spirally Cut Plastic Expandable Cable Wrap Available in Six Sizes



Organizes and bundles wires



Protects hoses from abrasion

- Bundles wires, cables, hoses, and tubing firmly, but allows flexibility
- Wraps on like tape, but can be reused quickly and simply
- Permits wire and hose breakouts in any orientation
- Easy to route or reroute new or replacement wires
- Resists abrasion, dampens vibration, and insulates
- Clamps bundles to standoffs and robotic components
- Available in colors for special identification requirements
- Can be supplied forward or reverse cut for user convenience
- UL recognized component listed under category ZODZ2, Component Wire Positioning Devices. Our file Card Number is E83405 (M).

Sizes from 1/16" thru 1" for bundles up to 7" dia.

HIGH QUALITY • SUPERIOR SERVICE • LOW PRICES • FREE SAMPLES

M.M. NEWMAN CORPORATION *Heli-Tube Division*

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THERMOCOUPLE WIRE AND CABLE

We Manufacture Millions of Feet of Wire and Cable Each Year!

- **Uninsulated Base Metal Thermocouple Wire from .0005 to .032 Inch Diameter**
- **Metal Clad Thermocouple Cable 304 SS and Inconel® 600 OMEGACLAD® in Diameters from .010 to .250″**
- **Insulated Duplex Thermocouple Wire—Insulations Include!**
  - *PFA and FEP Teflon®*
  - *Glass* • *Ceramic*

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PANDUIT® WIRING PRODUCTS

CABLE TIES
Designed to increase productivity and reduce total installed cost

The Largest Selection of Sizes, Styles, Colors and Materials
■ For bundle diameters up to 13″ ■ Locking and releaseable styles ■ Low threading force ■ Finger grip tip ■ No sharp edges ■ Bent tip ■ Choose from nylon, polypropylene or fluoropolymers to meet application environments ■ Choose the color to blend in with the application ■ Meet all applicable military and U.L. specifications.

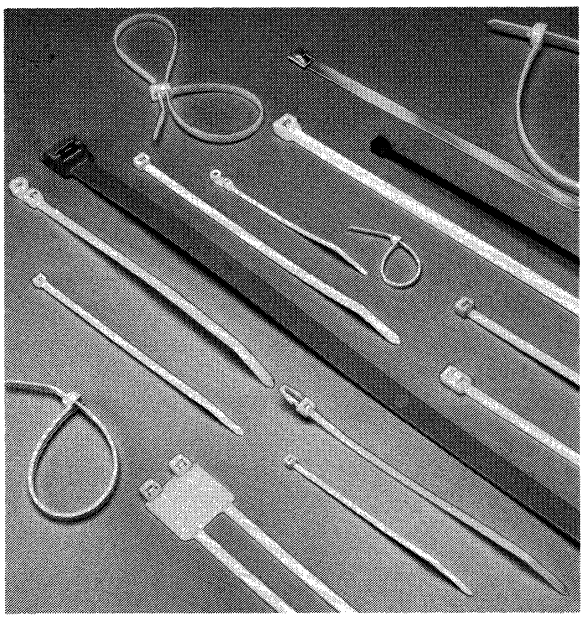
Clamp Ties
Flexible head permits mounting *before* wire installation. Eliminates the need for inventory of various fixed diameter clamps.

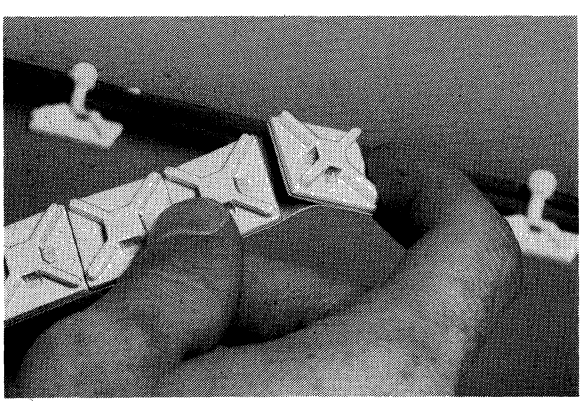
Push Mount Ties
Available in two styles. Integral mounting device eliminates need for separate mounting hardware. For bundle diameters to 1¾″ and panel thicknesses to .125″.

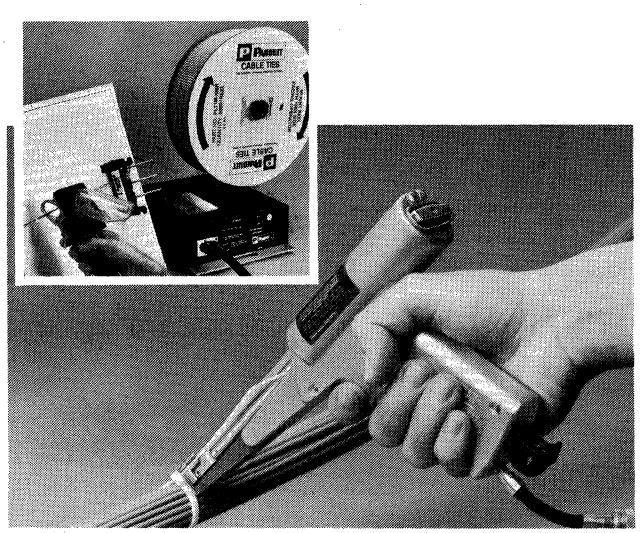
Marker Ties
Clean, permanent identification of wire bundles and harnesses. Convenient, marker and tie in one.

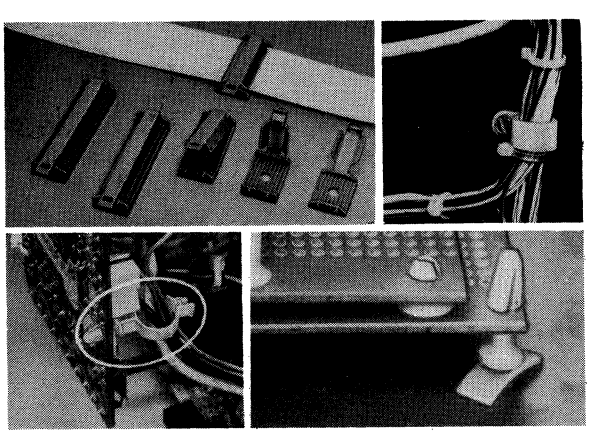
Mounting Accessories
The largest selection used with or without cable ties— adhesive backed mounts, tie mounts, tie anchors, low profile mounts, control panel mounts, adhesive backed cord clips, fixed diameter clamps, flat cable mounts, flat cable clips in wide range of sizes. Most are U.L. recognized.

Cable Tie Installation Tools
Complete line of tooling, from simple hand tools to semi-automatic and automatic installation equipment, including systems designed for robotics applications.









PANDUIT QUALITY
ELECTRICAL GROUP

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Tinley Park, IL 60477-0981
FAX: (708) 532-1811

For further information and samples,
Call 800-777-3300

PANDUIT® WIRING PRODUCTS

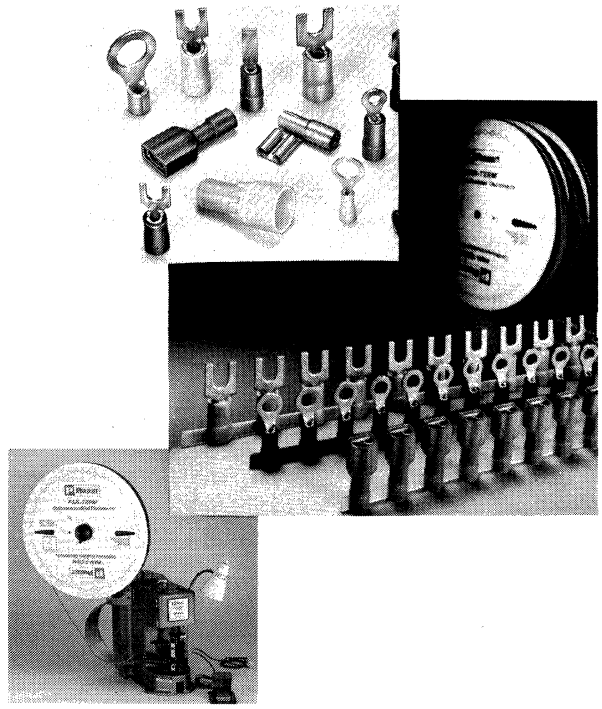
PAN-TERM® Terminals

- Complete line of terminals, disconnects, splices and wire joints for #26 through #2 AWG wire
- Funnel entry available on most terminals and disconnects to speed assembly
- Electrolytically refined copper for optimum crimping, low resistance and high conductivity
- All applicable sizes UL listed and CSA certified and meet MIL specs

REEL-SMART™ Continuously Molded Terminals, Disconnects and Splices

For high volume production, furnished on reels and terminated on electric or pneumatic presses.

- Continuously molded, barrel insulated terminals
- Continuously molded, barrel and fully insulated disconnects and butt splices
- Guaranteed alignments due to molded-in carrier strip
- Color coded insulation speeds wire size identification and die selection
- One state-of-the-art applicator terminates the entire REEL-SMART™ line of over 300 parts. This virtually eliminates downtime because of parts changeover.

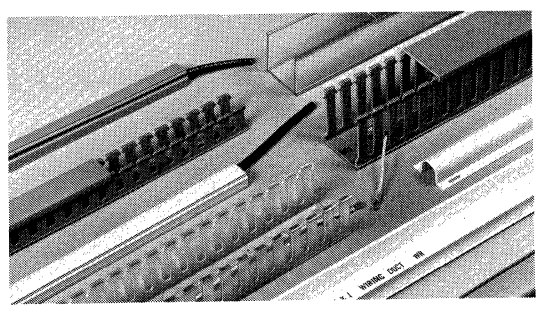


PANDUCT® Plastic Wiring Duct

The number one name in wiring duct—the largest selection of sizes, styles, colors and materials.

- Type "E" features snap-in slot design to hold break-out wires and assure complete accessibility
- Complete line of accessories available for installation
- Universal mounting holes for maximum design and layout flexibility
- Standard color: light gray; white; black and dark gray available
- Also available: Type "S" solid wall duct
  Type "D" round hole duct
  Type "NE" & "NS" chlorine-free high temperature duct
  Type "PE" & "PS" clear polycarbonate high temperature duct

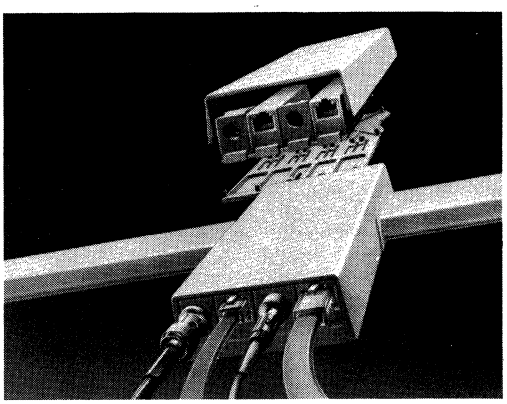
and . . . matching non-slip covers for all styles.



Plus a complete line of communication and premise wiring products...

-- MOD-COM™ modular communication system
-- PAN-WAY™ plastic surface raceway
  Type "L" latching for low voltage
  Type "C" clip for low voltage
  Type "P" for power or low voltage
-- Coax connectors (BNC, TNC, F)
-- Baluns (coax-to-twisted pair data wiring)
-- Telephone plugs (2, 3, or 4 pair)
-- Wiring accessories

Products to aid in wiring voice, data or video.



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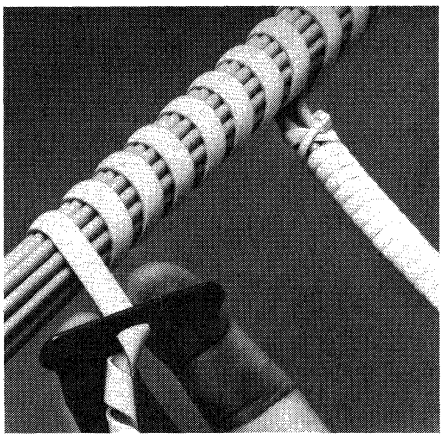
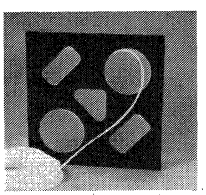
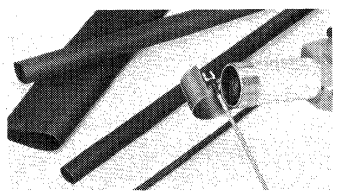
PANDUIT® WIRING PRODUCTS

Wire Protection Products

- Choose from six materials, seven sizes (up to 6" diameter) of spiral wrapping. Material choice suits the application needs and environment. Color choices provide coding possibilities.
- Braided sleeving provides continuous abrasion protection for wires, cable and tubing. Available in six sizes (up to 2 1/4" diameter) and two materials.
- Grommet edging protects insulation of wires passing through panels. Six materials for panel thickness up to 1/2". Five styles.
- PVC tubing provides insulation and protection. Available in 39 sizes from .027" up to 2 1/2" diameter, rated up to 105°C.
- Heat shrink tubing in sizes to 4" diameter in seven colors. Available on reels or in 48" lengths.



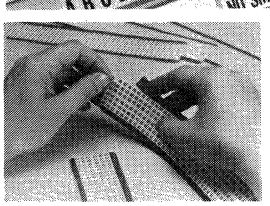


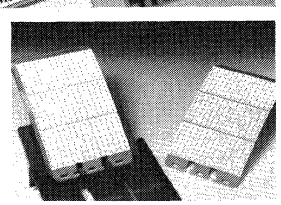


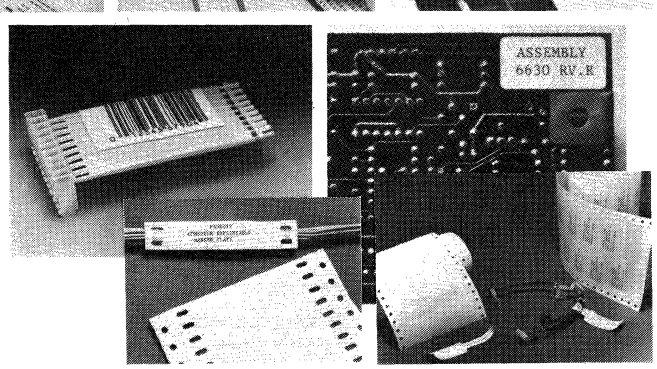
PAN-CODE™ Wire and Identification Markers

Crisp legends—complete line—proven service

- Wire markers available in vinyl cloth, vinyl polyester, aluminum or acetate, on dispenser cards with full or half sizes, in a large variety of legends. Markers are also available on tape and book pages adaptable to roll-over index stands.
- Custom markers—any legend, size or color to meet your specific requirements.
- EDP printable products to produce your own legends. PAN-MARK™ software is available for faster label design, bar code printing and greater productivity.
  - --Labels. Choose from self-laminating or blank types. Choose color, material and size to meet your application.
  - --Data plates. Mark wire harnesses and cable.
  - --Rag tags. Soft cloth markers for bundle ID.
  - --Laser printable type. Single sheet form.
  - --Heat shrinkable type.







PANDUIT QUALITY
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Tinley Park, IL 60477-0981
FAX: (708) 532-1811

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Call 800-777-3300

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 91/92 EDITION OF EEM

Abbreviations/Acronyms **A**•1114, **B**•1037, **C**•1116, **D**•1068
AC Power Supplies, Product Selection Guide **D**•2146
ASCII Code **D**•1086
Batteries, Product Selection Guide **D**•1427
Batteries & Fuel Cells, Characteristics **D**•1468
Cabinets, Enclosures, Racks & Chassis, Product Selection Guide **C**•1003
Capacitors, Basic Formulas **A**•1078
Capacitors, Miniglossary **A**•1054
Capacitors, Product Selection Guide **A**•1003
Coils, Chokes, Inductors, Product Selection Guide **A**•1155
Conductors, Maximum Current Capacity of Copper & Aluminum **C**•1825
Connectors, Miniglossary **C**•1329
Connectors, Terminals & Sockets, Product Selection Guide **C**•1149
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **A**•1300
DC Power Supplies, Product Selection Guide **D**•1501
Delay Lines, Product Selection Guide **A**•1493
Dielectrics, Thermal Conductivity **C**•1709
Discrete Semiconductors, Product Selection Guide **A**•2082
Displays, Readouts, & CRTs, Product Selection Guide **B**•1032
EBCDIC Code **D**•1110
Encapsulation, Miniglossary **C**•1126
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **C**•1601
Fiber Optics, Miniglossary **B**•1224
Fiber Optics, Product Selection Guide **B**•1214
Filters, Power, Product Selection Guide **A**•1609
Filters, Signal, Product Selection Guide **A**•1651
Instruments, Test & Measuring, Product Selection Guide **D**•1207
Interconnection Systems, Product Selection Guide **C**•1678
Keyboards & Keypads, Product Selection Guide **B**•1794
Lamps, Lights, & Indicators, Product Selection Guide **B**•1135
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Military Qualified Products List **B**•1002
Motors, Drives, & Rotating Components, Product Selection Guide **B**•1233
Opto Semiconductors, Miniglossary **B**•1334
Oscilloscopes, Product Selection Guide **D**•1406
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Panel Meters, Analog & Digital, Product Selection Guide **D**•1340
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide **A**•2013
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Power Supplies, DC, Product Selection Guide **D**•1501
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide **B**•1347
Relay Contact Forms **B**•1550
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Relays, Product Selection Guide **B**•1397
Resistor Color Codes **A**•1924
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Solenoids, Product Selection Guide **B**•1614
Switches, Product Selection Guide **B**•1639
Symbols—International Authorities **A**•1139, **B**•1024, **C**•1156, **D**•1090
Thermal Components, Product Selection Guide **B**•1831
Thermal Conductivity of Dielectrics at Room Temperature **C**•1709
Thyristors/High Power Diodes, Miniglossary **A**•1728, **A**•2084
Timers, Miniglossary **B**•1409, **D**•1149
Trademark & Logofinder Directories **C**•901
Transducers & Encoders, Product Selection Guide **B**•1872
Transformers, Product Selection Guide **A**•2131
Wire & Cable, Product Selection Guide **C**•1705
Wire Gauges—Diameter, Area, Copper Weight **C**•1864

International Cords & Cordsets

Designing your Product for Export

There are three important technical hurdles facing the designer of equipment that will be exported:

- the product must be easily connected to foreign mains power outlets or wall sockets.
- the product must work at foreign mains voltages and frequencies which range from 100-250VAC at 50 or 60Hz. European voltages are typically 220 at 50 Hz. (See our power inlet modules with integral voltage selectors in Section 2100.)
- the product must conform to foreign product safety standards as enforced by appropriate national standards and test agencies.

Specify Harmonized Cordage when Exporting

Note that cords or cordsets on products being shipped to Europe—and almost everywhere outside of North America—must utilize Harmonized cordage manufactured to CENELEC standards HD-21 (PVC jacketed) or HD-22 (rubber jacketed). Harmonized cordage differs from North American AWG cordage in several ways. The main differences are:

- Primary insulation color coding:

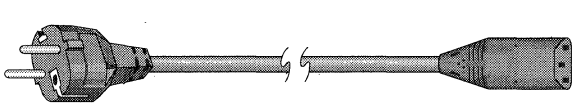
	Harmonized	North Amer. AWG
Line	Brown	Black
Neutral	Blue	White
Ground	Yellow-Green	Green

- Harmonized wire sizes are expressed in metric units (North American wire sizes are expressed in AWG). Some common power cordage wire sizes are noted below:

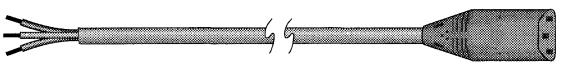
AWG	Closest Metric Equiv.	Max. Current
18 AWG	0.75mm²	6A
16 AWG	1.00mm²	10A
14 AWG	1.50mm²	16A

Specifying International Power Connections (options at right)

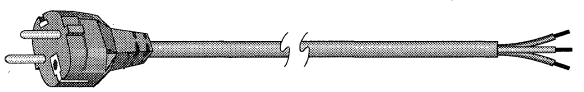
1. **Detachable cordsets** based on IEC 320, standard sheets C13 & 14. Benefit: Flexibility. The IEC 320 power inlet (installed on product) and outlet (on cordset) allows the manufacturer to attach a cordset with the correct international or North American wall plug just before shipment. Current ratings are limited to 10 amps by European agencies. (IEC 320 standard sheets C19 & C20 permit detachable power connections rated at 16 amps—PCC offers several standard high-power cordsets—see the pages which follow for more information.)



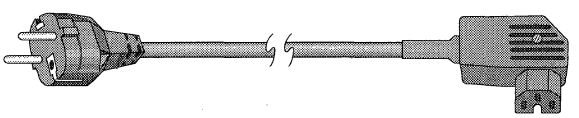
2. **IEC 320 cord with Harmonized or SJT cordage and no plug:** Ready for attachment of correct overseas or NEMA plug—when small export volume does not justify stocking different cordsets



3. **Power Supply Cords:** Usually specified when equipment requires more than 10A. For applications rated at 10-16 amps, 1.5mm² (cp. 14AWG) conductors are specified.



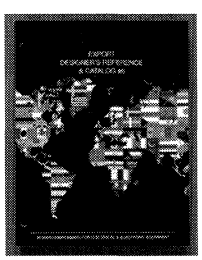
4. **Made-to-Order Cord & Cordset Assemblies:** Specify a made-to-order assembly when standard model is not available or when special end preparations are required.



5. **Cordage:** When neither a molded power supply cord or cordset is suitable, international or North American cordage with appropriately sized conductors may be the best alternative.

Many of the parts shown on pages 2 – 6 which follow are available from stock in Santa Rosa, CA. Call toll-free for more information or to request our current catalog.

Designing for Export? We make it easy!



Free—Export Designer's Reference & Catalog

Export Designer's Reference/Catalog *gives detailed information about world electrical requirements; each product section is preceded with a review of international requlations. Call toll free for your free copy of our current edition.*

Components carry ***approvals by UL, CSA, VDE, SEMKO, SEV,*** *and other safety agencies.*

Most items are ***available for fast shipment*** *from our large inventory.*

We have ***no minimum order*** *and can ship prototype orders quickly.*

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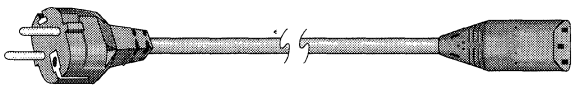
INTERNATIONAL power components • see also Section 2100 (Connectors) • 4050 (Int'l Power Source) • 4300 (Fuses) • 5600 (Transformer) ❷

1. Detachable Cordsets

IEC 320 Lock*

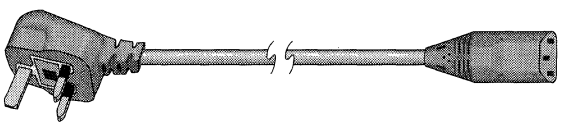
CONTINENTAL EUROPE (GERMAN)

#86511052: CEE 7/7 plug used in Austria, Belgium, Finland, France, West Germany, Netherlands, Norway, Sweden • Conductor Size: 1.00mm² • For use at 10A, 220VAC/50Hz • Length: 2.5 meters (98.4" ± 4") • Black
Approvals: OVE, CEBEC, VDE, KEMA, SEMKO, SETI, UTE



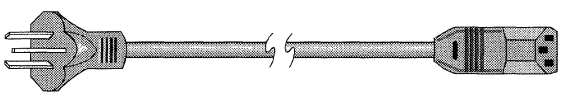
UNITED KINGDOM/IRELAND

#86552046: BS-1262 plug with 13A fuse • Conductor Size: 3x1.00mm² • For use at 10A, 240VAC/50Hz • Approval: ASTA



AUSTRALIA/NEW ZEALAND

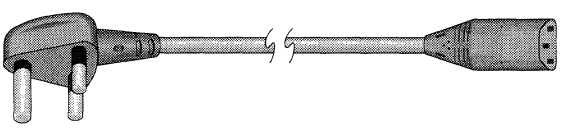
#86516035: AS 3112 plug • Conductor Size: 3 x1.00mm² • For use at 10A, 240VAC/50Hz • Approvals: SECV, Telecom



(none)

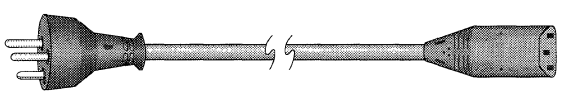
INDIA

#86559011: Old Brit. BS 546 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Approval: None required



DENMARK

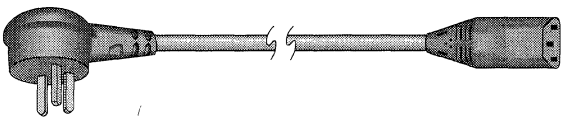
#86536041: Afsnit 107-2-D1 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Approval: DEMKO



IEC 320 Lock*

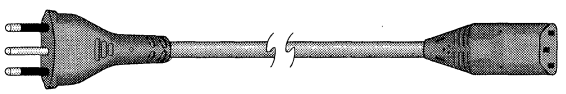
ISRAEL

#86558011: SI 32 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Approval: None



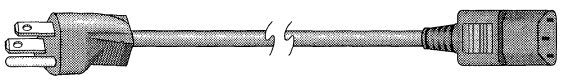
ITALY

#86531031: CEI 23-16/VII plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Approvals: IMQ



JAPAN

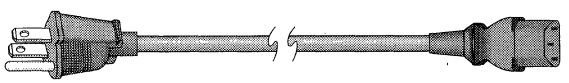
#86531031: CEI 23-16/VII plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Approvals: IMQ



(none)

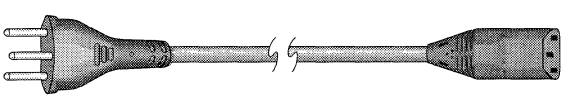
NORTH AMERICA

#86537030: NEMA 5-15P plug • Conductor Size: 3 x 18 AWG • For use at 10A, 120VAC/60Hz • UL list., CSA cert.

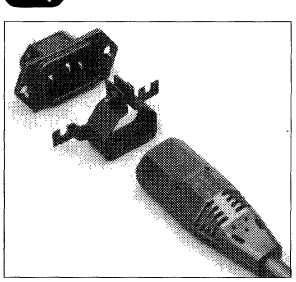


SWITZERLAND

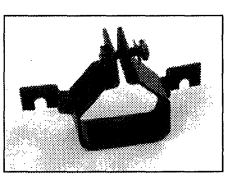
#86515050: SEV 1011.1959 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Approval: SEV



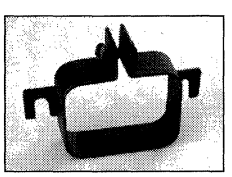
*IEC 320 Connector Locks for Cordsets Above



Connector lock secures cordset to IEC 320 power inlet to prevent accidental power interruption. Cordsets can be easily removed without disrupting the connector lock. Connector locks are available for most cordsets shown above.



#85910010: Connector lock for cordsets #86511052, #86552046, #86559011, #86539041, #86558011, #86531031 & #86515050



#85910020: Connector lock for cordset #86537030 above

PANEL COMPONENTS CORPORATION
Call for complete catalog: U.S. Toll Free (800) 662-2290 • Canadian Toll Free (800) 346-4526
P. O. Box 6626 • Santa Rosa, CA 95406 • Telephone (707) 523-0600 • FAX (707) 578-5478

International Cords & Cordsets, continued

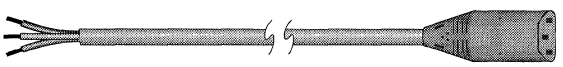
2. Unterminated IEC 320 Cords

For handwired plug

Ready for attachment of correct North American or overseas plug. Cords are black; 2.5 meters (98.4", ± 4"); stripped 50mm jacket; 5mm conductors. Call for availability of plugs and/or assembly services.

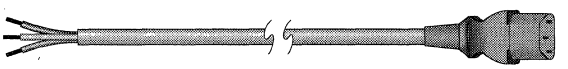
INTERNATIONAL

#86525050: Utilizing Harmonized Cordage • Cond. Size: 1.00mm² • Rated 10A, 250VAC/50Hz • VDE, BSI, CEBEC, DEMKO, IMQ, KEMA, OVE, NEMKO, SEMKO, SETI, SEV, UTE, EANSW (Australia)



NORTH AMERICAN

#86525032: Utilizing SJT Cordage • Conductor Size: 3 x 18 AWG • For use at 10A, 120VAC/60Hz • UL recog., CSA cert.



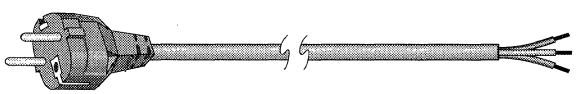
3. International Power Supply Cords

Permanently installed

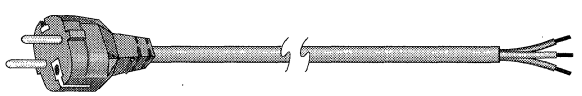
CONTINENTAL EUROPE (GERMAN)

CEE 7/7 plug used in Austria, Belgium, Finland, France, West Germany, Netherlands, Norway, Sweden

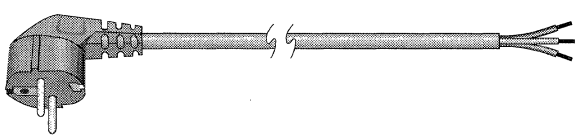
#86517030: CEE 7/7 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Length: 2.5 meters (98.4" ± 4") • Black • Approvals: OVE, CEBEC, VDE, KEMA, SEMKO, SETI, UTE.



#86518030: CEE 7/7 plug • Conductor Size: 3 x 1.50mm² • For use at 16A, 220VAC/50Hz • Length: 2.5 meters (98.4" ± 4") • Black • Approval: VDE.

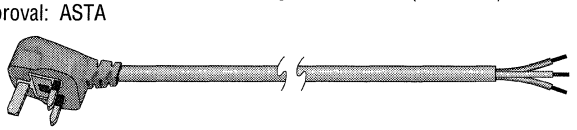


#86519030: CEE 7/7 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Length: 2.5 meters (98.4" ± 4") • Black • Approvals: OVE, CEBEC, VDE, KEMA, SEMKO, SETI, UTE.

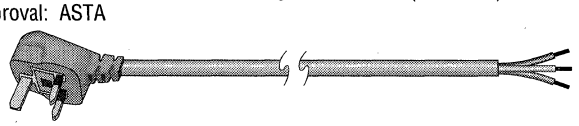


UNITED KINGDOM/IRELAND

#86554004: BS-1262 plug with 13A fuse • Conductor Size: 3 x 1.00mm² • For use at 10A, 240VAC/50Hz • Length: 2.5 meters (98.4" ± 4") • Black • Approval: ASTA

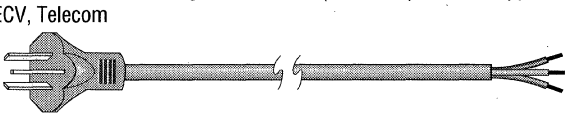


#86584000: BS-1262 plug with 13A fuse • Conductor Size: 3 x 1.00mm² • For use at 10A, 240VAC/50Hz • Length: 2.5 meters (98.4" ± 4") • Black • Approval: ASTA



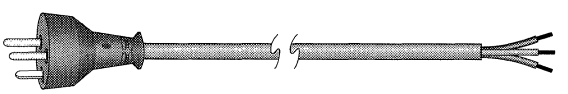
AUSTRALIA/NEW ZEALAND

#86522030: AS 3112 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 240VAC/50Hz • Length: 2.5 meters (98.4" ± 4") • Black • Approvals: SECV, Telecom



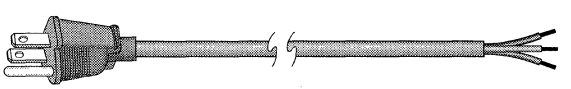
DENMARK

#86539030: Afsnit 107 plug • Conductor Size: 3 x 1.00mm². For use at 10A, 220VAC/50Hz • Approval: DEMKO

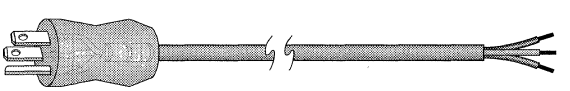


NORTH AMERICA

#86590041: NEMA 5-15P plug • Conductor Size: 3 x 18AWG • For use at 10A, 120VAC/60Hz • UL recog.; CSA cert.

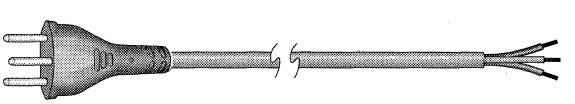


#86610400: *For medical applications:* clear NEMA 5-15P plug • Conductor Size: 3 x 18AWG • For use at 10A, 120VAC/60Hz • UL listed; CSA cert.



SWITZERLAND

#86521040: SEV 1011.1959 plug • Conductor Size: 3 x 1.00mm² • For use at 10A, 220VAC/50Hz • Approval: SEV



International Cords & Cordsets, continued

4. Made-to-Order Cords & Cordsets

Assembly Services

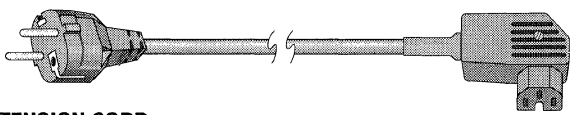
In-house, made-to-order assembly services are available for requirements such as special lengths, plug and connector assemblies, special end preparation (e.g., custom cut and strip requirements, solderless terminals), labeling, packaging, coiling, hanking.

We specialize in short runs (100-1000 pieces) with quick turn-arounds and no minimum order. The following cords and cordsets are examples of our made-to-order capabilities; call for more information.

CONTINENTAL EUROPE

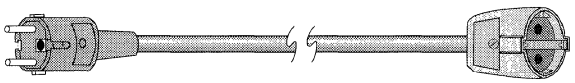
CORDSET

#868014--: With angled connector • For use at 10A, 220VAC/50Hz • Specify length to 8.2' max.



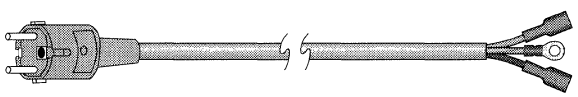
EXTENSION CORD

#868278--: Handwired plug and in-line connector. For use at 16A, 220VAC/50Hz • Specify length to 8.2' max.



CORD WITH CRIMP TERMINALS

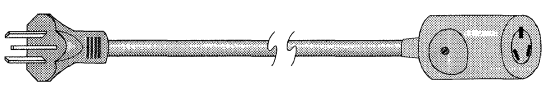
#8680676: With angled connector • For use at 10A, 220VAC/50Hz • Specify length to 8.2' max.



AUSTRALIA/NEW ZEALAND

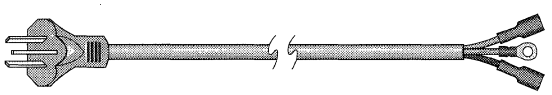
EXTENSION CORD

#868284--: For use at 10A, 240VAC/50Hz • Specify length to 8.2' max.

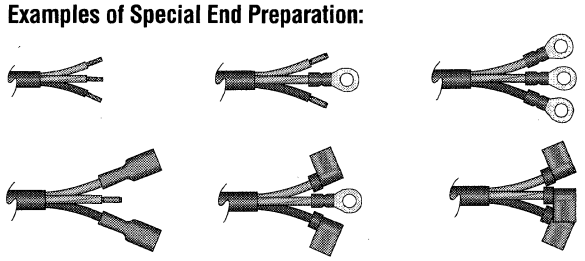


CORD WITH CRIMP TERMINALS

#868064--: For use at 10A, 240VAC/50Hz • Specify length to 8.2' max.



Examples of Special End Preparation:



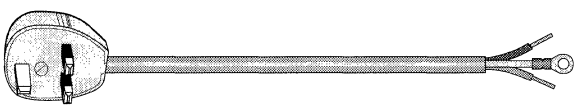
UNITED KINGDOM/IRELAND

CORDSET

#868064--: With angled connector • For use at 10A, 240VAC/50Hz • Specify length to 8.2' max.

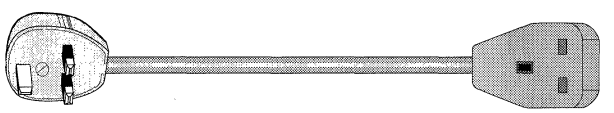
CORD WITH SPECIAL END PREPARATIONS

#869040--: Handwired plug • For use at 10A, 240VAC/50Hz • Specify length to 50' max.



EXTENSION CORD

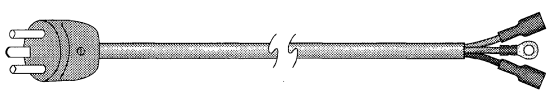
#868294--: Handwired plug and in-line connector. For use at 16A, 220VAC/50Hz • Specify length to 50' max.



DENMARK

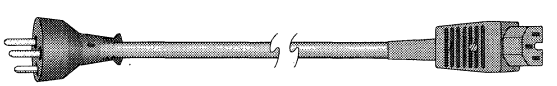
CORD WITH CRIMP TERMINALS

#868676--: For use at 10A, 220VAC/50Hz • Specify length to 50' max.



CORDSET

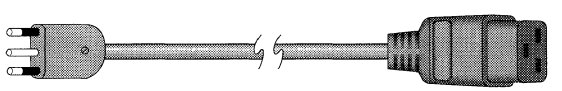
#868082--: For use at 10A, 220VAC/50Hz • Specify length to 8.2' max.



ITALY

CORDS WITH 16A IEC 320 CONNECTOR

#868391--: For use at 16A, 220VAC/50Hz • Specify length to 8.2' max.



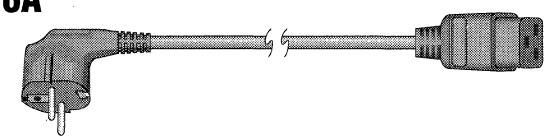
European High Power Connections

The single-phase cords and cordsets below use standard international cords with detachable IEC 320 connectors and/or plugs & inlets based on IEC 309. The 3-phase cords and cordsets below utilize only IEC 309 connectors. IEC 309 outlines s a power connection system for use at 16-125A. Detachable power connection systems are particularly useful where a piece of equipment must be moved from workstation to workstation. IEC 309 connectors are designed to eliminate mismating of connectors of different amperages and voltage ratings through unique key/keyway, pin patterns and connector sizes.

Single Phase Connections, 220-240VAC, 50Hz

Cordsets (Detachable)

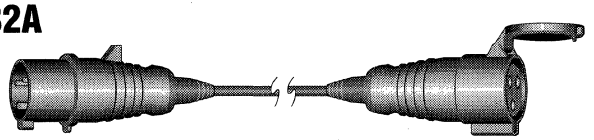
16A



#86595000: Standard Continental European 16A rated cordset (terminated with 16A rated IEC 320 connector). Approvals: VDE, OVE.

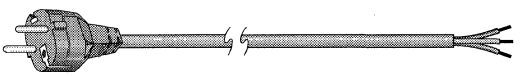
#86833208:* IEC 309 plug, 3 x 1.50mm² Harmonized PVC jacketed cordage and IEC 309 connector. Approvals on plug: VDE, OVE, DEMKO, SEMKO, SEV. Approval on connector: VDE

32A

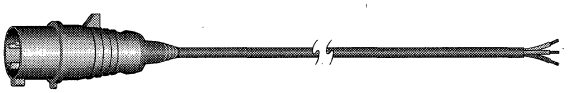


#87520010:* IEC 309 plug, 3 x 4.0mm² Harmonized rubber jacketed cordage and IEC 309 connector. Approvals on plug/connector: VDE.

Cords (Hard-wired)



#86518030: Standard Continental European 16A rated power cord. Approvals: VDE, OVE, SEMKO, NEMKO, SETI, CEBEC, KEMA.



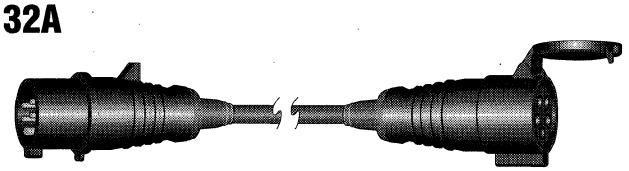
#87510020:* IEC 309 plug, 3 x 1.50mm² Harmonized PVC jacketed cordage. Approval on plug: VDE, OVE, DEMKO, SEMKO, SEV.

#87520020:* IEC 309 plug, 3 x 4.0mm² Harmonized rubber jacketed cordage. Approvals on plug: VDE.

Three Phase Connections, 380-415VAC, 50Hz

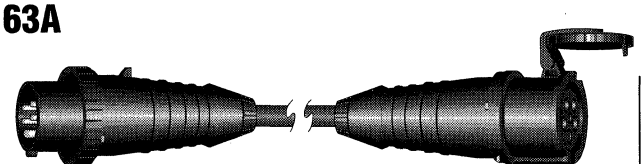
Cordsets (Detachable)

32A



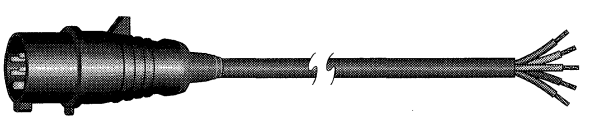
#87530010:* IEC 309 plug, 5 x 4.0mm² Harmonized rubber jacketed cordage and IEC 309 connector. Approvals on plug and connector: VDE, OVE, DEMKO, SETI, KEMA, NEMKO, SEMKO, SEV.

63A

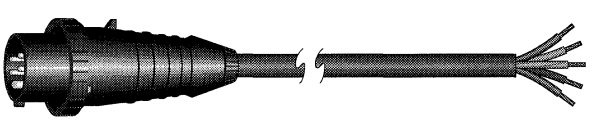


#87540010:* IEC 309 plug, 5 x 10.0mm² Harmonized rubber jacketed cordage & IEC 309 connector. Approval on plug & connector: VDE

Cords (Hard-wired)



#87530020:* IEC 309 plug, 5 x 4.0mm² Harmonized rubber jacketed cordage. Approvals on plug: VDE, OVE, DEMKO, SETI, KEMA, NEMKO, SEMKO, SEV.



#87540020:* IEC 309 plug, 5 x 10.mm² Harmonized rubber jacketed cordage. Approvals on plug: VDE

*** Mating panel-mount outlets and inlets also available**

International & North American Cordage

Products being shipped to Europe—and almost everywhere outside of North America—must utilize Harmonized cordage manufactured to CENELEC standard HD-21 (for PVC jacketed cordage) or HD-22 (rubber jacketed). Harmonized cordage differs from North American AWG cordage in several ways—the most important are:

- ***Primary insulation color coding:***

	Harmonized	North Amer. AWG
Line	Brown	Black
Neutral	Blue	White
Ground	Yellow-Green	Green

- ***Harmonized wire sizes are expressed in metric units*** (North American wire sizes are expressed in AWG). Some common power cordage wire sizes are noted below:

AWG	Closest Metric Equiv.	Max. Current
18 AWG	0.75mm²	6A
16 AWG	1.00mm²	10A
14 AWG	1.50mm²	16A

The cordage models listed below are usually available from stock in Santa Rosa, CA.

Harmonized Cordage

International color coding: Brown (line), Blue (neutral), and Yellow/Green (Ground)

3-Wire Cordage *(single phase)*

PVC Jacketed

Part Number	Size	O.D. (mm)	Color	HD-21 Code
86010014	3x0.75mm²	6.4-8.0	Black	H05VVF3G0.75
86010044	3x1.00mm²	6.8-8.4	Black	H05VVF3G1.00
86010074	3x1.50mm²	8.0-9.8	Black	H05VVF3G1.50
86010124	3x2.50mm²	9.6-12.0	Black	H05VVF3G2.50

Rubber Jacketed

Part Number	Size	O.D. (mm)	Color	HD-22 Code
86010380	3x1.50mm²	9.6-12.5	Black	H07RNF3G1.50
86010390	3x2.50mm²	11.5-14.5	Black	H07RNF3G2.50
86010400	3x4.00mm²	13.0-16.0	Black	H07RNF3G4.00

5-Wire Cordage *(3-phase)*

Rubber Jacketed

Part Number	Size	O.D. (mm)	Color	HD-22 Code
86010410	5x2.50mm²	13.5-17.0	Black	H07RNF5G2.5
86010420	5x4.00mm²	16.0-19.5	Black	H07RNF5G4.0
86010430	5x6.00mm²	18.0-24.5	Black	H07RNF5G6.0
86010440	5x10.0mm²	24.0-30.5	Black	H07RNF5G10.0
86010490	5x16.0mm²	27.0-35.5	Black	H07RNF5G16.0

Cordage is also sold by the reel: contact us for more information

Approval: VDE

North American Cordage

North American color coding: Black (line), White (neutral), and Green (Ground)

3-Wire Cordage *(single phase)*

PVC Jacketed

Part Number	Size	O.D. (nom.)	Color	Cordage Type
86010450	3x18 AWG	.325"	Black	SJT
86010460	3x16 AWG	.345"	Black	SJT
86010470	3x14 AWG	.378"	Black	SJT
86010480	3x12 AWG	.445"	Black	SJT

Rubber Jacketed

Part Number	Size	O.D. (nom.)	Color	Cordage Type
86010600	3x14 AWG	.560"	Black	SO
86010610	3x12 AWG	.630"	Black	SO
86010620	3x10 AWG	.690"	Black	SO

5-wire Cordage *(3-phase)*

Rubber Jacketed

Part Number	Size	O.D.	Color	Cordage Type
86010660	5x10 AWG	.830"	Black	SO
86010670	5x8 AWG	–	Black	SO
88010690	5x4 AWG	–	Black	SEO
86010710	5x1/0 AWG	–	Black	SEO

Cordage is also sold by the reel: contact us for more information

Approval: UL & CSA on most models

Pan-International (U.S.A.) Inc.

9477 E. Archibald Ave., Rancho Cucamonga, CA 91730
Tel: 714-/945-1365 FAX: 714/989-9935
In Northern California Tel: 408/980-9953

INSTRUMENTATION & COMMUNICATIONS CABLE

SHIELDED CABLES

Construction

- Stranded or solid tinned copper conductors
- Color coded polyethylene, polypropylene, polyvinylchloride, or rubber insulation
- Conductors cabled
- Shield Types:
  (A) Braided Tin Copper
  (B) Spiral Tin Copper
  (C) Mylar*/aluminum Foil Shield Wrap and Tin Copper Drain
- Outer Jacket Types:
  (A) PVC
  (B) Black Neoprene
  (C) Black Rubber

Characteristics

- Temperature Range:
  −20°C to +80°C (UL +75°C)
- (UL) CL2

Voltage Rating:

UL 1107	400V	UL 2543	300V
UL 1150	600V	UL 2548	300V
UL 2093	450V	UL 2552	300V
UL 2106	600V	UL 2629	300V
UL 2324	300V	UL 2725	300V

Applications

- Audio • Data Transmission
- Broadcast • Sound

COMPUTER CABLES

Construction: (Low-cap/Miniature)

- Stranded tinned copper conductors
- Color coded "Low-Cap" poly insulation
- Conductors cabled
- Overall Mylar/Aluminum foil shield and 24 stranded tin copper drain wire plus 65% coverage tin copper braid shield overall.
- Gray PVC outer jacket

Characteristics: (Low-cap)

- Temperature range: −20°C + 80°C (UL 80°C) UL 2919 30 Volts

Applications: (Low-cap)

- Computer/Data • CAD/CAM
- EIA RS-232 EIA RS-423

Characteristics (Miniature)

- −20°C to +80°C (UL + 80°C)
- UL 2919 30 Volts
- Low distortion data handling
- Loe dielectric constant
- Lightweight • (UL) CL2
- Meets RS-422 requirements

Applications (Miniature)

- Computer • Data
- FCC Docket 20780 Class A and B

pvc jacketed spiral serve shielded two conductor cable (UL) CL2

Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft.	Shield Type	U.L.
24 (7x32)	P.E.	.018	.020	.130x.260	300	35	Spiral	2629
22 (16x34)	P.E.	.023	.023	.225	400	32	Spiral	2092
22 (solid)	PVC	.011	.020	.170	300	38	Spiral	2095
22 (7x30)	PVC	.012	.020	.160	300	40	Spiral	CL2
20 (10x30)	PVC	.012	.020	.180	300	47	Spiral	CL2
18 (16x30)	PVC	.012	.020	.205	300	53	Spiral	2552

pvc jacketed mylar aluminum shielded three conductor cable (UL) CL2

Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft.	Shield Type	U.L.
22 (7x30)	P.E.	.016	.025	.190	350	23	Mylar Al.	CL2
20 (10x30)	P.E.	.016	.028	.210	450	27	Mylar Al.	2093
18 (16x30)	P.E.	.018	.028	.240	450	24	Mylar Al.	CL2
16 (26x30)	P.E.	.030	.030	.318	450	29	Mylar Al.	2093
14 (41x30)	P.E.	.030	.335	.330	450	36	Mylar Al.	2093

pvc jacketed tin copper shielded three conductor cable (UL) CL2

Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft.	Shield Type	U.L.
20 (26x34)	P.E.	.015	.020	.220	350	45	Braid	2725
22 (7x30)	P.E.	.015	.025	.195	350	35	Spiral	CL2

"low-cap" insulated overall foil and braid multi-conductor cable

24 gauge stranded style 2919 (UL) CL2

Gauge and Strand	No. of Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Cap pF/Ft.
24 (7x32)	3	.015	.032	.203	12.5
24 (7x32)	4	.015	.032	.217	12.5
24 (7x32)	5	.015	.032	.231	12.5
24 (7x32)	6	.015	.032	.249	12.5
24 (7x32)	7	.015	.032	.255	12.5
24 (7x32)	8	.015	.032	.265	12.5
24 (7x32)	9	.015	.032	.285	12.5
24 (7x32)	10	.015	.032	.303	12.5
24 (7x32)	15	.015	.032	.341	12.5
24 (7x32)	25	.015	.032	.411	12.5
24 (7x32)	37	.015	.032	.475	12.5

miniature RG-62 type multi-coaxial cables UL AWM style 2385 & 2386 VW-1 (UL) CL2

RG Type	No. of Cond.	Center Cond.	Insul.	Shield	Jacket Type	O.D. Diam.	Imp. Ohms
RG-62	34	26GA T.C.	Poly	95% TC	PVC	1.230	93

Pan-International Industrial Corp.

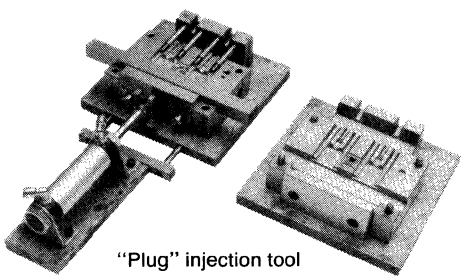
World-Wide Leader in

Molded Cable Assemblies, Interconnect and Wire Harness

PAN's vertically integrated manufacturing system is one of the largest, off-shore factories which handles wire and cable fabrication, mold tooling, connector manufacturing and complete cable assembly, all in-house! Our workforce of over 1200 assembly and manufacturing personnel along with our Technical and Support Team of over 200 offer the highest quality products, with reliable service and support. Our worldwide manufacturing and technical support centers in Taiwan, Malaysia, Thailand, Ireland and the U.S. extend our service abilities to the entire world including the U.S.A., Europe and Asia.

ENGINEERING CAPABILITIES

For your custom OEM molded cable applications and requirements, let our Technical Support Team help you develop the exact cable assembly you need. Custom and special connector requirements, strain relief molds to fit your application are available. We specialize in making your product requirement to meet UL, CL2, CSA and FCC specifications and approvals.

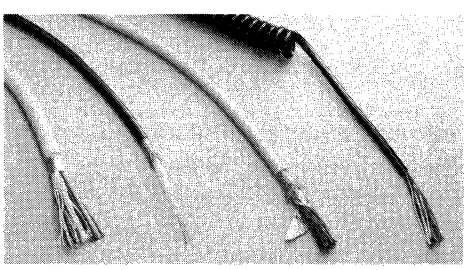


"Plug" injection tool

CABLE FABRICATION

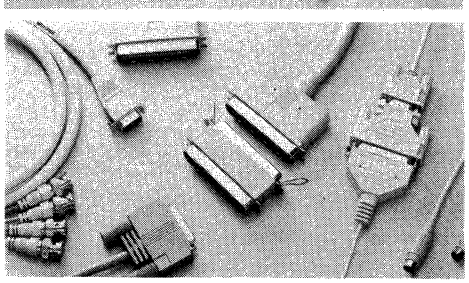
Our in-house integrated manufacturing begins at the wire and cable fabrication. We draw our own wire, custom plate, have braiding and weaving ability, jacket and extrude the insulation.

All to exacting UL and industry standard specifications. Our capabilities include PVC, P-P, PU, Neoprene style wire in standard configurations as well as in custom combinations.



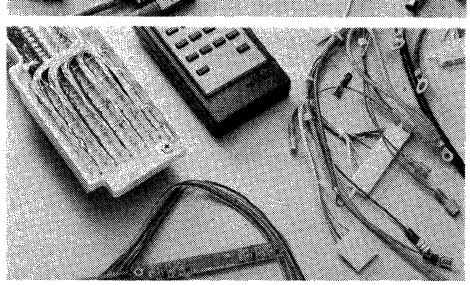
CABLE ASSEMBLY

Computer, commercial, industrial and medical applications for molded cable assemblies using all styles of standard and special connector configurations. Our customer applications include almost every style computer and peripheral connection, including D-subs, DIN, Mini-din, and card edge connectors. Our products are well known for use in the OEM keyboard, mouse, disk drive, modem, video monitor, joystick, SCSI, microphone, LaN and medical sensor markets.



ELECTRONIC and HARNESS

We take pride in our wire harness and custom wiring products used in many applications. Power and control harness assemblies including PCB and other electronic assembly is a major product we supply to your custom prints.



For Further Information, Contact Our U.S. Division:

Pan-International (U.S.A.) Inc.

9477 E. Archibald Ave.,
Rancho Cucamonga, CA 91730
Tel: 714-/945-1365
FAX: 714/989-9935
In Northern California Tel: 408/980-9953

OUR FAMILY OF FACTORIES INCLUDE:

- Pan-International (Taiwan, Malaysia and Thailand) - Molded Cables, Interconnect and Wire Harness.
- Uniform Ind. Corp. (Taiwan) - OEM product development and service with facilities for SMT, COB and thru-hole PCB assy.
- Congreat Div. Co. (Taiwan) - Tooling metal parts, plastic injection molded parts and a full range of connectors.

Pan-International (U.S.A.) Inc.

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Tel: 714-/945-1365 FAX: 714/989-9935
In Northern California Tel: 408/980-9953

COMPUTER CABLES

Construction
"Low-Cap" multi-pair

- Stranded tinned copper conductors
- Color coded "Low-Cap" poly insulation
- Conductors cabled into pairs, fillers as required
- Overall Mylar*/aluminum foil shield and stranded tin copper drain
- Gray PVC outer jacket

Characteristics:

- Temperature range –20°C to +80°C (UL +75°C)
- UL style 2448 VW-1
- Low distortion data handling
- Low dielectric constant
- Lightweight • (UL) CL2

Applications:

- Computer • Data
- FCC docket 20780 Class A and B applications

Construction
"Low-Cap" multi-conductor

- Stranded tinned copper conductors
- Color coded "Low-Cap" poly insulation
- Conductors cabled, fillers as required
- Overall Mylar/aluminum foil shield and stranded tin copper drain
- Gray PVC outer jacket

Characteristics:

- Temperature Range –20°C to +80°C (UL +75°C)
- UL style 2448 VW-1
- Low distortion data handling
- Low dielectric constant
- Lightweight • (UL) CL2

Applications:

- Computer • Data
- FCC Docket 20780 Class A and B applications

Construction
("Low-Cap" Cable) (5350-5368):

- Stranded tinned copper conductors
- Color Coded "Low-Cap" polyethylene insulation
- Conductors cabled, fillers as required
- Overall Mylar*/aluminum foil shield and stranded tin copper drain, plus 65% coverage tin copper braid shield
- Gray PVC outer jacket

"Low-Cap" multi-conductor (foil/braid)
Characteristics:

- Temperature Range –20°C to +80°C
- (UL +75°C)
- UL 2919 30 Volts
- Low distortion data handling
- Low dielectric constant
- Lightweight
- Meets RS-422 requirements • (UL) CL2

Applications:

- Computer • Data
- FCC docket 20780 Class A and B applications

"low-cap" insulated overall foil multi-pair cable

Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. DIA.	Cap. pF/Ft.
24 gauge stranded (UL) CL2 (15.5 cap)					
24 (7x32)	2	.015	.020	.250	12.5
24 (7x32)	3	.015	.020	.260	12.5
24 (7x32)	4	.015	.020	.285	12.5
24 (7x32)	6	.015	.035	.360	12.5
24 (7x32)	9	.015	.035	.410	12.5
24 (7x32)	12	.015	.035	.460	12.5
24 (7x32)	12½	.015	.035	.455	12.5
24 (7x32)	15	.015	.035	.485	12.5
24 gauge stranded (UL) CL2 (15.5 cap)					
24 (7x32)	2	.010	.020	.240	15.5
24 (7x32)	3	.010	.020	.250	15.5
24 (7x32)	4	.010	.020	.270	15.5
24 (7x32)	6	.010	.035	.340	15.5
24 (7x32)	9	.010	.035	.390	15.5
24 (7x32)	12	.010	.035	.440	15.5
24 (7x32)	12½	.010	.035	.440	15.5
24 (7x32)	15	.010	.035	.465	15.5

"low cap" insulated overall foil multi-conductor cable

Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. DIA.	Cap. pF/Ft.
24 gauge stranded (UL) CL2 (12.5 cap)					
24 (7x32)	3	.015	.020	.175	12.5
24 (7x32)	4	.015	.020	.190	12.5
24 (7x32)	5	.015	.020	.205	12.5
24 (7x32)	6	.015	.020	.220	12.5
24 (7x32)	7	.015	.020	.225	12.5
24 (7x32)	8	.015	.020	.235	12.5
24 (7x32)	9	.015	.020	.255	12.5
24 (7x32)	10	.015	.020	.275	12.5
24 (7x32)	15	.015	.035	.340	12.5
24 (7x32)	25	.015	.035	.425	12.5

"low cap" insulated overall foil and braid multi-conductor cable

Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. DIA.	Cap. pF/Ft.
28 gauge stranded (UL) CL2					
28 (7x36)	3	.015	.020	.165	12
28 (7x36)	4	.015	.020	.180	12
28 (7x36)	5	.015	.020	.195	12
28 (7x36)	6	.015	.020	.205	12
28 (7x36)	7	.015	.020	.210	12
28 (7x36)	8	.015	.020	.225	12
28 (7x36)	9	.015	.020	.245	12
28 (7x36)	10	.015	.020	.265	12
28 (7x36)	15	.015	.035	.310	12
28 (7x36)	25	.015	.035	.375	12
28 (7x36)	37	.015	.035	.410	12

The Wire of the Future Here Today!

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MICROMINIATURE HOOK-UP WIRE

Using the best insulation known to man and capitalizing on experience in the insulating of Teflon®, dating back to 1951, Phoenix Wire has developed a Multi-layer thin wall wire to aid in miniaturization.

● 300 Volt Service ● Operating temperature −90° to +260°C ● Silver Plated Conductor ● Multi-layer TFE-Teflon® insulation insures uniformity, quality, and concentricity ● Extreme Flexibility; long lengths ● No danger from Soldering Irons ● Chemically Inert — Weather resistant, non-flammable; zero moisture absorption; natural lubricity ● Available in 10 Bright colors ● Space & Weight savings invaluable in miniaturization programs ● Parallel flat, triangular, and twisted multi-conductor cables available.

Catalog Number	AWG Size	Bare Conductor Diameter	Stranding	Insulation Wall Thickness		Insulated Wire Diameter		
				Minimum	Maximum	Minimum	Nominal	Maximum
30738MHW	30	.0120	7/38	.0029	.0039	.0178	.0188	.0198
301040MHW	30	.0114	10/40	.0029	.0039	.0172	.0182	.0192
301942MHW	30	.0125	19/42	.0029	.0039	.0183	.0193	.0203
302544MHW	30	.0115	25/44	.0029	.0039	.0173	.0183	.0193
304046MHW	30	.0117	40/46	.0029	.0039	.0175	.0185	.0195
32740MHW	32	.0093	7/40	.0025	.0035	.0143	.0153	.0163
321944MHW	32	.0100	19/44	.0022	.0036	.0154	.0163	.0172
322546MHW	32	.0093	25/46	.0025	.0035	.0143	.0153	.0163
326450MHW	32	.0093	64/50*	.0025	.0035	.0143	.0153	.0163
34540MHW	34	.0078	5/40	.0025	.0032	.0128	.0135	.0142
34742MHW	34	.0075	7/42	.0024	.0030	.0123	.0129	.0135
341044MHW	34	.0073	10/44	.0022	.0028	.0121	.0127	.0133
341646MHW	34	.0074	16/46	.0023	.0029	.0122	.0128	.0134
341946MHW	34	.0080	19/46	.0024	.0032	.0129	.0137	.0145
344050MHW	34	.0073	40/50*	.0022	.0028	.0121	.0127	.0133
36340MHW	36	.0061	3/40	.0015	.0025	.0093	.0102	.0111
36744MHW	36	.0060	7/44	.0015	.0025	.0092	.0101	.0110
361046MHW	36	.0059	10/46	.0015	.0025	.0091	.0100	.0109
362550MHW	36	.0058	25/50*	.0015	.0025	.0090	.0099	.0109
38444MHW	38	.0046	4/44	.0017	.0021	.0080	.0084	.0088
38746MHW	38	.0048	7/46	.0017	.0021	.0082	.0086	.0090
381650MHW	38	.0046	16/50*	.0017	.0021	.0080	.0084	.0088
401050MHW	40	.0037	10/50*	.0015	.0017	.0067	.0069	.0071
42650MHW	42	.0031	6/50*	.0013	.0015	.0057	.0059	.0061

*Bare Copper Conductor

TDQ
SUBMINIATURE LEAD WIRE

For greater economy, but still retaining all the features of our MHW (with the exception of less flexibility) try our TDQ Wire. Bare Copper or Silver Plated Copper Conductor standard. Conductor of your choice may also be used.

Catalog Number	AWG Size	Bare Conductor Diameter	Insulation Wall Thickness		Insulated Wire Diameter		
			Minimum	Maximum	Minimum	Nominal	Maximum
24TDQ	24	.0201	.0035	.0049	.0269	.0285	.0301
26TDQ	26	.0159	.0032	.0045	.0222	.0236	.0251
28TDQ	28	.0126	.0029	.0039	.0183	.0194	.0206
30TDQ	30	.0100	.0027	.0036	.0153	.0163	.0173
32TDQ	32	.0080	.0025	.0032	.0129	.0137	.0145
34TDQ	34	.0063	.0021	.0027	.0104	.0111	.0118
36TDQ	36	.0050	.0019	.0023	.0087	.0092	.0097
38TDQ	38	.0040	.0016	.0019	.0071	.0075	.0079
40TDQ	40	.0031	.0013	.0015	.0056	.0059	.0062
42TDQ	42	.0025	.0010	.0012	.0044	.0047	.0050
44TDQ	44	.0020	.0009	.0011	.0037	.0040	.0043

MFC
MULTICONDUCTOR MICROMINIATURE AND SUBMINIATURE FLAT CABLES
GAUGES: 24—44

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Specializing in the application of less than .00025″ to over .006″ of Teflon® (TFE and FEP) to wires of any composition in AWG. Gauges: 14 to 60.

- **Teflon® Insulated Magnet Wire. Gauges: 14 to 60**
- **Teflon® Tubing & Lead Wire**
- **Wire Harness & Electronic Assembly Capability**
- **Microminiature and Subminiature Flat Cables. Gauges: 24 to 44**

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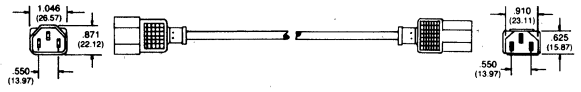
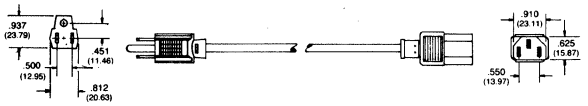
Power Dynamics, Inc.
P.O. Box 539•59 Lakeside Avenue, West Orange, NJ 07052 (201) 736-5722•Fax (201) 736-8930

American Electric Jumper Cord Set 10095 10096



American Cord Set 10088



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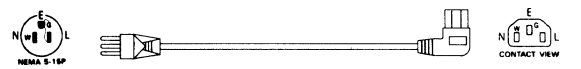

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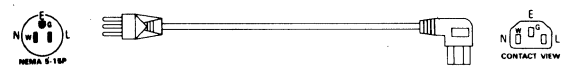

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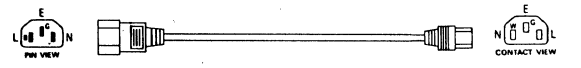
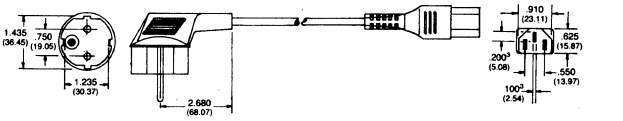
10080 10079

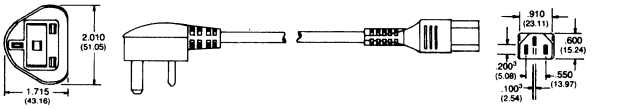
10078



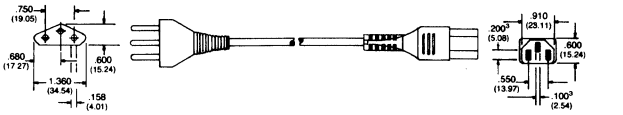
Continental European Cord Set 12013



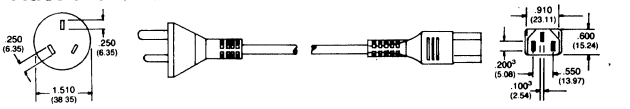
British Fused Cord Set 14012



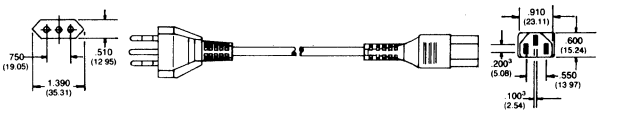
Swiss Cord Set 13012



Australian/New Zealand Cord Set 15012



Italian Cord Set 14512



Selection of the proper Cord Set allows your international customer the convenience of a finished product ready for use immediately upon unpacking. The proper selection of a Cord Set also makes the product easier to use by overseas customers and enhances its overseas marketing value.

Power Dynamics offers basic Cord Sets to meet most international requirements. Each Cord Set is molded to indicate the appropriate National Safety Agency approvals.

Part Number	Approval	Rating	Size of Conductor AWG	Size of Conductor Composition	Description	Cord Length	Temp. Rating*	Nominal O.D.	Color
10095	UL, CSA	10A 125V			18/3 SVT 41/34 B.C.	3′3″ (1.0M)		.255 (6.5)	Black
10096	UL, CSA	10A 125V			18/3 SVT 41/34 B.C.	7′6″ (2.3M)		.255 (6.5)	Black
10088	UL, CSA	10A 125V			18/3 SVT 41/34 B.C.	7′6″ (2.3M)		.255 (6.5)	Black
10087	UL, CSA	10A 125V			16/3 SJT 66/0.16	7′6″ (2.3M)		.34 (8.6)	Black
10086	UL, CSA	1250W 10A 125V	18	41/0.16	SVT	7′6″ (2.3M)	SVT-60°C, 75°C, 105°C		
10085	UL, CSA (Pending)	1250W 10A 125V	16	66/0.16	SJT	7′6″ (2.3M)	SJT-60°C, 75°C, 105°C		
10084	UL, CSA	1250W 10A 125V	18	41/0.16	SVT	7′6″ (2.3M)	SVT-60°C, 75°C, 105°C		
10083	UL, CSA (Pending)	1250W 10A 125V	16	66/0.16	SJT	7′6″ (2.3M)	SJT-60°C, 75°C, 105°C		
10082	UL, CSA	1250W 10A 125V	18	41/0.16	SVT	7′6″ (2.3M)	SVT-60°C, 75°C, 105°C		
10081	UL, CSA (Pending)	1250W 10A 125V	16	66/0.16	SJT	7′6″ (2.3M)	SJT-60°C, 75°C, 105°C		
10080	UL, CSA	1250W 10A 125V	18	41/0.16	SVT	7′6″ (2.3M)	SVT-60°C, 75°C, 105°C		
10079	UL, CSA (Pending)	1250W 10A 125V	16	66/0.16	SJT	7′6″ (2.3M)	SJT-60°C, 75°C, 105°C		
10078	VDE	10A 250V			3 × 1.0mm² HO5VV-F	7′6″ (2.3M)		.283 (7.2)	Black
12013	VDE, MQ, UTE, NEMKO, CEBEC, SEMKO, FEI, ÖVE, KEMA	10A 250V			3 × 1.0mm² HO5VV-F	8′2″ (2.5M)		.283 (7.2)	Black
14012**	BSI	10A 250V			3 × 1.0mm² HO5VV-F	8′2″ (2.5M)		.283 (7.2)	Black
13012	SEV	10A 250V			3 × 1.0mm² HO5VV-F	8′2″ (2.5M)		.283 (7.2)	Black
15012	SECV	10A 250V			3 × 1.0mm² HO5VV-F	8′2″ (2.5M)		.283 (7.2)	Black
14512	MQ	10A 250V			3 × 1.0mm² HO5VV-F	8′2″ (2.5M)		.283 (7.2)	Black

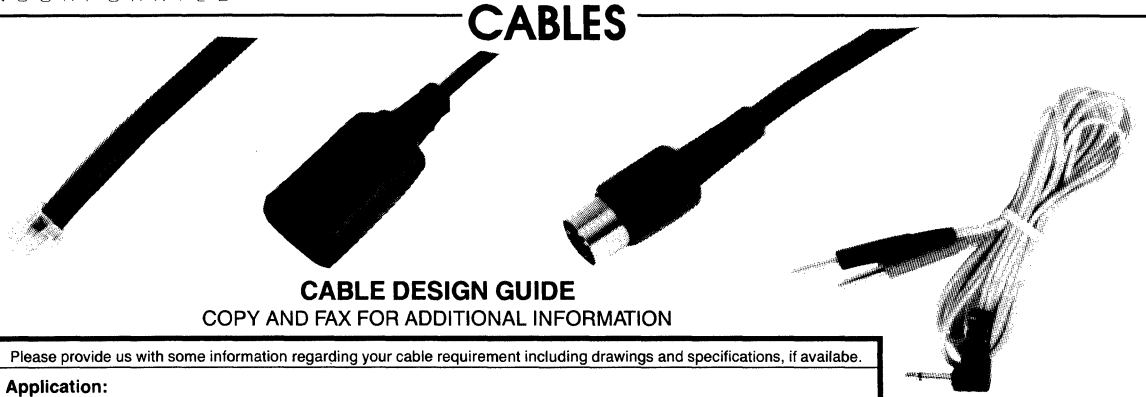
Specifications subject to change without notice. Metric dimensions are shown in parenthesis. *If not specified 60° will be supplied. **Supplied with 13 Amp fuse. Also available with 3 and 5 Amp fuses. Note: To specify shielded cord, add suffix: A. Copper braid shielded B. 100% Aluminum-mylar tape shielded. C. Both of A. & B.

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG • FSC60046

RDI ELECTRONICS INCORPORATED

The following information is excerpted from our catalog. Please contact us for your complete guide to the components available from RDI Electronics.

CABLES



CABLE DESIGN GUIDE

COPY AND FAX FOR ADDITIONAL INFORMATION

Please provide us with some information regarding your cable requirement including drawings and specifications, if availabe.

Application:

Type:

Flat____ Round____ Coiled____ Straight____

Audio____ Video____ Computer____ Telephone____ Power____

Inner Conductors:

Number: Solid/Stranded:

No. of pairs, if any: Insulation - Inner Conductors*

Type:

Gauge (AWG): Thickness:

Colors:

Copper/Tinned Copper: *If not noted, factory standard will apply.

Shielding Material and % of Coverage:

Mylar: Copper/Tinned copper:

Foil: Spiral/Braided:

Jacket:

Type (PVC, PU, Hytrel):
Thickness*:
Color: (Black, Grey, White, Other):

*If not noted, factory standard will apply.

Power Cord Jacket (Circle):

No. American: XT, HPN, SPT-1, SPT-2, SPT-3, SVT, SJT, SJTW/SJTW-A
Western European and U.K.: HO3VVH2-F, HO3VV-F, HO5VV-F
Color (Black, Grey, White, Other):
Temperature Rating (60°C, 70°C, 90°C, 105°C):

Cable Length:

Type of Termination - Each End:

For more information regarding available termination types, give us a call.

For unterminated cables, specify strip length:

Agency Approvals (UL, CSA, VDE, Other):

Information not covered above:

Estimated annual usage:

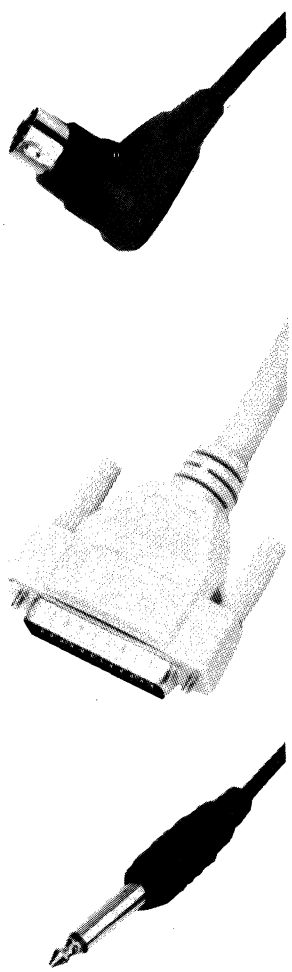
Name: Title:

Company:

Address:

City: State: Zip:

Phone: Fax:



FROM PROTOTYPE TO PRODUCTION, SPECIFY RDI ELECTRONICS FOR QUALITY, SERVICE AND COMPETITIVE PRICING.

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manufactured to your exact specifications

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power supply cords

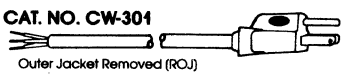
Power Supply Cords

CAT. NO. CW-201G

CAT. NO. CW-201

Applicable Wire Type		Rating
SPT-2	16AWG/2C	13A, 125V
SPT-1, SPT-2, HPN	18AWG/2C	10A, 125V
XT	20AWG/2C	5A, 125V
HPN	16AWG/2C	15A, 125V
SJT (O)	16AWG/2C	13A, 125V
SVT, SJT (O)	18AWG/2C	10A, 125V
SJT (O)	14AWG/2C	15A, 125V

CAT. NO. CW-301

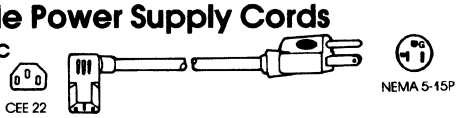


CAT. NO. CW-301G

Applicable Wire Type		Rating
SPT-1 (W-A)	18AWG/3C	10A, 125V
SPT-2 (W-A)	18AWG/3C	10A, 125V
SVT (O), SJT (O)	18AWG/3C	10A, 125V
SJT (O), SPT-2	16AWG/3C	13A, 125V
SJT (O)	14AWG/3C	15A, 125V

Detachable Power Supply Cords

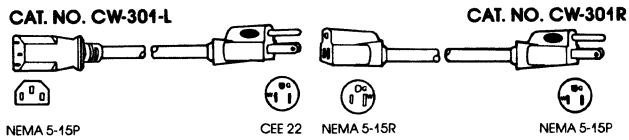
CAT. NO. CW-301-C



Applicable Wire Type		Rating
SJT, SVT	18AWG/3C	10A, 125V

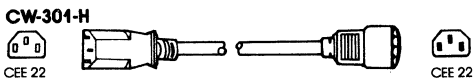
CAT. NO. CW-301-L

CAT. NO. CW-301R



Applicable Wire Type		Rating
SJT	18AWG/3C	10A, 125V
SJT	16AWG/3C	13A, 125V

CAT. NO. CW-301-H

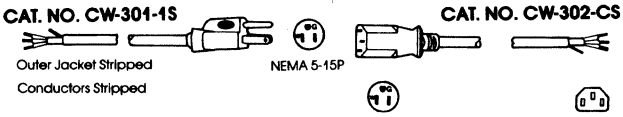


Applicable Wire Type		Rating
SJT	18AWG/3C	10A, 125V
SJT	16AWG/3C	13A, 125V

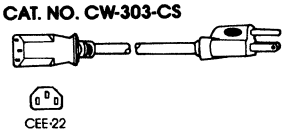
Shielded Power Supply Cords

CAT. NO. CW-301-1S

CAT. NO. CW-302-CS

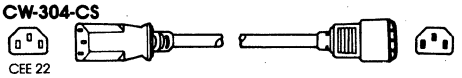


CAT. NO. CW-303-CS



Applicable Wire Type		Rating
SVT, SJT	18AWG/3C	10A, 125V
SJT	16AWG/3C	13A, 125V
SJT	14AWG/3C	15A, 125V

CAT. NO. CW-304-CS

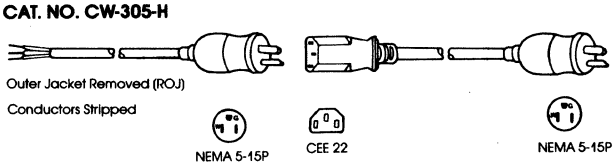


3 Conductor Hooded Male Shielded Included)
3 Conductor Wiring Harness

Applicable Wire Type		Rating
SVT, SJT	18AWG/3C	10A, 125V
SJT	16AWG/3C	13A, 125V
SJT	14AWG/3C	15A, 125V

Hospital Grade Power Supply Cords

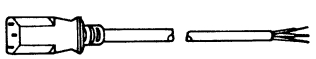
CAT. NO. CW-305-H



Applicable Wire Type		Rating
SJT	18AWG/3C	10A, 125V
SJT	16AWG/3C	13A, 125V

Wiring Harnesses

CAT. NO. CW-306-H



Outer Jacket Removed (ROJ)
Conductors Stripped

Applicable Wire Type		Rating
SVT, SJT	18AWG/3C	10A, 125V
SJT	16AWG/3C	13A, 125V

also available

- COAXIAL CABLE
- COMPUTER CABLES
- MONITOR EXTENSION CABLES
- KEYBOARD EXTENSION CABLE
- CEE FLEXIBLE CORD
- EXTENSION CORDS
- CORD GRIP PLUGS
- EUROPEAN CORD SETS

eem MINIGLOSSARY CONNECTORS

Connector terminology is often quite confusing. This confusion starts with the very names of connectors. The name of a connector may derive from its shape, application, type of conductor or even method of termination.

Shape—Circular, cylindrical, and rectangular.

Electrical application—High voltage, RF, microwave, input/output, etc.

Mechanical application—Printed circuit, rack & panel, cable, etc.

Conductor type—Coaxial, flat cable, ribbon cable, flex circuit, etc.

Termination method—Wirewrap, soldercup, solderless, etc.

Hardware such as clamps, hoods, and adapters are frequently used to convert cable connectors to rack and panel types. This adds to the name confusion. A very common telephone connector, for example (the "C" type) got its name from the model number of the original maker.

Contact: The part(s) of the connector that actually provides circuit continuity between its two sections—the parts which are normally mated. The back end of the connector should properly be called the *termination.* This is the point where the wires or PC board is attached to the connector.

Contact alignments: Often called *contact float.* Describes the amount of allowable contact movement within the connector body. Permits self-alignment.

Male vs. female: In the U.S. this describes the contact construction. In Europe this term is more often used to describe the outer shell mating action which may be the reverse of the contacts.

Closed entry: A female contact which prevents entry of a male contact larger than a specific size.

Open entry: A female contact designed for a specific size of male contact but which will allow entry of larger male contacts by spring action.

Hermaphrodite: Contacts or connector bodies which are the same configuration. Male/female designations do not apply. Bodies usually have some mechanical means for maintaining polarity.

Hermetic seal: Glass-to-metal seals at terminations. Often used improperly to describe vacuum-tight seals.

Waterproof seal: May or may not be truly *waterproof.* May prevent easy entrance of casual water by means of a rubber or other boot.

Printed circuit connector: Connectors which are used in conjunction with printed circuit boards. There are two distinctly different styles.

Edgeboard. May be called *edge* or *card.* The printed circuit (PC) board edge enters the connector.

Two-piece: One part of the connecting pair is physically attached to the PC board itself. The other part is attached to something else such as a cable or a motherboard.

Readout: Describes the arrangement at the terminating edge of a PC board. May be single or double. A double readout PC board has termination strips on each side not usually interconnected.

Ribbon connectors: A type of connector which allows flat "ribbon" cable to be attached to a round or rectangular connector but also used interchangeably for flat connectors to flat cable.

Ribbon contact connector: Describes the contacts in a rectangular connector which have a self-wiping mating action. Not the same as ribbon connector.

Solderless terminal: Any style of termination which does not require solder for a permanent connection. See *crimp* and *insulation displacement.*

Crimp termination: A stripped wire is inserted into a barrel or trough which is then crimped to the conductor with a suitable tool.

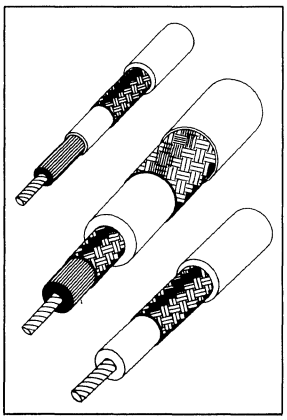
Insulation displacement: Unstripped insulated wire is fitted into a channel containing metal teeth which are forced through the insulation to make contact with the conductor.

Service rating: The maximum rated voltage and/or current which may be applied continuously. May be called *working voltage.* Can be confused with the term used to describe how many times a connector may be mated and separated.

Withstanding voltage: Also called *test voltage.* The voltage a connector must withstand for one minute without breakdown. Applied between connectors and between connectors and shell and any grounding devices of the connector.

Rowe High Temperature, High Voltage, Cable and Wire

High Voltage Cable



Rowe Industries has provided industry and the military with high reliability, corona-free, high voltage cable designed for use in varied and exacting applications such as accelerators, radar, X-ray, and ECM equipment.

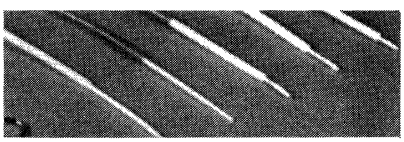
The semi-conducting corona-suppressing layers with thermosetting materials provide noise free, corona-free cable and wire. Various high pulse coax and triax types are listed in the chart.

Primary insulation is extruded silicone and outer jacket is silicone, neoprene or PVC. Consult factory for exact cable construction.

Cable jacket color is black. Additional colors are available for some cables. Consult factory.

Rowe Cable No.	Center Conductor AWG Size & Plating	Final O.D. (Inches)	Capitance Rating PF/FT	Voltage Rating KVDC
Coax				
R5234-1	#20 (14/32) TPC	.215	43	30
R5743-1	#20 (19/32) SPC	.260	30	15
R1020-2	#20 (19/33) TPC	.280	36	15
2R1032-4	#16 (19/29) SPC	.340	48	30
R3146-2	#22 (19/34) SPC	.285	50	25
2R1020-3	#20 (7/26) SPC	.375	46	30
R1037-1	#16 (19/29), TPC	.495	50MMF/FT	25
R1035-1	#16 (19/29) TPC	.565	50	25
R7000-1	#16 (19/29) TPC	.615	56	40
R1006-1	#12 (19/25) TPC	.625	50	50
R1081-2	#12 (19/25) SPC	.670	55	56
2R1080-1	#10 (37/26) TPC or SPC	1.100	55	90
R1046-1	#10 (19/23) TPC	.830	49	75
Triax				
R1296-1	#12 (19/25) TPC	.540	66	30
R7010-1	#6 (133/27) TPC	.825	100	40
R7020-1	#12 (19/25) TPC	.880	56	55
2R1068-1	#8 (133/29) SPC	1.200	51	80
R1068-1	#10 (19/23) TPC or SPC	1.000	40	100

High Voltage Silicone Coated Teflon Insulated Wire



Rowe's high voltage silicone coated teflon wire is designed for use in radar systems, ECM's, CRT displays, laser systems, and airborne system applications where maximum operating capability with minimal size is a must.

Silicone coated teflon wire offers excellent dielectric strength while maintaining the small diameter so often required in a systems' package design. The wire can be easily bonded to with most silicone based RTV's, eliminating the need for chemical etching of teflon wires.

All operating voltages listed are continuous DC ratings from +55°C to +150°C, and sea level to 70,000 ft.

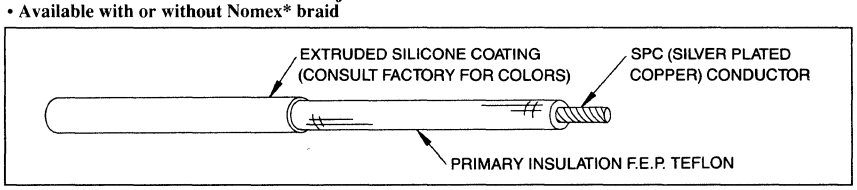
* "Nomex is a trademark for DuPont Aramid (Polyomide) Fibers "Teflon" is a trademark of DuPont

Features:
• Voltage ratings thru 60 kvdc • 26 AWG thru 20 AWG conductor • -55°C to +150°C operating temperature range • High flexible • Easy bonding to extruded silicone outer jacket • Small diameter • Available with or without silicone outer jacket • Available with or without Nomex* braid

Ordering Information: When ordering wire specify part number followed by applicable dash number for color.

EXAMPLE: **RCB10081-24-6**

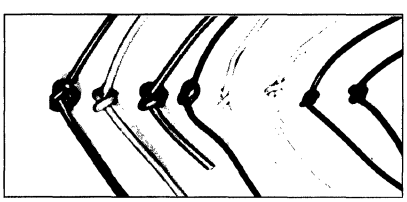
BASE PART NO. — COLOR



Base Part No.	Physical Characterisiics Conductor	Primary O.D.	Final O.D.	Electrical Characteristics Operating Voltage	Test Voltage
RCB10081-24	24 (19/36) AWG	.050 NOM.	.070 NOM.	18 KVDC	36 KVDC
RCB10081-22	22 (19/34) AWG	.060 NOM.	.080 NOM.	20 KVDC	40 KVDC
RCB10081-20	20 (19/32) AWG	.080 NOM.	.100 NOM.	22 KVDC	45 KVDC
RCB10081-19	20 (19/32) AWG	.100 NOM.	.120 NOM.	25 KVDC	50 KVDC

Follows standard IEEE color code.

"Super Tough" and "UL 3239" High Voltage Silicone Lead Wire



"Super Tough" High Voltage Silicone Lead Wire was developed for high abrasion resistance requirements and exhibits excellent dielectric capability in extreme environments. **"UL 3239"** High Voltage Silicone Lead Wire exhibits excellent dielectric capability in extreme environment areas where high abrasion resistance, high voltage, flame resistance, and flexibility are major requirements.

Specifications*

Conductor — Silver or tin plated copper stranding** (/SPC indicates silver plating)

Temperature Rating:
"Super Tough" —
SPC -65° to +200°C (250°C Intermittent)
TPC -40°C to +150°C
"UL 3239" — 150°C (250°C Intermittent)

Voltage Ratings — Maximum DC voltage rating in air

Wire Marking — Per UL 3239 requirements

"Super Tough" High Voltage Silicone Lead Wire

Rowe Catalog No.	AWG Size	Strand	O.D. Nom.	Maximum Operating Volt. Rating DC
R790-0222	22	19/34	.054	2KV
R790-0522	22	7/30	.070	5KV
R790-1022	22	19/34	.090	10KV
R790-1522	22	19/34	.110	15KV
R790-2022	22	7/30	.130	20KV
R790-2522	22	19/34	.160	25KV
R790-6022	22	19/34	.380	60KV
R790-1520	20	19/32	.120	15KV
R790-2020	20	19/32	.150	20KV
R790-2520	20	19/32	.166	25KV
R790-3020	20	19/32	.190	30KV
R790-2518	18	19/30	.160	25KV
R790-4518	18	19/30	.295	45KV
R790-2016	16	41/32	.161	20KV
R790-3516	16	41/32	.265	35KV
R790-4516	16	19/29	.300	45KV
R790-6016	16	26/30	.380	60KV
R790-3014	14	19/27	.256	30KV
R790-6014	14	19/27	.385	60KV
R790-2012	12	19/25	.205	20KV
R790-3012	12	19/25	.275	30KV
R790-4012	12	19/25	.335	40KV
R790-5012	12	19/25	.414	50KV
R790-6012	12	19/25	.445	60KV

"UL 3239" High Voltage Silicone Lead Wire

Rowe Catalog No.	AWG Size	Strand	Nom. Wall Thickness (Inches)	Nom. O.D.	Voltage Rating
*R800-2022	22	7/30	.050	.130	20KV
R800-2522	22	7/30	.065	.160	25KV
R800-3022	22	7/30	.090	.210	30KV
R800-2020	20	10/30	.050	.135	20KV
R800-2520	20	10/30	.065	.165	25KV
R800-3020	20	10/30	.090	.215	30KV
R800-2018	18	16/30	.050	.150	20KV
R800-2518	18	16/30	.065	.180	25KV
R800-3018	18	16/30	.090	.230	30KV
R800-2016	16	26/30	.050	.160	20KV
R800-3016	16	26/30	.090	.240	30KV
R800-4016	16	26/30	.120	.300	40KV
R800-3014	14	41/30	.090	.255	30KV
R800-4014	14	41/30	.120	.315	40KV
R800-4012	12	65/30	.120	.335	40KV
R800-5012	12	65/30	.160	.415	50KV
R800-4010	10	105/30	.120	.360	40KV
*R800-5010	10	105/30	.160	.440	50KV

*Per UL3239 requirements.

*Consult factory for variation available for conductor stranding, plating, AWG, size and voltage rating. Standard insulation is white. Other colors and special configurations available.

**When ordering tin plated stranding, add "/TPC" to P/N (i.e. R790-20022/TPC)

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ROWE INDUSTRIES, INC.

Talley™ Industries

For information on Rowe connections and cable assemblies see the Connectors, Terminals & Sockets Section.

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Shogyo Prices... always competitive, usually better
and...
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- *Connectors:*
  modular, panel mount, chassis mount, pin printed circuit mount, DIN, coaxial cable, cable, miniature consent, feeder consent, tube socket, BNC, UHF, and MIC
- *Jacks:*
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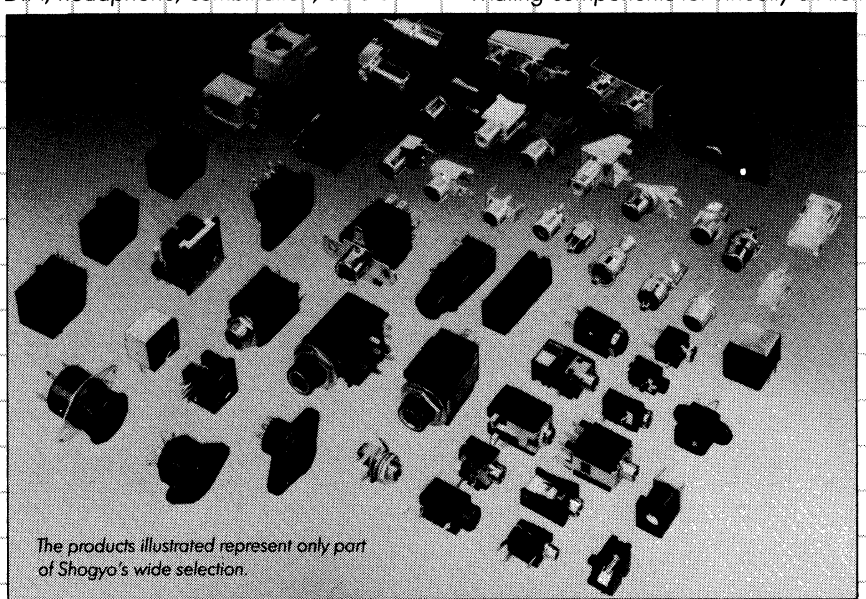
- *Plugs:*
  phone, communication, barrel, microphone, DC, automobile, automobile antenna, DIN, RCA phono, pin, coaxial, banana, solderless, pin tip, and polarizing
- *Modular telephone apparatus:*
  a full line of jacks, connectors, handset and line cords
- *Terminal boards, binding posts, barrier strips, clips, and fuse holders*

And featuring:

- *Shielding*
- *A wide variety of angles, mountings, sizes and shapes*
- *Mating components for virtually all items*



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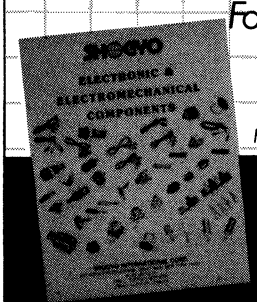

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For complete product listings and specifications, request our free catalog.

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  coiled, straight, round, flat, or oval; copper, stranded or tinsel; with 4, 6 or 8-position modular plugs or spade lugs; and keyed or un-keyed for mating with connectors
- *Audio:*
  shielded, unshielded, single or multi-conductor, with molded plugs and in-line jacks
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- *Computer/Video:*
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- *Power:*
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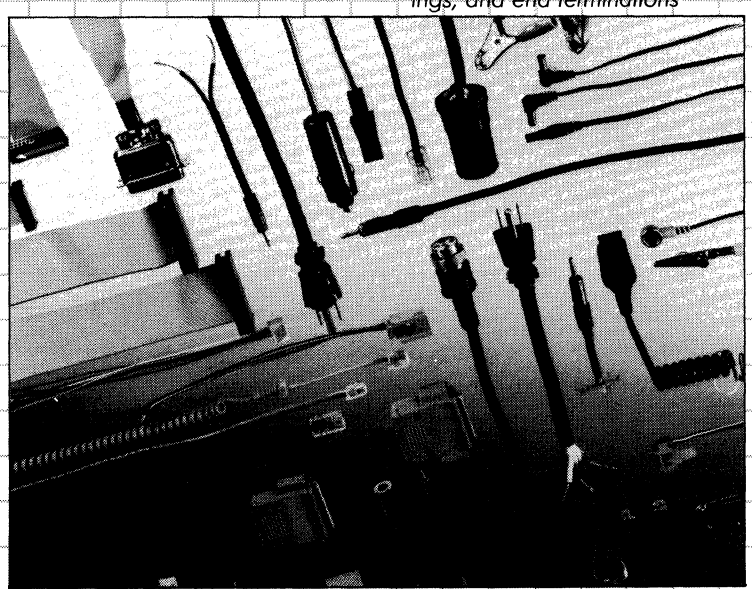
And featuring:

- *A comprehensive selection of lengths, thicknesses, coilings, and end terminations*



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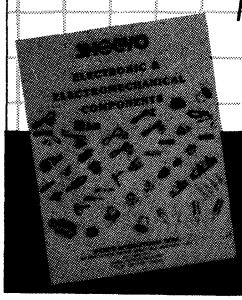

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FLAT/OVAL MULTI-CONDUCTOR/UNSHIELDED

- ☐ UNIFORM CAPACITANCE THROUGHOUT THE CABLE OR ANY CABLE SECTION
- ☐ provides consistent electrical transmission properties between multiple lots of cable
- ☐ DESIGNED FOR CONNECTORIZING WITH DATA MODULAR MALE PLUGS
- ☐ GOOD FIELD RELIABILITY
- ☐ IMPROVED FLEXIBILITY FOR EASIER INSTALLATION AND ENHANCED APPEARANCE
- ☐ LOW HEIGHT OF CABLE COMPARED TO STANDARD I/O CABLES
- ☐ reduces bulkiness of an installation
- ☐ allows higher density of multiple cables
- ☐ FLAT/OVAL CABLE CONSTRUCTIONS ARE CONFIGURABLE IN ONE OF TWO WAYS FOR CONNECTING THE CABLE:
- ☐ simulated pairs—balanced line configuration
- ☐ parallel—non-balanced or single line configuration
- ☐ NEC® Power-Limited Circuit Cable Article 725 Class 2 & 3 Circuits (CL2).

2 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Parallel Termination
Pair #1 Red/Green	#1 Red #2 Green

(this cable is identical for either configuration)

4 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Parallel Termination
Pair #1 Black/Red #2 Green/Yellow	#1 Black #2 Red #3 Green #4 Yellow

6 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Parallel Termination
Pair #1 White/Black #2 Red/Green #3 Yellow/Blue	#1 White #2 Black #3 Red #4 Green #5 Yellow #6 Blue

8 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Parallel Termination
Pair #1 Blue/Orange #2 Black/Red #3 Green/Yellow #4 Brown/Grey	#1 Blue #2 Orange #3 Black #4 Red #5 Green #6 Yellow #7 Brown #8 Grey

SEVERE DUTY FLAT/OVAL MULTI-CONDUCTOR PHYSICAL ENGINEERING DATA

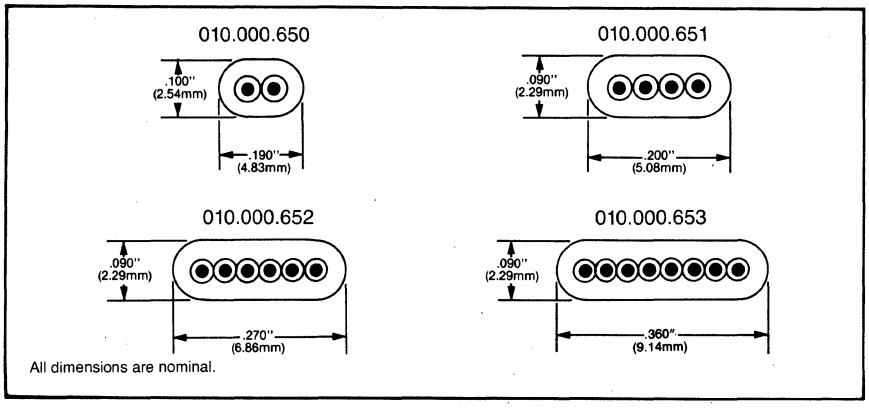
Property	Cable Part Number			
	010.000.650	010.000.651	010.000.652	010.000.653
Conductor Type	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy
Conductor Stranding (AWG)	7 x 34 (26)	7 x 34 (26)	7 x 34 (26)	7 x 34 (26)
Number of conductors	2	4	6	8
Insulation Material	MYLAR® or C21	MYLAR® or C21	MYLAR® or C21	MYLAR® or C21
Jacket Material	C75	C75	C75	C75
Jacket Flammability Rating	UL 94VO @ .025" (.64mm) Thickness	UL 94VO @ .025" (.64mm) Thickness	UL 94VO @ .025" (.64mm) Thickness	UL 94VO @ .025" (.64mm) Thickness
Jacket Color	Black	Black	Black	Black
Jacket Finish	Matte	Matte	Matte	Matte
Nominal Cable O.D. inches (mm)	.100 x .190 (2.54 x 4.83)	.090 x .200 (2.29 x 5.08)	.090 x .270 (2.29 x 6.86)	.090 x .345 (2.29 x 8.76)
Cable Configuration	Congifurable as Simulated Pair or Parallel			
Can be coiled: Y/N	Y	Y	Y	Y
Outdoor use: Y/N	Y	Y	Y	Y
Cable durability category	Excellent	Excellent	Excellent	Excellent
Flex life	Good-Very Good	Good-Very Good	Good-Very Good	Good-Very Good
UL Temperature Rating	80°C	80°C	80°C	80°C
UL Style(s)	20187	20187	20187	20187
[1]Nominal Impedance @ 4 MHz (as Simulated pair)	95Ω	95Ω	95Ω	95Ω

Other conductor sizes and cable constructions are available upon request. Color-matched outer jackets to customer specifications are available. MYLAR® is a registered trademark of E.I. Du Pont de Nemours & Co., Inc. [1]Test results were obtained per Virginia Plastics impedance testing procedures.

MATERIALS FEATURES:

C21 (CPRE 21): Oriented Polyester
- Comparable to oriented polyesters like Mylar®
- Toughness suited for thin wall construction
- Outstanding cut-through resistance
- Excellent flex and stress crack resistance
- Wide operating temperature range
- Flame retardant
- Good chemical resistance

C75 (CPRE75): Vinyl-Rubber blend
- Outstanding flame retardancy (UL94V-O)
- UL evaluated/classified as a unique material
- Superior cut-through/abrasion resistance
- Undamaged by tough, abusive environments
- Excellent resistance to ultraviolet light
- Excellent strength characteristics
- Wide operating temperature range



All dimensions are nominal.

VIRGINIA PLASTICS
1701 MIDLAND ROAD/SALEM, VA 24153
P.O. BOX 4577/ROANOKE, VA 24015-0577
703-375-0100
FAX 703-375-0135

MULTI-PURPOSE DATA CABLES/UNSHIELDED**

- ☐ UNIFORM CAPACITANCE THROUGHOUT THE CABLE OR ANY CABLE SECTION
- ☐ reduces capacitance imbalances between sections taken from a single length of cable
- ☐ eliminate impedance mismatches that are typically found throughout a single length of cable
- ☐ provides consistent electrical transmission properties between multiple lots of cable
- ☐ DESIGNED FOR CONNECTORIZING WITH DATA MODULAR MALE PLUGS
- ☐ HIGHER FIELD RELIABILITY THAN STANDARD I/O CABLES
- ☐ IMPROVED FLEXIBILITY FOR EASIER INSTALLATION AND ENHANCED APPEARANCE
- ☐ ALL MULTI-PURPOSE DATA CABLE CONSTRUCTIONS ARE CONFIGURABLE IN ONE OF TWO WAYS FOR CONNECTING THE CABLE:
- ☐ simulated pairs—balanced line configuration
- ☐ lower capacitance isolated conductors*—non-balanced or single line configuration

4 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Lower Capacitance Termination
Pair	Isolated
#1 Black/White	#1 Black/Red
#2 Red/Green	#2 White/Green

6 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Lower Capacitance Termination
Pair	Isolated
#1 Black/White	#1 Black/Red
#2 Red/Green	#2 White/Green
#3 Brown/Blue	#3 Brown/Blue

8 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Lower Capacitance Termination
Pair	Isolated
#1 Black/White	#1 Black/Red
#2 Red/Green	#2 White/Green
#3 Brown/Blue	#3 Brown/Orange
#4 Orange/Yellow	#4 Blue/Yellow

10 CONDUCTOR
CONFIGURED TO BE A

Simulated Pair Termination	Lower Capacitance Termination
Pair	Isolated
#1 Black/White	#1 Black/Red
#2 Red/Green	#2 White/Green
#3 Brown/Blue	#3 Brown/Orange
#4 Orange/Yellow	#4 Blue/Yellow
#5 Purple/Grey	#5 Purple/Grey

*measured between two single conductors

**SHIELDED VERSIONS ALSO AVAILABLE

SEVERE DUTY/EXTENDED LIFE UNSHIELDED MULTI-PURPOSE DATA CABLE PHYSICAL ENGINEERING DATA

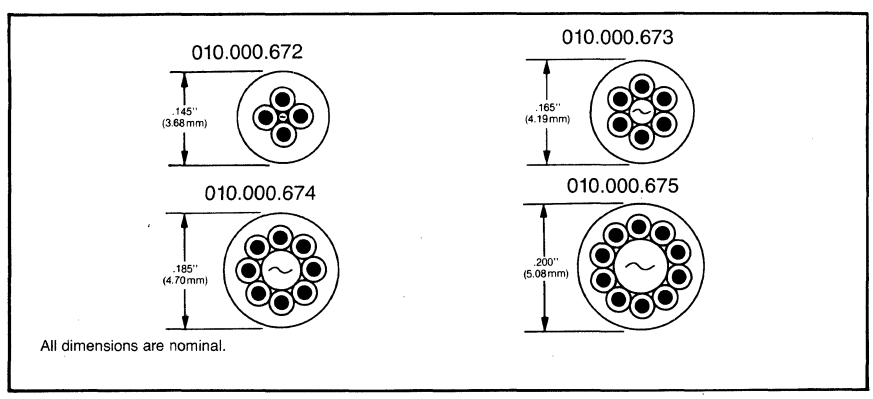
Property	Cable Part Number			
	010.000.672	010.000.673	010.000.674	010.000.675
Conductor Type	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy
Conductor Stranding (AWG)	7 x 34 (26)	7 x 34 (26)	7 x 34 (26)	7 x 34 (26)
Number of conductors (excluding drain wire)	4	6	8	10
Insulation material	MYLAR® or C21	MYLAR® or C21	MYLAR® or C21	MYLAR® or C21
Jacket Material	C75	C75	C75	C75
Jacket Flammability Rating	UL 94VO @ .025" (.64mm) Thickness	UL 94VO @ .025" (.64mm) Thickness	UL 94VO @ .025" (.64mm) Thickness	UL 94VO @ .025" (.64mm) Thickness
Jacket Color	Black	Black	Black	Black
Jacket Finish	Matte	Matte	Matte	Matte
Nominal Cable O.D. inches (mm)	.145 (3.68)	.165 (4.19)	.185 (4.70)	.200 (5.08)
Cable Configuration	Configurable as Simulated Pair or Low Capacitance			
Can be coiled: Y/N	Y	Y	Y	Y
Outdoor use: Y/N	Y	Y	Y	Y
Cable durability category	Excellent	Excellent	Excellent	Excellent
Flex life	Excellent	Excellent	Excellent	Excellent
UL Temperature Rating	80°C	80°C	80°C	80°C
UL Style(s)	20187	20187	20187	20187
[1]Nominal Impedance @ 4 MHz (as Simulated pair)	90Ω	90Ω	90Ω	90Ω

Other conductor sizes and cable constructions are available upon request. Color matched outer jackets to customer specifications are available. MYLAR® is a registered trademark of E.I. Du Pont de Nemours & Co., Inc. [1]Test results were obtained per Virginia Plastics impedance testing procedures.

MATERIALS FEATURES:

C21 (CPRE 21): Oriented Polyester
- Comparable to oriented polyesters like Mylar®
- Toughness suited for thin wall construction
- Outstanding cut-through resistance
- Excellent flex and stress crack resistance
- Wide operating temperature range
- Flame retardant
- Good chemical resistance

C75 (CPRE75): Vinyl-Rubber blend
- Outstanding flame retardancy (UL94V-O)
- UL evaluated/classified as a unique material
- Superior cut-through/abrasion resistance
- Undamaged by tough, abusive environments
- Excellent resistance to ultraviolet light
- Excellent strength characteristics
- Wide operating temperature range



All dimensions are nominal.

VIRGINIA PLASTICS
1701 MIDLAND ROAD/SALEM, VA 24153
P.O. BOX 4577/ROANOKE, VA 24015-0577
703-375-0100
FAX 703-375-0135

TWISTED PAIR DATA CABLE/UNSHIELDED*

- ☐ UNIFORM CAPACITANCE THROUGHOUT THE CABLE OR ANY CABLE SECTION
- ☐ minimizes capacitance imbalances between sections of cable typically found in datacommunications cable
- ☐ provides matched impedance throughout the cable
- ☐ provides consistent electrical cable properties between multiple lots of cable
- ☐ SPECIAL CABLING PROCESS PRODUCES A UNIFORM TWIST OF THE PAIRED CONDUCTORS
- ☐ DESIGNED FOR CONNECTORIZING WITH DATA MODULAR MALE PLUGS
- ☐ GOOD FIELD RELIABILITY AND EXTENDED LIFE
- ☐ PAIRED CONDUCTORS MAINTAIN THEIR TWIST ARRANGEMENT REGARDLESS OF CABLE ROUTINGS USED FOR INSTALLING OFFICE LAYOUTS OR LAYOUT CHANGES
- ☐ IMPROVED FLEXIBILITY FOR EASIER INSTALLATION AND ENHANCED APPEARANCE

UNSHIELDED

Two unshielded twisted pair
Standard Conductor Colors

Black/Yellow
Red/Green

Three unshielded twisted pair
Standard Conductor Colors

Black/Yellow
Red/Green
Blue/White

Four unshielded twisted pair
Standard Conductor Colors

Black/Yellow
Red/Green
Blue/White
Orange/Brown

Contact Virginia Plastics for special color code requirements

*SHIELDED VERSIONS ALSO AVAILABLE

IMPEDANCE CONTROLLED UNSHIELDED TWISTED PAIR DATA CABLE PHYSICAL ENGINEERING DATA

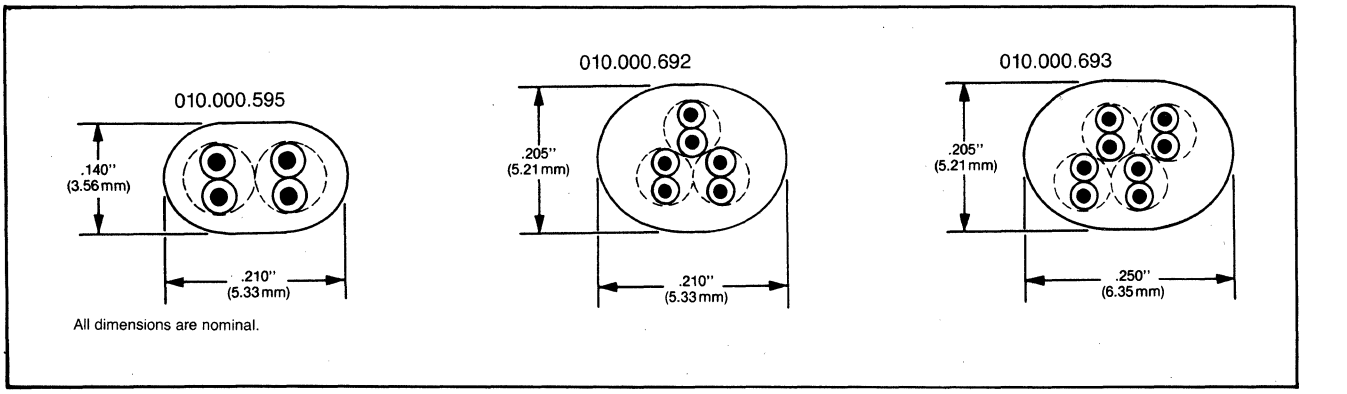
Property	Cable Part Number		
	010.000.595	**010.000.692**	**010.000.693**
Conductor Type	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy	Tin-Plated Copper/Alloy
Conductor Stranding (AWG)	7 x 34 (26)	7 x 34 (26)	7 x 34 (26)
Number of conductors (excluding drain wire)	4	6	8
Insulation material	MYLAR® or C21	MYLAR® or C21	MYLAR® or C21
Jacket Material	Phenyl PVC	Phenyl PVC	Phenyl PVC
Jacket Flammability Rating	UL 94VO @ .030" (.76mm) Thickness	UL 94VO @ .030" (.76mm) Thickness	UL 94VO @ .030" (.76mm) Thickness
Jacket Color	Black	Black	Black
Jacket Finish	Semi-Gloss	Semi-Gloss	Semi-Gloss
Nominal Cable O.D. inches (mm)	.140 x .210 (3.56 x 5.33)	.205 x .210 (5.21 x 5.33)	.205 x .250 (5.21 x 6.35)
Cable Configuration	Two Unshielded Twisted Pair	Three Unshielded Twisted Pair	Four Unshielded Twisted Pair
Can be coiled: Y/N	Y	Y	Y
Outdoor use: Y/N	N	N	N
Cable durability category	Very Good	Very Good	Very Good
Flex Life	Very Good	Very Good	Very Good
UL Temperature Rating	60°C–80°C	60°C–80°C	60°C–80°C
UL Style(s)	2626	2626	2626
[1]Nominal Impedance @ 4 MHz (as twisted pair)	100Ω	100Ω	100Ω

Other conductor sizes and cable constructions are available upon request. Color matched outer jackets to customer specifications are available. MYLAR® is a registered trademark of E.I. Du Pont de Nemours & Co., Inc. [1]Test results were obtained per Virginia Plastics impedance testing procedures.

MATERIALS FEATURES:

C21 (CPRE 21): Oriented Polyester
- Comparable to oriented polyesters like Mylar®
- Toughness suited for thin wall construction
- Outstanding cut-through resistance
- Excellent flex and stress crack resistance
- Wide operating temperature range
- Flame retardant
- Good chemical resistance

Phenyl PVC
- Outstanding flame retardancy (UL94V-O)
- Provides highly flexible cables
- Moderate abrasion resistance
- Improved cut-through resistance for flexible PVC
- Good operating temperature range
- Good chemical resistance



All dimensions are nominal.

MAXIMUM CURRENT CAPACITY—CONDUCTORS

Size, AWG	MIL-W-5088				National Electrical Code	Underwriters Laboratory		American Insurance Association	500 c mils/A
	Copper		Aluminum			60°C	80°C		
	Single-wire	Wire-bundled	Single-wire	Wire-bundled					
30	...	...	...	...	...	0.2	0.4	...	0.20
28	...	...	...	...	...	0.4	0.6	...	0.32
26	...	...	...	...	...	0.6	1.0	...	0.51
24	...	...	...	...	...	1.0	1.6	...	0.81
22	9	5	...	...	...	1.6	2.5	...	1.28
20	11	7.5	...	...	...	2.5	4.0	3	2.04
18	16	10	...	...	6	4.0	6.0	5	3.24
16	22	13	...	...	10	6.0	10.0	7	5.16
14	32	17	...	...	20	10.0	16.0	15	8.22
12	41	23	...	...	30	16.0	26.0	20	13.05
10	55	33	...	...	35	...	...	25	20.8
8	73	46	58	36	50	...	...	35	33.0
6	101	60	86	51	70	...	...	50	52.6
4	135	80	108	64	90	...	...	70	83.4
2	181	100	149	82	125	...	...	90	132.8
1	211	125	177	105	150	...	...	100	167.5
0	245	150	204	125	200	...	...	125	212.0
00	283	175	237	146	225	...	...	150	266.0
000	328	200	...	...	275	...	...	175	336.0
0000	380	225	...	...	325	...	...	225	424.0

WEICO HOOK-UP WIRE PVC INSULATED

MIL-W-16878/1 TYPE B - 600V

(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation

CHARACTERISTICS:
- Temperature Rating: —55°C to +105°C
- Voltage Rating: 600 Volts

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
1130	M16878/1BBB-X	30	7/38	.010	.032
1128	M16878/1BCB-X	28	7/36	.010	.034
1126	M16878/1BDB-X	26	7/34	.010	.038
1126/19	M16878/1BDE-X	26	19/38	.010	.038
1124	M16878/1BEB-X	24	7/32	.010	.043
1124/19	M16878/1BEE-X	24	19/36	.010	.043
1122	M16878/1BFB-X	22	7/30	.010	.050
1122/19	M16878/1BFE-X	22	19/34	.010	.050
1120	M16878/1BGB-X	20	7/28	.010	.058
1120/19	M16878/1BGE-X	20	19/32	.010	.058
1118	M16878/1BHB-X	18	7/26	.010	.068
1118/19	M16878/1BHE-X	18	19/30	.010	.068
1116/19	M16878/1BJE-X	16	19/29	.010	.077
1114/19	M16878/1BKE-X	14	19/27	.010	.091

MIL-W-16878/2 TYPE C - 1000V

(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation.

CHARACTERISTICS:
- Temperature Rating: —55°C to +105°C
- Voltage Rating: 1000 Volts

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
1224	M16878/2BEB-X	24	7/32	.016	.058
1222	M16878/2BFB-X	22	7/30	.016	.064
1220	M16878/2BGB-X	20	7/28	.016	.072
1218	M16878/2BHB-X	18	7/26	.016	.082
1216/19	M16878/2BJE-X	16	19/29	.016	.091
1214/19	M16878/2BKE-X	14	19/27	.016	.105
1212/19	M16878/2BLE-X	12	19/25	.016	.124

MIL-W-16878/3 TYPE D - 3000V

(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Stranded, Tinned Copper, Color Coded Polyvinylchloride Insulation

CHARACTERISTICS:
- Temperature Rating: —55°C to +105°C
- Voltage Rating: 3000 Volts

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
1324	M16878/3BEB-X	24	7/32	.029	.082
1322	M16878/3BFB-X	22	7/30	.029	.088
1320	M16878/3BGB-X	20	7/28	.029	.096
1318	M16878/3BHB-X	18	7/26	.029	.106
1316/19	M16878/3BJE-X	16	19/29	.029	.115
1314/19	M16878/3BKE-X	14	19/27	.029	.129
1312/19	M16878/3BLE-X	12	19/25	.034	.158
1310	M16878/3BMG-X	10	37/26	.037	.185
1308	M16878/3BNL-X	8	133/29	.040	.247
1306	M16878/3BPL-X	6	133/27	.040	.290
1304	M16878/3BRL-X	4	133/25	.046	.358
1302	M16878/3BSP-X	2	665/30	.046	.432

COLORS: 0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray Stripes**
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

X Denotes 0-9 color coding Standard Put-Ups: 100 ft., 1000 ft.

***STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.*

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

WEICO HOOK-UP WIRE PVC INSULATED

MIL-W-16878/1 PREBONDED TYPE B - 600V

(PASSES UL VW-1 FLAME TEST)

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. O.D. (INCHES)
1526	26	7/34	.039
1524	24	7/32	.044
1522	22	7/30	.051
1520	20	7/28	.059
1518	18	7/26	.070

DESCRIPTION:
Stranded Double Tinned, Pre-Bonded Copper Conductor, Color Coded PVC Insulated

CHARACTERISTICS:
- Temperature Rating:—55°C to +105°C
- Voltage Rating: 600 Volts

APPLICATION:
The pre-bond conductor maintains much of the flexibility of an ordinary stranded wire but reduces processing and handling costs on soldering, retwisting of strands after stripping, and hand tinning operations.

MIL-W-16878/17 NYLON JACKET TYPE BN-600V

DESCRIPTION:
Conductor, Stranded Tinned Copper. Insulation, Color Coded PVC. Jacket, Clear Nylon.

CHARACTERISTICS:
- Temperature Rating:—55°C +115°C
- Voltage Rating: 600 Volts

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	INSULATION THICKNESS	NYLON JACKET THICKNESS	NOM. O.D. (INCHES)
1926/19	M16878/17BDE-X	26	19/38	.010	.003	.044
1926	M16878/17BDB-X	26	7/34	.010	.003	.044
1924/19	M16878/17BEE-X	24	19/36	.010	.003	.049
1924	M16878/17BEB-X	24	7/32	.010	.003	.049
1922/19	M16878/17BFE-X	22	19/34	.010	.003	.056
1922	M16878/17BFB-X	22	7/30	.010	.003	.056
1920/19	M16878/17BGE-X	20	19/32	.010	.003	.064
1918/19	M16878/17BHE-X	18	19/30	.010	.003	.074
1916/19	M16878/17BJE-X	16	19/29	.010	.003	.083
1914/19	M16878/17BKE-X	14	19/27	.010	.004	.099

MIL-W-76B TYPE MW-1000V

(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Conductor, Stranded Tinned Copper. Insulation, Color Coded PVC.

CHARACTERISTICS:
- Temperature Rating:—40°C to +80°C
- Voltage Rating: 1000 Volts

WEICO NO.	TYPE DESIGNATION	CONDUCTOR SIZE	CONDUCTOR STRAND	INSULATION THICKNESS	NOM. O.D. (INCHES)
1624	MW-C24(7)U	24	7/32	0.016	0.059
1622	MW-C22(7)U	22	7/30	0.016	0.064
1620	MW-C20(10)U	20	10/30	0.016	0.073
1618	MW-C18(16)U	18	16/30	0.016	0.084
1616	MW-C16(26)U	16	26/30	0.016	0.095
1614	MW-C14(41)U	14	41/30	0.016	0.110
1612	MW-C12(65)U	12	65/30	0.016	0.125

COLORS: 0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray Stripes**
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

X Denotes 0-9 color coding Standard Put-Ups: 100 ft., 1000 ft.

***STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.*

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

WEICO HOOK-UP WIRE IRRADIATED PVC INSULATED THHN UNIVERSAL CIRCUIT WIRE

MIL-W-16878/1 MIL-W-16878/2 TYPES B AND C IRRADIATED

1429 1430

DESCRIPTION:
Stranded Tinned Plated Copper, Irradiated PVC Insulated

CHARACTERISTICS:
- Temperature Rating:
  MIL-W-16878: —55° to +105°C
  UL 1429: +80°C
  UL 1430: +105°C
- Voltage Rating:
  MIL-W-16878
  Type B: 600 Volts
  Type C: 1000 Volts
  UL Style 1429: 150 Volts
  UL Style 1430: 300 Volts

COLORS:
0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray Stripes**
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.

TYPE B—UL STYLE 1429

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
1428	28	7/36	.010	.035
1426	26	7/34	.010	.038
1424	24	7/32	.010	.043
1424/19	24	19/36	.010	.043
1422	22	7/30	.010	.050
1422/19	22	19/34	.010	.050
1420	20	7/28	.010	.058
1420/19	20	19/32	.010	.058
1418	18	7/26	.010	.068
1418/19	18	19/30	.010	.068
1416/19	16	19/.0117	.010	.077
1414/19	14	19/27	.012	.095

TYPE C—UL STYLE 1430

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
1446	24	7/32	.016	.058
1446/19	24	19/36	.016	.058
1447	22	7/30	.016	.064
1447/19	22	19/34	.016	.064
1448	20	7/28	.016	.072
1448/19	20	19/32	.016	.072
1449	18	7/26	.016	.082
1449/19	18	19/30	.016	.082
1450	16	19/29	.016	.091
* 1451	14	19/27	.016	.105
* 1452	12	19/25	.016	.124

STANDARD PUT-UP: 100 ft., 1000 ft. **UL 3317*

THHN UNIVERSAL CIRCUIT WIRE 600V

DESCRIPTION:
Stranded or Solid Bare Copper, PVC Insulation and Clear Nylon Jacket Overall. Used for Building Wire Machine Tool Wire, Appliances, Lighting Ballasts and General Hook-up Wire.

CHARACTERISTICS:
- Temperature Rating: +105°C
- Voltage Rating: 600 Volts

COLORS:
0 = Black 2 = Red 4 = Yellow 6 = Blue
1 = Brown 3 = Orange 5 = Green 9 = White

WEICO NO.	COND. SIZE (AWG) & STRANDING	INSULATION THICKNESS	NOMINAL JACKET THICKNESS	NOM. O.D. (INCHES)
1431	#14 Solid	.015	.004	.110
1432	#12 Solid	.015	.004	.125
1433	#10 Solid	.020	.004	.155
† 1429	#18 (19)	.015	.004	.090
† 1434	#16 (19)	.015	.004	.100
1435	#14 (19)	.015	.004	.116
1436	#12 (19)	.015	.004	.135
1437	#10 (19)	.020	.004	.170
1438	#8 (19)	.030	.005	.225
1439	#6 (19)	.030	.005	.260
1440	#4 (19)	.040	.006	.335
1441	#2 (19)	.040	.006	.400
1442	#1 (37)	.050	.007	.450
1443	#1/0 (37)	.050	.007	.500
1444	#2/0 (37)	.050	.007	.540

† *TFFN*

STANDARD PUT-UP: #18 Thru #6—500 ft. #4 & LARGER—100 ft.

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WEICO HOOK-UP WIRE PVC INSULATED

UL 1007 UL 1569 CSA TR-64

(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation, .016" nominal Insulation Thickness

CHARACTERISTICS:
- Temperature Range: —10°C to +105°C
- Voltage Rating: 300 Volts

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. O.D. (INCHES)
3026	26	7/34	.051
3024	24	7/32	.057
3022	22	7/30	.064
3020	20	10/30	.072
3018	18	16/30	.082
3016	16	26/30	.095
3014	14	41/30	.110

STANDARD PUT-UPS: 100 ft., 1000 ft.

UL 1015-MTW CSA TEW

(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation, .032" nominal Insulation Thickness

CHARACTERISTICS:
- Temperature Range: —20°C to +105°C
- Voltage Rating: 600 Volts

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. O.D. (INCHES)
3224	24	7/32	.088
3222	22	7/30	.095
3220	20	10/30	.102
3218	18	16/30	.112
3216	16	26/30	.125
3214	14	41/30	.142
3212	12	65/30	.156
3210	10	105/30	.184
*3208	8	133/29	.265
**3206	6	133/27	.341

STANDARD PUT-UPS: 100 ft., 1000 ft. *UL1028 **UL1283

UL 1061 SEMI-RIGID CSA SR-PVC

(PASSES UL VW-FLAME TEST)

DESCRIPTION:
Stranded Tinned Copper, Color Coded Semi-Rigid Polyvinylchloride Insulation

CHARACTERISTICS:
- Temperature Range: —10°C to +80°C
- Voltage Rating: 300 Volts

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
3326	26	7/34	.010	.038
3324	24	7/32	.010	.042
3322	22	7/30	.010	.048
3320	20	7/28	.010	.056
3318	18	7/26	.010	.068

STANDARD PUT-UPS: 100 ft., 1000 ft.

APPLICATIONS:
Internal Wiring of Computers, Electric bookkeeping, Accounting machines, and other office and Control Equipment.

COLORS:

0 = Black	2 = Red	4 = Yellow	6 = Blue	8 = Gray	Stripes**
1 = Brown	3 = Orange	5 = Green	7 = Violet	9 = White	

***STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.*

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WEICO HOOK-UP WIRE POLYOLEFIN - *KYNAR INSULATED

*KYNAR INSULATED
UL 1423
SOLID CONDUCTOR
(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Solid, Silver-Plated, Oxygen-Free, High Conductivity (OFHC) Copper Conductor, Kynar Insulated

CHARACTERISTICS:
- Temperature Rating: +125°C (UL Rated at 105°C)
- High Cut-Thru and Abrasion Resistance

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
2030	30	Solid	.005	.019
2028	28	Solid	.005	.023
2026	26	Solid	.005	.026
2024	24	Solid	.005	.030

STANDARD PUT-UPS: 1000 ft. **Registered Trademark of Pennwalt*

COLORS: 0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

UL 3271
CSA CL 1251
(PASSES UL VW-FLAME TEST)

DESCRIPTION:
Stranded Tinned Copper, Color Coded Irradiated Cross Linked Polyolefin (XLPE), .032" Nominal Insulation Thickness

CHARACTERISTICS:
- Temperature Range: −55°C to +125°C
- Voltage Rating: 600 Volts

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. OD. (INCHES)
3620	20	7/28	.101
3618	18	16/30	.109
3616/19	16	19/29	.122
3614/41	14	41/30	.137
3612/65	12	65/30	.156
3610/105	10	105/30	.182

COLORS: 0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray Stripes**
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

UL 3266
CSA CL 1252
(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Stranded Tinned Copper, Color Coded Irradiated Cross Linked Polyolefin (XLPE), .016" Nominal Insulation Thickness

CHARACTERISTICS:
- Temperature Range: −55°C to +125°C
- Voltage Rating: 300 Volts

WEICO NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. OD. (INCHES)
3524/19	24	19/36	.057
3522	22	7/30	.062
3522/19	22	19/34	.064
3520/19	20	19/32	.072
3518/19	18	19/30	.082
3516/19	16	19/29	.089
3514/19	14	19/27	.106

COLORS: 0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray Stripes**
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

***STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.*

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WEICO HOOK-UP WIRE * "TEFLON" INSULATED

MIL-W-22759/11
600V

DESCRIPTION:
Stranded Silver Plated Copper,
Extruded TFE Teflon* Insulation

CHARACTERISTICS:
- Temperature Rating: +200°C.
- Voltage Rating: 600 Volts.
- Printed with Military Part Number, & Manufacturer's Code Identification

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRANDING	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
2428	M22759/11-28-X	28	7/36	.009	.033
2426/19	M22759/11-26-X	26	19/38	.010	.038
2424/19	M22759/11-24-X	24	19/36	.010	.043
2422/19	M22759/11-22-X	22	19/34	.010	.049
2420/19	M22759/11-20-X	20	19/32	.010	.058
2418/19	M22759/11-18-X	18	19/30	.010	.068
2416/19	M22759/11-16-X	16	19/29	.011	.075
2414/19	M22759/11-14-X	14	19/27	.012	.090
2412/19	M22759/11-12-X	12	19/25	.014	.111
2410/19	M22759/11-10-X	10	37/26	.016	.139

MIL-W-16878/4
TYPE E - 600V
(PASSES UL VW-FLAME TEST)

UL 1213

DESCRIPTION:
Stranded Silver Plated Copper,
Extruded TFE Teflon Insulation

CHARACTERISTICS:
- Temperature Rating:
  MIL-W-16878: —60°C to +200°C
  UL 1213: +105°C
- Voltage Rating:
  MIL-W-16878: 600 Volts
  UL 1213: Not Rated

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
2132	M16878/4BAB-X	32	7/40	.010	.030
2130	M16878/4BBB-X	30	7/38	.010	.032
2128	M16878/4BCB-X	28	7/36	.010	.036
2128/19	M16878/4BCE-X	28	19/40	.010	.036
2126	M16878/4BDB-X	26	7/34	.010	.040
2126/19	M16878/4BDE-X	26	19/38	.010	.041
2124	M16878/4BEB-X	24	7/32	.010	.044
2124/19	M16878/4BEE-X	24	19/36	.010	.045
2122	M16878/4BFB-X	22	7/30	.010	.050
2122/19	M16878/4BFE-X	22	19/34	.010	.051
2120	M16878/4BGB-X	20	7/28	.010	.058
2120/19	M16878/4BGE-X	20	19/32	.010	.059
2118†	M16878/4BHB-X	18	7/26	.010	.068
2118/19†	M16878/4BHE-X	18	19/30	.010	.070
2116/19†	M16878/4BJE-X	16	19/29	.010	.077
2114/19†	M16878/4BKE-X	14	19/27	.012	.094
2112/19†	M16878/4BLE-X	12	19/25	.012	.113
2110/19†	M16878/4BMG-X	10	37/26	.012	.134

NOTE: AWG 18-10 must be surface marked to comply with UL, please specify when ordering.
†Not UL listed

MIL-W-16878/4
SOLID CONDUCTOR
TYPE E - 600V
(PASSES UL VW-1 FLAME TEST)

DESCRIPTION:
Solid, Silver Plated Copper,
Extruded TFE Teflon Insulation

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D (INCHES)
2830	M16878/4BBA-X	30	Solid	.010	.030
2828	M16878/4BCA-X	28	Solid	.010	.033
2826	M16878/4BDA-X	26	Solid	.010	.036
2824	M16878/4BEA-X	24	Solid	.010	.040
2822	M16878/4BFA-X	22	Solid	.010	.045
2820	M16878/4BGA-X	20	Solid	.010	.052
2818	M16878/4BHA-X	18	Solid	.010	.060

COLORS: 0 = Black 1 = Brown 2 = Red 3 = Orange 4 = Yellow 5 = Green 6 = Blue 7 = Violet 8 = Gray 9 = White Stripes**

X Denotes 0-9 color coding Standard Put-Ups: 100 ft., 1000 ft.

**DuPont 's Registered Trademark. **STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.*

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WEICO HOOK-UP WIRE *"TEFLON" INSULATED

MIL-W-16878/6
TYPE ET - 250V
(PASSES UL VW-1 FLAME TEST)

1371

DESCRIPTION:
Stranded Silver Plated Copper,
Extruded TFE Teflon Insulation

CHARACTERISTICS:
- Temperature Rating: —60°C to +200°C
- Voltage Rating: 250 Volts

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
2332	M16878/6BAB-X	32	7/40	.006	.021
2330	M16878/6BBB-X	30	7/38	.006	.024
2328	M16878/6BCB-X	28	7/36	.006	.027
2328/19	M16878/6BCE-X	28	19/40	.006	.027
2326	M16878/6BDB-X	26	7/34	.006	.031
2326/19	M16878/6BDE-X	26	19/38	.006	.032
2324	M16878/6BEB-X	24	7/32	.006	.036
2324/19	M16878/6BEE-X	24	19/36	.006	.037
2322	M16878/6BFB-X	22	7/30	.006	.042
2322/19	M16878/6BFE-X	22	19/34	.006	.044

MIL-W-16878/6
SOLID CONDUCTOR
TYPE ET - 250V
(PASSES UL WV-1 FLAME TEST)

1371

DESCRIPTION:
Solid Silver Plated Copper,
Extruded TFE Teflon Insulation

CHARACTERISTICS:
- Temperature Range: —60°C to +200°C
- Voltage Rating: 250 Volts

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
2932	MILW16878/6BAA-X	32	Solid	.006	.019
2930	MILW16878/6BBA-X	30	Solid	.006	.022
2928	MILW16878/6BCA-X	28	Solid	.006	.025
2926	MILW16878/6BDA-X	26	Solid	.006	.028
2924	MILW16878/6BEA-X	24	Solid	.006	.032

MIL-W-16878/5
MIL-W-16878/22
TYPE EE-1000V
(PASSES UL VW-1 FLAME TEST)

1180

DESCRIPTION:
Stranded Silver Plated Copper,
Extruded TFE Telfon Insulation

CHARACTERISTICS:
- Temperature Rating
  MIL-W-16878: —60° to +200°C
  UL 1180: +200°C
- Voltage Rating
  MIL-W-16878: 1000 Volts
  UL 1180: 300 Volts

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. WALL THICKNESS	NOM. O.D. (INCHES)
2224	M16878/5BEB-X	24	7/32	.015	.054
2224/19	M16878/5BEE-X	24	19/36	.015	.055
2222	M16878/5BFB-X	22	7/30	.015	.060
2222/19	M16878/5BFE-X	22	19/34	.015	.062
2220	M18678/5BGB-X	20	7/28	.015	.068
2220/19	M16878/5BGE-X	20	19/32	.015	.070
2218/19†	M18678/5BHE-X	18	19/30	.015	.080
2216/19†	M16878/5BJE-X	16	19/29	.015	.089
2214/19†	M16878/5BKE-X	14	19/27	.017	.106
2212/19†	M16878/5BLE-X	12	19/25	.017	.124
2210†	M16878/5BMG-X	10	37/26	.017	.145
2208†	M16878/22BNL-X	8	133/29	.020	.210
2206†	M16878/22BPL-X	6	133/27	.020	.252
2204†	M16878/22BRL-X	4	133/25	.020	.315

NOTE: AWG 18-10 must be surface marked to comply with UL, please specify when ordering.
† Not UL listed

COLORS: 0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray Stripes**
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

X Denotes 0-9 color coding Standard Put-Ups: 100 ft., 1000 ft.

*DuPont's Registered Trademark **STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.

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WEICO HOOK-UP WIRE, CROSS LINKED

MIL-W-22759/32 CROSS-LINKED ETFE

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. O.D. (INCHES)
2530	M22759/32-30-X	30	7/38	.024
2528	M22759/32-28-X	28	7/36	.027
2526/19	M22759/32-26-X	26	19/38	.032
2524/19	M22759/32-24-X	24	19/36	.037
2522/19	M22759/32-22-X	22	19/34	.043
2520/19	M22759/32-20-X	20	19/32	.050
2518/19	M22759/32-18-X	18	19/30	.060
2516/19	M22759/32-16-X	16	19/29	.068
2514/19	M22759/32-14-X	14	19/27	.085
2512/37	M22759/32-12-X	12	37/28	.103

DESCRIPTION:
Stranded, Tinned Copper, Color Coded Irradiation Cross-Linked Extruded Modified Ethylene Tetrafluoethylene Copolymer (ETFE)

CHARACTERISTICS:
- Temperature Rating: 150°C
- Voltage Rating: 600 Volts

MIL-W-81044/12 CROSS-LINKED POLYALKENE PVF

WEICO NO.	MILITARY NO.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. O.D. (INCHES)
9898	M81044/12-28-X	28	7/36	.032
9897	M81044/12-26-X	26	19/38	.036
9896	M81044/12-24-X	24	19/36	.042
9895	M81044/12-22-X	22	19/34	.049
9894	M81044/12-20-X	20	19/32	.057
9893	M81044/12-18-X	18	19/30	.067
9892	M81044/12-16-X	16	19/29	.075
9891	M81044/12-14-X	14	19/27	.093
9890	M81044/12-12-X	12	37/28	.112

DESCRIPTION:
Stranded, Tinned Copper, Color Coded Irradiation Cross-Linked Extruded Polyalkene with Clear Irradiation Cross-Linked Extruded Polyvinylidene Fluoride (PVF) Jacket.

CHARACTERISTICS:
- Temperature Rating: 150°C
- Voltage Rating: 600 Volts

COLORS: 0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray Stripes**
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

X Denotes 0-9 color coding Standard Put-Ups: 100 ft., 1000 ft.

***STRIPES: Any of the above colors are available in any combination of stripes up to a maximum of three stripes.*

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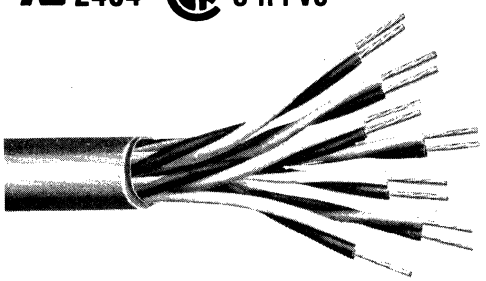
WEICO COMMUNICATION AND CONTROL CABLE

MULTIPAIR UNSHIELDED 80°-300V-PVC 22 AND 18 GAUGE

CL2 RATED

(PASSES UL VW-1 FLAME TEST)

UL 2464 CSA S-R PVC



DESCRIPTION:
Each Conductor Solid or Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation. Conductors Twisted into Pairs, Gray Polyvinylchloride Jacket Overall.

CHARACTERISTICS:
- Temperature Rating: —20°C to +80°C
- Voltage Rating: 300 Volts

22 AWG-SOLID CONDUCTORS

WEICO NO.	NO. OF PAIRS	NO. OF COND.	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
7102	1	2	.032	.150
7104	2	4	.032	.209
7106	3	6	.032	.244
7108	4	8	.032	.259
7110	5	10	.040	.307
7112	6	12	.035	.305
7118	9	18	.037	.354
7122	11	22	.037	.369
7126	13	26	.037	.394
7130	15	30	.040	.405
7132	16	32	.040	.425
7138	19	38	.040	.430
7146	23	46	.040	.495
7154	27	54	.045	.535

22 AWG (7/30)-STRANDED CONDUCTORS

7002	1	2	.032	.165
7004	2	4	.032	.238
7006	3	6	.032	.284
7008	4	8	.032	.299
7010	5	10	.032	.304
7012	6	12	.035	.320
7018	9	18	.037	.389
7022	11	22	.035	.400
7024	12	24	.040	.425
7030	15	30	.040	.440
7038	19	38	.040	.505
7046	23	46	.045	.555
7054	27	54	.045	.580
7054/51	51	102	.045	.800

18 AWG (16/30)-STRANDED CONDUCTORS

7202	1	2	.032	.222
7204	2	4	.035	.287
7206	3	6	.037	.362
7208	4	8	.040	.358
7210	5	10	.050	.416
7212	6	12	.050	.475
7216	8	16	.050	.478
7218	9	18	.055	.575
7224	12	24	.055	.675
7230	15	30	.060	.785
7238	19	38	.070	.865
7254	27	54	.070	.965

COLOR CODE: CONSULT OUR FACTORY

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

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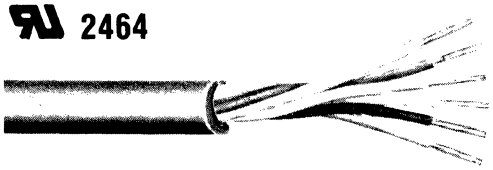
WEICO COMMUNICATION AND CONTROL CABLE

MULTICONDUCTOR— UNSHIELDED 80°C-300V-PVC

CL2 RATED

(PASSES UL VW-1 FLAME TEST)

UL 2464



DESCRIPTION:
Each Conductor Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation, Gray Polyvinylchloride Jacket Overall.

CHARACTERISTICS:
- Temperature Range: —20°C to +80°C
- Voltage Rating: 300 Volts (UL)

COLOR CODE: CONSULT OUR FACTORY

MULTI-CONDUCTOR 22-AWG (7/30) NOM. INS. THICKNESS .010

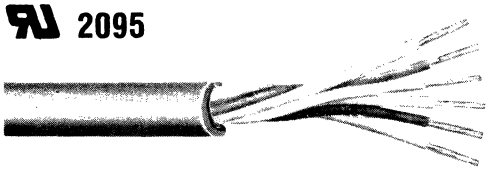
WEICO NO.	NO. OF COND.	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
4002	2	.032	.164
4003	3	.032	.169
4004	4	.032	.194
4005	5	.032	.199
4006	6	.032	.209
4007	7	.032	.214
4008	8	.032	.224
4009	9	.032	.249
4010	10	.032	.259
4012	12	.032	.279
4015	15	.032	.304
4020	20	.032	.324
4025	25	.032	.364
4030	30	.032	.379
4040	40	.032	.439
4050	50	.035	.500
4060	60	.035	.530

MULTICONDUCTOR— UNSHIELDED 80°C-300V-PVC

CL2 RATED

(PASSES UL VW-1 FLAME TEST)

UL 2095



DESCRIPTION:
Each Conductor Stranded Tinned Copper, Color Coded. Polyvinylchloride Insulation, Gray Polyvinylchloride Jacket Overall.

CHARACTERISTICS:
- Temperature Rating: —20°C to +80°C
- Voltage Rating: 300 Volts

MULTI-CONDUCTOR: NOM. INSULATION THICKNESS .016

WEICO NO.	NO. OF COND.	CONDUCTOR AWG	CONDUCTOR STRAND	NOM. JKT. THICKNESS (INCHES)	NOM. O.D. (INCHES)
4002/20	2	20	10/30	.020	.180
4003/20	3	20	10/30	.020	.190
4004/20	4	20	10/30	.020	.215
4005/20	5	20	10/30	.020	.233
4006/20	6	20	10/30	.020	.255
4007/20	7	20	10/30	.020	.255
4008/20	8	20	10/30	.020	.270
4009/20	9	20	10/30	.020	.300
4010/20	10	20	10/30	.020	.335
4012/20	12	20	10/30	.020	.350
4015/20	15	20	10/30	.030	.395
4002/18	2	18	16/30	.020	.200
4003/18	3	18	16/30	.020	.210
4004/18	4	18	16/30	.020	.240
4005/18	5	18	16/30	.020	.262
4006/18	6	18	16/30	.020	.290
4007/18	7	18	16/30	.020	.286
4008/18	8	18	16/30	.025	.315
4009/18	9	18	16/30	.025	.346
4010/18	10	18	16/30	.025	.370
4012/18	12	18	16/30	.025	.385
4015/18	15	18	16/30	.030	.445
4019/18	19	18	16/30	.030	.470
4025/18	25	18	16/30	.035	.558
4002/16	2	16	26/30	.020	.225
4003/16	3	16	26/30	.020	.245
4004/16	4	16	26/30	.020	.270

COLOR CODE: CONSULT OUR FACTORY

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

WEICO COMMUNICATION AND CONTROL CABLE

MULTICONDUCTOR 80°C-300V-PVC

CL2 RATED

OSHA ACCEPTABLE

(PASSES UL VW-1 FLAME TEST)

UL 2464 CSA CERTIFIED

DESCRIPTION:
Each Conductor Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation, Gray Polyvinylchloride Jacket Overall.

- PVC Insulation UL 1061, CSA SR-PVC
- Clear Mylar Tape Wrap .001"
- Jacket Print: CSA AWM SR-PVC 80°C 300 Volts

CHARACTERISTICS:
- Temperature Range: —20°C to +80°C
- Voltage Rating: 300 Volts (UL)

22-AWG (7/30)

WEICO NO.	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
4102	2	.032	.170
4103	3	.032	.180
4104	4	.032	.195
4106	6	.032	.225
4108	8	.032	.240
4110	10	.032	.270
4115	15	.032	.300
4120	20	.032	.340
4125	25	.032	.375
4130	30	.032	.400
4140	40	.032	.445
4150	50	.032	.485
4160	60	.032	.525

COLOR CODE: CONSULT OUR FACTORY

MULTICONDUCTOR FOIL SHIELD 60°C-PE/PVC-300V

CL2 RATED

UL *2092 2093 2094

DESCRIPTION:
Each Conductor Stranded Tinned Copper, Color Coded Polyethylene Insulation, Conductors Twisted, Wrapped Mylar Supported Aluminum Foil Shield, Drain Wire, Gray Polyvinylchloride Jacket Overall.

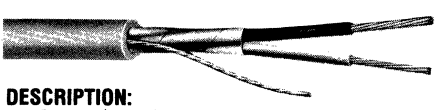
CHARACTERISTICS;
- Temperature Range: —20°C to +80°C (UL 60° C)
- Voltage Rating: 300 Volts
- Small Cable Diameter
- 100% Shield Coverage

WEICO NO.	NO. OF COND.	CONDUCTOR AWG.	CONDUCTOR STRAND	NOM. INS. THICKNESS (INCHES)	NOM. WALL THICKNESS (INCHES)	NOM. O.D. (INCHES)	COND. COLOR CODE
9201	2	24	7/32	.016	.020	.160	1,3
9202	2	22	7/30	.016	.020	.170	1,3
9203	2	22	7/30	.016	.020	.170	1,2
9204	3	22	7/30	.016	.020	.185	1,2,3
9205	4	22	7/30	.016	.020	.210	1,2,3,4
9206	2	20	10/30	.016	.020	.186	1,3
9207	2	20	10/30	.016	.020	.186	1,2
9208	3	20	10/30	.016	.020	.205	1,2,3
9209	4	20	10/30	.016	.020	.225	1,2,3,4
9210	2	18	16/30	.016	.020	.210	1,3
9211	2	18	16/30	.016	.020	.210	1,2
9212	3	18	16/30	.016	.020	.230	1,2,3
9214	4	18	16/30	.016	.020	.255	1,2,3,4
9215	2	16	26/30	.016	.020	.245	1,2
9216	3	16	26/30	.016	.020	.270	1,2,3

**2 Cond.—UL 2092, 3 Cond.—UL 2093, 4 Cond.—UL 2094*

COLORS: 1 = Black 2 = Red 3 = Clear 4 = Green

MULTICONDUCTOR - FOIL SHIELD 105°C-PP/PVC-200V



DESCRIPTION:
Conductor, Stranded or Solid Tinned Copper. Insulation, Color Coded Polypropylene (PP). Shield, Aluminum/ Polyester Tape, Foil Facing Inward (100% Coverage). Drain Wire, 22 AWG Tinned Copper. Jacket, Gray PVC

CHARACTERISTICS:
- Temperature Range: —20°C to +105°C
- Voltage Rating: 200 Volts

Insulation Thickness 0.008"

WEICO NO.	NO. OF COND.	CONDUCTOR AWG	CONDUCTOR STRAND	JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
9217	2	22	Solid	.018	0.120
9218	2	22	7/30	.020	0.130

COLOR CODE: Black, Red

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

WEICO COMMUNICATION AND CONTROL CABLE

MULTIPAIR 80°C - POLYPROPYLENE INSULATED - 400V

DESCRIPTION:
Each Conductor Stranded Tinned Copper, Polypropylene insulated, twisted into pairs (Black with Red and Green with White). Each Pair Aluminum Polyester Shielded with Stranded Tinned Copper Common Drain Wire, Overall Gray PVC Jacket.

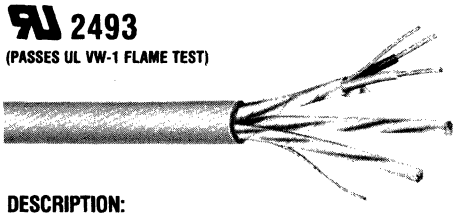
CHARACTERISTICS:
- Temperature Range:—20°C to +80°C
- Suggested Voltage Rating: 400 Volts

22—STRANDED (7/30)

WEICO NO.	NO. OF PAIRS	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
8004	2	4	.020	.165

INDIVIDUALLY FOIL SHIELDED 80°C - PP/PVC 300, 400V

UL 2493
(PASSES UL VW-1 FLAME TEST)



DESCRIPTION:
Each Conductor Tinned Copper, Color Coded Polypropylene Conductors Twisted into Pairs, Mylar-Supported Aluminum Foil Shield, Aluminum Facing Inward, Stranded Tinned Copper Drain Wire, Gray Polyvinylchloride Jacket.

CHARACTERISTICS:
- Temperature Range: —20°C to +80°C
- Suggested Working Voltage:
  22 AWG—300V
  18 AWG—400V
- UL Does Not Specify Voltage

#22—SOLID NOM. INS. THICKNESS .013″

WEICO NO.	NO. OF PAIRS	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
8106	3	6	.037	.279
8112	6	12	.037	.379
8118	9	18	.040	425
8122	11	22	.040	.470
8130	15	30	.045	.525

#22—STRANDED (7/30) NOM. INS. THICKNESS .010″

8006	3	6	.048	.301
8012	6	12	.048	.401
8018	9	18	.048	.443
8022	11	22	.048	.486
8024	12	24	.048	.486
8030	15	30	.065	.580
8034	17	34	.065	.615
8038	19	38	.065	.625
8054	27	54	.070	.745

#18—STRANDED (16/30) NOM. INS. THICKNESS .016″

8006/18	3	6	.048	.398
8012/18	6	12	.065	.570
8018/18	9	18	.065	.655
8024/18	12	24	.070	.750
8030/18	15	30	.070	.820

COLOR CODE: CONSULT OUR FACTORY

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

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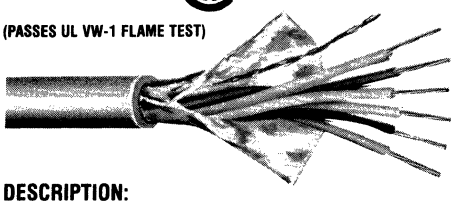
WEICO COMMUNICATION AND CONTROL CABLE

MULTICONDUCTOR OVERALL FOIL SHIELD 300V- 24 Gauge

CL2 RATED

2464 S-R PVC

(PASSES UL VW-1 FLAME TEST)



DESCRIPTION:
Each Conductor Tinned Copper, Color Coded Polyvinylchloride Insulation, Conductors Cabled. Overall Mylar Supported Aluminum Foil Shield, Stranded 24 Gauge Tinned Copper Drain Wire, Gray Polyvinylchloride Jacket Overall.

CHARACTERISTICS:
- Temperature Rating: —40°C to +80°C
- Suggested Working Voltage: 300 Volts
- 100% Shield Coverage

#24—STRANDED (7/32) NOM. INS. THICKNESS .010"

WEICO NO.	NO. OF CONDUCTORS	COLOR CODE	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
7503	3	D	.035	.168
7504	4	D	.035	.190
7505	5	D	.035	.195
7506	6	D	.035	.215
7507	7	D	.035	.215
7508	8	D	.035	.220
7509	9	D	.035	.250
7510	10	D	.035	.250
7515	15	E	.035	.280
7520	20	E	.035	.320
7525	25	E	.040	.360
7530	30	E	.040	.380
7540	40	E	.040	.430
7550	50	E	.045	.490

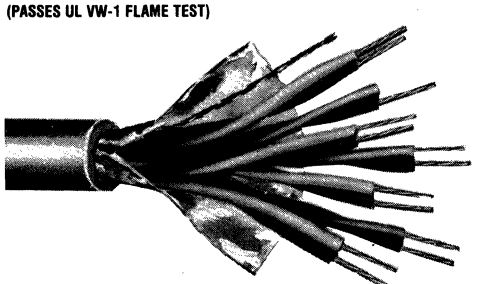
COLOR CODE: CONSULT OUR FACTORY

MULTIPAIR OVERALL FOIL SHIELD 300V-24 Gauge

CL2 RATED

2464 S-R PVC

(PASSES UL VW-1 FLAME TEST)



DESCRIPTION:
Each Conductor Tinned Copper, Color Coded Polyvinylchloride Insulation, Conductors Twisted into Pairs. Overall Mylar Supported Aluminum Foil Shield, Stranded Tinned Copper Drain Wire, Gray Polyvinylchloride Jacket Overall.

CHARACTERISTICS:
- Temperature Rating: —40°C to +80°C
- Suggested Working Voltage: 300 Volts
- 100% Shield Coverage

#24—STRANDED (7/32) NOM. INS. THICKNESS .010"

WEICO NO.	NO. OF PAIRS	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
7302	1	2	.032	.156
7304	2	4	.032	.222
7306	3	6	.032	.232
7308	4	8	.032	.265
7310	5	10	.035	.295
7312	6	12	.035	.295
7314	7	14	.035	.300
7316	8	16	.035	.330
7318	9	18	.035	.340
7320	10	20	.040	.380
7330	15	30	.040	.425
7338	19	38	.040	.460
7350	25	50	.045	.515
7300*	50	100	.050	.700

COLOR CODE: CONSULT OUR FACTORY

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

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WEICO COMMUNICATION AND CONTROL CABLE

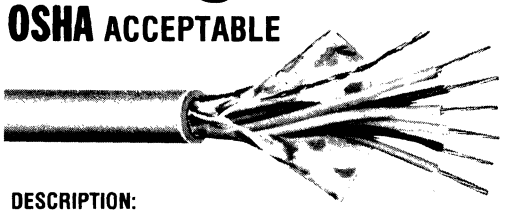
MULTICONDUCTOR FOIL SHIELD 300V-22 GAGE

CL2 RATED

(PASSES UL VW-1 FLAME TEST)

2464 SR PVC

OSHA ACCEPTABLE



DESCRIPTION:

Each Conductor Stranded Tinned Copper, Color Coded Polyvinylchloride (UL Style 1061) Insulated. Overall Aluminum/ Polyester Shield with Stranded Tinned Copper Drain Wire, Nylon Rip Cord for Ease of Jacket Stripping, Gray PVC Jacket Overall.

CHARACTERTISTICS:

- Temperature Range: —40°C to +80°C
- Suggested Working Voltage: 300 Volts
- 100% Shield Coverage

22 AWG 7/30 Insulation Thickness .010"

WEICO NO.	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
7602	2	.032	.180
7603	3	.032	.190
7604	4	.032	.210
7606	6	.032	.230
7608	8	.032	.260
7610	10	.032	.280
7615	15	.032	.320
7620	20	.032	.350
7625	25	.032	.380
7630	30	.032	.410
7640	40	.032	.460
7650	50	.032	.500
7660	60	.032	.540
7670	70	.053	.620
7680	80	.053	.650
7690	90	.053	.690
7600	100	.053	.720

COLOR CODE: CONSULT OUR FACTORY

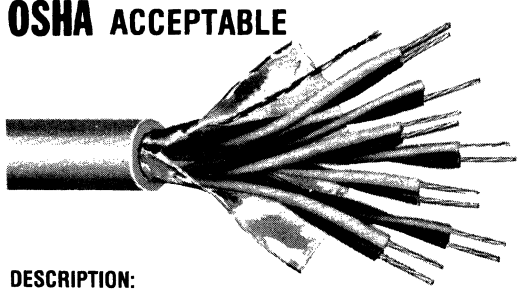
MULTIPAIR, FOIL SHIELD 300V-22 GAGE

CL2 RATED

(PASSES UL VW-1 FLAME TEST)

2464 SR PVC

OSHA ACCEPTABLE



DESCRIPTION:

Each Conductor Stranded Tinned Copper, Color Coded Polyvinylchloride (UL Style 1061) Insulated, Twisted into Pairs, Overall Aluminum/Polyester Shield with Stranded Tinned Copper Drain Wire, Nylon Rip Cord for Ease of Jacket Stripping, Gray PVC Jacket Overall.

CHARACTERISTICS:

- Temperature Range: —40°C to +80°C
- Suggested Working Voltage: 300 Volts
- 100% Shield Coverage

22 AWG 7/30 INSULATION THICKNESS .010"

WEICO NO.	NO. OF PAIRS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D (INCHES
7702	1	.032	.180
7704	2	.032	.230
7706	3	.032	.260
7708	4	.032	.280
7710	5	.032	.310
7712	6	.032	.330
7718	9	.032	.380
7722	11	.032	.410
7730	15	.032	.460
7738	19	.032	.500
7754	27	.053	.610
7701	51	.083	.860

COLOR CODE: CONSULT OUR FACTORY

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

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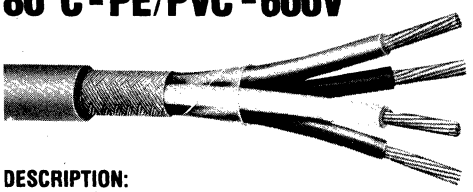
WEICO COMMUNICATION AND CONTROL CABLE

MULTICONDUCTOR BRAIDED SHIELD 80°C - PE/PVC - 600V



DESCRIPTION:
Each Conductor Stranded Tinned Copper, Color Coded Polyethylene Insulation, Cabled with Fillers Where Necessary, Mylar Wrap, Braided Tinned Copper Shield, Gray Polyvinychloride Jacket Overall.

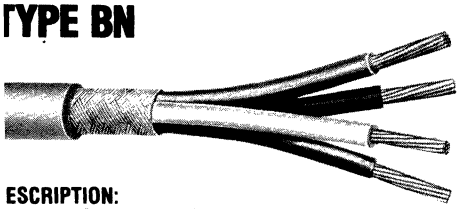
CHARACTERISTICS:
- Temperature Range: —20°C to +80°C
- Suggested Working Voltage: 600 Volts

20 AWG-26/34 STRANDED CONDUCTOR—NOMINAL INS. THICKNESS .015″

WEICO NO.	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
9401	2	.030	.245
9402	3	.035	.250
9403	4	.035	.260
9404	5	.035	.275
9405	6	.035	.300
9406	8	.035	.330
9407	10	.035	.375
9408	12	.035	.380
9409	15	.035	.410
9410	20	.035	.455

COLOR CODE: CONSULT OUR FACTORY

MULTICONDUCTOR BRAIDED SHIELDED 105°C - PVC/NYLON - 600V MIL-W-16878 TYPE BN



DESCRIPTION:
Each Conductor Stranded Tinned Copper, .010″ Polyvinylchloride Insulation, Color Coded, Clear Nylon (Polyamide) Jacket, Conductors Cabled, Braided Tinned Copper Shield 90% Coverage, Gray Polyvinylchloride Jacket Overall.

CHARACTERISTICS:
- Temperature Rating: —55°C to +105°C
- Voltage Rating: 600 Volts

MIL-W-16878 TYPE B CONDUCTORS
NOMINAL INS. THICKNESS—.010″—NOMINAL NYLON THICKNESS .003″

WEICO NO.	NO. OF COND.	CONDUCTOR SIZE	CONDUCTOR STRAND	NOM. JKT. THICKNESS (INCHES)	NOM. O.D. (INCHES)
6126	1	26	7/34	.010	.087
6226	2	26	7/34	.014	.138
6326	3	26	7/34	.014	.142
6426	4	26	7/34	.016	.162
6124	1	24	19/36	.010	.092
6224	2	24	19/36	.016	.152
6324	3	24	19/36	.016	.161
6424	4	24	19/36	.017	.172
6122	1	22	19/34	.010	.100
6222	2	22	19/34	.016	.168
6322	3	22	19/34	.017	.178
6422	4	22	19/34	.019	.194
6120	1	20	19/32	.010	.106
6220	2	20	19/32	.019	.186
6320	3	20	19/32	.019	.196
6420	4	20	19/32	.021	.218
6118	1	18	19/30	.012	.120
6218	2	18	19/30	.021	.210
6318	3	18	19/30	.022	.227
6418	4	18	19/30	.023	.250
6116	1	16	19/29	.016	.137
6216	2	16	19/29	.023	.236
6316	3	16	19/29	.023	.240
6416	4	16	19/29	.025	.274

COLORS: 1 = White 2 = Black 3 = Red 4 = Green

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

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COMMUNICATION AND CONTROL CABLE

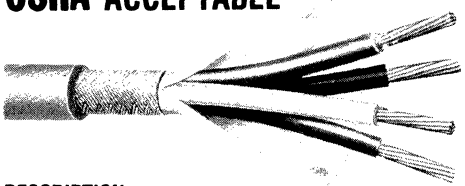
MULTICONDUCTOR DUAL SHIELDED 80°C-300V

CL2 RATED

(PASSES UL VW-1 FLAME TEST)

UL 2464 CSA SR PVC

OSHA ACCEPTABLE



DESCRIPTION:

Each Conductor Stranded Tinned Copper, Color Coded Polyvinylchloride Insulation, Aluminum Foil/Polyester/Aluminum Foil with Drain Wire, Overall Braided Tinned Copper Shield, Nylon Rip Cord, for Ease of Jacket Stripping, Gray PVC Jacket overall:

- Meets FCC Docket 20780
- MIL-STDS 461 and MIL STD 462B

#22 STRANDED (7/30) NOM. INS. THICKNESS .009"

WEICO NO.	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
9102	2	.032	.190
9103	3	.032	.200
9104	4	.032	.215
9106	6	.032	.245
9108	8	.032	.255
9110	10	.032	.290
9115	15	.032	.330
9120	20	.032	.360
9125	25	.032	.400
9130	30	.032	.420
9140	40	.032	.465
9150	50	.032	.510
9160	60	.032	.560
9170	70	.050	.635
9180	80	.050	.660
9190	90	.050	.690
9100	100	.050	.745

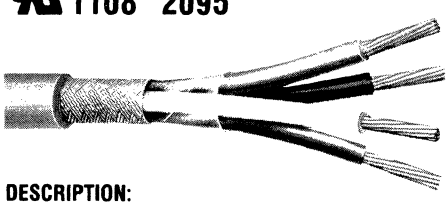
COLOR CODE: CONSULT OUR FACTORY

MULTICONDUCTOR, BRAID SHIELD 80°C-300V

CL2 RATED

(PASSES UL VW-1 FLAME TEST)

UL 1108 2095



DESCRIPTION:

Each Conductor Stranded Tinned Copper, Color Coded Polyvinylchloride Insulated, Tinned Copper Braided Shield, Gray PVC Jacket Overall.

CHARACTERISTICS:

- Temperature Rating: —20°C to +80°C
- Voltage Rating: 300 Volts

INSULATION THICKNESS .016"

WEICO NO.	NO. OF CONDUCTORS	CONDUCTOR AWG	CONDUCTOR STRAND	NOM. JACKET THICKNESS (INCHES)	NOM.O.D. (INCHES)
9450	1	22	7/30	.020	.120
9451	2	22	7/30	.020	.180
9452	3	22	7/30	.020	.200
9453	4	22	7/30	.020	.210
9454	1	20	10/30	.020	.130
9455	2	20	10/30	.020	.200
9456	3	20	10/30	.020	.220
9457	4	20	10/30	.020	.230
9458	1	18	16/30	.020	.140
9459	2	18	16/30	.020	.230
9460	3	18	16/30	.020	.240
9461	4	18	16/30	.020	.250
9462	2	16	26/30	.020	.250
9463	3	16	26/30	.020	.250

COLOR CODE: CONSULT OUR FACTORY

Single Conductor UL 1108, Multi Conductor UL 20

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

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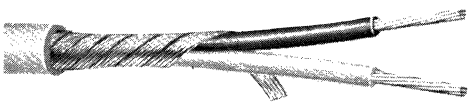
COMMUNICATION AND CONTROL CABLE

MULTICONDUCTOR SPIRAL SHIELD 80°C-300V-PVC

CL2 RATED

UL 1108 2095

(PASSES UL VW-1 FLAME TEST)



DESCRIPTION:

Each Conductor Stranded or Solid Tinned Copper, Color Coded Polyvinylchloride Insulation, Spiral Wrapped Bare Copper Shield. Nom. .020" Gray Polyvinylchloride Jacket Overall.

CHARACTERISTICS:

- Temperature Range: —20°C to +80°C
- 95% Shield Coverage
- Suggested Working Voltage: 300 Volts
- Excellent for Production Line Work, Use of Spiral Shield Makes Shield Termination Extremely Simple and Fast

COLORS: 1 = Black 3 = White 5 = Yellow
2 = Red 4 = Green 6 = Blue

WEICO NO.	NO. OF CONDUCTORS	CONDUCTOR AWG	CONDUCTOR STRAND	NOM. INS. THICKNESS (INCHES)	NOM.O.D. (INCHES)
9301	2	22	Solid	.016	.170
9302	1	22	7/30	.016	.115
9303	2	22	7/30	.016	.175
9304	3	22	7/30	.016	.190
9305	4	22	7/30	.016	.200
9306	6	22	7/30	.016	.235
9307	1	20	10/30	.016	.130
9308	2	20	10/30	.016	.195
9309	3	20	10/30	.016	.210
9310	4	20	10/30	.016	.225
9311	6	20	10/30	.016	.265
9312	1	18	16/30	.016	.135
9314	2	18	16/30	.016	.230
9315	3	18	16/30	.016	.235
9316	4	18	16/30	.016	.245
9317	2	16	26/30	.016	.240
9318	3	16	26/30	.016	.245
9319*	2	14	41/30	.020	.285
9320*	3	14	41/30	.020	.290

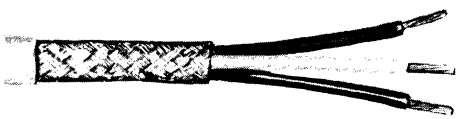
Single Conductor UL 1108, Multi Conductor UL 2095

** Not UL Recognized Not CL2*

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

COMMUNICATION AND CONTROL CABLE

BRAIDED SHIELD
**"TEFLON" (TFE)
TAPE WRAPPED JACKET
200°C-600V
MIL-W-16878/4
TYPE E



DESCRIPTION:
Each Conductor Stranded Silver Plated Copper, Type E Extruded .010" TFE Teflon Insulation, Color Coded, Cabled, Braided Silver Plated Copper Shield 90% Coverage, Sintered Wrapped White Teflon Tape.

CHARACTERISTICS:
- Temperature Range: —65°C to +200°C
- Voltage Rating: 600 Volts

COLORS: 1 = White 2 = Black 3 = Red 4 = Green

***DuPont's Registered Trademark*

WEICO NO.	NO. OF COND.	COND. SIZE	COND. STRAND	NOM. JKT. (INCHES)	NOM. O.D. AT HIGH POINT (INCHES)	NOM. CAP IN MMF SHIELD TO COND.	NOM. CAP IN MMF COND. TO COND.
5128/7	1	28	7/36	.010	.079	35	—
5228/7	2	28	7/36	.010	.121	32	18
5126/7	1	26	7/34	.010	.083	40	—
5226/7	2	26	7/34	.010	.129	36	20
5326/7	3	26	7/34	.010	.129	33	19
5126	1	26	19/38	.010	.083	40	—
5226	2	26	19/38	.010	.129	36	20
5326	3	26	19/38	.010	.129	33	19
5426	4	26	19/38	.010	.146	32	18
5124	1	24	19/36	.012	.095	45	—
5224	2	24	19/36	.012	.140	35	25
5324	3	24	19/36	.012	.147	35	20
5424	4	24	19/36	.012	.159	35	20
5122	1	22	19/34	.012	.102	55	—
5222	2	22	19/34	.012	.154	45	25
5322	3	22	19/34	.012	.162	35	25
5422	4	22	19/34	.012	.176	35	25
5120	1	20	19/32	.012	.110	55	—
5220	2	20	19/32	.012	.170	95	25
5320	3	20	19/32	.012	.180	85	25
5420	4	20	19/32	.012	.195	140	30
5118	1	18	19/30	.012	.120	70	—
5218	2	18	19/30	.012	.190	60	35
5318	3	18	19/30	.012	.203	60	35
5418	4	18	19/30	.012	.220	55	35
5116	1	16	19/29	.012	.130	107	—
5216	2	16	19/29	.012	.210	67	25
5316	3	16	19/29	.012	.211	56	30
5416	4	16	19/29	.012	.243	54	29
5114	1	14	19/27	.012	.144	84	—
5214	2	14	19/27	.012	.239	61	34
5314	3	14	19/27	.012	.227	56	31
5112	1	12	19/25	.012	.164	96	—
5212	2	12	19/25	.012	.279	72	40
5312	3	12	19/25	.012	.265	61	34

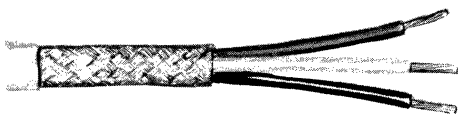
Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

WEICO COMMUNICATION AND CONTROL CABLE

MIL-C-27500 AEROSPACE ELECTRONIC CABLE

TYPE RC (MIL-W-22759/11) 06



APPLICATIONS:
For general aerospace flight vehicle applications. These cables use M22759/11 insulated conductors in their construction. QPL to Mil-W-22759/11 is required on the insulated conductors in these cables.

SPECIFICATIONS:
Conductor: Stranded silver plated copper wire.

Insulation: Extruded polytetrafluoroethylene (*Teflon PTFE) in accordance with Mil-W-22759/11.

Cable: Up to seven conductors available in cable configuration.

Shield: Silver plated copper wire braid, 85% minimum coverage, #38 AWG on core diameters less than 0.060", #36 AWG on 0.060" and larger.

Jacket: Taped and fused white polytetrafluoroethylene (PTFE).

Voltage Rating: 600V RMS

Temperature Rating: −55°C to +200°C

Identification: Marker tape under the shield with cable code and manufacturer's I.D. except single conductor where identification is printed on the conductor insulation.

WEICO NO.	MILITARY NO.	NO. OF COND.	AWG SIZE	STRANDS	INSUL O.D.	APPROX. CABLE O.D.	APPROX. WGT. LBS/1000'
55126	M27500-26RC1S06	1	26	19/38	.038	.081	7.0
55226	M27500-26RC2S06	2	26	19/38	.038	.118	13.5
55326	M27500-26RC3S06	3	26	19/38	.038	.125	16.8
55426	M27500-26RC4S06	4	26	19/38	.038	.135	19.9
55124	M27500-24RC1S06	1	24	19/36	.043	.083	8.2
55224	M27500-24RC2S06	2	24	19/36	.043	.135	15.9
55324	M27500-24RC3S06	3	24	19/36	.043	.140	20.2
55424	M27500-24RC4S06	4	24	19/36	.043	.150	23.8
55122	M27500-22RC1S06	1	22	19/34	.049	.090	9.6
55222	M27500-22RC2S06	2	22	19/34	.049	.145	19.3
55322	M27500-22RC3S06	3	22	19/34	.049	.150	24.9
55422	M27500-22RC4S06	4	22	19/34	.049	.162	29.8
55120	M27500-20RC1S06	1	20	19/32	.058	.098	12.3
55220	M27500-20RC2S06	2	20	19/32	.058	.165	24.5
55320	M27500-20RC3S06	3	20	19/32	.058	.170	32.5
55420	M27500-20RC4S06	4	20	19/32	.058	.190	52.5
55118	M27500-18RC1S06	1	18	19/30	.068	.115	17.5
55218	M27500-18RC2S06	2	18	19/30	.068	.185	31.7
55318	M27500-18RC3S06	3	18	19/30	.068	.195	42.5
55418	M27500-18RC4S06	4	18	19/30	.068	.215	62.8
55116	M27500-16RC1S06	1	16	19/29	.075	.125	20.5
55216	M27500-16RC2S06	2	16	19/29	.075	.200	37.5
55316	M27500-16RC3S06	3	16	19/29	.075	.205	50.5
55416	M27500-16RC4S06	4	16	19/29	.075	.230	66.0
55114	M27500-14RC1S06	1	14	19/27	.090	.140	27.5
55214	M27500-14RC2S06	2	14	19/27	.090	.230	51.2
55314	M27500-14RC3S06	3	14	19/27	.090	.240	70.3
55414	M27500-14RC4S06	4	14	19/27	.090	.265	88.5
55112	M27500-12RC1S06	1	12	19/25	.111	.160	39.0
55212	M27500-12RC2S06	2	12	19/25	.111	.270	74.0
55312	M27500-12RC3S06	3	12	19/25	.111	.285	105.0
55412	M27500-12RC4S06	4	12	19/25	.111	.315	131.0

DuPont's Registered Trademark

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COAXIAL CABLE

MIL-C-17 COAXIAL CABLE (POLY-ETHYLENE DIELECTRIC)

WEICO NO.	RG CABLE TYPE	JKT. O.D.	JKT. MAT	OUTER SHIELD	INNER SHIELD	DIELEC-TRIC O.D.	DIELEC-TRIC MAT.	CENTER COND.	NOM IMPED. (OHMS)	NOM CAP. MMFD/FT.	MAX OPERAT-ING VOLT (RMS)	V.P. 0/0
		MECHANICAL SPECIFICATIONS							ELECTRICAL SPECIFICATIONS			
W006A	6A/U	.336	NCV	C	SC	.189	PE	21 CW SOLID	75	20.0	2700	65.9
W008	8/U	.415	V	—	C	.289	PE	13 C 7/21	52	29.5	5000	65.9
W008A	8A/U	.415	NCV	—	C	.295	PE	13 C 7/21	52	29.5	5000	65.9
W011	11/U	.415	V	—	C	.295	PE	18 TC 7/26	75	20.5	5000	65.9
W011A	11A/U	.412	NCV	—	C	.292	PE	18 TC 7/26	75	20.5	5000	65.9
W055B	55B/U	.206	PE	TC	TC	.116	NP	20 SC SOLID	53.5	28.8	1900	66.0
W058	58/U	.200	V	—	TC	.121	PE	20 C SOLID	53.5	28.5	1900	65.9
8918	58/U TYPE	.195	V	—	TC	.116	FPE	20 C SOLID	50	26.0	LOW VOLTAGE APPLICATION	78.0
W058A	58A/U	.199	V	—	TC	.120	PE	20 C 19/33	50	29.5	1900	65.9
W058C	58C/U	.199	NCV	—	TC	.120	PE	20 TC 19/33	50	29.5	1900	65.9
W058Q M17/28-RG058	58C/U	.195	NCV	—	TC	.116	PE	20 TC 19/33	50	30.8	1900	66.0
W059	59/U	.250	V	—	C	.150	PE	22 CW SOLID	73	21.0	2300	65.9
W059B	59B/U	.246	NCV	—	C	.150	PE	23 CW SOLID	75	20.5	2300	65.9
W059BD DUAL	59B/U	.242 X .504	NCV	—	C	.146	PE	23 CW SOLID	75	20.1	2300	66.0
W059F	59/U TYPE	.242	V	—	C	.146	FPE	22 C 7/30	75	17.3	1500	78.0
W062	62/U	.250	V	—	C	.151	SSP	22 CW SOLID	93	13.5	750	84.0
W062A	62A/U	.249	NCV	—	C	.151	SSP	22 CW SOLID	93	13.5	750	84.0
W062B	62B/U	.242	NCV	—	C	.146	SSP	24 CW 7/32	93	13.5	750	84.0
W063B	63B/U	.415	NCV	—	C	.295	SSP	22 CW SOLID	125	10.0	1000	84.0
W108A	108A/U	.235	NCV	—	TC	.158	PE	20 1 COND TC 7/28 20 1 COND C 7/28	78	19.7	1000	66.0
W174	174/U	.105	NCV	—	TC	.060	PE	26 CW 7/34	50	30.0	1500	65.9
W174A	174A/U	.110	NCV	—	TC	.060	PE	26 CW 7/34	50	30.8	1500	66.0
W213	213/U	.412	NCV	—	C	.292	PE	.0888 C 7/.0296	50	30.5	5000	65.9
W214	214/U	.432	NCV	SC	SC	.292	PE	.0888 SC 7/.0296	50	30.5	5000	65.9
W217	217/U	.555	NCV	C	C	.380	PE	10 C SOLID	50	30.0	7000	65.9
W218	218/U	.880	NCV	—	C	.690	PE	.195 C SOLID	50	30.0	11000	65.9
W223	223/U	.216	NCV	SC	SC	.120	PE	19 SC SOLID	50	30.0	1900	65.9
W701	TWINAX	.330	V	—	TC	.228	PE	20 1 COND TC 7/28 20 1 COND C 7/28	100	15.5	LOW VOLTAGE APPLICATION	66.0
W702	—	.150	V	—	TC	.100	PE	27 CW 7/35	75	20.5	2500	66.0
W703	—	.305	PE	TC	TC	.198	PE	20 C SOLID	75	21.0	2700	66.0
8922	TWINAX	.244	V	—	TC	.158	PE	20 1 COND TC 7/28 20 1 COND C 7/28	78	19.7	LOW VOLTAGE APPLICATION	66.0
8929	ETHERNET*	.405	V	ALUM FOIL TC BRAID	ALUM FOIL TC BRAID	.247	FPE	12 C SOLID	50	26.0	3500	78.0

*XEROX TRADEMARK

C-Bare Copper
TC—Tinned Copper
SC—Silver Covered Copper
CW—Copper Covered Steel

FPE—Cellular Polyethylene
FEP—Fluorinated Ethylene Propylene Type IX
PTFE—Polytetrafluoroethylene
FG—Braid V-Fiberglass, Impregnated Type V Per MIL-C-17
PFA—Perfluoroalkoxy

PE—Solid Polyethylene
SSP—Semi Solid Polyethylene
BP—Black Polyethylene—Type IIIA
NP—Natural Polyethylene—Type III

V—Polyvinylchloride—Type 1
NCV—Non-Contaminating Polyvinylchloride—Type IIA
All Dimensions Are Max. Except Where Indicated

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

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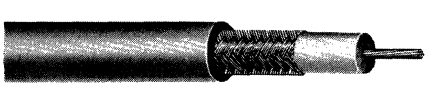
WEICO COAXIAL CABLE, PLENUM COAXIAL CABLE

MIL-C-17 COAXIAL CABLE ("TEFLON"** DIELECTRIC)

WEICO NO.	MILITARY NO.	RG TYPE	COND.	NOM. WALL THICK	NOM. JKT. THICK	JACKET TYPE	MAX. O.D.	NOM. CAP.	IMPED. OHMS.	MAX. OPER. VOLTAGE
W142B	M17/60RG142	142B/U	1/.039	.039	.012	Extruded FEP	.200	28.5	50 ± 2	1900
W178B	M17/93RG178	178B/U	7/.004	.012	.010	Extruded FEP	.075	27.9	50 ± 2	1000
W179B	M17/94RG179	179B/U	7/.004	.021	.010	Extruded FEP	.105	20.4	75 ± 3	1200
W180B	M17/95RG180	180B/U	7/.004	.045	.010	Extruded FEP	.145	15.3	93 ± 2	850
W187A	PER MIL-C-17D	187A/U	7/.004	.024	.012	Fused TFE Tape	.110	19.5	75 ± 3	1200
W188A	PER MIL-C-17D	188A/U	7/.0067	.020	.012	Fused TFE Tape	.110	27.5	50 ± 2	1200
W195A	PER MIL-C-17D	195A/U	7/.004	.045	.014	Fused TFE Tape	.155	14.5	95 ± 3	1500
W196A	PER MIL-C-17D	196A/U	7/.004	.011	.012	Fused TFE Tape	.080	28.5	50 ± 2	1000
W225	PER MIL-C-17D	225/U	7/.0312	.096	.035	FG-Braid-▽	.430	29.4	50 ± 2	5000
W302	M17/110RG302	302/U	1/.025	.061	.013	Extruded FEP	.201	29.0	50 ± 2	2300
W316	M17/113RG316	316/U	7/.0067	.020	.007	Extruded FEP	.102	29.0	50 ± 2	1200
W393	M17/127RG393	393/U	7/.0312	.096	.015	Extruded FEP	.390	29.4	50 ± 2	5000
W400	M17/128RG400	400/U	19/.008	.039	.012	Extruded FEP	.195	29.3	50 ± 2	1900
W704	M17/176-00002	—	2 Cond. 19/.005	.010	.012	PFA	.129	24.0	77 ± 2	750

COAXIAL-CL2P (NEC-725-2b)



DESCRIPTION:
Fluoropolymer Coaxial Cables are made to the most exacting specifications in the wire and cable industry. WEICO'S designs and standards allow for dramatic improvements in critical data communications electrical characteristics such as: signal speed, attenuation, and capacitance.

CHARACTERISTICS
- High Transmission Speed
- Allows Longer Cable Lengths In Computer Systems
- Can Be Installed In Air Ducts And Plenums Without Conduit
- UL Listed
- Temp. Range: —90°C to +200°C

WEICO NO.	RG TYPE	CENTER COND.	NOM. O.D. IN.	WEIGHT LBS/MFT	NOM. IMP. (OHM)	NOM. CAP. (PF/FT)	V.P. %
WP06	6	18 SOLID BC	.255	55.9	75	17	80
WP11	11	14 SOLID BC	.350	95	75	17	80
WP58	58	20 SOLID BC	.178	38.5	50	27	70
WP59	59	20 SOLID BCW	.196	31.05	75	17	80
WP60	59	22 SOLID BCW	.189	35.6	75	19	80
WP59D	59 DUAL	20 SOLID BCW	.206 x .457	70.5	75	17	80
WP60D	59 DUAL	23 SOLID BCW	.225 x .430	86	75	19	70
WP62	62	22 SOLID BCW	.198	29.9	93	13	83
WP01	TWINAX	20-7-B.C. 20-7-T.C.	.264	55.60	100	12	80
WP02	ETHERNET*	SOLID .085 T.C.	.375	128	50	26	80

*XEROX TRADEMARK

*** DuPont 's Registered Trademark.*

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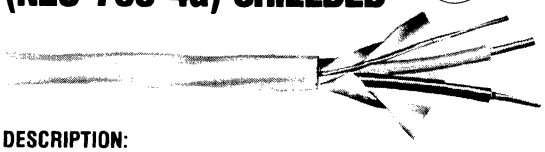
PLENUM CABLE, WELDING CABLE

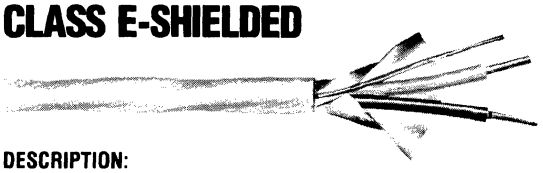
FIRE ALARM-FPLP (NEC-760-4d)-SHIELDED



WEICO NO.	NUMBER OF CONDUCTORS	GAUGE (AWG)	NOM. O.D. (INCHES)	WEIGHT LBS/MFT
9869	2	18	.200	34.5
9870	2	16	.220	42

DESCRIPTION:
Each Conductor Solid Tinned Copper, Color Coded Fluoropolymer Resin Insulated, Twisted Pair Overall Aluminum Foil Shield (100% coverage) Drain Wire, Fluoropolymer Jacket Overall.

FIRE ALARM-FPLP LOCAL LAW-5 CLASS E-SHIELDED



WEICO NO.	NUMBER OF CONDUCTORS	GAUGE (AWG)	NOM. O.D. (INCHES)	WEIGHT LBS/MFT
9871	2	18	.200	31.2
9872	2	16	.220	41.2

DESCRIPTION:
Each Conductor Solid Tinned Copper, Color Coded Fluoropolymer Resin Insulated, Twisted Pair, Overall Aluminum Foil Shield (100% coverage) Drain Wire, Fluoropolymer Jacket Overall.

WELDING CABLE

NEOPRENE

DESCRIPTION:
- Stranded Bare Copper Conductor
- Black Neoprene Jacket
- Temperature Range: —30°C to +90°C

WEICO NO.	CONDUCTOR AWG.	STRAND	NOM. OVERALL DIAMETER (INCHES)	CURRENT CARRYING CAPACITY (AMPS)	APPROX. NET. WT. LBS./M.FT
1006	6	266/30	.39	75	134
1004	4	420/30	.42	100	187
1003	3	532/30	.45	150	233
1002	2	665/30	.55	200	299
1001	1	833/30	.60	250	365
1010	1/0	1057/30	.66	300	457
1020	2/0	1317/30	.73	375	555
1030	3/0	1622/30	.80	450	698
1040	4/0	2109/30	.87	550	871

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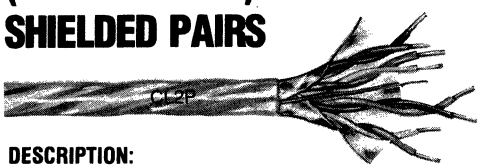
WEICO PLENUM CABLE

CL2P-(NEC-725-2b) (NON-CONDUIT) SHIELDED PAIRS



DESCRIPTION:
Each Conductor Stranded, Tinned Copper, Color Coded Fluoropolymer Resin Insulated, Conductors Twisted into Pairs, Overall Aluminum Foil Shield (100% coverage) Stranded Drain Wire, Fluoropolymer Jacket Overall.

PAIRED—SHIELDED

WEICO NO.	NUMBER OF PAIRS	GAUGE (AWG)	NOM. O.D. (INCHES)	APPROX. LBS/MFT
9830	1	24	.120	9.80
9831	2	24	.159	14.10
9833	3	24	.170	21.35
9834	4	24	.184	26.75
9835	6	24	.221	37.35
9836	12½	24	.294	68.09
9837	25	24	.408	131.50

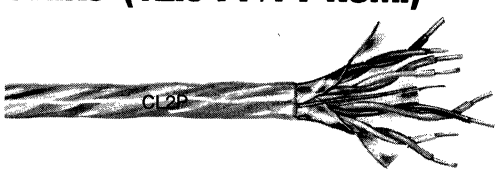
CL2P-(NEC-725-2b) (NON-CONDUIT) UNSHIELDED PAIRS

DESCRIPTION:
Each Conductor Stranded, Tinned Copper, Color Coded Fluoropolymer Resin Insulated, Conductors Twisted into Pairs, Fluoropolymer Jacket Overall.

PAIRED—UNSHIELDED

WEICO NO.	NUMBER OF PAIRS	GAUGE (AWG)	NOM. O.D. (INCHES)	APPROX. LBS/MFT
9838	1	24	.110	9.30
9839	2	24	.155	14.00
9840	3	24	.165	18.95
9841	4	24	.179	24.10
9842	6	24	.217	34.50
9843	12½	24	.290	66.30
9844	25	24	.400	128.00

CL2P-(NEC-725-2b) (NON-CONDUIT) LOW CAPACITANCE- SHIELDED PAIRS (12.5 PF/FT NOM.)

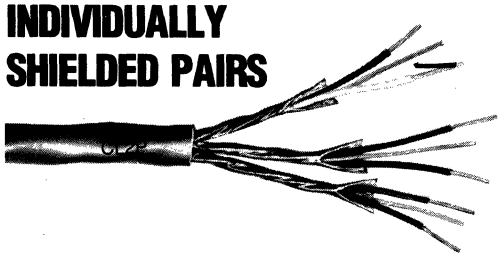


DESCRIPTION:
Each Conductor Stranded, Tinned Copper, Color Coded Fluoropolymer Resin Insulated, Conductors Twisted into Pairs, Overall Aluminum Foil Shield (100% coverage) Stranded Drain Wire, Fluoropolymer Jacket Overall.

PAIRED—SHIELDED

WEICO NO.	NUMBER OF PAIRS	GAUGE (AWG)	NOM. O.D. (INCHES)	APPROX. LBS/MFT
9860	1	24	.140	11.00
9861	2	24	.178	18.60
9862	3	24	.190	24.35
9863	4	24	.208	30.35
9864	6	24	.250	42.65
9865	9	24	.295	60.25
9866	12½	24	.335	80.15

CL2P-(NEC-725-2b) (NON-CONDUIT) INDIVIDUALLY SHIELDED PAIRS



DESCRIPTION:
Each Conductor Stranded, Tinned Copper, Color Coded Fluorpolymer Resin Insulated, Conductors Twisted into Pairs, Each Pair Individually Aluminum Foil Shielded, Stranded Drain Wire, Fluoropolymer Jacket Overall.

PAIRED—SHIELDED

WEICO NO.	NUMBER OF PAIRS	GAUGE (AWG)	NOM. O.D. (INCHES)	APPROX. LBS/MFT
9867	2	22	.167	23.45
9868	3	22	.244	38.00

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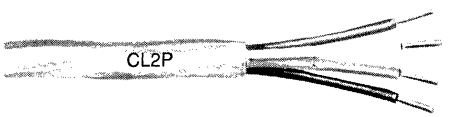
WEICO PLENUM CABLE

CL2P-(NEC-725-2b) (NON-CONDUIT) SHIELDED - UNSHIELDED, PAIRED - UNPAIRED

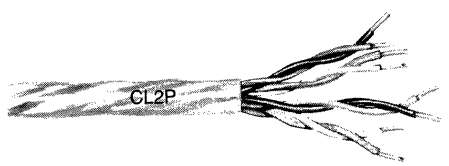
UNPAIRED—SHIELDED

WEICO NO.	NO. OF COND.	COND. AWG (STRANDING)	INSULATION THICKNESS (IN)	JACKET THICKNESS (IN)	NOM. O.D. (IN)	APPROX. WT/MFT (LBS)
9820	2	18 (SOLID)	.010	.020	.169	24
9821	2	16 (SOLID)	.010	.020	.189	28
9822	4	22 (SOLID)	.010	.020	.156	22
9823	4	18 (SOLID)	.010	.020	.190	41



UNPAIRED—UNSHIELDED

WEICO NO.	NO. OF COND.	COND. AWG (STRANDING)	INSULATION THICKNESS (IN)	JACKET THICKNESS (IN)	NOM. O.D. (IN)	APPROX. WT/MFT (LBS)
9824	2	18 (SOLID)	.010	.020	.162	23
9825	2	16 (SOLID)	.010	.020	.185	27
9826	4	18 (SOLID)	.010	.020	.186	37



PAIRED—UNSHIELDED

WEICO NO.	NO. OF PAIRS	COND. AWG (STRANDING)	INSULATION THICKNESS (IN)	JACKET THICKNESS (IN)	NOM. O.D. (IN)	APPROX. WT/MFT (LBS)
9828	2	22 (SOLID)	.010	.020	.205	22
9829	3	22 (SOLID)	.010	.020	.212	30

DESCRIPTION:
Conductors Tinned or Bare Copper Insulated with Fluoropolymer Resin, Conductors Paired or Cabled, Unshielded or Overall Foil Shield (100% Coverage), Drain Wire, Extruded Fluoropolymer Transparent Jacket Overall.

APPLICATION:
Computer Interconnect, Instrumentation and Control, Business Machines, and Remote Control Signaling.

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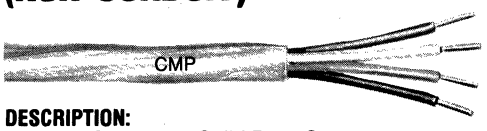
WEICO PLENUM TELEPHONE CABLE

CMP-(NEC-800-3d) (NON-CONDUIT)



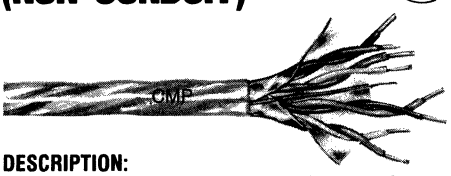
DESCRIPTION:
Each Conductor Solid Bare Copper, Color Coded Fluoropolymer Resin Insulated, Conductors Cabled, Extruded Fluoropolymer Jacket Overall.

APPLICATION:
General Intercommunications, Sound Systems, Industrial And Residential Telephone Service.

UNPAIRED—UNSHIELDED

WEICO NO.	NO. OF CONDUCTORS	GAUGE (AWG)	NOM. O.D. (INCHES)	APPROX. LBS/MFT
9624	2	24	.123	11
9634	3	24	.130	14
9644	4	24	.139	16
9622	2	22	.131	12
9632	3	22	.137	15
9642	4	22	.151	18

CMP-(NEC-800-3d) (NON-CONDUIT)



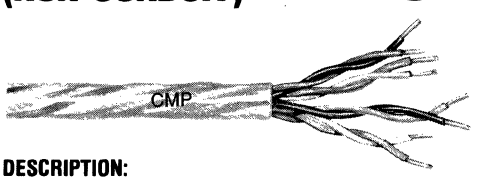
DESCRIPTION:
Each Conductor Solid Bare Copper, Color Coded Fluoropolymer Resin Insulated, Conductors Twisted into Pairs, Overall Aluminum Foil Shield (100% coverage) Stranded Drain Wire, Fluoropolymer Jacket Overall.

APPLICATION:
General Intercommunications, Sound Systems, Industrial And Residential Telephone Service.

PAIRED—SHIELDED

WEICO NO.	NUMBER OF PAIRS	GAUGE (AWG)	NOM. O.D. (INCHES)	APPROX. LBS/MFT
9730	3	24	.141	15.5
9731	4	24	.150	18.65
9732	6	24	.180	25.75
9733	10	24	.248	51.25
9734	25	24	.317	90.15
9735	50	24	.464	168.00
9736	100	24	.611	323.43

CMP-(NEC-800-3d) (NON-CONDUIT)



DESCRIPTION:
Each Conductor Solid Bare Copper, Color Coded Fluoropolymer Resin Insulated, Conductors Twisted into Pairs, Fluoropolymer Jacket Overall.

APPLICATION:
General Intercommunications, Sound Systems, Industrial And Residential Telephone Service.

PAIRED—UNSHIELDED

WEICO P/N	NUMBER OF PAIRS	GAUGE (AWG)	NOM. O.D. (INCHES)	APPROX. LBS/MFT
9702	2	24	.118	10.50
9703	3	24	.131	12.25
9704	4	24	.142	15.65
9706	6	24	.155	22.35
9710	10	24	.245	50.00
9712	12	24	.253	53.00
9725	25	24	.311	86.75
9750	50	24	.459	166.00
9700	100	24	.605	321.43

COLOR CODE: CONSULT OUR FACTORY

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WEICO BRAID, TINNED COPPER

FLAT BRAID QQ-B-575 F ASTM-B-33

WEICO NO.	MILITARY NO.	NOM. FLAT WIDTH	NOM. THICKNESS	BRAID CONSTRUCTION AWG. OF INDIV. ENDS	CAR-RIERS	TOTAL NO. OF INDIV. ENDS	APPROX. AWG. EQUIV.	NOM. CIRCULAR MILLS	*CURRENT CARRYING CAP. (Amps)
BF-.025	———	.025"	.015"	36	8	8	27	200	4.0
BF-1/32	———	1/32"	.020"	36	16	16	24	400	6.0
BF-3/64	QQB575F36T031	3/64"	.020"	36	24	24	22	600	7.0
BF-3/32	———	3/32"	.020"	36	16	48	19	1200	11.0
BF-1/8	QQB575F36T078	1/8"	.020"	36	24	72	18	1800	16.0
BF-3/16	QQB575F36T125	3/16"	.020"	36	24	120	15	3000	25.0
BF-1/4	QQB575F36T171	1/4"	.030"	36	24	168	14	4200	32.0
BF-3/8	———	3/8"	.030"	36	48	288	12	7200	46.0
BF-1/2	———	1/2"	.030"	36	48	384	10	9600	53.0
BF-5/8	QQB575F36T375	5/8"	.030"	36	48	384	10	9600	53.0
BF-3/4	———	3/4"	.040"	36	48	832	7	20800	85.0
BF-1	———	1"	.045"	36	48	832	7	20800	85.0
BF-1 3/8	QQB575F30T875	1 3/8"	.050"	30	48	336	5	33700	100.0
BF-1 1/2	QQB575F30T1375	1 1/2"	.060"	30	48	528	3	53064	150.0
BF-1 3/4	———	1 3/4"	080	30	48	1248	2/0	125424	280.0
BF-2	———	2"	.120	30	48	1436	3/0	154368	310.0

DESCRIPTION:
Tinned Copper Strands Woven And Rolled Flat At Time of Manufacture To Specific Width Depending on Construction

APPLICATION:
Used For Bonding, Straps, Grounding or Connecting Moving Parts. Recommended For High Current.

TUBULAR BRAID QQ-B-575 R ASTM-B-33

WEICO NO.	MILITARY NO.	NOM. I.D. WHEN ROUNDED	BRAID CONSTRUCTION AWG. OF INDIV. ENDS	CAR-RIERS	TOTAL NO. OF INDIV. ENDS	APPROX. AWG. EQUIV.	NOM. CIRCULAR MILLS	*CURRENT CARRYING CAP. (AMPS)
BT-1/32	QQB575R36T031	1/32"	36	24	24	22	600	7.0
BT-1/16	QQB575R36T062	1/16"	36	24	48	19	1200	11.0
BT-5/64	QQB575R36T078	5/64"	36	24	72	18	1800	16.0
BT-7/64	QQB575R36T109	7/64"	36	24	96	16	2400	19.0
BT-1/8	QQB575R36T125	1/8"	36	24	120	15	3000	25.5
BT-5/32	QQB575R36T156	5/32"	36	24	240	12	6000	40.0
BT-11/64	QQB575R36T171	11/64"	36	24	168	14	4200	32.0
BT-13/64	QQB575R34T203	13/64"	34	24	192	11	7630	46.0
BT-1/4	QQB575R36T250	1/4"	36	24	384	10	9600	53.0
BT-9/32	QQB575R30T281	9/32"	30	24	120	9	12060	60.0
BT-3/8	QQB575R36T375	3/8"	36	48	384	10	9600	53.0
BT-7/16	QQB575R30T437	7/16"	30	24	240	6	24120	90.0
BT-1/2	QQB575R36T500	1/2"	36	48	528	9	13200	62.0
BT-9/16	QQB575R30T562	9/16"	30	48	480	3	48240	145.0
BT-21/32	QQB575R30T656	21/32"	30	48	768	1	77180	190.0
BT-25/32	QQB575R36T781	25/32"	36	48	864	7	21600	88.0
BT-1	QQB575R30T1000	1"	30	48	384	4	38600	120.0

DESCRIPTION:
Tinned Copper Braid Woven in Completely Round Configuration as Outlined in SPEC QQ-BB-575.

APPLICATION:
Used As Both Shielding and Protective Covering. Shielding is 95% Or More When Placed Over Equivalent Diameter Mandrel To The Inside Diameter of Tubular Braid.

Standard Put-Ups: 100 ft., 500 ft., 1000 ft.

**Values shown are for bare cable in free air at 30°C (86°F) and intended as a reference guide only. Actual values will depend on permissible temperature rise. Permissible voltage drop and other conditions of service.*

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WEICO BUS BAR TINNED COPPER

SOFT DRAWN BUS MIL-W-3861 TYPE S QQ-W-343 TYPE S ASTM-B-33

DESCRIPTION:
Electrolytic, Soft Drawn and Annealed, Solid Tin-Plated Copper.

APPLICATION:
Point to Point Wiring, Component Leads and Ground Wire

Standard Put-Ups: 100 ft., 1000 ft.

WEICO NO.	CONDUCTOR SIZE (AWG)	NOMINAL CIRCULAR MIL AREA	NOMINAL O.D. (INCHES)
9030	30	100.5	.010
9028	28	159.8	.013
9026	26	254.1	.016
9024	24	404.0	.020
9022	22	642.4	.025
9020	20	1022.0	.033
9018	18	1642.0	.040
9016	16	2583.0	.051
9014	14	4107.0	.065
9012	12	6530.0	.082
9010	10	10380.0	.103
9008	8	16510.0	.129

HARD DRAWN BUS MIL-W-3861 TYPE S

DESCRIPTION:
Electrolytic, Hard Drawn Copper Electro-tinned Plated, Straightened and Cut to 2 Ft. Lengths.

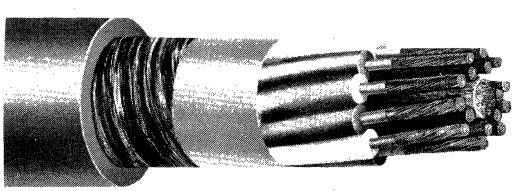
APPLICATION:
For Hooking Up All Types of Transmitters, Especially Ultra Shortwave Equipment Connecting Common Connector Terminals.

WEICO NO.	CONDUCTOR SIZE (AWG)	NOMINAL CIRCULAR MIL AREA	NOMINAL O.D. (INCHES)
W2424	24	404.0	.020
W2222	22	642.4	.025
W2020	20	1022.0	.033
W1818	18	1642.0	.040
W1616	16	2583.0	.051
W1414	14	4107.0	.065
W1212	12	6530.0	.082
W1010	10	10380.0	.103

Standard Put-Ups: 100 Pcs., 2 Ft. Each, Per Package

COMMUNICATION AND CONTROL CABLE

NEOPRENE JACKET (MULTI-SO)



DESCRIPTION:
Each Conductor Stranded Bare Copper, Color Coded Rubber Insulation, Cabled with Fillers where Necessary, Wrap Over Conductors, Heavy Black Neoprene Jacket Overall.

CHARACTERISTICS:
- Temperature Range: —20°C to +60°C
- Voltage Rating: 600 Volts

18 16/30—STRANDED BARE COPPER—2/64" INSULATION THICKNESS

WEICO NO.	NO. OF CONDUCTORS	NOMINAL JKT. THICKNESS (INCHES)	NOMINAL O.D. (INCHES)
NO-518	5	.078	.485
NO-618	6	.078	.510
NO-818	8	.078	.560
NO-918	9	.078	.595
NO-1018	10	.078	.620

16 26/30—STRANDED BARE COPPER—2/64" INSULATION THICKNESS

NO-516	5	.078	.520
NO-616	6	.078	.540
NO-716	7	.078	.540
NO-816	8	.078	.580
NO-1016	10	.094	.720
NO-1216	12	.094	.745
NO-1416	14	.094	.765
NO-1616	16	.094	.810
NO-2016	20	.094	.890
NO-2216	22	.094	.920
NO-2416	24	.109	1.000
NO-2616	26	.109	1.030
NO-3016	30	.109	1.080

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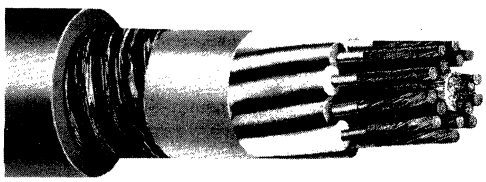
WEICO COMMUNICATION AND CONTROL CABLE

CONTROL CABLE, (MULTI-SO)



COLOR CODE: Per IPCEA

14 41/30—STRANDED BARE COPPER—3/64" INSULATION THICKNESS

WEICO NO.	NO. OF CONDUCTORS	NOM. JACKET THICKNESS (INCHES)	NOM. O.D. (INCHES)
NO-514	5	.095	.675
NO-614	6	.094	.705
NO-714	7	.094	.710
NO-814	8	.094	.760
NO-914	9	.094	.810
NO-1014	10	.094	.870
NO-1214	12	.094	.900

12 65/30—STRANDED BARE COPPER—3/64" INSULATION THICKNESS

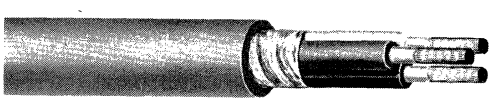
NO-512	5	.094	.740
NO-612	6	.094	.790
NO-712	7	.094	.790
NO-812	8	.094	.820
NO-912	9	.109	.900
NO-1012	10	.109	1.010
NO-1212	12	.109	1.040
NO-1612	16	.109	1.160
NO-1812	18	.109	1.220

10 104/30—STRANDED BARE COPPER—3/64" INSULATION THICKNESS

NO-510	5	.094	.800
NO-610	6	.094	.850
NO-810	8	.094	.910
NO-1010	10	.109	1.120

PORTABLE CORDS 300-600V

(UL LISTED) SJO, SO



DESCRIPTION:
Each Conductor Stranded Bare Copper, Color Coded Rubber Insulation, Cabled with Fillers, Separator, Black Neoprene Jacket Overall.

CHARACTERISTICS:
- Temperature Range: —30°C to +90°C
- Voltage Rating:
  SJO: 300 Volts
  SO: 600 Volts

NEOPRENE PORTABLE CORD 300 VOLT

WEICO NO.	TYPE	NO. OF COND.	AWG	NOM. INS. THICKNESS (INCHES)	NOM. JKT. THICKNESS (INCHES)	CURRENT CAPACITY IN AMPS	NOM. O.D. (INCHES)
NJO-218	SJO	2	18	.032	.032	7	.305
NJO-318	SJO	3	18	.032	.032	7	.330
NJO-216	SJO	2	16	.032	.032	10	.330
NJO-316	SJO	3	16	.032	.032	10	.360

NEOPRENE PORTABLE CORD 600 VOLT

NO-218	SO	2	18	.030	.060	7	.390
NO-318	SO	3	18	.030	.060	7	.405
NO-418	SO	4	18	.030	.060	6	.435
NO-216	SO	2	16	.030	.060	10	.405
NO-316	SO	3	16	.030	.060	10	.430
NO-416	SO	4	16	.030	.060	8	.485
NO-214	SO	2	14	.045	.075	15	.530
NO-314	SO	3	14	.045	.075	15	.560
NO-414	SO	4	14	.045	.075	12	.605
NO-212	SO	2	12	.045	.090	20	.600
NO-312	SO	3	12	.045	.090	20	.635
NO-412	SO	4	12	.045	.090	16	.665
NO-210	SO	2	10	.045	.090	25	.640
NO-310	SO	3	10	.045	.090	25	.690
NO-410	SO	4	10	.045	.090	20	.745

Standard Put-Ups: 250 ft. **COLORS:** 1 = White 2 = Black 3 = Green 4 = Red

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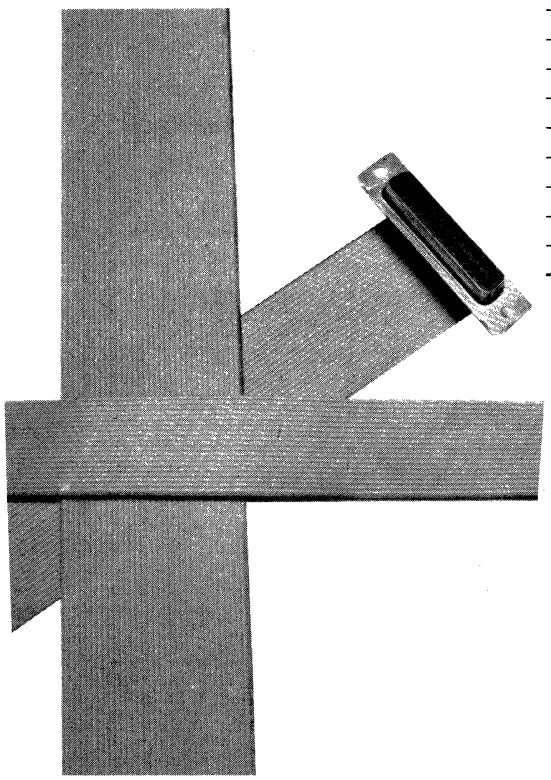
WEICO FLAT CABLE GRAY

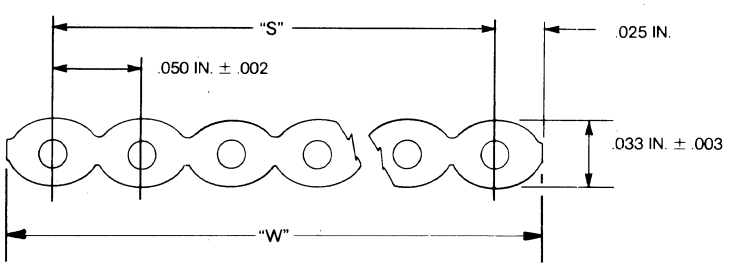
105°C PVC

UL 2651

(PASSES UL VW-1 FLAME TEST)

WEICO NO.	NO. OF CONDUCTORS	NOMINAL OVERALL WIDTH (W) (INCHES)	NOMINAL SPAN (S) (INCHES)
WR-9	9	.45	.40
WR-10	10	.50	.45
WR-14	14	.70	.65
WR-15	15	.75	.70
WR-16	16	.80	.75
WR-20	20	1.00	.95
WR-24	24	1.20	1.15
WR-25	25	1.25	1.20
WR-26	26	1.30	1.25
WR-34	34	1.70	1.65
WR-37	37	1.85	1.80
WR-40	40	2.00	1.95
WR-50	50	2.50	2.45
WR-60	60	3.00	2.95
WR-64	64	3.20	3.15





Weico's gray Flat Cable is designed for general purpose applications. Because of its exacting specifications, it provides consistent reliable performance. Being ribbed on both sides permits reverse plane termination ability on the same cable length. Flexibility and excellent teardown characteristics allow intricate circuit routing and uniform breakouts for harness production. Weico's Flat Cable is stocked in bulk (100 Ft./Reel).

DESCRIPTION:

- 28 AWG (7/36) stranded tinned copper conductor
- Nominal Insulation Thickness: .010" PVC
- Conductors on .050" centers
- Gray PVC with red stripe on leading edge
- UL listed—Style 2651
- Passes UL VW-1

CHARACTERISTICS:

- Temperature Rating: —105°C
- Voltage Rating: 300 Volts
- Capacitance: 14 pF/ft nom.*
- Propagation Delay: 1.4 ns/ft—.18 ns rise time pulse @ 1 mhz*
- Impedance: 105 ohms nom.*
- Crosstalk: nom. between two adjacent signal lines @ 1 ns rise time over 10 ft. length; near end 3.2%—far end 11.5%*
- Environmental: resists acids, alkalis, oil, moisture, solvents, ozone and fungus

Standard Packaging: 100 foot spool

***Transmission Characteristics: Ground-Signal-Ground-Signal Etc. With All Grounds Common**

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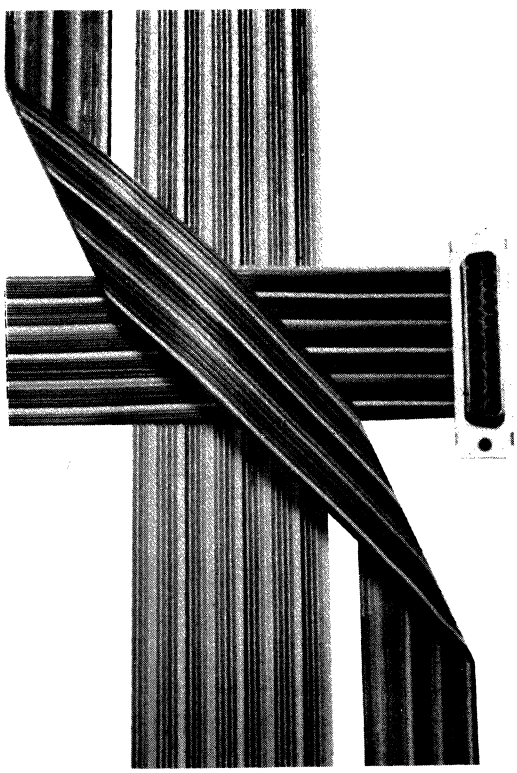
WEICO FLAT CABLE COLOR CODED

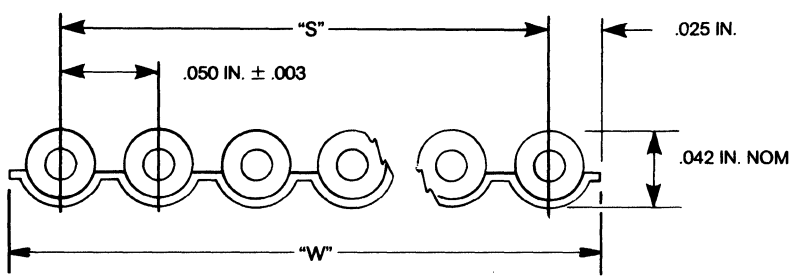
105°C PVC

UL 2884

(PASSES UL VW-1 FLAME TEST)

WEICO NO.	NO. OF CONDUCTORS	NOMINAL OVERALL WIDTH (W) (INCHES)	NOMINAL SPAN (S) (INCHES)
WC-9	9	.45	.40
WC-10	10	.50	.45
WC-14	14	.70	.65
WC-15	15	.75	.70
WC-16	16	.80	.75
WC-20	20	1.00	.95
WC-24	24	1.20	1.15
WC-25	25	1.25	1.20
WC-26	26	1.30	1.25
WC-34	34	1.70	1.65
WC-37	37	1.85	1.80
WC-40	40	2.00	1.95
WC-50	50	2.50	2.45
WC-60	60	3.00	2.95
WC-64	64	3.20	3.15





Weico's color coded Flat Cable is manufactured from pre-insulated color coded conductors which are then laminated on .050 center to center spacing. This permits conventional termination using insulation displacement connectors. Color coding affords immediate identification of discrete wires for positive termination and traceability. Weico's Flat Cable is stocked in bulk (100 ft/reel).

DESCRIPTION:

- 28 AWG (7/36) stranded tinned copper conductor
- 0.10" nom. wall PVC
- Conductors laminated to a sheet of .009" clear PVC
- Color Code: brown, red, orange, yellow, green, blue, violet, gray, white, black. Color code repeats beyond 10 conductors
- UL listed-Style 2884
- Passes UL VW-1

CHARACTERISTICS:

- Temperature Rating: 105°C
- Voltage Rating: 300 Volts
- Capacitance: 14 pF/ft @ 1mhz*
- Propagation Delay: 1.4 ns/ft—.18 ns rise time pulse*
- Impedance: 105 ohms nom.*
- Crosstalk: nom. between two adjacent signal lines @ 1 ns rise time over 10 ft. length; near end 3.2%—far end 11.5%*
- Environmental: resists acids, alkalis, oil, moisture, solvents, ozone and fungus

Standard Packaging: 100 foot spool

***Transmission Characteristics: Ground-Signal-Ground-Signal Etc. With All Grounds Common**

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WEICO POWER SUPPLY CORDS, SHIELDED, UNSHIELDED

3 CONDUCTOR
N.A. COLOR CODING
CEE COLOR CODING

UL LISTED CSA

NEMA 5-15P

OUTER JACKET STRIPPED 2".
CONDUCTORS STRIPPED AND TWISTED 5/8"

WEICO NO.	LENGTH (FT.)	COLOR CODING	AWG (STRAND-ING)	NOM. OD. (INCHES)	RATING	UL TYPE	COLOR
			UNSHIELDED				
30306	6	NA	18(16x30)	0.328	1250 Watts 10A-125V	SJ	Black
30406	6	NA	18(16x30)	0.315	1250 Watts 10A-125V	SJT	Gray
30407/ECC	6'7"	CEE	18(41x34)	0.315	1250 Watts 10A-125V	SJT	Black
30308	8	NA	18(16x30)	0.328	1250 Watts 10A-125V	SJ	Black
30508	8	NA	18(16x30)	0.328	1250 Watts 10A-125V	SJO	Black
30312	12	NA	18(16x30)	0.328	1250 Watts 10A-125V	SJ	Black
30309/16	9	NA	16(26x30)	0.353	1625 Watts 13A-125V	SJ	Black
30410/16ECC	9'10"	CEE	16(65x34)	.340	1625 Watts 13A-125V	SJT	Black
30312/16	12	NA	16(26x30)	0.353	1625 Watts 13A-125V	SJ	Black
			SHIELDED				
33207/ECC	6'7"	CEE	18(41x34)	.270	1250 Watts 10A-125V	SVT Shielded	Black
33210/ECC	9'10"	CEE	18(41x34)	.270	1250 Watts 10A-125V	SVT Shielded	Black
33410/14ECC	9'10"	CEE	14(41x30)	.402	1875 Watts 15A-125V	SJT Shielded	Black

DESCRIPTION:
- Stranded Bare Copper Conductors
- Color Coded PVC or Rubber Insulation
- PVC (SVT-SJT), Rubber (SV-SJ) Or Neoprene (SJO) Jacket
- One End Fitted With Molded Three Prong Male Plug, Other End Has Jacket and Conductors Stripped Back
- Shielded or Unshielded As Indicated In Table

APPLICATIONS:
Type SV-SVT: Small Tools, Business

Type SJ-SJT-SJO: Heavier Duty Tools, Electric Saws, Small Motors, Grinders, Saws, Sanders

NEMA 5-15P

OUTER JACKET STRIPPED 1½".
CONDUCTORS STRIPPED AND TWISTED 5/8"

			UNSHIELDED				
30106	6	NA	18(41x34)	0.265	1250 Watts 10A-125V	SV	Black
30108	8	NA	18(41x34)	0.246	1250 Watts 10A-125V	SV	Black
30206	6	NA	18(41x34)	0.253	1250 Watts 10A-125V	SVT	Gray
30208	8	NA	18(41x34)	0.253	1250 Watts 10A-125V	SVT	Gray

COLOR CODE COMPARISON BY FUNCTION

Function
N = Neutral
L = Live
E = Earth or Ground

North American Color Coding
White
Black
Green or Green/Yellow

CEE
Light Blue
Brown
Green/Yellow

NEMA 5-15P

OUTER JACKET STRIPPED 2".
CONDUCTORS STRIPPED AND TWISTED 3/4"

			UNSHIELDED				
30309/14	9	NA	14(41x30)	0.380	1875 Watts 15A-125V	SJ	Black
30315/14	15	NA	14(41x30)	0.380	1875 Watts 15A-125V	SJ	Black

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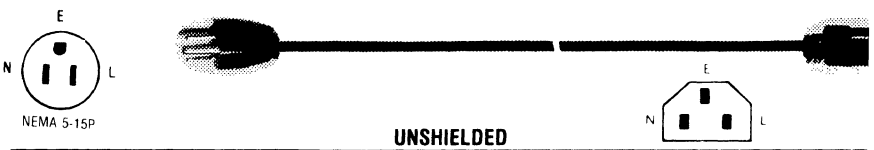
WEICO POWER SUPPLY CORDS, SHIELDED, UNSHIELDED

EXTENSION CORDS, DETACHABLE 3 CONDUCTORS N.A. COLOR CODING CEE COLOR CODING

LISTED

DESCRIPTION:
- One End Fitted With Molded Three Prong Male Plug, Other End Fitted With Molded Female Receptable.
- Shielded or Unshielded As Indicated In Table.

WEICO NO.	LENGTH (FT.)	COLOR CODING	AWG (STRAND-ING)	NOM. OD. (INCHES)	RATING	UL TYPE	COLOR
UNSHIELDED							
31208	8	NA	18(41x34)	0.253	875 Watts 7A-125V	SVT	Gray
32275/ECC	7½	CEE	18(41x34)	0.246	875 Watts 7A-125V	SVT	Gray



UNSHIELDED							
31275	7½	NA	18(41x34)	0.253	1250 Watts 10A-125V	SVT	Black
31275/ECC	7½	CEE	18(41x34)	0.246	1250 Watts 10A-125V	SVT	Black
31407/ECC	6'7"	CEE	18(41x34)	0.315	1250 Watts 10A-125V	SJT	Black
31407/14ECC	6'7"	CEE	14(41x30)	0.380	1875 Watts 15A-125V	SJT	Black
32408/16	7'6"	NA	16(65x34)	0.340	1625 Watts 13A-125V	SJT	Black
31410	9'10"	CEE	18(41x34)	0.315	1250 Watts 10A-125A	SJT	Black
SHIELDED							
33209/ECC	6'7"	CEE	18(41x34)	0.270	1250 Watts 10A-125V	SVT Shielded	Black
34407/ECC	6'7"	CEE	18(41x34)	0.340	1250 Watts 10A-125V	SJT Shielded	Black
34207/ECC	6'7"	CEE	18(41x34)	0.307	1250 Watts 10A-125V	SVT Foil Shield +85% Braid Shld	Black
34410/16 ECC	9'10"	CEE	16(65x34)	0.365	1625 Watts 13A-125V	SJT Shielded	Black
34407/14 ECC	6'7"	CEE	14(41x30)	0.402	1875 Watts 15A-125V	SJT Shielded	Black
34410/14ECC	9'10"	CEE	14(41x30)	0.402	1875 Watts 15A-125V	SJT Shielded	Black

UNSHIELDED							
31310	10	NA	18(16x30)	0.328	1250 Watts 10A-125V	SJ	Black
31310/16	10	NA	16(26x30)	0.340	1625 Watts 13A-125V	SJ	Black

COLOR CODE COMPARISON BY FUNCTION

Function
N = Neutral
L = Live
E = Earth or Ground

North American Color Coding
White
Black
Green or Green/Yellow

CEE
Light Blue
Brown
Green/Yellow

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WEICO TUBING

EXPANDABLE BRAIDED POLYESTER SLEEVING

(PASSES VW-1 FLAME TEST)

GENERAL PURPOSE WEICO NO.	FLAME RETARDANT WEICO NO.	MINIMUM SUPPLIED I.D. (INCHES)	MAXIMUM EXPANDED I.D. (INCHES)	NOM. WALL THICKNESS (INCHES)
XPT 1/8	XFR 1/8	0.093	0.250	.025
XPT 1/4	XFR 1/4	0.125	0.437	.025
XPT 1/2	XFR 1/2	0.250	0.750	.025
XPT 3/4	XFR 3/4	0.500	1.250	.025
XPT 1-1/4	XFR 1-1/4	0.750	1.750	.025
XPT 1-3/4	XFR 1-3/4	1.250	2.750	.025
XPT 2	XFR 2	1.500	3.500	.025

COLOR: Black

DESCRIPTION:

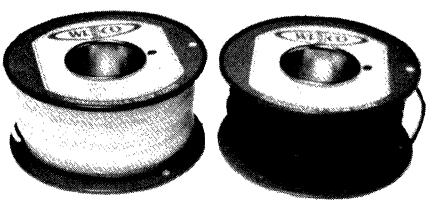
WEICO XPT and XFR are lightweight, expandable sleevings that offer extreme flexibility. The open weave allows for a wide range of sleeving diameters, thus ensuring ease of installation over a wide range of shapes and sizes. This sleeving provides an economical, flexible, protection for bundling wires, harnesses, and cable assemblies on various types of machinery, from industrial robots to CAD/CAM controlled process and machine tool equipment.

CHARACTERISTICS:

- Operating Temperature: —70°C to +125°C
- Applicable Specifications: MIL STD-810B—Method 508
- Fungus inert
- Resists abrasion and cut through, self-extinguishing when used to encase non-flammable wires or cables.

Standard Put-Ups: Consult Factory

TUBING *"TEFLON"



DESCRIPTION:

WEICO'S Teflon Tubing is Rated For Continuous Operation at 260°C While Retaining Exceptional Toughness and Flexibility. The Dielectric Strength of Teflon at High Frequencies is Many Times That of Other Insulators. The Insulation Resistance Properties are Unaffected by Heat Aging or Temperature Use up to 260°C.

SPECIFICATIONS:

ETT: AMS 3654, ASTM D 3295 CLASS A
TT: AMS 3655, ASTM D 3295 CLASS B
TS: AMS 3653, ASTM D 3295 CLASS C
MIL-I-22129

CHARACTERISTICS:

- Operating Temperature: —65°C to +260°C
- Dielectric Strength: 550 Volts/MIL
- Fungus Resistant
- Self-Extinguishing
- Non-Corrosive
- Zero Water Absorption

COLORS: Natural = C

0 = Black 2 = Red 4 = Yellow 6 = Blue 8 = Gray
1 = Brown 3 = Orange 5 = Green 7 = Violet 9 = White

Standard Put-Ups: 100 ft., 1000 ft.

**DuPont's Registered Trademark.*

WEICO NO. AND SIZE EXTRA THIN WALL	THIN WALL	STANDARD WALL	NOM. INSIDE DIA. (INCHES)	ETT WALL THICKNESS (INCHES)	TT WALL THICKNESS (INCHES)	TS WALL THICKNESS (INCHES)
ETT-30	TT-30	—	.012	.006	.009	—
ETT-28	TT-28	—	.015	.006	.009	—
ETT-26	TT-26	—	.018	.006	.009	—
ETT-24	TT-24	TS-24	.022	.006	.010	.012
ETT-22	TT-22	TS-22	.028	.006	.010	.012
ETT-20	TT-20	TS-20	.034	.006	.012	.016
ETT-19	TT-19	TS-19	.038	.006	.012	.016
ETT-18	TT-18	TS-18	.042	.006	.012	.016
ETT-17	TT-17	TS-17	.047	.006	.012	.016
ETT-16	TT-16	TS-16	.053	.006	.012	.016
ETT-15	TT-15	TS-15	.059	.006	.012	.016
ETT-14	TT-14	TS-14	.066	.008	.012	.016
ETT-13	TT-13	TS-13	.076	.008	.012	.016
ETT-12	TT-12	TS-12	.085	.008	.012	.016
ETT-11	TT-11	TS-11	.095	.008	.012	.016
ETT-10	TT-10	TS-10	.106	.008	.012	.016
ETT-9	TT-9	TS-9	.118	.008	.015	.020
ETT-8	TT-8	TS-8	.133	.008	.015	.020
ETT-7	TT-7	TS-7	.148	.008	.015	.020
ETT-6	TT-6	TS-6	.166	.010	.015	.020
ETT-5	TT-5	TS-5	.186	.010	.015	.020
ETT-4	TT-4	TS-4	.208	.010	.015	.020
ETT-3	TT-3	TS-3	.234	.010	.015	.020
ETT-2	TT-2	TS-2	.263	.010	.015	.020
ETT-1	TT-1	TS-1	.294	.010	.015	.020
ETT-0	TT-0	TS-0	.330	.012	.015	.020

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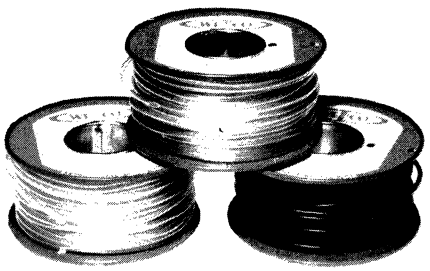
WEICO TUBING

PVC 105°C

(PASSES VW-1 FLAME TEST)



DESCRIPTION:

WEICO'S PVC Tubing is an Economical All-Purpose Insulating Material. It is Flexible, Heat and Oil Resistant and has Superior Thermal, Mechanical and Electrical Properties.

SPECIFICATIONS:

- MIL-I-631-TYPE F, FORM U, GRADE C, CLASS 1, CATEGORY 1

CHARACTERISTICS:

- Operating Temperature: —20°C to +105°C
- Dielectric Strength: 800 Volts/MIL
- Non Corrosive
- Self Extinguishing
- Fungus Resistant

WEICO NO.	SIZE	NOM. INSIDE DIA. (INCHES)	NOM. WALL THICKNESS (INCHES)	STANDARD PUT-UPS
PV-24	24	.022	.013	100′,—1000′ Spools
PV-22	22	.027	.012	100′,—1000′ Spools
PV-20	20	.034	.016	100′,—1000′ Spools
PV-19	19	.038	.016	100′,—1000′ Spools
PV-18	18	.042	.016	100′,—1000′ Spools
PV-17	17	.047	.016	100′,—1000′ Spools
PV-16	16	.053	.016	100′,—1000′ Spools
PV-15	15	.059	.016	100′,—1000′ Spools
PV-14	14	.066	.016	100′,500′ Spools
PV-13	13	.076	.016	100′,500′ Spools
PV-12	12	.085	.016	100′,500′ Spools
PV-11	11	.095	.016	100′,500′ Spools
PV-10	10	.106	.016	100′,500′ Spools
PV-9	9	.118	.020	100′,500′ Spools
PV-8	8	.133	.020	100′,500′ Spools
PV-7	7	.148	.020	100′,500′ Spools
PV-6	6	.166	.020	100′,500′ Spools
PV-5	5	.186	.020	100′,500′ Spools
PV-4	4	.208	.020	100′,250′ Spools
PV-3	3	.234	.020	100′,250′ Spools
PV-2	2	.263	.020	100′,250′ Spools
PV-1	1	.294	.020	100′,250′ Spools
PV-0	0	.330	.020	100′,250′ Spools
PV-5/16	5/16″	.312	.025	100′,250′ Coils
PV-3/8	3/8″	.375	.025	100′,250′ Spools
PV-7/16	7/16″	.438	.025	100′ Coils
PV-1/2	1/2″	.500	.025	100′ Coils
PV-9/16	9/16″	.562	.030	100′ Coils
PV-5/8	5/8″	.625	.030	100′ Coils
PV-3/4	3/4″	.750	.035	50′ Coils
PV-7/8	7/8″	.875	.035	50′ Coils
PV-1 IN	1″	1.000	.035	50′ Coils
PV-1-1/8	1-1/8″	1.125	.035	50′ Coils
PV-1-1/4	1-1/4″	1.250	.040	50′ Coils
PV-1-3/8	1-3/8″	1.375	.045	50′ Coils
PV-1-1/2	1-1/2″	1.500	.045	50′ Coils
PV-1-3/4	1-3/4″	1.750	.055	50′ Coils
PV-2 IN	2″	2.000	.060	50′ Coils
PV-2-1/4	2-1/4″	2.250	.070	50′ Coils
PV-2-1/2	2-1/2″	2.500	.070	50′ Coils

COLORS: 0 = Clear 9 = White 2 = Red
1 = Black 4 = Yellow 5 = Green

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WEICO TUBING

PLASTIC IMPREGNATED FIBERGLASS TUBING

CONFORMS TO:
MIL-I-3190— GRADE B AND MIL-I-21557

THERMAL CLASS B:
(130°C). NEMA Type 3

DIELECTRIC: 4000 VDC

OPERATING TEMPERATURE:
—20°C to +130°C
- Non Corrosive
- Self Extinguishing
- Fungus Resistant

STOCK COLOR: Black

Standard Put-Ups: 100 ft., 1000 ft.

WEICO NO.	SIZE	NOMINAL I.D.	NOM. WALL THICKNESS (INCHES)
FG24	24	.022	.019
FG22	22	.027	.019
FG20	20	.034	.019
FG19	19	.038	.019
FG18	18	.042	.019
FG17	17	.047	.019
FG16	16	.053	.024
FG15	15	.059	.024
FG14	14	.066	.024
FG13	13	.076	.024
FG12	12	.085	.024
FG11	11	.095	.024
FG10	10	.106	.024
FG09	09	.118	.024
FG08	08	.133	.024
FG7	7	.148	.024
FG6	6	.166	.024
FG5	5	.186	.031
FG4	4	.206	.031
FG3	3	.234	.031
FG2	2	.263	.031
FG1	1	.294	.036
FG0	0	.330	.036
FG3/8	3/8"	.387	.036
FG7/16	7/16"	.450	.036
FG1/2	1/2"	.512	.036
FG5/8	5/8"	.640	.036
FG3/4	3/4"	.768	.036
FG7/8	7/8"	.893	.036
FG1"	1"	1.018	.036

DESCRIPTION:
The Weico FG Tubing is a Woven Fiberglass Braid Impregnated With a Heat Resistant, Extremely Flexible, Tough Plastic Insulation. It is Formulated to Provide The Optimum in Electrical, Chemical Resistance, Heat Stability, and Abrasion Resistant Properties.

SILICONE RUBBER COATED FIBERGLASS TUBING

DESCRIPTION:
The WEICO RSF Tubing is a Tightly Woven, Fiberglass Braid, Coated With Silicon Rubber. It Offers High Heat and Superior Electrical Characteristics in Any Application Requiring Class H Insulation, and Maintains Exceptional Flexibility Over Its Entire Operating Temperature Range.

THERMAL CLASS H: for 200°C operation. NEMA Type 5.

GRADE A-1: 8000V. Dielectric.

MEETS MILITARY SPECIFICATIONS:
MIL-I-3190 and MIL-I-18057.

OPERATING TEMPERATURE RANGE:
—85°C to +200°C
- Non Corrosive
- Self Extinguishing
- Fungus Resistant

STOCK COLOR: Natural

Standard Put-Ups: 100 ft., 1000 ft.

WEICO NO.	SIZE	NOM. INSIDE DIAMETER (INCHES)	NOM. WALL THICKNESS (INCHES)
RSF-24	24	.024	.020
RSF-22	22	.029	.020
RSF-20	20	.036	.020
RSF-18	18	.045	.020
RSF-17	17	.050	.020
RSF-16	16	.056	.024
RSF-15	15	.062	.024
RSF-14	14	.068	.024
RSF-13	13	.076	.024
RSF-12	12	.085	.024
RSF-11	11	.096	.024
RSF-10	10	.107	.024
RSF-9	9	.119	.024
RSF-8	8	.135	.024
RSF-7	7	.151	.024
RSF-6	6	.170	.024
RSF-5	5	.190	.028
RSF-4	4	.214	.028
RSF-3	3	.239	.028
RSF-2	2	.268	.028
RSF-1	1	.300	.028
RSF-0	0	.336	.028
RSF-3/8	3/8"	.387	.034
RSF-7/16	7/16"	.450	.034
RSF-1/2	1/2"	.512	.034
RSF-5/8	5/8"	.640	.034
RSF-3/4	3/4"	.768	.034
RSF-7/8	7/8"	.893	.034
RSF-1"	1"	1.018	.034

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WEICO TUBING, SHRINKABLE

PVC 105°C

SPECIFICATIONS:
- MIL-I-23053/2
- AMS-3582
- UL RECOGNIZED

CHARACTERISTICS:
Operating Temperature: —35°C to +105°C
Shrinkage Ratio: to 50% of Supplied Diameter at 175° C
Longitudinal Shrinkage: 10% Nominal
Dielectric Strength: 750 Volts/MIL

WEICO NO.	MILITARY NO.	SIZE (INCHES)	MIN. I.D. BEFORE SHRINKAGE (INCHES)	RECOVERED I.D. AFTER SHRINKAGE (INCHES)	NOM. WALL THICKNESS (INCHES)	STANDARD PUT-UP (FEET)
SPV-1/16	M23053/2-202-X	1/16	.062	.031	.020	100, 500
SPV-3/32	M23053/2-203-X	3/32	.093	.046	.020	100, 200
SPV-1/8	M23053/2-204-X	1/8	.125	.062	.020	100, 200
SPV-3/16	M23053/2-205-X	3/16	.187	.093	.020	100, 200
SPV-1/4	M23053/2-206-X	1/4	.250	.125	.025	100, 200
SPV-3/8	M23053/2-207-X	3/8	.375	.187	.025	100, 200
SPV-1/2	M23053/2-208-X	1/2	.500	.250	.025	100
SPV-3/4	M23053/2-209-X	3/4	.775	.375	.030	100
SPV-1	M23053/2-210-X	1	1.000	.500	.035	100
SPV-1 1/2	M23053/2-211-X	1 1/2	1.500	.750	.045	100
SPV-2	M23053/2-212-X	2	2.000	1.000	.050	50

COLORS: 0 = Black C = Clear **X Denotes color coding**

POLYOLEFIN 135°C

SPECIFICATIONS:
- UL RECOGNIZED
- MIL-I-23053/5A
- AMS-3636B (Colors) Nonflammable
- AMS-3637B (Clear) Flammable

CHARACTERISTICS:
Operating Temperature: —55°C to +135°C
Shrinkage Ratio: to 50% of Supplied Diameter at 121° C
Longitudinal Shrinkage: 5% Nominal
Dielectric Strength: 1300 Volts/MIL

WEICO'S Polyolefin tubings offer an outstanding balance of properties—electrical, physical and chemical—that make them the most popular choice for a wide variety of industrial and military applications.

Rated for 135°C continuous operation and engineered for superior flame resistance properties, Polyolefin tubings are typically used as a shrink-fit electrical insulation over cable splices and terminations. Polyolefin tubings are also excellent for light-weight wire harness covering, wire marking and bundling, component packaging and fire resistant covering. Polyolefin clear tubings provide excellent visibility for component packaging. All Polyolefin tubings are split-resistant, mechan ically tough, easily marked and they resist cold flow.

COLORS: 0 = Black 4 = Yellow 9 = White
2 = Red 6 = Blue C = Clear

WEICO NO.	MILITARY NO. (CLEAR)	MILITARY NO. (COLORS)	SIZE (INCHES)	MIN. I.D. BEFORE SHRINKING (INCHES)	RECOVERED I.D. AFTER SHRINKING (INCHES)	RECOVERED NOM. WALL THICKNESS (INCHES)
SPO-3/64	M23053/5-201-C	M23053/5-101-X	3/64	.046	.023	.016
SPO-1/16	M23053/5-202-C	M23053/5-102-X	1/16	.063	.031	.017
SPO-3/32	M23053/5-203-C	M23053/5-103-X	3/32	.093	.046	.020
SPO-1/8	M23053/5-204-C	M23053/5-104-X	1/8	.125	.062	.020
SPO-3/16	M23053/5-205-C	M23053/5-105-X	3/16	.187	.093	.020
SPO-1/4	M23053/5-206-C	M23053/5-106-X	1/4	.250	.125	.025
SPO-3/8	M23053/5-207-C	M23053/5-107-X	3/8	.375	.187	.025
SPO-1/2	M23053/5-208-C	M23053/5-108-X	1/2	.500	.250	.025
SPO-3/4	M23053/5-209-C	M23053/5-109-X	3/4	.750	.375	.030
SPO-1	M23053/5-210-C	M23053/5-110-X	1	1.000	.500	.035
SPO-1 1/2	M23053/5-211-C	M23053/5-111-X	1 1/2	1.500	.750	.040
SPO-2	M23053/5-212-C	M23053/5-112-X	2	2.000	1.000	.045
SPO-3	M23053/5-213-C	M23053/5-113-X	3	3.000	1.500	.050
SPO-4	M23053/5-214-C	M23053/5-114-X	4	4.000	2.000	.055

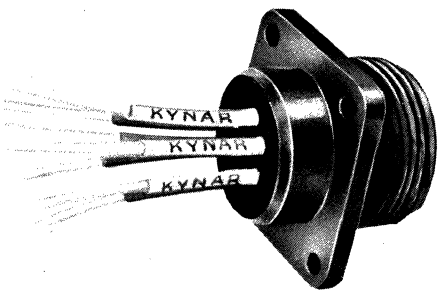
Standard Put-Ups: 4 ft. lengths, 100 ft./pkg. Spools—100 ft and 1000 ft./spool
X Denotes color coding

Also available UL & CSA printed—please specify when ordering.

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

TUBING, SHRINKABLE

KYNAR* TUBING



WEICO'S Kynar is an irradiated, thin-wall, heat-shrinkable tubing offering a high degree of mechanical strength and high-temperature resistance. Kynar is fabricated from polyvinylidene fluoride, hence, their outstanding abrasion resistance and cut-through properties in combination with high dielectric strength. Kynar is inherently flame-retardant and semi-rigid. It is highly resistant to most industrial fuels, chemicals and solvents.

Kynar tubings are recommended for shrink-fit protection and strain relief of wires, solder joints, terminals and connections. Suggested applications include automotive wiring, jackets, fuse coverings and military wire markers. Because the tubing is transparent, it affords see-thru inspection and identification when used as a jacketing for components such as resistors and capacitors. Kynar tubings are readily marked by hot-stamp and print-wheel equipment.

Kynar tubings are rated for continuous operation from —55°C (—67°F) to +175°C (+347°F). The tubings will withstand higher operating temperatures for short time intervals.

Minimum shrink temperature for Kynar tubings is +175°C (+347°F).

Kynar tubings meet the requirements of MIL-I-23053/8, AMS 3632, and are U.L. recognized for 600 volts @ 150°C; U.L. VW-1 rated.

CHARACTERISTICS:
- High Mechanical Strength
- High Temperature

COLOR: Clear

WEICO NO.	MILITARY NO.	SIZE (INCHES)	EXPANDED I.D. MINIMUM (INCHES)	RECOVERED I.D. MAXIMUM (INCHES)	RECOVERED NOM. WALL THICKNESS (INCHES)
SKY-3/64	M23053/8-001-C	3/64	.046	.023	.010
SKY-1/16	M23053/8-002-C	1/16	.063	.031	.010
SKY-3/32	M23053/8-003-C	3/32	.093	.046	.010
SKY-1/8	M23053/8-004-C	1/8	.125	.062	.010
SKY-3/16	M23053/8-005-C	3/16	.187	.093	.010
SKY-1/4	M23053/8-006-C	1/4	.250	.125	.012
SKY-3/8	M23053/8-007-C	3/8	.375	.187	.012
SKY-1/2	M23053/8-008-C	1/2	.500	.250	.012
SKY-3/4	M23053/8-009-C	3/4	.750	.375	.017
SKY-1	M23053/8-010-C	1	1.000	.500	.019
SKY-1 1/2	M23053/8-011-C	1 1/2	1.500	.750	.020

Standard Put-Ups: 4 ft. Lengths

**Pennwalt Chemical Registered Trademark*

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

WEICO TUBING, SHRINKABLE

NEOPRENE TUBING

NEOPRENE very flexible, self-extinguishing, modified polychloroprene tubings combining a high degree of mechanical toughness and oil-resistance with 121°C continuous operating temperature.

WEICO'S Neoprene heat-shrinkable tubings are recommended for applications requiring a tough, highly flexible covering. Neoprene tubings are thick-walled, and provide superior cut-through and abrasion resistance. The tubings are unaffected by common fluids and solvents. Resistance to oils is excellent.

Neoprene tubings maintain flexibility at low temperatures. The tubings are particularly useful for the fabrication and repair of flexible harnesses and wire bundles and for covering of hydraulic couplings. The superior mechanical properties of Neoprene tubings make them ideal choices for the jacketing of cable harnesses and custom-made cables that must operate in severe environmental conditions.

Neoprene tubings are rated for continuous operation from —70°C (—94°F) to +121°C (+250°F). The tubings will withstand higher operating temperatures for short time intervals.

WEICO NO.	MILITARY NO.	SIZE (INCHES)	EXPANDED I.D. MINIMUM (INCHES)	RECOVERED I.D. MAXIMUM (INCHES)	RECOVERED NOM. WALL THICKNESS (INCHES)
SNE-1/8	—	1/8	.125	.072	.030
SNE-3/16	—	3/16	.187	.106	.035
SNE-1/4	M23053/1-201-0	1/4	.250	.125	.035
SNE-3/8	M23053/1-202-0	3/8	.375	.187	.040
SNE-1/2	M23053/1-203-0	1/2	.500	.250	.048
SNE-5/8	M23053/1-204-0	5/8	.625	.312	.052
SNE-3/4	M23053/1-205-0	3/4	.750	.375	.057
SNE-7/8	M23053/1-206-0	7/8	.875	.437	.065
SNE-1	M23053/1-207-0	1	1.000	.500	.070
SNE-1 1/4	M23053/1-208-0	1 1/4	1.250	.612	.087
SNE-1 1/2	M23053/1-209-0	1 1/2	1.500	.750	.095
SNE-1 3/4	M23053/1-210-0	1 3/4	1.750	.875	.107
SNE-2	M23053/1-211-0	2	2.000	1.000	.110
SNE-3	M23053/1-212-0	3	3.000	1.500	.125

COLOR: Black **Standard Put-Ups: Spools**

Minimum shrinkage temperature for neoprene tubings is +135°C (+275°F)

Neoprene tubings can be readily marked by hot-stamp and print-wheel methods.

Neoprene tubings are self-extinguishing and meet the requirements of MIL-I-23053/1 Class 1 & 2; MIL-R-46846, Type 1, Class 1 and AMS 3623.

IRRADIATED POLYOLEFIN MULTIPLE WALL, INNER WALL MELTS

WEICO'S SMW Tubings are rated for continuous operation at temperatures from —55° to + 110°C and will withstand higher operating temperatures for brief time intervals.

WEICO'S SMW Tubings meet the requirements of AMS 3634 and MIL-I-23053/4, Class 1.

WEICO'S SMW is a semi-rigid, 110°C heat-shrinkable polyolefin tubing that is co-extruded and selectively cross-linked to provide an integral, meltable inner wall.

On the application of heat in excess of 135°C WEICO'S SMW Tubing automatically shrinks and closely conforms to the contours of the underlying substrate. The inner meltable wall of the tubing is simultaneously softened and forced by the shrink action into intimate contact with all underlying surfaces, interstices and small voids. Upon cooling, the installed SMW Tubing represents a tough protective and insulating barrier, highly resistant to penetration by moisture and the attack of chemicals and solvents.

WEICO NO.	MILITARY NO.	EXPANDED I.D. MINIMUM (INCHES)	RECOVERED I.D. MAXIMUM (INCHES)	RECOVERED NOM. WALL THICKNESS TOTAL WALL (INCHES)	MELTABLE WALL NOM. (INCHES)
SMW-1/8	M23053/4-101-0	.125	.023	.038	.020
SMW-3/16	M23053/4-102-0	.187	.060	.043	.025
SMW-1/4	M23053/4-103-0	.250	.080	.047	.027
SMW-300	—	.300	.050	.100	.065
SMW-3/8	M23053/4-104-0	.375	.135	.050	.030
SMW-1/2	M23053/4-105-0	.500	.195	.055	.035
SMW-3/4	M23053/4-106-0	.750	.313	.065	.040
SMW-1"	M23053/4-107-0	1.00	.400	.075	.040

COLOR: Black **Standard Put-Ups: 4 ft. Lengths**

WEICO WIRE & CABLE INC. • 161 Rodeo Drive • Edgewood, N.Y. 11717 • TEL 516-254-2970 • FAX 516-254-2099

WIRE GAUGES— DIAMETER, AREA AND COPPER WEIGHT

	Diameter at 20°C (68°F)		Area at 20°C (68°F)			Weight at 20°C (68°F), bare copper wire		
Size, AWG	mils	mm	mils	c mils	mm	lb/1,000 ft.	lb/mile	kg/km
4/0	460.0	11.68	166,200	211,600	107.2	640.5	3,382	953.2
3/0	409.6	10.40	131,800	167,800	85.01	507.8	2,681	755.7
2/0	364.8	9.266	104,500	133,100	67.43	402.8	2,127	599.5
1/0	324.9	8.252	82,891	105,600	53.49	319.5	1,687	477.6
1	289.3	7.348	85,730	83,690	42.41	253.3	1,338	337.0
2	257.6	6.543	52,120	66,360	33.62	200.9	1,061	298.9
3	229.4	5.827	41,330	52,620	26.67	159.3	841.1	237.1
4	204.3	5.189	32,780	41,740	21.15	126.3	667.1	188.0
5	181.9	4.620	25,990	33,090	16.77	100.2	528.8	149.0
6	162.0	4.115	20,610	26,240	13.30	79.44	419.4	118.2
7	144.3	3.665	16,350	20,820	10.55	63.03	332.8	93.80
8	128.5	3.264	12,970	16,510	8.367	49.98	263.9	74.38
9	114.4	2.906	10,280	13,090	6.631	39.61	209.2	58.95
10	101.9	2.588	8,155	10,380	5.261	31.43	166.0	46.77
11	90.7	2.304	6,460	8,230	4.17	24.90	131	37.1
12	80	2.05	5,130	6,530	3.310	19.8	104	29.4
13	72.0	1.83	4,070	5,180	2.63	15.7	82.9	23.4
14	64.1	1.63	3,230	4,110	2.08	12.4	65.7	18.5
15	57.1	1.45	2,560	3,260	1.650	9.87	52.1	14.7
16	50.8	1.29	2,030	2,580	1.31	7.81	41.2	11.6
17	45.3	1.150	1,610	2,050	1.040	6.21	32.8	9.24
18	40.3	1.02	1,280	1,620	0.823	4.92	26.0	7.32
19	35.9	0.912	1,010	1,290	0.653	3.90	20.6	5.81
20	32.0	0.813	804.0	1,020	0.519	3.10	16.4	4.61
21	28.5	0.724	638.0	812.0	0.412	2.46	13.0	3.66
22	25.3	0.643	503.0	640.0	0.324	1.94	10.2	2.88
23	22.6	0.574	401.0	511.0	0.259	1.55	8.16	2.30
24	20.1	0.511	317.0	404.0	0.205	1.22	6.46	1.82
25	17.9	0.455	252.0	320.0	0.162	0.970	5.12	1.44
26	15.9	0.404	199.0	253.0	0.128	0.765	4.04	1.14
27	14.2	0.361	158.0	202.0	0.102	0.610	3.22	0.908
28	12.6	0.320	125	159.0	0.0804	0.481	2.54	0.715
29	11.3	0.287	100.0	128.0	0.0647	0.387	2.04	0.575
30	10.0	0.254	78.50	100.0	0.0507	0.303	1.60	0.450
31	8.9	0.226	62.20	79.2	0.0401	0.240	1.27	0.357
32	8.0	0.203	50.30	64.0	0.0324	0.194	1.02	0.288
33	7.1	0.180	39.60	50.40	0.0255	0.153	0.806	0.227
34	6.3	0.160	31.20	39.7	0.0201	0.120	0.634	0.179
35	5.6	0.142	24.60	31.4	0.0159	0.0940	0.501	0.141
36	5.0	0.127	19.60	25.00	0.0127	0.0757	0.400	0.113
37	4.50	0.114	15.90	20.20	0.0103	0.0613	0.324	0.0912
38	4.0	0.102	12.60	16.0	0.00811	0.0484	0.256	0.0721
39	3.5	0.0889	9.62	12.2	0.00621	0.0371	0.196	0.0552
40	3.1	0.0787	7.55	9.61	0.00487	0.0291	0.154	0.0433
41	2.8	0.0711	6.16	7.84	0.00397	0.0237	0.125	0.0353
42	2.5	0.0635	4.91	6.25	0.00317	0.0189	0.0999	0.0282
43	2.2	0.0559	3.80	4.84	0.00245	0.0147	0.0774	0.0218
44	2.0	0.0508	3.14	4.00	0.00203	0.0121	0.0639	0.0180
45	1.8	0.0457	2.54	3.24	0.00164	0.00981	0.0519	0.0146
46	1.6	0.0406	2.01	2.56	0.00130	0.00775	0.0409	0.0115
47	1.4	0.0356	1.54	1.96	0.000993	0.00593	0.0313	0.00883
48	1.2	0.0305	1.13	1.44	0.000730	0.00436	0.0230	0.00649
49	1.1	0.0279	0.950	1.21	0.000613	0.00366	0.0193	0.00545
50	1.0	0.0254	0.785	1.00	0.000507	0.00303	0.0160	0.00450

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